

Petaluma General Plan

Draft Environmental Impact Report

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prepared by

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Executive Summary

This section summarizes the characteristics of the proposed project, as well as the environmental impacts and recommended mitigation measures for the Petaluma General Plan.

Project Synopsis

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Project Location

Petaluma is located in the greater North Bay region of the San Francisco Bay Area, in Sonoma County. The city is located approximately 39 miles north of San Francisco approximately 17.1 miles south of the City of Santa Rosa, and approximately 20 miles east of the Pacific Ocean. Petaluma is bordered by unincorporated areas of Sonoma County, Petaluma Adobe State Historic Park to the east, and Helen Putnam Regional Park to the southwest edge of the city.

Project Description

This EIR has been prepared to examine the potential environmental effects of the Petaluma General Plan Update (proposed project). The following is a summary of the full project description, which can be found in Section 2, *Project Description*.

The General Plan Update is a comprehensive update of the City's current General Plan 2025. The City of Petaluma General Plan is made up of fifteen elements: Natural Environment; Safety; Flood Resilience; Land Use; Housing; Mobility; Arts, Culture, and Creativity; Economic Development; Noise; Historic Resources; Infrastructure and Utilities; Public Facilities; Parks and Recreation; Health Equity and Environmental Justice; and Implementation and Governance. The Land Use Element describes the general distribution, location, and extent of various land uses.

The General Plan creates and assigns land use designations to facilitate the type and intensity of development that can occur throughout the city through the planning horizon year of 2050 (over approximately 24 years). Proposed areas for increased intensity/density of development under this General Plan include , along corridors such as Petaluma Boulevard North, East Washington, and Petaluma Boulevard South and strategically in the downtown core., Additional areas have been identified for increased density to facilitate the development of 15-Minute City Centers including

Leghorn Plaza Shopping Center. Very few land use changs are proposed in the western hills or at the periphery of the City. Land Use designations along the Petaluma River, where flood risk is high, have reduced development capacity. .

Most of the future development capacity in Petaluma is city-wide through the year 2050, including 6,449 residential units and 1,414,741 square feet of non-residential land uses. Based on the number of new dwelling units projected under buildout of the General Plan, and an assumed persons per unit rate by unit type in 2020, full buildout of the General Plan Update in 2050 would result in an additional estimated 16,445 new residents in Petaluma. When combined with the existing 2020 population of 59,828, the total population of Petaluma in 2050 would be 76,273 persons in 2050.

Project Objectives

The following are objectives of the General Plan Update:

1. Protect, restore, and enhance natural systems within the Plan Area to promote biodiversity and improve ecological health.
2. Revitalize and protect the Petaluma River and tributaries to improve habitat and flood resilience and strengthen Petaluma's river-oriented cultural, civic, and educational opportunities.
3. Reduce Petaluma’s vulnerability to sea level rise and flooding.
4. Advance social and economic justice by addressing systemic inequalities through inclusive policies, equitable investment strategies, and community led decision-making.
5. Support Community health and well-being through safe housing, clean air and water, active transportation, and access to nature.
6. Improve connectivity throughout Petaluma by expanding multimodal routes to safely link residents citywide.
7. Foster an inclusive and welcoming community by creating public spaces and community programs that reflect Petaluma's diversity and support belonging.
8. Expand affordable and diverse housing options by increasing the supply of affordable, workforce, senior, family, and supportive housing and reducing barriers to building housing where it’s most needed.
9. Prioritize infill development to reduce sprawl, support transit, and protect open lands.
10. Preserve and strengthen Petaluma’s historic districts and resources.
11. Provide opportunities for economic development by allowing for flexibility in land use and accommodate a variety of commercial and light industrial uses to meet evolving demands.
12. Facilitate 15-minute city centers to create walkable/bikeable communities throughout the city and reduce reliance on automobiles.
13. Achieve carbon neutrality and build climate resilience by implementing policies, programs and infrastructure to reach carbon neutrality and prioritizing equitable access to clean energy, green jobs, and climate resilient infrastructure.
14. Protect, preserve, and honor Petaluma’s cultural heritage and tribal cultural resources and tribal knowledge.

Required Discretionary Approvals

With recommendations from the City's Planning Commission, the Petaluma City Council will need to take the following discretionary actions in conjunction with the proposed project:

- Certification of the Final EIR
- Adoption of the updated General Plan

Alternatives

As required by the California Environmental Quality Act (CEQA), this EIR examines alternatives to proposed project. Studied alternatives include the following four alternatives.

- Alternative 1: No Project Alternative
- Alternative 2: Focus on the Core
- Alternative 3: Corridor Growth

CEQA requires that an environmentally superior alternative be identified among those analyzed. It further states that if the No Project Alternative is identified as environmentally superior, the next most environmentally superior alternative must also be identified. When taking into account every environmental impact area, Alternative 2 Focus on the Core is the environmentally superior "build" alternative. Refer to Section 6, *Alternatives*, for the complete alternatives analysis.

Areas of Known Controversy

The EIR scoping process did not identify any areas of known controversy for the proposed project. Responses to the Notice of Preparation of a Draft EIR and input received at the EIR scoping meeting held by the City are summarized in Section 1, *Introduction*.

Summary of Impacts and Mitigation Measures

Table ES-1 outlines the potential environmental impacts of proposed project, the proposed mitigation measures, and residual impacts or significance after mitigation. Impacts are defined as significant and unavoidable impacts that require a statement of overriding considerations, pursuant to Section 15093 of the *CEQA Guidelines* if the proposed project is approved; less than significant impacts with mitigation that can be feasibly mitigated to less than significant levels and that require findings to be made under Section 15091 of the *CEQA Guidelines*; less than significant impacts allowed by adopted significance thresholds; and no impact.

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact Statement	Mitigation Measure(s)	Residual Impact
Aesthetics		
Impact AES-1. The General Plan Update would not facilitate development that could substantially obstruct scenic views, including those of hillsides and ridgelines and the Petaluma River. Adherence to General Plan Update policies and Chapter 16 of the Implementing Zoning Ordinance would reduce potential impacts to scenic views and this impact would be less than significant.	No mitigation is required	Less than Significant
Impact AES-2. There are no designated state scenic highways in the vicinity of the proposed project. No impact to scenic resources within a state scenic highway would occur.	No mitigation is required	No Impact
Impact AES-3. Implementation of the proposed project would change land use designations and development standards including residential density, building heights, allowed uses, and parking requirements. However, scenic quality would be protected through adherence to Objective Design Standards, the SmartCode, Historic Commercial District Design Guidelines, and implementation of goals and policies in the Petaluma General Plan and implementing Zoning Ordinance that address visual character and quality of public views. Impacts would be less than significant.	No mitigation is required	Less than Significant
Impact AES-4. Development facilitated by the project would introduce new sources of light and glare in the Plan Area. With adherence to existing ordinances that regulate light and glare for new development, impacts would be less than significant.	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
Agriculture and Forestry Resources		
Impact AG-1. Development facilitated by the project is designed to encourage the continued operation of existing agriculture in and surrounding the Plan Area. Buildout of the General Plan Update would not change existing land use designations such that there would be a decrease of designated agricultural land within the Plan Area. Impacts would be less than significant.	No mitigation is required	Less than Significant
Impact AG-2. The project would not conflict with existing zoning for forest land, timberland, or timberland production, nor result in the loss of forest land or convert forest land to non-forest uses. No impact would occur.	No mitigation is required	Less than Significant
Air Quality		
Impact AQ-1. The proposed project would not conflict with or obstruct implementation of the 2017 Clean Air Plan. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact AQ-2. Construction facilitated by the proposed project would temporarily increase air pollutant emissions, which would affect local air quality. Adherence to Mitigation Measure AQ-1 would reduce construction emissions to a less than significant level. This impact would be less than significant with mitigation incorporated.	**AQ-1. Construction Emissions Screening.** For future development facilitated by the General Plan that does not meet the Bay Area Air Quality Management District (Air District) construction screening criteria provided in the 2022 Air District CEQA Guidelines (or the guidelines in place at the time of development), individual air quality analysis shall be conducted to determine project significance. Where individual projects exceed Air District significance thresholds, emission-reduction measures shall be incorporated to reduce emissions to below thresholds. Construction emission reduction measures may include, but are not limited to, incorporation of Tier 4 and/or alternative fueled equipment, use of onsite power sources instead of generators, and use of low/no-VOC content architectural coatings. Individual project analysis and accompanying emission-reduction measures shall be approved by the City prior to issuance of a grading or building permit.	Less than Significant with Mitigation
Impact AQ-3. Vehicle miles traveled associated with development facilitated by the proposed project would increase at a lower rate than population growth facilitated by the project. Therefore, operational impacts on criteria pollutants would be less than significant.	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
Impact AQ-4. Future development under the General Plan would potentially expose sensitive receptors to substantial pollutant concentrations from existing sources of TACs. Construction activities for individual projects lasting longer than two months or located within 1,000 feet of sensitive receptors could expose sensitive receptors to substantial pollutant concentrations. However, this impact would be less than significant with implementation of Mitigation Measures AQ-2, AQ-3 and AQ-4.	**AQ-2 Construction Health Risk Assessment.** For all individual discretionary projects where construction activities would occur within 1,000 feet of sensitive receptors, would last longer than two months, and would not utilize a fleet comprised only of EPA rated Tier 4 engines and/or alternative fuel construction equipment or equivalent, a construction health risk assessment (HRA) shall be performed.[1] The construction HRA shall be performed by a qualified air quality consultant coordinated through the City. The HRA shall be conducted following the Office of Environmental Health Hazards Association's (OEHHA) 2015 Health Risk Guidelines (OEHHA 2015) and Bay Area Air District guidelines to determine potential risk and compare the risk to the following Air District thresholds: Increased cancer risk of > 10.0 in a million; Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute); or If risk exceeds the thresholds, measures such as requiring the use of Tier 4 and/or alternative fuel construction equipment or equivalent shall be implemented to reduce the risk to below thresholds **AQ-3 Reduce Operational Toxic Air Contaminants Near Sensitive Receptors.** For individual projects that would site sensitive receptors within 500 feet of a freeway, high-volume roadway (urban road with 100,000 vehicles/day or rural road with 50,000 vehicles/day), railyard, or rail line using diesel locomotives, the project applicant shall retain a qualified air quality consultant to prepare an HRA to determine the exposure of new sensitive receptors resulting from the project to existing emission sources. The HRA shall be conducted following the Office of Environmental Health Hazards Association's (OEHHA) 2015 Health Risk Guidelines (OEHHA 2015) and Air District guidelines to determine potential risk and compare the risk to the following Air District thresholds: ▪ Increased cancer risk of > 10.0 in a million; ▪ Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) If risk exceeds the thresholds, measures shall be implemented to reduce the risk to below thresholds. Measures may include, but are not limited to: ▪ Install, operate, and maintain in good working order a central heating and ventilation system or other air take system in the building of a sensitive receptor that would be impacted by the project, or in each individual residential unit, that meets the efficiency standard of the minimum efficiency reporting value (MERV) of 15. The heating and ventilation system should include the following features: installation of a high-efficiency filter and/or carbon filter to minimize particulate and other airborne chemical matter	Less than Significant with Mitigation

[1] Sensitive receptors are that segment of the public most susceptible to respiratory distress as a result of poor air quality, such as children under 14, persons over 65, persons engaged in strenuous work or exercise, and people with pre-existing cardiovascular and chronic respiratory diseases. Locations of sensitive receptors include schools, parks and playgrounds, hospitals, day cares, assisted living facilities, and residential communities (CARB 2005)

Impact Statement	Mitigation Measure(s)	Residual Impact
	from entering the building. Either high-efficiency particulate absorption filters or American Society of Heating, Refrigeration, and Air-Conditioning Engineers 85 percent supply filters should be used. ▪ Ensure that positive pressure occurs in 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 four 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. **AQ-4 Operational Health Risk Assessment**. Prior to permit approval for industrial or commercial land uses that would generate at least 100 diesel trucks per day or 40 or more trucks with diesel-powered transport refrigeration units per day, the applicant shall submit an operational health risk assessment (HRA) or submit proof that an HRA is not required in accordance with Air District thresholds to the City for review and approval. If required by the City, the operational HRA shall be prepared in accordance with the Office of Environmental Health Hazard Assessment and Air District requirements, and mitigated to an acceptable level. If risk exceeds the thresholds, measures shall be implemented to reduce the risk to below thresholds. Measures may include, but are not limited to: ▪ Restricting idling on-site beyond Air Toxic Control Measures idling restrictions, as feasible. ▪ Electrifying warehousing docks. ▪ Truck Electric Vehicle (EV) Capable trailer spaces. ▪ Requiring use of newer equipment and/or vehicles. ▪ Restricting off-site truck travel through the creation of truck routes.	
Impact AQ-5. The project would not create objectionable odors that could adversely affect a substantial number of people. Impacts related to odors would be less than significant**.**	No mitigation is required	Less than Significant
Biological Resources		
Impact BIO-1. Development facilitated by the General Plan Update could have a substantial adverse effect on special-status species. However, implementation of proposed General Plan policies, Federal, state, and local regulations, as well as Mitigation Measures BIO-1 through BIO-7 would ensure that impacts from development facilitated by the General Plan Update on	**BIO-1 Biological Resources Screening and Assessment.** For projects proposed within undeveloped parcels, or when site conditions do not clearly demonstrate that the parcel is fully developed, the City shall require project applicants to engage a qualified biologist (having the appropriate education and experience level) to perform a baseline Biological Resources Screening and Assessment to determine whether projects proposed within undeveloped parcels have any potential to impact special-status biological resources, inclusive of special-status plants and animals, sensitive vegetation communities (including vernal pools and other wetlands), and critical habitat. If it is determined that the project	Less than Significant with Mitigation

Impact Statement	Mitigation Measure(s)	Residual Impact
candidate, sensitive, or special-status species would be less than significant with mitigation incorporated.	has no potential to impact biological resources, no further action is required. If the project would have the potential to impact biological resources, prior to construction, a qualified biologist shall conduct a project-specific biological analysis to document the existing biological resources within a project footprint plus a minimum buffer of 500 feet around the project footprint, as is feasible, to determine the potential impacts to those resources. The project-specific biological analysis shall evaluate the potential for impacts to all biological resources including, but not limited to special-status species, nesting birds, wildlife movement, sensitive plant communities, critical habitats, and other resources judged to be sensitive by local, state, and/or federal agencies. If the project would have the potential to impact these resources Mitigation Measures Bio-2 through Bio-7 shall be required as applicable. Pending the results of the project-specific biological analysis, design alterations, further technical studies (e.g., protocol surveys) and consultations with the USFWS, CDFW, and/or other local, state, and federal agencies may be required. Note that specific surveys described in the mitigation measures below may be completed as part of the project-specific biological analysis where suitable habitat is present. **BIO-2 Special-status Plant Species Surveys.** Where the project-specific Biological Resources Screening and Assessment (Mitigation Measure BIO-1) determines that there is potential for significant impacts to federally or state-listed plants or regional population level impacts to species with a California Rare Plant Rank of 1 or 2 from project development, a qualified biologist shall complete protocol-level surveys for special-status plants prior to any vegetation removal, grubbing, or other construction activity (including staging and mobilization). The surveys shall be floristic in nature, shall be seasonally timed to coincide with the bloom period of the target species, and shall include evaluation of a reference site. All plant surveys shall be conducted by a qualified biologist during the blooming season prior to development permit approval. All special-status plant species identified on site shall be mapped onto a site-specific aerial photograph or topographic map with the use of Global Positioning System unit. Surveys shall be conducted in accordance with the most current protocols established by the CDFW, USFWS, and the local jurisdictions if said protocols exist. A report of the survey results shall be submitted to the City, and the CDFW and/or USFWS, as appropriate, for review and/or approval. If special status plants are not found during special-status plant surveys no further action is required. If federally-and/or state-listed individuals and/or California Rare Plant Rank 1B or 2B populations are found during special status plant surveys, the Mitigation Measures BIO-3 and BIO-4 shall be implemented. **BIO-3 Special-status Plant Species Avoidance, Minimization, and Mitigation.** If federally-listed and/or state-listed individuals, and/or CRPR 1B or 2 plant populations are found during special-status plant surveys (pursuant to Mitigation Measure BIO-2) and would be	

Impact Statement	Mitigation Measure(s)	Residual Impact
	directly impacted, or there would be a population-level impact to non-listed sensitive species, then the project shall be redesigned to avoid impacting those plant species, where feasible. Rare and listed plant occurrences that are not within the immediate disturbance footprint but are located within 50 feet of disturbance limits shall have bright orange protective fencing installed at least 30 feet beyond their extent, or other distance as approved by a qualified biologist, to protect them from harm. Prior to initiation of construction activities the project proponent shall submit a site plan depicting the location(s) of special-status plants and avoidance buffers to the City for review and approval. If special-status plants can be avoided, no further action is required. If federally- and/or state-listed individuals and/or California Rare Plant Rank 1B or 2 plant populations cannot be avoided, then Mitigation Measure BIO-4 shall be implemented. **BIO-4 Habitat Restoration Plan.** If federally or state-listed plants or non-listed special-status CRPR 1 and 2 plant populations identified during special status plant surveys pursuant to Mitigation Measure BIO-2, cannot be avoided pursuant to Mitigation Measure BIO-3, and will be impacted by development, all impacts shall be mitigated by the applicant at a ratio not lower than 1:1 per acre of impact (and 1:1 per individual plant), and to be determined by the City in coordination with CDFW and USFWS for each species as a component of habitat restoration. A qualified biologist shall prepare and submit a restoration plan to the City for review and approval prior to City approval of project plans. (Note: if a federally and/or state-listed plant species will be impacted, the restoration plan shall be submitted to the USFWS and/or CDFW for review, and federal and/or state take authorization may be required by these agencies.) The restoration plan shall include, at a minimum, the following components: 1. Description of the project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type). 2. Goal(s) of the compensatory mitigation project (type[s] and area[s]) of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type[s] to be established, restored, enhanced, and/or preserved). 3. Description of the proposed compensatory mitigation site (location and size, ownership status, existing functions, and values). 4. Implementation plan for the compensatory mitigation site (rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan). 5. Maintenance activities during the monitoring period, including weed removal as appropriate (activities, responsible parties, schedule).	

Impact Statement	Mitigation Measure(s)	Residual Impact
	6. Monitoring plan for the compensatory mitigation site, including no less than quarterly monitoring for the first year (performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved, annual monitoring reports). 7. Success criteria based on the goals and measurable objectives; said criteria to be, at a minimum, 1:1 replacement by number of plants and habitat acreage impacted or other industry standards as determined by a qualified restoration specialist. 8. An adaptive management program and remedial measures to address any shortcomings in meeting success criteria. 9. Notification of completion of compensatory mitigation and agency confirmation. 10. Contingency measures (initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism). 11. All nursery plants used in restoration shall be inspected for sudden oak death and other pathogens or insects/disease of concern. If a federally and/or state-listed plant species has the potential to be impacted, an Habitat Mitigation Plan shall be submitted to the USFWS and/or CDFW for review, and federal and/or state take authorization may be required by these agencies. Within 30 days of completion of monitoring, a final monitoring report shall be submitted to the City for review and approval, documenting compliance with the Habitat Mitigation Plan and achievement of success criteria. **BIO-5 Endangered/Threatened Special-status Species Habitat Assessments and Protocols Surveys.** Where the project-specific biological analysis (Mitigation Measure BIO-1) determines that suitable habitat may be present for federal- or state-listed, candidate, or proposed species, the City shall require protocol habitat assessments/surveys be completed in accordance with current CDFW and/or USFWS protocols prior to issuance of any construction permits. If, through consultation with the CDFW and/or USFWS, it is determined that protocol habitat assessments/surveys are not required, the project applicant shall be required to complete and document this consultation and submit it to the City prior to issuance of any construction permits. Each protocol has different survey and timing requirements. The applicant shall be responsible for ensuring they understand the protocol requirements and shall hire a qualified biologist to conduct protocol surveys. (Note: if a federally and/or state-listed wildlife species will be impacted, federal and/or state take authorization may be required by USFWS and CDFW.) **BIO-6 Endangered/Threatened Animal Species Avoidance and Minimization.** For development facilitated by the plan where potential impacts to aquatic and/or terrestrial animal species are identified by the project-specific Biological Resources Screening and	

Impact Statement	Mitigation Measure(s)	Residual Impact
	Assessment required under Mitigation Measure BIO-1, the following measures shall be applied.: 1. Ground disturbance shall be limited to the minimum necessary to complete the project. A qualified biologist shall flag the project limits of disturbance. Areas of special biological concern within or adjacent to the limits of disturbance shall have highly visible orange construction fencing installed between said area and the limits of disturbance. 2. All projects occurring within/adjacent to aquatic habitats (including riparian habitats and wetlands) shall be completed outside of the breeding season of sensitive aquatic species, If a project cannot avoid work during this period due to technical or safety constraints, the applicant shall obtain approval from the City based on a project-level biological assessment demonstrating that impacts can be avoided or minimized through specific measures, and any required permits or authorizations from applicable resource agencies shall be secured prior to initiating work.. 3. All projects occurring within or adjacent to sensitive habitats that may support federally and/or state-listed endangered/threatened species shall have a CDFW- and/or USFWS-approved biologist present during all initial ground disturbing/vegetation clearing activities. Once initial ground disturbing/vegetation clearing activities have been completed, said biologist shall conduct daily pre-activity clearance surveys for endangered/threatened species. Alternatively, and upon approval of the CDFW and/or USFWS, said biologist may conduct site inspections at a minimum of once per week to ensure all prescribed avoidance and minimization measures are fully implemented. 4. No endangered/threatened species shall be captured and relocated without express permission within a permit from the CDFW and/or USFWS. 5. If at any time during project construction an endangered/threatened species enters the construction site or otherwise may be impacted by the project, all project activities shall cease. A CDFW/USFWS-approved biologist shall document the occurrence and consult with the CDFW and USFWS, as appropriate, to determine whether it is safe for project activities to resume. 6. For all work occurring in areas where endangered/threatened species may be present and are at risk of entering the project site during construction, the applicant shall install exclusion fencing along the project boundaries prior to start of construction (including staging and mobilization). The placement of the fence shall be at the discretion of the CDFW/USFWS-approved biologist. This fence shall consist of solid silt fencing placed at a minimum of three feet above grade and two feet below grade and shall be attached to wooden stakes placed at intervals of not more than five feet. The applicant shall inspect the fence weekly and following rain events and high wind	

Impact Statement	Mitigation Measure(s)	Residual Impact
	events and shall be maintained in good working condition until all construction activities are complete. 7. All vehicle maintenance/fueling/staging shall occur not less than 100 feet, or at a distance as determined by a qualified biologist, from any riparian habitat or water body, including seasonal wetland features. Suitable containment procedures shall be implemented to prevent spills. A minimum of one spill kit shall be available at each work location near riparian habitat or water bodies. 8. No equipment shall be permitted to enter wetted portions of any affected drainage channel or wetland. 9. At the end of each workday, excavations shall be secured with a cover or a ramp provided to prevent wildlife entrapment. 10. All trenches, pipes, culverts, or similar structures shall be inspected for animals prior to burying, capping, moving, or filling. 11. Considering the potential for the project to impact federally and state-listed species and their habitat, the City shall contact CDFW and USFWS to identify mitigation banks within Sonoma County during project development. If the results of the project-specific biological analysis (Mitigation Measure BIO-1) determine that impacts to federally and state threatened or endangered species habitat are expected, City and/or applicant shall explore species-appropriate mitigation bank(s) servicing the region for purchase of mitigation credits. 12. Prior to grading and construction in natural areas of containing suitable upland habitat, a qualified biologist shall conduct a preconstruction survey as determined necessary during the biological analysis (Mitigation Measure BIO-1). The survey should include a transect survey over the entire project disturbance footprint (including access and staging areas), and mapping of suitable habitat features, such as burrows, that are potentially suitable for listed species. If any listed species are detected, no work shall be conducted until the individual(s) leaves the site of their own accord, unless federal and/or state "take" authorization has been issued for relocation. Typical preconstruction survey procedures, such as burrow scoping and burrow collapse, cannot be conducted without federal and state permits. If any life stage of listed species are found within the survey area, the City and/or applicant shall consult with the USFWS and CDFW to determine the appropriate course of action to comply with the FESA and CESA, if permits are not already in place at the time of construction. **BIO-7 Pre-Construction Bird Surveys, Implementation Avoidance Measures, and Provide Notification.** Construction activities initiated during the bird nesting season (February 1 – September 15), involving removal of vegetation (e.g., trees and shrubs), abandoned structures, or other nesting bird habitat, a pre-construction nesting bird survey shall be	

Impact Statement	Mitigation Measure(s)	Residual Impact
	conducted no more than 5 days prior to initiation of ground disturbance and vegetation removal. The nesting bird pre-construction survey shall be conducted on foot and shall include a buffer around the construction site at a distance determined by a qualified biologist, including staging and storage areas. The minimum survey radii surrounding the work area shall be the following: 250 feet for non-raptors and 500 feet for raptors, but shall be adjusted as necessary by a qualified biologist. The survey shall be conducted by a qualified biologist familiar with the identification of avian species known to occur in the region. If construction lapses for seven days or longer, the qualified biologist shall conduct another focused survey before project activities are reinitiated. If nests are found, an avoidance buffer shall be determined by the biologist dependent upon the species, the proposed work activity, existing disturbances associated with land uses outside of the site. The qualified biologist shall observe the active nest to establish a behavioral baseline of the adults and nestlings, if present. The qualified biologist shall continuously monitor the active nests to detect signs of disturbance and behavioral change as a result of construction impacts, such as noise, vibration, odors, or worker/equipment motion. If signs of disturbance and behavioral changes are observed, the qualified biologist shall require that construction causing those changes cease and may contact CDFW or USFWS for guidance. The buffer shall be demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to demarcate the boundary. All construction personnel shall be notified of the buffer zone as an "Ecologically Sensitive Area" and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within the buffer until the biologist has confirmed that breeding/nesting is completed and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist on the basis that the encroachment will not be detrimental to an active nest. A report summarizing the pre-construction survey(s) shall be prepared by a qualified biologist and shall be submitted to the City prior to the commencement of construction activities. Project site plans shall include a statement acknowledging compliance with the federal MBTA and California Fish and Game Code that includes avoidance of active bird nests and identification of Best Management Practices to avoid impacts to active nests, including checking for nests prior to construction activities during February 1 to September 15, and what to do if an active nest is found so that the nest is not inadvertently impacted during grading or construction activities.	

Impact Statement	Mitigation Measure(s)	Residual Impact
Impact BIO-2. Development facilitated by the proposed project would be subject to adopted City regulations to minimize impacts to riparian habitat, sensitive natural communities, and wetlands. The proposed project would be required to comply with the NPDES Construction General Permit, MS4 Storm Water Permit, and proposed policies in the General Plan Update. With implementation of Mitigation Measures BIO-1 And BIO-4 potential impacts to riparian habitat, sensitive natural communities, and wetlands would be less than significant. This impact would be less than significant with mitigation incorporated.	See Mitigation Measures BIO-1 and BIO-4 provided under Impact BIO-1.	Less than Significant with Mitigation
Impact BIO-3. Implementation of the proposed project would not substantially impede the movement of native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors after implementation of proposed policies in the Petaluma General Plan Update. Impacts would be less than significant.	No mitigation is required	Less than Significant
Impact BIO-4. The proposed project would implement proposed policies designed to protect biological resources, specifically the tree ordinance. Development facilitated by the project would be required to adhere to these policies, as well as the Petaluma Municipal Code requirements to protect biological resources. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact BIO-5. Implementation of the proposed project would not conflict with the provision of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impact would occur.	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
Cultural Resources		
Impact CUL-1. Development facilitated by the proposed project would have the potential to impact historical resources. Proposed General Plan policies would reduce potential impacts but would not fully avoid the potential for adverse effects on historical resources. This impact would be significant and unavoidable.	**CUL-1 Historical Resource Protection**. Consistent with Policy HR-1.4 and Action HR-1.4.1, a historical resources evaluation (HRE) shall be prepared for any discretionary project carried out under the proposed project involving the demolition or physical alteration of any building, structure, object, or other built environment feature that is 45 years of age or older. The evaluation shall be prepared by a qualified architectural historian or historian who meets the Secretary of the Interior's (SOI) Professional Qualifications Standards (PQS) in architectural history or history (National Park Service 1983). The qualified architectural historian or historian shall conduct an intensive-level evaluation in accordance with the guidelines and best practices promulgated by the California OHP to identify historical resources within the proposed development site. All properties within and, if appropriate as determined by a qualified architectural historian, immediately adjacent to the proposed development site that are 45 years of age or older and have the potential to be directly or indirectly affected shall be evaluated within their historic context and documented in a report meeting California OHP guidelines. All evaluated properties shall be documented on California Department of Parks and Recreation Series 523 Forms. HREs shall be submitted to the City for review and concurrence. If the property is already listed in the NRHP or CRHR or designated locally in Petaluma, the HRE described above shall not be required. If through an HRE a property is found to not qualify as a historical resource, no additional work relating to historical resources shall be required. If historical resources are identified within or adjacent to a proposed development site, efforts shall be made to the greatest extent feasible to ensure that impacts are mitigated. As applicable, alteration of the resource shall be undertaken in a manner consistent with the SOI Standards. In accordance with CEQA, a project that has been determined to conform with the Standards generally would not cause a significant adverse direct or indirect impact to historical resources (14 CCR Section 15126.4(b)(1)). Application of the Standards shall be overseen by a qualified architectural historian or historical architect meeting the SOI PQS in architectural history or architecture. In conjunction with any development application that may affect a historical resource, an SOI consistency report identifying and specifying the treatment of character-defining features and construction activities shall be prepared by a historian or architectural historian meeting the SOI PQS in history or architectural history and provided to the City for review and concurrence. As applicable, the report shall demonstrate how the project complies with the Standards and be submitted to the City for review and approval prior to the issuance of any permits. If significant historical resources are identified on a development site and compliance with the Standards and/or avoidance is not possible, appropriate site-specific mitigation measures shall be established and undertaken. Mitigation measures may include documentation of the historical resource in the form of a HABS-like report. If required, the	Significant and Unavoidable

Impact Statement	Mitigation Measure(s)	Residual Impact
	report shall comply with the Secretary of the Interior's Standards for Architectural and Engineering Documentation and shall minimally follow the HABS Level III requirements, including digital photographic recordation, detailed historic narrative report, and compilation of historical research. Other types of mitigation that may be considered in addition to HABS-like documentation include, but are not limited to, publicly accessible interpretive signage, commemorative informative web sites, salvage and reincorporation of historical architectural materials and features into new buildings or interpretive displays. The HABS-like documentation or, if applicable, a salvage plan shall be completed by a qualified architectural historian or historian who meets the SOI PQS and submitted to the City of Petaluma Planning Department prior to issuance of any permits for demolition or alteration of the historical resource. Additional documentation shall be prepared by qualified personnel and submitted for review by the city prior to the issuance of a Certificate of Occupancy.	
Impact CUL-2. Development, Construction, and Maintenance Activities facilitated by the proposed project could have the potential to impact archaeological resources. Applicable General Plan Update policies, adherence to state and federal regulations, and implementation of Mitigation Measure CUL-2, impacts to archeological resources would reduce of severity of impacts. This impact would be less than significant with mitigation.	**CUL-2 Archaeological Resources Protection.** Prior to approval of a project that involves ground disturbance activities, the project proponent shall provide an archaeological resources assessment prepared under the supervision of an archaeologist that meets the Secretary of the Interior's Professional Qualification Standards in either prehistoric or historic archaeology (qualified archaeologist) as defined in Code of Federal Regulations, Title 36, Part 61). ▪ Archaeological Resources Assessments shall include a California Historical Resources Information System records search at the Northwest Information Center (NWIC) with a minimum 0.5-mile radius and a Sacred Lands File search maintained by the Native American Heritage Commission. The records searches will characterize the results of previous cultural resource surveys and disclose any cultural resources that have been recorded and/or evaluated in and around a project site. A Phase I pedestrian survey shall be undertaken at a project site to locate any surface cultural materials. A geoarchaeological review (examination of CHRIS and ethnographic data, historical, geological, and soil maps, aerial imagery, geotechnical reports) shall be conducted to assess the potential for the project to encounter unknown archaeological resources during construction. A qualified archaeologist shall identify known archaeological resources and classify the project site as having high, medium, or low sensitivity for unknown archaeological resources. The assessment shall also include recommendations for additional studies and/or mitigation, as necessary, such as monitoring during construction-related ground disturbance. Construction monitoring shall be recommended when archaeological resources are present and/or the assessment identifies a high likelihood of archaeological resources being present. ▪ If the CHRIS search or Phase I archaeological survey identifies resources that may be affected by a project, the archaeological resources assessment shall also include Phase	Less than Significant with Mitigation

Impact Statement	Mitigation Measure(s)	Residual Impact
	II testing and evaluation. If resources are determined significant (i.e., eligible for the CRHR and/or NRHP) or unique the City shall first consider whether avoidance and preservation in place is feasible. and If resource avoidance and preservation in place is not possible, appropriate site-specific mitigation measures shall be identified in the Phase II evaluation. ▪ For archaeological resources found eligible under CRHR Criterion 4/NRHP Criterion D (data potential) that cannot be avoided and will be impacted by the project, mitigation shall include, but would not be limited to, a Phase III data recovery program. The data recovery program shall make provisions for adequately recovering the scientifically consequential information from and about the resource. For archaeological resources that are found eligible under CRHR Criteria 1/NRHP Criteria A (events), 2/B (persons), and/or 3/C (design/craftsmanship) that cannot be avoided and will be impacted by the project, other appropriate mitigation shall be determined by a qualified archaeologist in consultation with the implementing agency and, if the resource is also a tribal cultural resource, Federated Indians of Graton Rancheria Tribal Heritage Preservation Office. Mitigation may include but would not be limited to development of interpretive or educational materials or preservation of all or portions of the archaeological site. ▪ Final disposition of any recovered artifacts or samples, which could include but would not be limited to curation or onsite reburial, shall occur as specified by the qualified archaeologist in consultation with the City and, if the resource is a tribal cultural resource, Federated Indians of Graton Rancheria Tribal Heritage Preservation Office. Artifacts and samples include material recovered from all phases of work, including the Phase I survey, Phase II testing, Phase III data recovery, and construction monitoring.	
Impact CUL-3. Ground-disturbing activities associated with development facilitated by the proposed project may have the potential to adversely impact previously unidentified to human remains. Adherence to existing regulations (California Health and Safety Code Section 7050.5, PRC Section 5097.98) and implementation of Mitigation Measure CUL-2 would reduce the severity of impacts but would not fully avoid potential disturbance. This impact would be less than significant with mitigation.	See Mitigation Measure CUL-2 provided above under Impact CUL-2.	Less than Significant with Mitigation

Impact Statement	Mitigation Measure(s)	Residual Impact
Geology and Soils		
Impact GEO-1. Development facilitated by the proposed project could result in exposure of people or structures to a risk of loss, injury, or death involving rupture of a known earthquake fault. However, required adherence to the CBC and PMC, and implementation of the policies and actions of the General Plan Update, would reduce the potential for loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, including liquefaction and landslides. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact GEO-2. Development facilitated by the proposed project would include ground disturbance such as excavation and grading that would result in loose or exposed soil, increasing the potential for erosion and soil loss. Compliance with applicable regulations, including the NPDES General Permit and PMC, and implementation of policies and actions of the General Plan Update would reduce the potential for erosion and loss of topsoil. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact GEO-3. Development facilitated by the proposed project could be located on geologic units that are unstable or expansive, resulting in potential risks related to landslide, lateral spreading, subsidence, liquefaction, or collapse. However, required adherence to the CBC, PMC, IZO, and implementation of the policies and actions of the proposed project would reduce potential impacts. Impacts would be less than significant.	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
Impact GEO-4. Development facilitated by the proposed project would concentrate growth where existing sewer systems are present. Development occurring in areas of the Urban Growth Boundary without existing sewer systems would be required to connect to the existing municipal system. Therefore, implementation of the proposed project would not result in a significant impact to soils that are incapable of supporting septic tanks or alternative wastewater disposal systems. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact GEO-5. Development facilitated by the proposed project has the potential to impact paleontological resources. This impact would be less than significant with mitigation.	**GEO-1 Paleontological Resources Protection.** Projects involving excavations in sediments with undetermined and/or high paleontological sensitivity as delineated in Figure 4.6-6 and Table 4.6-1 shall be required to prepare a Paleontological Resources Mitigation Plan drafted by a Qualified Paleontologist (pursuant to Society of Vertebrate Paleontology guidelines). The Paleontological Resources Mitigation Plan shall be approved by the City prior to commencement of ground disturbing activities. The Paleontological Resources Mitigation Plan shall be written according to Society of Vertebrate Paleontology standards and shall outline actions that will be followed during excavation activities to ensure the preservation of any discovered paleontological resources. These actions may include, but are not limited to: paleontological sensitivity training, construction monitoring, protocols for paleontological discoveries (i.e., salvage, laboratory preparation, and permanent curation), and final reporting. **GEO-2 Unanticipated Discovery of Paleontological Resources.** Projects involving ground disturbance shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. If a potential fossil is discovered during project construction, construction activity within 50 feet of the find shall cease until the discovery is examined by a Qualified Paleontologist. If the find is determined to be significant, the Qualified Paleontologist shall direct all mitigation efforts related to paleontological resources consistent with the Society of Vertebrate Paleontology standards, which may include, but are not limited to: paleontological monitoring; fossil salvage, preparation, and curation; and reporting to summarize the paleontological mitigation efforts.	Less than Significant with Mitigation

Impact Statement	Mitigation Measure(s)	Residual Impact
Greenhouse Gas Emissions		
Impact GHG-1. Development facilitated by the project would be consistent with the City's Blueprint for Climate Action, including the Blueprint's Cornerstone. However, without an enforcement mechanism for the Blueprint, reductions cannot be guaranteed; therefore, at this time the project would not be consistent with the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045. Therefore, impacts would be significant and unavoidable.	No feasible mitigation exists to reduce the project's potentially significant GHG impacts	Significant and Unavoidable
Hazards and Hazardous Materials		
Impact HAZ-1. Development facilitated by the proposed project may result in the release of hazardous materials in Petaluma and could incrementally increase the risk of hazardous materials releases. Compliance with applicable regulations related to hazardous materials and compliance with General Plan Update policies would minimize the risk of releases and exposure to these materials. Impacts would be less than significant.	No mitigation is required	Less than Significant
Impact HAZ-2. Development facilitated by the project may result in the release of hazardous materials within 0.25 mile of a school. However, compliance with regional and federal regulations related to hazardous materials would minimize the risk of releases and exposure to these materials. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact HAZ-3. Development facilitated by the project could result in development on sites listed pursuant to Government Code Section 65962.5. Development facilitated by the project in these areas could create a hazard to the public or the environment. However, required remediation and compliance with applicable regulations would reduce impacts. This impact would be less than significant.	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
Impact HAZ-4. Development facilitated by the project would not result in a safety hazard or excessive noise from the nearest airport for people residing or working in the project area. Impacts would be less than significant.	No mitigation is required	Less than Significant
Impact HAZ-5. Development facilitated by the project would not result in any physical changes that could interfere with or impair emergency response or evacuation, and the project would not result in interference with these types of adopted plans. Impacts would be less than significant.	No mitigation is required	Less than Significant
Impact HAZ-6. The Plan Area is located adjacent to a Fire Hazard Severity Zone. However, compliance with state and federal regulations and City policies would reduce the risk of loss, injury, or death involving wildland fires. This impact would be less than significant.	No mitigation is required	Less than Significant
Hydrology and Water Quality		
Impact HYD-1. Development facilitated by the proposed project would result in construction and operational activities which may contribute to soil erosion and degraded water quality. Development facilitated by the plan would be required to adhere to State and local water quality regulations and permit requirements for both construction and operation. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact HYD-2. Development facilitated by the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that sustainable groundwater management of the basin would be impeded. Proposed project development would adhere to General Plan Update goals and policies and comply with NPDES requirements. This impact would be less than significant.	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
Impact HYD-3. Development facilitated by the proposed project may alter drainage patterns on individual development sites and incrementally increase overall runoff volumes in the Plan Area, but would not result in substantial erosion or siltation, result in increased flooding, exceed the capacity of existing or planned stormwater drainage systems, or result in substantial additional polluted runoff. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact HYD-4. Reasonably foreseeable development facilitated by the proposed project could occur in flood hazard zones but would be subject to local, state, and federal regulations that govern their location and construction. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact HYD-5. Development facilitated by the proposed project would not interfere substantially with a water quality control plan or Future development would adhere to General Plan Update goals and policies and comply with NPDES requirements. Impacts would be less than significant.	No mitigation is required	Less than Significant
Land Use and Planning		
Impact LUP-1. Implementation of the proposed project would not physically divide an established community. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact LUP-2. Implementation of the proposed project would be consistent with applicable land use plans, policies, or regulations adopted to avoid or mitigate environmental effects. This impact would be less than significant.	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
Noise		
Impact NOI-1. Construction of individual development facilitated by the project would temporarily produce high noise levels, potentially affecting nearby noise-sensitive land uses and Mitigation Measures NOI-1(a) and NOI-1(b) would be required. However, even with implementation of mitigation, construction impacts would be significant and unavoidable.	**NOI-1(a) Project-Specific Construction Noise Study.** A Construction Noise Study, prepared by a qualified noise expert to meet the requirements herein, shall be required for development projects located within 500 feet of noise-sensitive land uses identified in the City's General Plan Noise Element (i.e., residential uses, schools, community buildings, and parks/open space, and hospitals), and that have one or more of the following characteristics: ▪ Construction durations of 18 months or more (excluding interior finishing); ▪ Use of large, heavy-duty equipment rated at 300 horsepower (hp) or greater; ▪ The potential for pile driving; or ▪ Located within 1,000 feet of other construction projects with overlapping construction schedules. The Construction Noise Study shall characterize sources of construction noise, quantify noise levels at noise-sensitive uses (e.g., residential uses, schools, community buildings, parks/open space, and hospitals) and identify measures to reduce noise exposure during the construction period. The Construction Noise Study shall identify reasonably available noise reduction devices or techniques to reduce noise levels to acceptable levels and/or durations including through reliance on any relevant Federal, State, or local standards or guidelines or accepted industry practices. Noise reduction devices or techniques may include but not be limited to silencers, enclosures, sound barriers, and/or placement of restrictions on equipment or construction techniques (e.g., alternative installation methods to pile driving such as cast-in-place systems or pile cushioning). Each measure in the Construction Noise Study shall identify anticipated noise reductions at noise-sensitive land uses. **NOI-1(b) Measure to Reduce Construction Noise.** If the results of the Project-Specific Construction Noise Study described in Mitigation Measure NOI-1(a) show that noise levels associated with an individual project are expected to exceed applicable thresholds, the City of Petaluma shall require construction contractors to implement as many of the following measures as feasible prior to issuance of a demolition, grading, and/or building permit: ▪ **Shielding and Silencing.** Power construction equipment (including combustion engines), fixed or mobile, shall be equipped with noise shielding and silencing devices consistent with manufacturer's standards or the Best Available Control Technology. Equipment shall be properly maintained, and the project applicant or owner shall require any construction contractor to keep documentation on-site during any earthwork or construction activities demonstrating that the equipment has been maintained in accordance with manufacturer's specifications.	Significant and Unavoidable

Impact Statement	Mitigation Measure(s)	Residual Impact
	▪ **Enclosures and Screening.** All outdoor fixed mechanical equipment shall be enclosed or screened from off-site noise-sensitive uses. The equipment enclosure or screen shall be impermeable (e.g., solid material with minimum weight of 2 pounds per square foot) and break the line-of-sight from the equipment and off-site noise-sensitive uses. ▪ **Construction Staging Areas.** Construction staging areas shall be located as far from noise-sensitive uses as reasonably possible and feasible in consideration of site boundaries, topography, intervening roads and uses, and operational constraints. ▪ **Smart Back-Up Alarms.** Mobile construction equipment shall have smart back-up alarms that automatically adjust the sound level of the alarm in response to ambient noise levels. Alternatively, back-up alarms shall be disabled and replaced with human spotters to ensure safety when mobile construction equipment is moving in the reverse direction. ▪ **Equipment Idling.** Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use. ▪ **Workers' Radios.** All noise from workers' radios, including any on-site music, shall be controlled such that they are not audible at off-site noise-sensitive uses. ▪ **Use of Driven Pile Systems.** Driven (impact), sonic, or vibratory pile drivers shall not be used, except in locations where the underlying geology renders alternative methods infeasible, as determined by a soils or geotechnical engineer and documented in a soils report. ▪ **Temporary Noise Barriers.** Temporary sound barriers, such as walls or sound blankets, shall be positioned between construction activities and noise-sensitive uses when modeled noise levels from construction equipment exceed applicable standards and have a direct line of sight with noise sensitive receivers. Placement, orientation, size, and density of acoustical barriers shall be specified by a qualified acoustical consultant. ▪ **Noise Complaint Response.** Project applicants shall designate an on-site construction project manager who shall be responsible for responding to any complaints about construction noise. This person shall be responsible for responding to concerns of neighboring properties about construction noise disturbance and shall be available for responding to any construction noise complaints during the hours that construction is to take place. They shall also be responsible for determining the cause of the noise complaint (e.g., bad silencer) and shall require that reasonable measures be implemented to correct the problem. A toll-free telephone number and email address shall be posted in a highly visible manner on the construction site at all times and provided in all notices (mailed, online website, and construction site postings) for receiving questions or complaints during construction and shall also include procedures requiring that the on-site construction manager respond to callers and email messages. The on-site construction project manager shall be required to track complaints pertaining to construction noise, ongoing throughout demolition, grading, and/or	

Impact Statement	Mitigation Measure(s)	Residual Impact
	construction and shall notify the City's Community Development Director of each complaint occurrence. Project applicants shall be required to comply with all requirements of Mitigation Measures NOI-1(a) and NOI-1(b) in addition to any additional requirements identified and recommended by the Construction Noise Study and shall maintain proof that notice of, as well as compliance with, the identified measures have been included in contractor agreements.	
Impact NOI-2. Operation of development facilitated by the project would introduce noise from new stationary noise sources; however, noise levels would not exceed applicable noise standards and stationary operational noise impacts would be less than significant. also increase transportation noise but impacts would be less than significant.	No mitigation is required	Less than Significant
Impact NOI-3. Construction of individual development projects facilitated by the proposed project could temporarily generate levels of groundborne vibration that exceed City vibration thresholds at nearby structures and Mitigation Measure NOI-2 would be required. Construction vibration impacts would be less than significant with mitigation.	**NOI-2. Construction Vibration Control Plan.** Prior to issuance of a building permit for an individual project involving the use of the following construction equipment within the specified distances of nearby building structures, the project applicant shall prepare a groundborne vibration analysis to assess and mitigate potential vibration impacts associated with construction activities: ▪ Use of a pile driver within: ▫ 135 feet of fragile/historic structures ▫ 100 feet of non-engineered timber and masonry buildings (e.g., most residential buildings) ▫ 75 feet of engineered concrete and masonry (no plaster) ▪ Use of a vibratory roller within: ▫ 40 feet of fragile/historic structures ▫ 25 feet of any other structure (residential, commercial, or industrial) ▪ Use of a dozer or other large earthmoving equipment within: ▫ 20 feet of fragile/historic structures ▫ 15 feet of any other structure (residential, commercial, or industrial) The vibration analysis shall be conducted by a qualified and experienced acoustical consultant or engineer. The vibration levels generated by construction equipment shall not exceed City vibration thresholds for architectural damage (i.e., 0.12 in/sec PPV at fragile/historic structures, 0.2 in/sec PPV at non-engineered timber and masonry buildings,	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
	and 0.3 in/sec PPV for engineered concrete and masonry structures). If vibration levels would exceed these thresholds, alternative methods and equipment, such as drilling piles as opposed to pile driving, use of static rollers as opposed to vibratory rollers, and use of lower horsepower equipment as applicable, shall be employed. If necessary, such as when high-vibration equipment may be used within close proximity to a fragile/historic structure, construction vibration monitoring shall be conducted to ensure the City's vibration thresholds are not exceeded at nearby structures.	
Impact NOI-4. Operation of development facilitated by the proposed project may include new sources of vibration; however, vibration levels generated would not be expected to exceed applicable vibration thresholds. Operational impacts would be less than significant.	No mitigation is required	Less than Significant
Impact NOI-5. The project would not expose people residing or working in the Plan Area to excessive airport-related noise levels. This impact would be less than significant.	No mitigation is required	Less than Significant
Population and Housing		
Impact POP-1. Implementation of the proposed project would not directly or indirectly induce substantial unplanned population growth. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact POP-2. Implementation of proposed project would not result in the displacement of substantial numbers of housing or people. This impact would be less than significant.	No mitigation is required	Less than Significant
Public Services and Recreation		
Impact PS-1. Development facilitated by the proposed project would increase the population in the planning area, which would result in an increase in demand for fire protection, police protection, and libraries. Compliance with proposed policies in the General Plan Update, Petaluma Municipal Code Title 19, and required environmental review for future projects facilitated by the General Plan Update would minimize adverse environmental effects associated with the	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
provision or new or physically altered fire, police, or library facilities. These impacts would be less than significant.		
Impact PS-2. The proposed project would result in a population increase that would increase demand for school services and potentially create the need for new school facilities. Future development facilitated by the project would be required to pay impact fees that would provide funding for the provision or expansion of new school facilities, pursuant to Government Code Section 65995(b). This impact would be less than significant.	No mitigation is required	Less than Significant
Impact PS-3. Development associated with the proposed project would increase the Plan Area's population and the use of existing parks and recreational facilities and thus reduce the City's parkland to population ratio. However, the City's parkland to population ratio already exceeds state and local standards, and the dedication of parkland or payment fees pursuant to both the Quimby Act and PMC Chapters 19.16 and 20.34 would be required prior to development of individual projects. Impacts would be less than significant.	No mitigation is required	Less than Significant
Transportation		
Impact TRA-1. The proposed project would include modifications to existing transit, roadway, bicycle, or pedestrian facilities and would not interfere with transportation projects identified in existing programs, plans, ordinances, or policies. The proposed project includes actions which would promote the use of transit, roadway, bicycle, and pedestrian facilities. The proposed project would have a less than significant impact related to conflicts with programs, plans, ordinances, or policies addressing the circulation system.	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
Impact TRA-2. The proposed project would result in per capita vehicle miles traveled that would exceed both the City's adopted vehicle miles traveled reduction threshold and the CARB 2022 Scoping Plan recommendations for Vehicle Miles Traveled Reductions. This impact would be significant and unavoidable.	**TRA-1 Community Based VMT Reduction Program.** To achieve measurable reductions in per capita VMT consistent with the City's adopted SB 743 VMT thresholds (Resolution No. 2021-112) and to inform long-range planning alignment with the 2022 CARB Scoping Plan (30% reduction), the proposed project would be required to implement the following actions: ▪ **VMT reduction and banking:** Per action TDM-3 of the Blueprint for Climate Action, adopt a VMT-based development impact fee program in coordination with SCTA. ▪ **Universal Basic Mobility Program:** Per action TDM-4 of the Blueprint for Climate Action, evaluate the feasibility of funding a transportation benefits program, e.g. Universal Basic Mobility Program, for existing low-income residents in disadvantaged neighborhoods. Conduct a survey of low-income residents in disadvantaged communities to understand financial, logistical, and informational barriers to transportation to inform a Universal Basic Mobility program. ▪ **Parking Reform:** Per actions PM-1 through PM-3 of the Blueprint for Climate Action, establish parking management policies and standards to balance supply and demand, to reduce demand for parking and single-occupancy vehicle use, and to meet target utilization rates at key destinations through the use of dynamic pricing. ▪ **Active Transportation Network Completion:** Per action AT-1 of the Blueprint for Climate Action, implement a citywide low-stress bicycle and pedestrian network, including connections to SMART stations, schools, and neighborhood hubs. ▪ **Mobility Hubs:** Per actions TLUC-4: General Plan implementation of the Blueprint for Climate Action, construct multimodal hubs at transit nodes integrating bike share, scooter share, EV car share, EV and e-bike charging, and real-time transit information. ▪ **Transit Enhancements:** Per Actions TS-1 through TS-6 of the Blueprint for Climate Action, expand Petaluma Transit service frequency and coverage and provide enhanced connections to transit stops. ▪ **Neighborhood-Level Incentives:** Provide e-bike rebates, subsidized regional transit passes, and car-share credits to residents. **TRA-2 Employer Based VMT Reduction Program. To** reduce commute-related VMT the proposed project shall require employers to demonstrate reductions in home-based work VMT per employee consistent with City thresholds through the following actions: ▪ **City employee Transportation Demand Management Program.** Per action ETDM 1 through ETDM 3 of the Blueprint for Climate Action, establish a plan to reduce employee single-occupancy vehicle trips, engage with employees, and adapt the program based on surveys. ▪ Employer TDM Policy. Per TDM-1 of the Blueprint for Climate Action, adopt a modern TDM policy for employers that requires employers to submit an emission reduction plan	Significant and Unavoidable

Impact Statement	Mitigation Measure(s)	Residual Impact
	to the City to meet the City's greenhouse gas reduction targets as outlined in the Blueprint for Climate Action. This should include a range of strategies listed in the Blueprint such as transit and micromobility subsidies, and on-site secure bicycle parking and parking management strategies. **TRA-3 Safe Routes to School Program and Monitoring.** To increase walking and bicycling for school-related trips, reduce school-related VMT, and align programs with the buildout of the ATP network, the proposed project shall implement the following actions consistent with City mobility and climate goals: ▪ **Implement TDM in schools:** Per action TDM-6 of the Blueprint for Climate Action, partner with Petaluma schools to voluntarily implement TDM plans and parking management strategies. ▪ **Ongoing Program Updates:** Implement a Safe Routes to School (SR2S) monitoring and update process every five to ten years or following completion of major ATP corridors or school-area improvements consistent with action AT-4 of the Blueprint for Climate Action. Updates shall incorporate the most recent network buildout, confirm new walking and bicycling catchment areas for each campus, and identify remaining gaps or emerging safety issues. ▪ Annual Monitoring: Review SR2S participation levels, mode share, travel patterns, and safety outcomes annually. Monitoring shall include coordination with schools, parent groups, and partner agencies to collect information on student travel, identify barriers, and confirm where new ATP projects or safety treatments may change access patterns. ▪ Safety Data Tracking: Track school-related collision data and traffic stress conditions for walking and bicycling routes. ▪ Program Enhancements: Updated SR2S guidance shall include strategies such as enhanced crossing treatments, traffic calming around schools, expanded education and encouragement programs, and targeted enforcement measures that support safe travel. ▪ School Reporting: Require participating schools to submit annual summaries documenting program activities, changes in mode share, and operational issues affecting student travel. ▪ Corrective Actions: If performance targets are not met, the City shall consider corrective actions such as prioritizing new ATP projects near schools, adjusting program resources, expanding education efforts, or modifying school arrival and dismissal traffic management plans. ▪ Funding Allocation: Apply available program funds toward improvements and activities that support SR2S goals of increasing safety, expanding equitable access, and promoting active travel for students.	

Impact Statement	Mitigation Measure(s)	Residual Impact
Impact TRA-3. The proposed project would include actions that promote the safe design of transportation facilities throughout Petaluma. Future roadway improvements and site access Design would be subject to review and approval by the City which would minimize transportation hazards due to geometric design features or incompatible uses. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact TRA-4. The proposed project would include actions that promote adequate emergency access throughout Petaluma. Future roadway improvements and site access measures would be subject to review and approval by the Petaluma Fire Department which would minimize the potential for inadequate emergency access. This impact would be less than significant.	No mitigation is required	Less than Significant
Tribal Cultural Resources		
Impact TCR-1. Development facilitated by the proposed project would involve land disturbance, which has the potential to impact tribal cultural resources. Impacts would be less than significant with mitigation.	**TCR-1 Avoidance of Tribal Cultural Resources.** When feasible, development facilitated by the project shall be designed to avoid known tribal cultural resources. The feasibility of avoiding tribal cultural resources shall be determined by the City in consultation with FIGR, as required by State law. **TCR-2 Tribal Cultural Resource Plan.** A Tribal Cultural Resources (TCR) Plan shall be required for development occurring in areas identified as potentially sensitive for tribal cultural resources during consultation with FIGR. If the project includes ground disturbance, the TCR Plan shall include a TCR treatment plan to be implemented if a tribal cultural resource is identified during construction. The treatment plan shall include any necessary monitoring requirements, suspension of all earth-disturbing work in the vicinity of the find, avoidance of the resource or, if avoidance of the resource is infeasible, the plan shall outline the appropriate treatment of the resource in coordination and consultation with the FIGR and, if applicable, a qualified archaeologist. Examples of appropriate treatment for tribal cultural resources include, but are not limited to, protecting the cultural character and integrity of the resource, protecting traditional use of the resource, protecting the confidentiality of the resource, or heritage recovery. The TCR Plan and treatment plan shall be reviewed and accepted by the City and FIGR to confirm compliance with this measure prior to construction.	Less than Significant with Mitigation

Impact Statement	Mitigation Measure(s)	Residual Impact
	TCR-3 Native American Monitoring. For development activities occurring in areas identified as potentially sensitive for tribal cultural resources through consultation with FIGR, the project applicant/proponent shall retain a FIGR Tribal monitor to observe ground disturbance as requested by FIGR through the consultation process. If a FIGR Tribal monitor is not available, a qualified archeologist from FIGR's preferred list of archaeologists will be contacted instead for monitoring purposes. Monitoring methods and requirements shall be outlined in a tribal cultural resources treatment plan prepared as described above under Mitigation Measure TCR-2. In the event of a discovery of tribal cultural resources, the steps identified in the TCR treatment plan prepared under Mitigation Measure TCR-2 shall be implemented. **TCR-4 Sensitive Location of Human Remains.** For any development facilitated by the project where human remains are expected to be present based on the results of tribal consultation and/or as identified by a qualified archaeologist, the City shall consult with FIGR on the decision to employ a canine forensics team. If a canine forensics team is employed, the City shall require the team to attempt to identify human remains in a noninvasive way (e.g., non-excavation). Any requirements for the use of a canine forensics team shall be documented in the TCR treatment plan prepared under Mitigation Measure TCR-2. The tribal cultural resources treatment plan may require revisions to the design of development facilitated the project or an addendum to the treatment plan in the event that human remains are identified, with avoidance as the preferred recommendation, as set forth in Mitigation Measure TCR-1.	
Utilities and Service Systems		
Impact UTIL-1. Development facilitated by the proposed project would increase demand for utility infrastructure; however, no substantial relocation or construction of utility services would be required to serve development facilitated by project beyond existing conditions. Existing wastewater treatment capacity is adequate to serve the project's projected demand. Impacts would be less than significant.	No mitigation is required	Less than Significant
Impact UTIL-2. Development facilitated by the proposed project would increase demand for water. The City has adequate water supply to provide for development facilitated by the proposed project during normal years and multiple dry years, but would experience a supply shortfall in a single-dry year. Implementation of the City's Water Shortage	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
Contingency Plan and compliance with General Plan policies would reduce demand such that the City would have sufficient supply through 2050 in all year types. Water supplies would be adequate to support new development. This impact would be less than significant.		
Impact UTIL-3. Development facilitated by the proposed project would increase the volume of solid waste generated in Petaluma. However, new development would comply with state and local standards for waste reduction and local infrastructure serving the city has adequate capacity to accept the additional waste. Impacts would be less than significant.	No mitigation is required	Less than Significant
Wildfire		
Impact W-1. Buildout of the proposed project would result in new development in Petaluma. The General Plan Update includes policies to address emergency access, response, and preparedness. Therefore, the proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact W-2. The proposed project includes policies to ensure development would not exacerbate wildfire risk due to slope, prevailing winds, or other factors. Furthermore, development facilitated by the proposed project would adhere to the CFC and be reviewed by the Petaluma Fire Department to ensure wildfire risk would not be exacerbated. This impact would be less than significant.	No mitigation is required	Less than Significant
Impact W-3. The proposed project would facilitate growth primarily as infill and redevelopment within urbanized areas of the city where infrastructure and roads currently exist. The proposed project would not require the installation or maintenance of substantial infrastructure that may exacerbate fire risk or result in	No mitigation is required	Less than Significant

Impact Statement	Mitigation Measure(s)	Residual Impact
temporary or ongoing impacts to the environment associated with fire risk. This impact would be less than significant.		
Impact W-4. The proposed project includes wildfire resiliency policies to ensure development would not exacerbate risks from flooding or landslides due to wildfire. This impact would be less than significant.	No mitigation is required	Less than Significant

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1 Introduction

This Environmental Impact Report (EIR) examines the potential environmental effects of the proposed City of Petaluma General Plan Update, referred to herein as the proposed project or General Plan Update. The environmental review process for the proposed project and the legal basis for preparing an EIR under the California Environmental Quality Act (CEQA), are described below.

1.1 Environmental Impact Report Background

This document is an EIR that evaluates the potential environmental impacts associated with the implementation of the City of Petaluma General Plan Update. The proposed project establishes the community's vision for the future development of the City of Petaluma and provides comprehensive policies relating to the natural environment, historic and cultural resources, safety, flood resilience, land use, housing, mobility, parks and recreation, public facilities, infrastructure and utilities, economic development, arts, culture and creativity, environmental justice, health and equity, and noise.

This section of the EIR:

1. Provides an overview of the background behind the proposed project
2. Describes the purpose of and legal authority of the EIR
3. Summarizes the scope and content of the EIR
4. Describes the intended uses of the EIR
5. Lists lead, responsible, and trustee agencies for the EIR
6. Provides a synopsis of the environmental review process required under CEQA

The contents of other EIR sections are as follows:

- Section 2, *Project Description*, provides a detailed discussion of the proposed project
- Section 3, *Environmental Setting*, describes the general environmental setting for Petaluma
- Section 4, *Environmental Impact Analysis*, describes the potential environmental effects associated with development facilitated by the proposed project
- Section 5, *Other CEQA Required Discussions*, discusses issues such as growth inducement and significant irreversible environmental effects
- Section 6, *Alternatives*, discusses alternatives to the proposed project, including the CEQA-required "no project" alternative
- Section 7, *References*, lists informational sources for the EIR and persons involved in the preparation of the document

1.2 Overview of the City of Petaluma General Plan Update

State law (Government Code Section 65300) requires that each city and county adopt a comprehensive general plan. The existing City of Petaluma General Plan 2025 was originally adopted in 2008.

The General Plan Update is a comprehensive update to the current General Plan. It reflects the current needs, values, and preferences of the community, as well as the current State law requirements for general plans. This General Plan includes the City's adopted Housing Element for the 2023 to 2031 Regional Housing Needs Assessment (RHNA), which was adopted in early 2023. It is expected that updates to the housing element will occur periodically in compliance with state law over the life of the General Plan Update.

The General Plan Update covers all the topics that are required to be included in a general plan under State law (Government Code Section 65302), which are Land Use, Open Space, Conservation, Housing, Safety, Environmental Justice, and Noise.

Because the General Plan Update serves as a constitution for future development in Petaluma, decisions by the City affecting land use and development must be consistent with the General Plan Update. This includes development projects that may be proposed in the future. An action, program, or project would be considered consistent with the General Plan Update if, considering all its aspects, it will further the goals and policies of the General Plan or not obstruct their attainment.

The General Plan Update contains goals, policies, and programs to implement the City's overarching vision and guiding principles . Goals are statements that provide direction for a topic and that state the desired end condition. Policies guide a specific course of action for decision-makers to achieve a desired goal. Programs identify the specific steps to be taken by the City to implement the policies.

1.3 Purpose and Legal Authority

This EIR has been prepared in accordance with CEQA and the *CEQA Guidelines*. In accordance with Section 15121 (a) of the CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3), the purpose of an EIR is to:

> …inform public agency decision makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.

This EIR fulfills the requirements for a Program EIR. Although the legally required contents of a Program EIR are the same as those of a Project EIR, Program EIRs are by necessity more conceptual and may contain a more general discussion of impacts, alternatives, and mitigation measures than a Project EIR. As provided in Section 15168 of the *CEQA Guidelines,* a Program EIR may be prepared on a series of actions that may be characterized as one large project. Use of a Program EIR provides the City of Petaluma, as Lead Agency, the opportunity to consider broad policy alternatives and program-wide mitigation measures and provide the City with greater flexibility to address environmental issues and/or cumulative impacts on a comprehensive basis. Agencies generally prepare Program EIRs for programs or a series of related actions that are linked geographically, are logical parts of a chain of contemplated events, rules, regulations, or plans that govern the conduct of a continuing program, or are individual activities carried out under the same authority and having generally similar environmental effects that can be mitigated in similar ways. By its nature, a Program EIR considers the broad effects associated with implementing a program (such as a General Plan or Specific Plan) and does not, and is not intended to, examine the specific environmental effects associated with specific projects that may be accommodated by the provisions of General or Specific Plans.

Once a Program EIR has been prepared, subsequent activities within 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 within the Program EIR scope and additional environmental documentation may not be required (*CEQA Guidelines* Section 15168[c]). When a Lead Agency relies on a Program EIR for a subsequent activity, it must incorporate applicable 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 contemplated or not within the scope of the Program EIR, the Lead Agency must prepare a new Initial Study leading to an exemption, Negative Declaration, Mitigated Negative Declaration, or a project-level EIR. In this case, the Program EIR still serves a valuable purpose as the first-tier environmental analysis. Section 15168(b) of the *CEQA Guidelines* encourages the use of Program EIRs, citing five advantages:

1. Provision of a more exhaustive consideration of impacts and alternatives than would be practical in an individual EIR
2. Focus on cumulative impacts that might be slighted in a case-by-case analysis
3. Avoidance of continual reconsideration of recurring policy issues
4. Consideration of broad policy alternatives and programmatic mitigation measures at an early stage when the agency has greater flexibility to deal with basic problems or cumulative impacts
5. Reduction of paperwork by encouraging the reuse of data (through tiering)

As a wide-ranging environmental document, the Program EIR uses expansive thresholds as compared to the project-level thresholds that might be used for an EIR on a specific development project. It should not be assumed that impacts determined not to be significant at a program level would not be significant at a project level. In other words, determination that implementation of the proposed project as a program would not have a significant environmental effect does not necessarily mean that an individual project would not have significant effects based on project-level CEQA thresholds, even if the project is consistent with the General Plan Update.

This EIR has been prepared to analyze potentially significant environmental impacts associated with future development resulting from implementation of the proposed project and addresses appropriate and feasible mitigation measures or project alternatives that would minimize or eliminate these impacts. Additionally, this EIR will provide the primary source of environmental information for the City, which is the Lead Agency, to use when considering the proposed project.

This EIR is intended to provide decision makers and the public with information that enables informed consideration of the environmental consequences of the proposed project. This EIR identifies significant or potentially significant environmental effects, as well as ways in which those impacts can be reduced to less-than-significant levels, whether through the imposition of mitigation measures or through the implementation of specific alternatives to the proposed project. In a practical sense, this document functions as a tool for fact-finding, allowing concerned citizens and City staff an opportunity to collectively review and evaluate baseline conditions and project impacts through a process of full disclosure.

1.4 Scope and Content

In accordance with the *CEQA Guidelines*, a Notice of Preparation (NOP) of a Draft EIR was circulated to potentially interested parties on August 8, 2025. The NOP, included in Appendix A, indicated that the EIR would evaluate potential impacts in each of the following resources and issue areas:

- Aesthetics
- Agricultural and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- Cumulative Effects
- Growth-Inducing Effects

The City staff circulated the NOP of this EIR and received 17 written comments. The comments, included in Appendix A, are addressed, as appropriate, in the analysis contained in the various subsections of Section 4, *Environmental Impact Analysis*. The City staff also conducted one EIR scoping meeting on August 21, 2025. A summary of the comments received at the meetings is included at the end of Appendix A. Table 1-1 summarizes the content of the letters and verbal comments received during the NOP public review period and where the issues raised are addressed in the EIR.

The focus of this EIR is to:

- Provide information about the environmental impacts of General Plan Update for consideration by the City Council in its selection of the proposed project, an alternative to the proposed project, or a combination of various elements from the proposed project and its alternatives, for approval.
- Review and evaluate the potentially significant environmental impacts that could occur as a result of the growth and development envisioned in the General Plan Update.
- Identify feasible mitigation measures that may be incorporated into the General Plan Update to reduce or eliminate potentially significant effects.
- Disclose any potential growth-inducing and/or cumulative impacts associated with the proposed project.
- Examine a reasonable range of alternative growth scenarios, including growth according to the existing General Plan, reduced growth, and increased employment growth that could feasibly attain the basic objectives of the proposed project, while eliminating and/or reducing some or all of its potentially significant adverse environmental effects.

Table 1-1 NOP Comments and EIR Response

Topic	Comment/Request	How and Where It Was Addressed
Public Comments		
Project Description	Request to include worst case scenario and growth projections.	Worst case scenarios are not required to be analyzed under CEQA. However, growth projections and potential impacts from development under the General Plan are addressed in Section 3.0, *Project Description.*
Cumulative Impacts	Request to assess impacts of projected growth in the area.	The nature of cumulative development and impacts are discussed in Section 3, *Environmental Setting*. As explained therein, the analysis of project impacts also constitutes the cumulative analysis.
Aesthetics	Request to protect the small-town character of Petaluma by limiting building heights.	Impacts to scenic resources are addressed in Section 4.1, *Aesthetics.* General Plan policies LU-2.4, LU-3.1, LU-5.1, and LU-10.1maintain neighborhood scale, limit building intensity, and preserve public viewsheds.
	Request to remove and replace the Petaluma River trestle.	
	Request to include light pollution in analysis.	Impacts related to light pollution are addressed in Section 4.1, *Aesthetics.* The Petaluma Zoning Ordinance regulates light spillover and glare and would be applicable to future development facilitated by the General Plan.
Air Quality	Request to include air rights in analysis.	Air quality impacts are addressed in Section 4.3, *Air Quality.* The General Plan complies with local, regional, state, and federal air quality regulations and permitting requirements.
Biological Resources	Request to include wildlife habitats in analysis.	Wildlife habitats are addressed in Section 4.4, *Biological Resources.*
	Recommendation to include baseline habitat assessments and surveys for special-status plant, fish, and wildlife species located or potentially located in the project area.	Special-status species are discussed within Section 4.3, *Biological Resources*. General Plan goal NAT-2, NAT-3, and NAT-5, together with their implementing policies support conservation of habitat and special status species.
	Request to evaluate impacts related to riparian habitats, drainage ditches, wetlands, special-status species, removal of habitat features, permanent and temporary habitat disturbances, and obstruction of movement corridors.	
Cultural Resources	Requests for an updated historic resources survey.	Potential impacts to cultural resources and historic resources that have previously been identified are addressed in Section 4.5, *Cultural Resources,* outlining protections under federal, state, and local regulations. A Historic Resources Background Report prepared by the firm Page & Turnbull for the City of Petaluma is incorporated into Section 4.5, *Cultural Resources*, to inform the General Plan Update's impact on historic resources.
Energy	Concerns about power generation and electricity demand.	Power generation and electricity demands are discussed within Section 4.18, *Impacts Found to be Less than Significant.* The General Plan Update complies with state energy standards and includes policies that promote energy efficiency and renewable energy use.

Topic	Comment/Request	How and Where It Was Addressed
Hazards and Hazardous Materials	Concerns about density impacting congestion and evacuation routes.	Evacuation congestion and emergency access are discussed in Section 4.8, *Hazards and Hazardous Materials.*
Hydrology and Water Quality	Request to maintain consistency with adopted Groundwater Sustainability Plan (GSP).	Hydrology, drainage, and water quality impacts are discussed in Section 4.9, *Hydrology and Water Quality.*
	Request to include mitigation to minimize impacts on groundwater resources.	
	Request to limit development in flood-prone areas along the Petaluma River and Slough to reduce climate-related risks.	
Land Use and Planning	Request to look at intensification of land use in the City of Sonoma.	Land use intensification and strategic development locations within city limits are addressed in Section 4.10, *Land Use and Planning*.
	Concern about indirect impacts of business growth on regional infrastructure.	Potential indirect impacts of business growth on regional infrastructure are discussed in Section 4.10, *Land Use and Planning.*
Noise	Requests to implement Quiet Zones in residential areas near train tracks and commercial developments.	Noise concerns are addressed in Section 4.11, *Noise.* General Plan Policies NOI-1.1, NOI-1.4, NOI-2.1, NOI-1.5, NOI-1.7, NOI-3.1, NOI-3.2, and NOI-3.5, aims to minimize existing and future noise impacts.
Population and Housing	Request to account for changes on vested housing projects.	Housing concerns are addressed in Section 4.12, *Population and Housing,* outlining cumulative development in its analysis of population and housing impacts.
Recreation	Concerns about development impacting nature trails and access to nature.	Impacts to recreational areas are addressed in Section 4.18, *Impacts Found to be Less than Significant*.
	Request to recognize City Hall Green as a designated park.	The designation of formal parks is not required under CEQA. However, Goal P-1.1, P-1.2, P-1.3, P-1.4, P-4.1, P-4.2, P-4.4, and P-4.7 supports the expansion and maintenance of recreational spaces.
Transportation	Concern about increased traffic due to increased density.	Impacts to traffic, specifically impacts related to vehicle miles travelled (VMT) and public transportation capacity are addressed in Section 4.14, *Transportation.* Pursuant to SB 743, level of service is no longer required to be analyzed under CEQA, instead this analysis focuses on VMT.
	Concern about public transportation capacity with increased density.	
	Concern about definition of parking around transit hubs.	Under CEQA, a project's social impacts are not considered environmental impacts and therefore do not, in themselves, constitute significant effects on the environment. However, an EIR must evaluate secondary physical impacts that may result from social impacts. As such, parking scarcity alone is not treated as a significant environmental impact. Instead, the potential for secondary physical effects associated with limited parking must be assessed on a case-by-case basis (see, *Save Our Access-San Gabriel Mountains v. Watershed Conservation Authority* (2021) 68 Cal.App.5th 8). Secondary impacts were considered in Section 4.3, *Air Quality*, and the transportation impact analysis, as discussed further within Section 4.14, *Transportation*.

Topic	Comment/Request	How and Where It Was Addressed
Wildfire	Concerns about increased density increasing wildfire impacts.	Wildfire risk and emergency evacuation planning are discussed in Section 4.17,*Wildfire*.

1.5 Intended Uses of the EIR

This EIR is an informational document for use in the City's review and consideration of the proposed project. This document is a Program EIR. Section 15168(a) of the *CEQA Guidelines* 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.

As a programmatic document, this EIR presents and discloses a region-wide assessment of the environmental impacts of the proposed project. The information and analysis in this EIR will be used by the City of Petaluma as part of intergovernmental consultations, and by trustee agencies and the general public.

The General Plan Update will guide subsequent actions taken by the City in its review of new development projects and the establishment of new and/or revised City-wide or area-specific programs. This Program EIR serves as a first-tier environmental document under CEQA, supporting second-tier environmental documents for projects with detailed designs that have been developed for implementation within the City. Analysis of site-specific impacts of individual projects is not the intended use of a Program EIR. Many specific projects are not currently defined to the level that would allow for such an analysis at this time. Individual and specific environmental analysis of each project will be undertaken as necessary in the future by the City prior to each project being considered for approval. Therefore, the City, acting as the Lead Agency, would be able to prepare subsequent environmental documents that incorporate by reference the appropriate information from this Program EIR regarding secondary effects, cumulative impacts, broad alternatives, and other relevant factors. If the City finds that implementation of a later activity would have no new effects and that no new mitigation measures would be required, that activity would require no additional CEQA review. Where subsequent environmental review is required, such review would focus on significant effects specific to the project or its site that have not been considered in this Program EIR.

1.6 Lead, Responsible, and Trustee Agencies

The City of Petaluma is the Lead Agency under CEQA for this EIR because it has primary discretionary authority to determine whether or how to approve the proposed project.

Section 15381 of the *CEQA Guidelines* defines responsible agencies as other public agencies that are responsible for carrying out/implementing a specific component of a proposed project or for approving a project that implements the goals and policies of a General Plan. There are no responsible agencies for the proposed project.

Although there are no responsible agencies under CEQA, several other agencies have review authority over aspects of the proposed project or approval authority over projects that could potentially be implemented in accordance with various goals and policies included in the General Plan Update. These agencies and their roles are listed below.

- The California Department of Transportation (Caltrans) has responsibility for approving future improvements to the State highway system, including Highway 101.
- The California Department of Fish and Wildlife (CDFW) has responsibility for issuing take permits and streambed alteration agreements for any projects with the potential to affect plant or animal species listed by the State of California as rare, threatened, or endangered or that would disturb waters of the State.
- The San Francisco Bay Regional Water Quality Control Board has responsibility for clean up sites throughout the city and for implementing the Clean Water Act.
- Other public agencies which may own land within City boundaries and would have responsibility for development of their property.

Trustee agencies have jurisdiction over certain resources held in trust for the people of California but do not have legal authority over approving or carrying out the project. Section 15386 of the *CEQA Guidelines* designates four agencies as trustee agencies: CDFW with regards to fish and wildlife, native plants designated as rare or endangered, game refuges, and ecological reserves; the State Lands Commission, with regard to state-owned "sovereign" lands, such as the beds of navigable waters and State school lands; the California Department of Parks and Recreation, with regard to units of the State park system; and, the University of California, with regard to sites within the Natural Land and Water Reserves System. CDFW, due to the potential for rare or endangered species, as well as State Lands Commission are applicable trustee agencies for the General Plan Update EIR.

1.7 Intergovernmental Consultation

Two pieces of state law, California Assembly Bill 52 of 2014 (AB 52) and California Government Code Section 65352.3 (adopted pursuant to the requirements of SB 18), require lead agencies to undertake formal consultation with interested California tribes as part of the CEQA process. The City of Petaluma sent AB 52 and SB 18 notification letters for the proposed project on March 27, 2024, and December 26, 2024, and invited them to participate in consultation. Letters were sent to the following California Native American tribes:

- Federated Indians of Graton Rancheria (FIGR)
- Guidiville Indian Rancheria
- Lytton Rancheria
- Pinoleville Pomo Nation

The Federated Indians of the Graton Rancheria (FIGR), whose ancestral lands encompass the Petaluma Plan Area, responded on April 5, 2024, requesting formal consultation and the City entered into consultation in accordance with AB 52 and SB 18.

1.8 Environmental Review Process

The environmental impact review process required under CEQA is summarized below. The steps appear in sequential order.

1. **Notice of Preparation (NOP).** After deciding that an EIR is required, the lead agency (City of Petaluma) must file a NOP soliciting input on the EIR scope to the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing (*CEQA Guidelines* Section 15082; Public Resources Code Section 21092 and 21092.2). The NOP must be posted in the County Clerk's office for 30 days. A scoping meeting to solicit public input on the issues to be assessed in the EIR is required by the Lead Agency. The NOP public comment period for the General Plan Update EIR was from August 8, 2025, to September 8, 2025, and a scoping meeting was held on August 21, 2025. Public comments were received in response to the NOP and scoping process.
2. **Draft EIR.** 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.
3. **Notice of Completion (NOC) and Notice of Availability (NOA).** The lead agency must file an NOC and NOA with the State Clearinghouse when it completes a Draft EIR. The lead agency must place the NOA in the County Clerk's office for at least 30 days (Public Resources Code Section 21092) and send a copy of the NOA to anyone requesting it (*CEQA Guidelines* Section 15087). Additionally, public notice of Draft EIR 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 (*CEQA Guidelines* Section 15087). The lead agency must solicit input from other agencies and the public and respond in writing to all comments received (Public Resources Code Section 21092.5). The minimum public review period for a Draft EIR is 30 days. When a project involves a state agency approval or is of sufficient statewide, regional, or areawide significance, the public review period must be 45 days (Public Resources Code 21091).
4. **Final EIR.** A Final EIR must include: a) the Draft EIR; 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 has been completed in compliance with CEQA; b) the Final EIR 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 prior to approving a project (*CEQA Guidelines* Section 15090).
6. **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).
7. **Findings/Statement of Overriding Considerations.** For each significant impact of the project identified in the EIR, 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 (*CEQA Guidelines* Section 15093).

8. **Mitigation Monitoring Reporting Program.** When the lead agency makes findings on significant effects identified in the EIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval to mitigate significant effects (*CEQA Guidelines* Section 15097).
9. **Notice of Determination (NOD).** The lead agency must file a NOD after deciding to approve a project for which an EIR is prepared (*CEQA Guidelines* Section 15094, Public Resources Code Sections 21108 and 21152). If the lead agency is a local agency, it must file the NOD with the County Clerk and State Clearinghouse. If the lead agency is a state agency, it only needs to file the NOD with the State Clearinghouse. 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]).

2 Project Description

The project analyzed in this Environmental Impact Report (EIR) is the proposed City of Petaluma General Plan Update, referred to herein as the proposed project. This section of the EIR describes the key characteristics of the proposed project, including the lead agency, the geographic extent, objectives, required approvals, and types and intensity of new development, redevelopment, and infrastructure maintenance and expansion forecasted under the proposed project.

2.1 Project Proponent/Lead Agency

The City is both the project proponent and the lead agency for the proposed project. The City's Community Development Department, which is located at 11 English Street Petaluma, California 94952, prepared this EIR with the assistance of Rincon Consultants and Fehr & Peers. The Petaluma City Council, as the lead agency, will review and consider certification of the EIR.

2.2 Project Location

Petaluma is located in the greater North Bay region of the San Francisco Bay Area, in Sonoma County. The city is located approximately 39 miles north of San Francisco, approximately 10.5 miles south of the City of Rohnert Park, and approximately 20 miles east of the Pacific Ocean. Figure 2-1 shows a regional map of the city's relationship to nearby cities, communities, and the state highway system. In 2020, the city had an estimated population of approximately 59,828 (California Department of Finance [DOF] 2025).

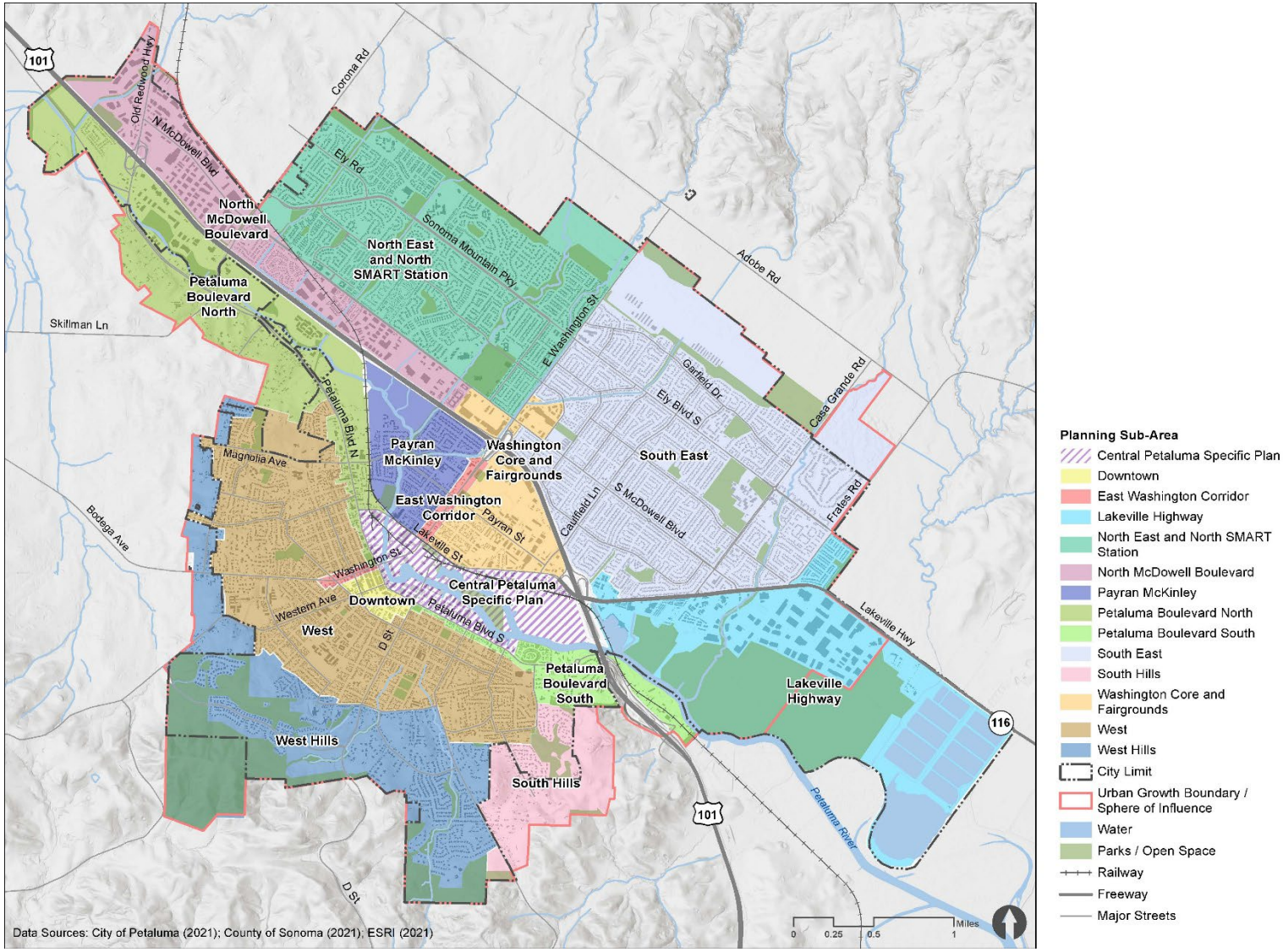
Petaluma is accessible from Highway 101, which transverses the city from north to south and has three entrances/exits in the city. State Route (SR) 116 also provides regional access to the city connecting Petaluma to eastern Sonoma County. The city is also served by a surface street system ranging from wide, four-lane streets with medians to two-lane streets in the City's neighborhoods. Petaluma has a system of bike lanes, paths and routes throughout the city that connect neighborhoods to schools, parks, and retail centers. The city is directly served by Sonoma-Marin Area Rail Transit (SMART), a commuter rail line that serves Sonoma and Marin Counties as well as Petaluma Transit which is the city's bus system. Petaluma Municipal Airport offers general aviation for private planes, flight training, and aerial tours, and is located along the eastern edge of the city. The Petaluma Municipal Airport does not provide commercial passenger services. Golden Gate transit and Sonoma County Transit also serve the City of Petaluma and provide connections south to San Francisco and throughout Sonoma County, respectively.

The proposed project applies to all lands within the City limits and the urban growth boundary (UGB). In addition to the City limits and UGB, the City of Petaluma has also identified the Urban Service Area which is the geographical area that is designated for urban development based upon the Sonoma County Land Use Element. Combined, these will be referred to as the "Plan Area", as shown in Figure 2-2. This EIR evaluates environmental impacts throughout the entirety of the Plan Area, which includes all lands within the City limits, the Urban Growth Boundary (UGB), and the Urban Service Area. The EIR assesses both existing conditions and the full range of planned future development potential within this Plan Area. Accordingly, the analysis encompasses all reasonably foreseeable development facilitated by the proposed General Plan Update.

Figure 2-1 Regional Location



Figure 2-2 General Plan Area



2.3 General Plan Update

The General Plan Update is a comprehensive update of the City's current General Plan 2025 and establishes the community's vision for future development of the city through the year 2050. As part of the general plan process, the General Plan has been updated with goals and policies that reflect the community's vision for Petaluma. The General Plan addresses changes in the community, including new issues and opportunities, changes in state law, and new trends/projections. The City's General Plan Land Use Map has also been updated to reflect the community's vision and framework for future growth. The General Plan includes the recently adopted 2023-2031 Housing Element, which is based on the City's latest Regional Housing Needs Allocation (RHNA), which determined that the City needs to plan for approximately 1,910 residential units, plus a buffer of some number of units to ensure ongoing compliance with the No Net Loss provisions of State housing law. The General Plan also includes the implementation of the Blueprint for Climate Action, which is the City's Climate Action Plan that was adopted in November 2024, through a Greenhouse Gas Reduction Checklist.

2.3.1 Proposed Land Use Change

The General Plan is a comprehensive update of the City's General Plan 2025, which was adopted in 2008. The current Petaluma General Plan is made up of 12 chapters: Introduction and Overview; Land Use, Growth Management, and Built Environment; Community Design, Character, and Green Building; Historic Preservation; The Natural Environment; Mobility; Recreation, Music, Parks & the Arts; Community Facilities, Services, and Education; Water Resources; Economic Health and Sustainability; Health and Safety; and Housing. The current land use map specifies 24 separate land use designations, as shown in Figure 2-3.

The General Plan Update outlines a comprehensive framework for land use designations that guide future development across residential, mixed-use, commercial, industrial, and public sectors. Each designation specifies standards for residential density (measured in dwelling units per acre), floor area ratio (FAR) , and building height. These standards are designed to align with the City's zoning regulations and reflect community input, Planning Commission and City Council feedback, and state law updates. Main changes to the existing land use standards are:

- Maximum allowable density would increase to 12 dwelling units/ acres for land designated as Low Density Residential.
- Maximum allowable density would increase to 15 dwelling units/acres for land designated as Diverse Low Density Residential.
- Maximum allowable density would increase to 22 dwelling units/acres for land designated as Medium Density Residential.
- Maximum allowable density would increase to 45 dwelling units/acre for land designated as High Density Residential.
- Maker/Microbusiness (M/M) would be added as a land use designation and would allow for most commercial and light industrial uses including retail, office, R&D, small scale food and beverage, light industrial/manufacturing, and warehouse/storage uses.
- Thoroughfare District (TD) would be added as a land use designation and would allow for retail, hotel, light industrial/ manufacturing, and food and beverage uses. This designation reflects the existing Thoroughfare District in the Central Petaluma Specific Plan and is only applied to parcels within the Thoroughfare zoning district.

- Railroad District (RAIL) would be added as a land use designation. Development on sites with this designation would be required to comply with the standards established through the conditional use permit process or design review. This designation is only applied to parcels that are within the existing Rail Zoning District and reflects the existing zoning regulations.
- Eight separate mixed-use designations are included in the General Plan with a range of maximum densities from 30 units per acre in the Mini-Center Mixed Use designation to 125 units per acre in Station Mixed Use designation. Table 2-1 below shows the Mixed Use Designations in the General Plan and the standards for each designation.
- The General Plan Land Use Map includes a 330' river buffer in the upper reach of the Petaluma River to protect the river and preserve the riparian habitat in the river corridor.

Additionally, changes to mixed use designations proposed by the General Plan Update are summarized in Table 2-1, below.

Table 2-1 Proposed Mixed Use Land Use Changes

Proposed Designation Name	Current Aligned Zoning	Intent/Description	Minimum Density (du/acre)	Maximum Density (du/acre)	Maximum Floor Area Ratio (FAR)	Maximum Height[1]
Mini- Center Mixed Use (MC-MU)	MU1C	Smaller lots in single-family residential neighborhoods that are appropriate for residential and/or non-residential uses	12	30	2.0	3 stories, 40 feet
Neighborhood Center Mixed Use (NC-MU)	MU1A/ B & T4	Areas meant to become small neighborhood centers or vibrant community gathering places and typically contain services or retail	15	30	2.0	3 stories, 40 feet
Stepdown Mixed Use (SD-MU)	None	Areas similar in mix of use and intensity as MU2A but with a height stepdown that blends into abutting neighborhoods	20	45	2.5	4 stories, 50 feet
Downtown Mixed Use (DT-MU)	MU2	Primarily downtown areas that are intended to retain the same physical form and active, walkable character[2]	--[3]	45	4.0	4 stories, 45 feet
Town Center Mixed Use (TC-MU)	T5	Major destinations that include a robust combination of uses, including regional and local commercial uses as well as residential	30	55	3.0 (4.0 with Planning Commission [PC] approval)	4 stories, 50 feet
Urban Corridor Mixed Use (UC-MU)	None	Corridor development that fosters ground-floor activity with high-quality pedestrian frontages	30	75	3.5	4 stories , 60 feet

Proposed Designation Name	Current Aligned Zoning	Intent/Description	Minimum Density (du/acre)	Maximum Density (du/acre)	Maximum Floor Area Ratio (FAR)	Maximum Height[1]
Urban Core Mixed Use (CORE-MU)	T6	High-density mixed use, commercial, and civic areas of regional importance	50	95	4.0	6 stories, 70 feet
Station Mixed Use (ST-MU)	None	High density mixed use development adjacent to transit hubs like SMART stations	60	125	5.0	8 stories, 90 feet
Flex (FX)	None	Future designation when appropriate for sites currently designated HASD that allows all uses except heavy industrial	30	75	3.5	6 stories, 70 feet

1 Maximum Building Height shall be regulated by either the maximum number of feet or stories listed, whichever is lower.

2 Arts, entertainment, educational, indoor recreation, and other destination uses are strongly encouraged.

3 See the policies and actions under proposed General Plan Goal LU-6 related to restrictions on 100% residential development in Town and Neighborhood Centers.

Residential designations range from rural and low-density to high-density and include mobile home areas to support a diversity of housing types. Mixed-use areas allow a combination of residential and commercial uses in a variety of configurations, including standalone residential or commercial and both vertical and horizontal mixed use. These mixed use areas also include specialized designations like Downtown Mixed Use, Station Mixed Use, and Urban Corridor Mixed Use which respond to specific contexts and desired character.

Commercial and industrial designations support a variety of economic activities, from neighborhood retail to heavy manufacturing and include Business Park and Maker/Microbusiness designation that tailor non-residential uses in certain areas. Public designations encompass civic, educational, recreational, and open space uses, with some areas like floodways restricted from physical development. Figure 2-4 shows the proposed new land use map under the General Plan. These land use designations define the basic categories of land uses allowed in the City but are implemented through the City's Zoning Ordinance and Zoning Map, which are part of the City's Municipal Code and contain more specific regulations and standards governing development on individual properties.

The General Plan designates land uses defining the type of development that can occur throughout the city through the planning horizon year of 2050. Development projections for the General Plan were determined by analyzing vacant and underutilized parcels within the city and the reasonable level of development potential that is allowed under the applicable land use designation factoring for known physical and/or regulatory requirements. Parcels that would undergo a land use designation change compared to the existing General Plan, are shown in Figure 2-5. In addition to the parcels shown on Figure 2-5, a number of other parcels within the city would not change their land use designation but would be subject to revised development standards, which may include new allowable uses, increased density, and intensity as summarized above. In both cases, those parcels that are changing land use designations and those parcels that would have changes to the land use standards included as part of the General Plan Update informed the projected buildout of the General Plan as described in Section 2.3.2.

Figure 2-3 Current General Plan Land Use Map

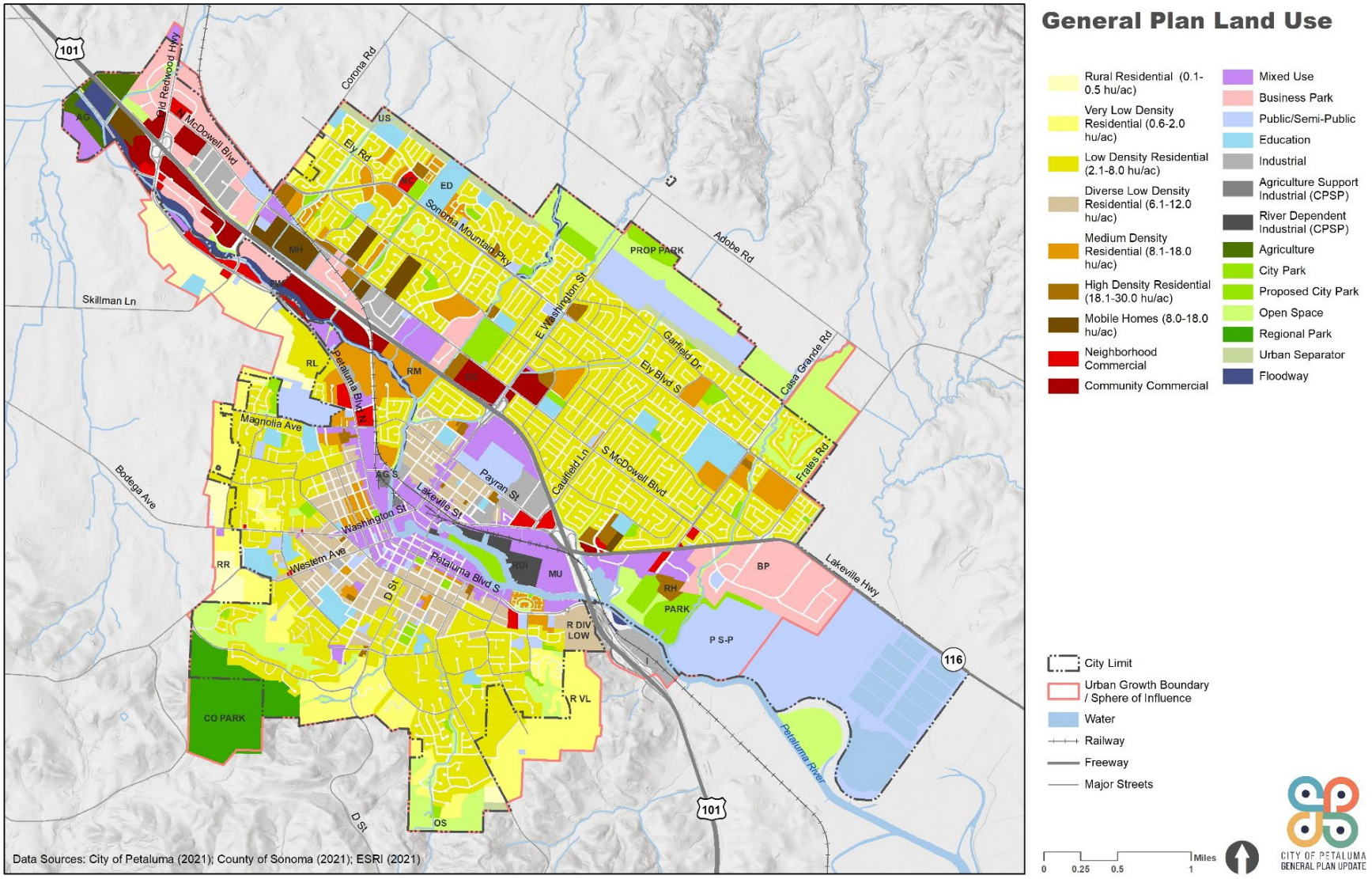


Figure 2-4 Proposed General Plan Land Use Map

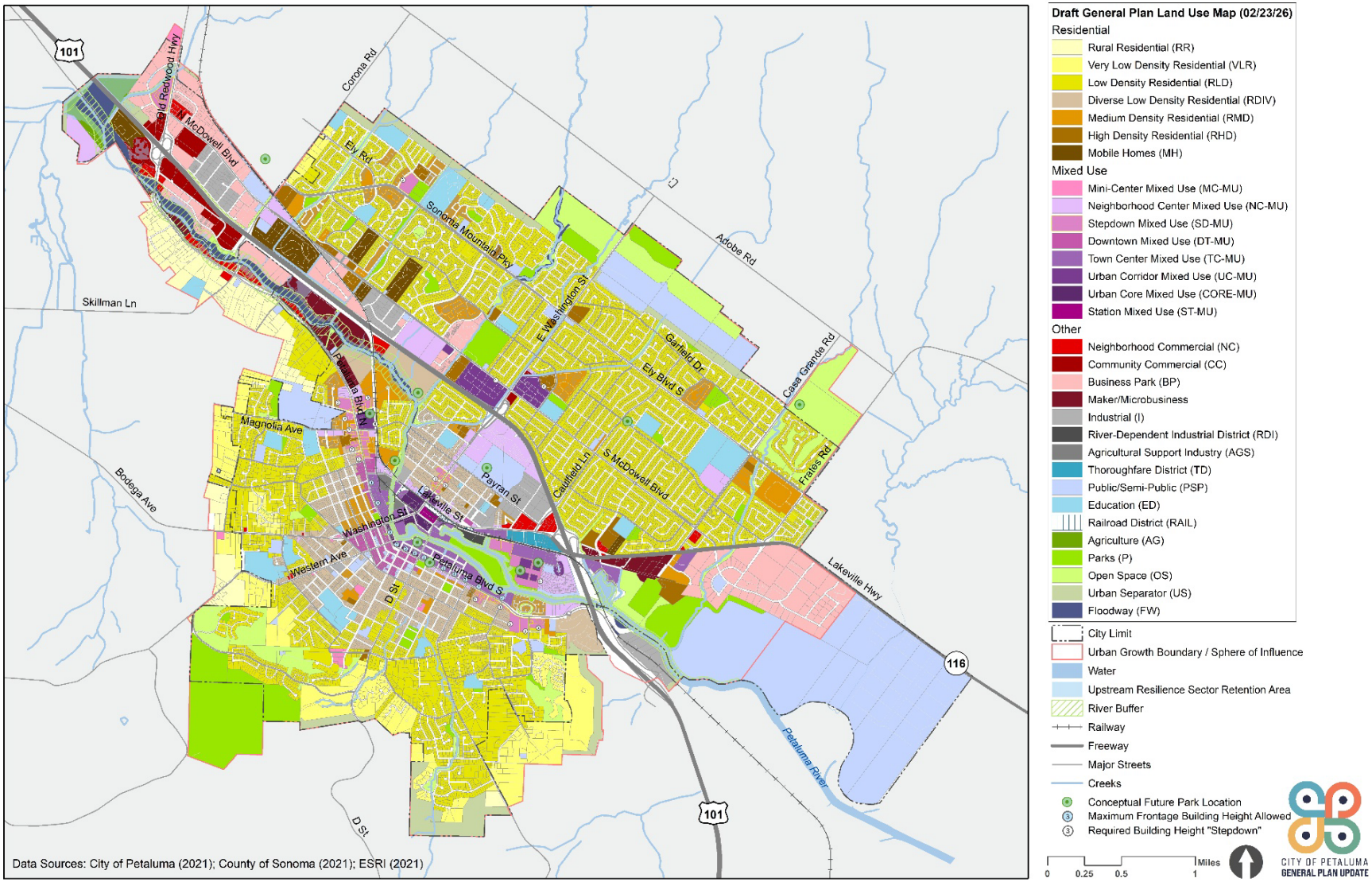
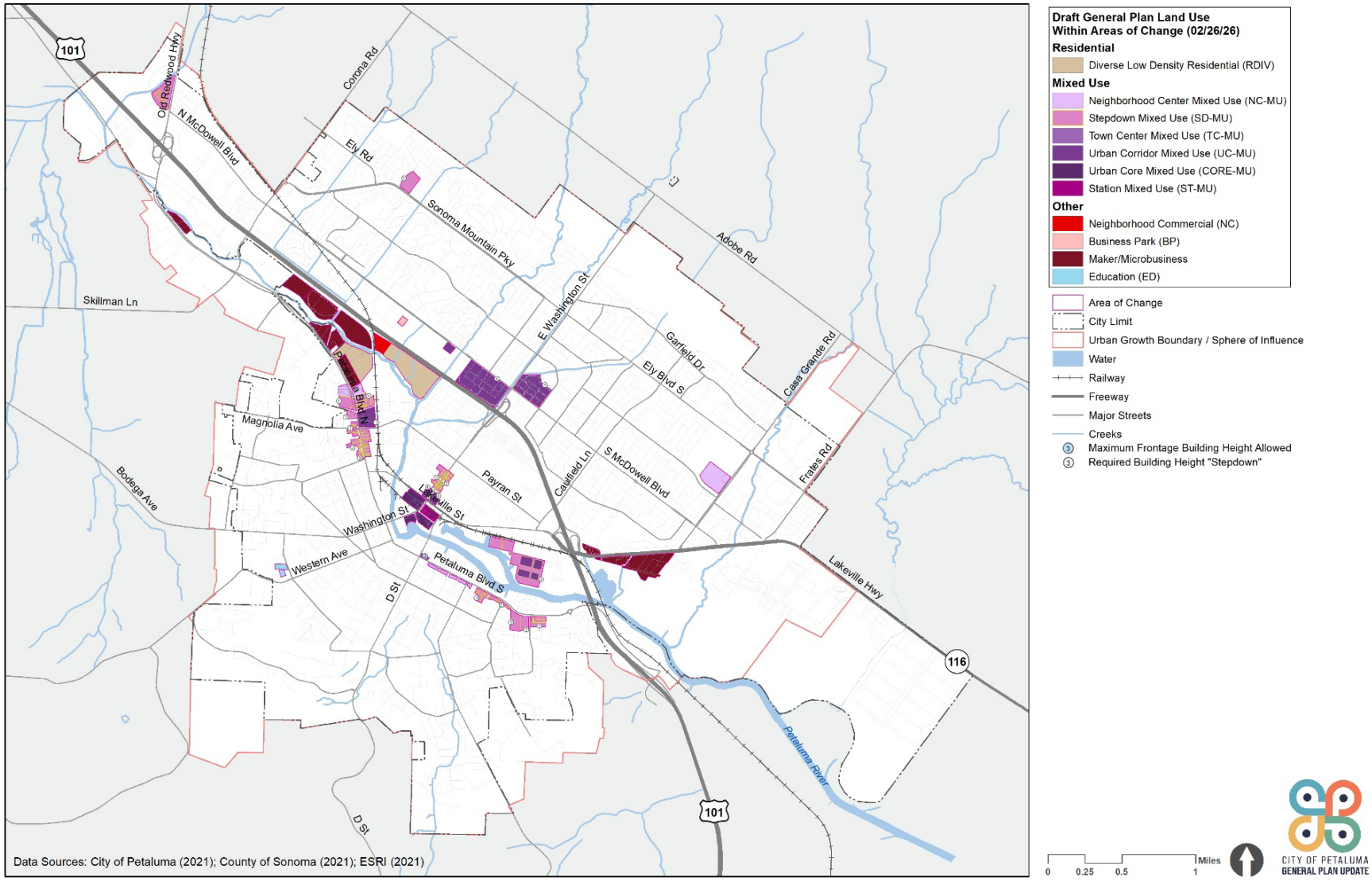


Figure 2-5 Proposed General Plan Land Use Changes Map



2.3.2 General Plan Buildout

A key element of the EIR is the assessment of environmental impacts associated with potential future development. Because the General Plan Update is a programmatic-level document and does not authorize specific projects, the EIR relies on growth projections to estimate the amount of development that could reasonably occur during the planning horizon.

In this EIR, the analysis treats the components of the General Plan Update, including new development, redevelopment, and infrastructure maintenance and expansion, as forecasted activities that collectively represent the reasonably foreseeable development facilitated by the proposed General Plan Update. Because the General Plan Update functions as a long-range planning document, the EIR evaluates these activities at a programmatic level, using growth projections and policy assumptions to estimate the type, location, and intensity of future changes citywide. This forecasting approach allows the EIR to assess how the suite of land use changes and public improvements envisioned in the General Plan Update may affect environmental conditions over time, even though precise project-level details are not yet known. The forecasted activities analyzed in the EIR encompass several categories integral to the implementation of the General Plan Update:

- **New development** refers to construction of housing, commercial space, employment uses, public facilities, and other built elements on sites where such uses do not currently exist.
- **Redevelopment** captures the transformation or intensification of already developed areas, such as replacing existing structures with higher-density uses or repurposing underutilized properties.
- **Infrastructure maintenance and expansion** includes upgrades, repairs, and system extensions to transportation networks, utilities, parks, and other civic systems needed to support projected growth.

By evaluating these components together as a comprehensive forecast, the EIR provides a holistic assessment of potential environmental impacts resulting from the future buildout of the General Plan Update. This is evaluated throughout the EIR as development facilitated by the proposed General Plan Update which includes the impacts of these forecasting activities.

Growth projections provide an estimate of increases in housing units and non-residential square footage through 2050. These projections serve as the foundation for transportation modeling, which in turn informs technical analyses related to noise, air quality, greenhouse gas emissions (GHG), and energy use. Growth projections are not policy statements or growth limits. They are used solely to evaluate the potential environmental impacts of development at a programmatic level over the next 25 years.

Housing unit growth was calculated by starting with the 2020 housing unit count of 24,067 (based on Census data) and applying Plan Bay Area (PBA) 2050 growth rates, resulting in a projected total of 30,526 units by 2050 and an overall increase of 6,449 units. This projection aligns with the City's 6th cycle Regional Housing Needs Allocation (RHNA), which anticipates approximately 225 new housing units per year. Similarly, non-residential development was estimated by beginning with the 2020 total of 18,373,682 square feet (from the Sonoma County Transportation Authority [SCTA] model) and applying growth rates derived from market analysis based on PBA 2050, yielding a projected total of 19,806,829 square feet in 2050 and an overall increase of 1,414,741 square feet of non-residential development.

As shown in Table 2-2,projected 2050 buildout under the General Plan Update distinguishes between cumulative no project growth and new development that would occur under the proposed General Plan. Cumulative no project growth includes anticipated near term development, such as pipeline projects and accessory dwelling units, which are anticipated under the current General Plan standard. In contrast, the proposed General Plan development reflects only the additional growth attributable to the General Plan Update itself. The estimated Citywide growth through 2050 equates to the sum of proposed General Plan Development and Cumulative No Project Growth, which would be 6,449 residential units and 1,414,741 square feet of non-residential land uses. While this EIR analyzes a full buildout scenario of all 2050 citywide growth, it should be noted that additional growth attributable only to the General Plan Update itself would result in approximately 2,437 new residential units and 708,312 square feet of non-residential land uses.

Table 2-2 Projected 2050 Buildout Under the Proposed General Plan Update

Development Type	Existing Development[1]	Cumulative No Project Growth[2]	Proposed 2050 General Plan Development[3]	2050 Citywide Growth[4]
Housing Units	24,067 units	4,012 units	2,437 units	6,449 units
Non-Residential	18,373,682 sf	706,429 sf	708,312 sf	1,414,741 sf

[1] Existing development based on 2020 baseline to align with the SCTCA traffic model projections baseline

[2] Includes the expected growth, including pipeline projects and ADUs that are expected to occur under the existing General Plan's standards

[3] Proposed General Plan development includes buildout associated with the 2050 General Plan, excluding cumulative no project growth

[4] Buildout through 2050 includes cumulative no project growth and project growth

sf = square feet

Based on the number of new dwelling units projected under buildout of the General Plan Update and an assumed persons per unit rate by unit type in 2020[1], buildout of the General Plan Update in 2050 would result in an additional estimated 16,445 new residents[2] in Petaluma. This number is based on the Department of Finance's estimate of 2.55 persons per household for the city of Petaluma in 2020 (Department of Finance [DOF] 2025). Based on 2020 baseline estimates, Petaluma's existing population is 59,828 residents. When combined with the proposed General Plan Update growth of 16,445 additional residents, the total population would be 76,273 persons in 2050.

Table 2-2 also identifies the nonresidential levels of development that are projected from buildout of the General Plan based on the planned distribution of land uses described in the General Plan Land Use Element and implementation of policies established by the General Plan. As shown in Table 2-2, a total of 1,414,741 square feet of non-residential space could be constructed within Petaluma by 2050.

The projected General Plan Update buildout included in Table 2-2 may also include redevelopment of existing uses, infill development, and construction of ADUs and associated ancillary improvements.

[1] 2020 is utilized as the project baseline to align with the SCTA traffic model projections baseline

[2] 16,445 residents = 6,449 units * 2.55 persons per household

2.3.3 Project Guiding Principles

The 2050 General Plan presents a vision and guiding principles for the future of Petaluma and a set of goal and policies for how the City will achieve that vision. This vision and guiding principles capture the City's key values and aspirations for the future and thus are the objectives of the project from a CEQA perspective. They reflect the collective ideas from community members and City leaders that provided input to help shape the General Plan.

The General Plan Update vision for the future is as follows:

Petaluma is a vibrant river town rooted in the relationship between our people and the land. We acknowledge that Petaluma is the traditional territory and unceded lands of the Coast Miwok peoples. We appreciate that our name springs from those tribes who first called this land home. Our identity also evolves from our deep agricultural roots, historic downtown, living river, and preserved open spaces. We honor this legacy to celebrate, protect, and restore our natural landscapes and habitats both within and outside our community. Together, we sustain a resilient ecosystem for humans, wildlife, and the earth.

We are caring and connected. We celebrate our differences by providing inclusive community spaces for the diverse people that form Petaluma and by cultivating a sense of belonging. We welcome newcomers seeking refuge, a place to call home, and new opportunity. Our engaged residents and local government ensure equity, livability, opportunity, and access for all residents. We embrace each other's cultures, lift each other up, and move forward together.

We invest in each other. We are a community where children and youth thrive, families in all forms are supported, and our elders flourish as they age in place. We provide plentiful and varied housing choices, convenient access to healthy local food, and an educational system that builds leaders. We support all residents with accessible city services.

We are prosperous. We support our local businesses that provide jobs for our own residents and services to our city and region. Our economy is localized and self-reliant and builds wealth for residents of all socioeconomic backgrounds. We invite new businesses and development to join in our vision. Our city infrastructure and facilities are sustainably financed, resilient, and well-maintained.

We relish our spirited, distinctive neighborhoods where we live, work, and play. We enjoy active, animated communities throughout our city along with an energetic historic downtown. Our friendly, beautiful, and nature-filled streets, parks, urban forest, and accessible river, bike lanes and trails, and walking paths connect people and help keep residents healthy. It is safe, easy, and enjoyable to travel across and around town and to neighboring communities with human, electric, and hybrid transport.

We are creative. Our community is filled with art in a variety of colors, textures, materials, and forms. We build an environment that promotes beauty, resilient architecture, and inventive design citywide, where art, crafts, design, and economic innovation thrive. The arts bring meaning, whimsy, and imagination to our lives.

We are forward-thinking leaders. By achieving carbon neutrality in 2030, we demonstrate that equitable, carbon-neutral, regenerative communities and economies are possible through action and collaboration with other cities, communities, and our region. We have adapted to climate change with a community-driven, whole systems, and nature-based approach to development.

We are Petaluma.

Guiding Principles are central ideas that articulate the City's commitment to achieve the vision statement. The General Plan guiding principles and thus project objectives are contained in the General Plan Introduction and included below:

1. Achieve carbon neutrality by 2030 and equitably foster a sustainable and resilient community in which today's needs do not compromise the ability of the community to meet its future needs.
2. Preserve and enhance Petaluma's natural environment and surrounding open spaces.
3. Protect and restore the natural function of the Petaluma River and its tributaries while expanding complementary recreational, entertainment, and civic opportunities.
4. Promote social and economic justice to address structural social and economic inequities and racism.
5. Ensure the health and wellness of all residents.
6. Physically and psychologically integrate and connect the East and West sides of town.
7. Create a welcoming, affordable, accessible, and age- and family-friendly city.
8. Promote more affordable housing and a diversity of housing options.
9. Prioritize infill development in appropriate locations throughout the City.
10. Enhance Petaluma's historic downtown by preserving its historic character, expanding pedestrian and bicycle access and safety, providing public gathering spaces, and promoting a diverse mix of uses.
11. Honor, celebrate, and preserve Petaluma's heritage and historic character and its place in the modern city.
12. Prioritize cycling, walking, transit, and other transportation alternatives over automobiles.
13. Ensure infrastructure supports infill development and addresses the impacts of climate change.
14. Advance Petaluma as a hub for the arts, creativity, and innovation.
15. Advance a forward-looking economic development strategy that focuses on diversity, opportunity, innovation, and resilience.
16. Be a leader in advancing these guiding principles within the region and beyond.

2.3.4 Project Objectives

The following are objectives of the General Plan Update:

1. Protect, restore, and enhance natural systems within the Plan Area to promote biodiversity and improve ecological health.
2. Revitalize and protect the Petaluma River and tributaries to improve habitat and flood resilience and strengthen Petaluma's river-oriented cultural, civic, and educational opportunities.
3. Reduce Petaluma's vulnerability to sea level rise and flooding.
4. Advance social and economic justice by addressing systemic inequalities through inclusive policies, equitable investment strategies, and community led decision-making.
5. Support Community health and well-being through safe housing, clean air and water, active transportation, and access to nature.
6. Improve connectivity throughout Petaluma by expanding multimodal routes to safely link residents citywide.

7. Foster an inclusive and welcoming community by creating public spaces and community programs that reflect Petaluma's diversity and support belonging.
8. Expand affordable and diverse housing options by increasing the supply of affordable, workforce, senior, family, and supportive housing and reducing barriers to building housing where it's most needed.
9. Prioritize infill development to reduce sprawl, support transit, and protect open lands.
10. Preserve and strengthen Petaluma's historic districts and resources.
11. Provide opportunities for economic development by allowing for flexibility in land use and accommodate a variety of commercial and light industrial uses to meet evolving demands.
12. Facilitate 15-minute city centers to create walkable/bikeable communities throughout the city and reduce reliance on automobiles.
13. Achieve carbon neutrality and build climate resilience by implementing policies, programs and infrastructure to reach carbon neutrality and prioritizing equitable access to clean energy, green jobs, and climate resilient infrastructure.
14. Protect, preserve, and honor Petaluma's cultural heritage and tribal cultural resources and tribal knowledge.

2.3.5 Characteristics of the General Plan

The General Plan Update has been organized into 15 elements: Natural Environment; Historic and Cultural Resources; Safety; Flood Resilience; Land Use; Housing; Mobility; Parks & Recreation; Public Facilities, Infrastructure, and Utilities; Economic Development; Arts, Culture, and Creativity; Environmental Justice, Health, and Equity; Noise; and Implementation and Governance. The 15 elements included in the General Plan are described further below.

Natural Environment Element

The Natural Environment Element provides a comprehensive approach to conserving Petaluma's open spaces, protecting natural habitats, and managing water resources in alignment with climate resilience and equity goals. It fulfills state requirements for conservation and open space elements and incorporates Senate Bill 1425's mandates for climate adaptation and rewilding. The element promotes stewardship, connectivity, and sustainable development practices that integrate nature into the urban fabric.

Five goal areas guide the element: integrating community with nature, protecting natural lands, managing water resources, implementing green infrastructure, and honoring Native American heritage. Key strategies include expanding the urban forest, creating wildlife corridors, enhancing stormwater management, and partnering with Tribal Nations. The element positions Petaluma to lead in ecological restoration, climate resilience, and inclusive environmental stewardship.

Historic Resources Element

The Historic Resources Element provides a roadmap for preserving and celebrating Petaluma's rich cultural and architectural heritage. It emphasizes the preservation of historic buildings, districts, landscapes, and intangible cultural assets while promoting adaptive reuse and sustainability. The element recognizes the importance of historic preservation in shaping Petaluma's identity, supporting economic development, and fostering community pride.

Six goal areas guide the element: strengthening preservation policies and processes, recognizing aesthetic and cultural contributions, promoting sustainability in existing buildings, protecting , honoring, and preserving Tribal cultural resources in consultation with the Federated Indians of Graton Rancheria (FIGR), protecting, preserving, and honoring archaeological resources, and expanding public education and engagement. Key strategies include updating design guidelines, expanding historic surveys, supporting legacy businesses, and collaborating with Tribal Nations.

Safety Element

The Safety Element outlines a comprehensive approach to hazard mitigation, emergency preparedness, and climate resilience in Petaluma. It addresses risks from earthquakes, wildfires, , hazardous materials, and extreme temperatures, while ensuring responsive public safety services and community engagement. The element aligns with recent state legislation and complements other General Plan Update elements such as Flood Resilience and Environmental Justice.

Ten goal areas guide the element: emergency guidance and tools, emergency services, public safety responsiveness, evacuation planning, critical facilities resiliency, climate resilience, extreme temperature and drought, wildfire risk management, earthquake resiliency, and hazardous materials management. Strategies include updating emergency plans, enhancing communications, retrofitting infrastructure, and promoting fire-safe development. The element ensures Petaluma is prepared for current and future hazards through proactive planning and community-centered safety initiatives.

Flood Resilience Element

The Flood Resilience Element outlines a comprehensive strategy to prepare Petaluma for current and future flood risks, integrating climate science, updated modeling, and adaptive planning. This element introduces new flood hazard maps and resilience standards that go beyond FEMA requirements, ensuring that development is safe from both present and projected flood conditions. It emphasizes nature-based solutions, watershed restoration, and equitable adaptation strategies to protect vulnerable communities and critical infrastructure.

The element is organized into seven goal areas: understanding current and future flood hazards, developing a Flood Adaptation Master Plan, preparing for flood recovery, updating plans and regulations, implementing long-term resilience projects, and empowering stakeholders. It introduces concepts such as Adaptation Pathways, Future Flood Hazard Maps, and King Tide standards, and aligns with regional efforts like the Petaluma River Access and Enhancement Plan.

Land Use Element

The Land Use Element establishes a comprehensive framework to guide Petaluma's physical development over the coming decades. It prioritizes infill development, preservation of open space, and the creation of complete neighborhoods that support daily needs within walking distance. The Land Use Element integrates climate resilience, equity, and mobility strategies, ensuring that future growth aligns with the City's identity and vision. It introduces updated land use designations and standards that promote higher-density housing near transit, mixed-use development along key corridors, and nature-based solutions along the Petaluma River.

Thirteen goal areas guide this element: maintaining the urban growth boundary, preserving and protecting the open space around the city, focusing development within existing city boundaries, prioritizing development near transit centers, ensuring that land uses along the Petaluma River

enhance natural habitat and the watershed, mitigate flooding, and maximize public access, ensuring all residents live within a fifteen walk of one or more activity centers, ensuring existing residential neighborhoods provide a range of middle-density housing options, encouraging a variety of non-residential uses in residential neighborhoods, supporting activity centers, enhancing the identity of Petaluma, enhancing the visual quality of major entry points to the city, ensuring high quality architecture and design of development, and ensuring development is sustainable and advances cardon neutrality.

The Land Use Element also includes implementation strategies such as zoning updates, specific plans, and development review standards to ensure consistency with the General Plan as well as sub-area policies for specific areas of the city such as downtown.

Housing Element

The Housing Element is a State-mandated component of the General Plan and serves as Petaluma's strategic plan for meeting the housing needs of all residents. The City's certified 2023–2031 Housing Element complies with California housing law and the Regional Housing Needs Allocation (RHNA) established by the Association of Bay Area Governments (ABAG). It is crucial to note that no changes are proposed to the Housing Element as part of the General Plan Update. However, the Housing Element will be updated periodically over the lifespan of the General Plan Update in accordance with state law. This EIR covers growth projected in the 2023-2031 Housing Element.

The Housing Element includes a comprehensive assessment of demographic trends, housing needs, and special populations; an analysis of constraints and resources affecting housing production and preservation; and a detailed inventory of sites suitable for residential development. It also reviews progress made under the previous Housing Element and outlines goals, policies, and programs to guide housing development through 2031. Key topics include energy conservation, housing affordability, and strategies to support diverse household types and income levels.

Mobility Element

The Mobility Element reimagines Petaluma's mobility system to prioritize low-carbon, people-centered travel and align with the City's Blueprint for Climate Action. It shifts focus from vehicle-centric planning to active transportation, transit, and zero-emission vehicles, aiming to reduce greenhouse gas emissions, improve public health, and enhance equitable access for all residents.

Six goal areas guide this element: transforming the transportation network, achieving carbon neutrality, ensuring equitable access, promoting safe and healthy mobility, integrating land use and transportation planning, and enabling timely and efficient implementation. Key strategies include Complete Streets design, mobility hubs, Vision Zero policies, and Transportation Demand Management programs. The element also introduces a draft Street Typology and emphasizes data-driven planning, community engagement, and creative funding to support a resilient and inclusive transportation future.

Parks and Recreation Element

The Parks and Recreation Element outlines a vision for an expanded, equitable, and sustainable system of parks, open spaces, and recreational facilities in Petaluma. It emphasizes accessibility, community health, and environmental resilience, while recognizing the importance of parks as social and ecological infrastructure. The element responds to existing gaps in park access and maintenance and sets the stage for a Strategic Parks and Recreation Master Plan.

Nine goal areas guide this element: expanding facilities, acquiring parkland, enhancing river recreation, creating interconnected networks, maintaining safe parks, growing the urban forest, prioritizing equity, advancing sustainability, and delivering high-quality recreation. It includes strategies for joint-use agreements, community partnerships, climate-adaptive design, and inclusive programming for youth, seniors, and underserved communities. The element ensures that Petaluma's parks system evolves to meet the needs of a diverse and growing population.

Public Facilities Element

The Public Facilities Element provides a roadmap for maintaining and expanding Petaluma's civic infrastructure to meet the needs of a growing and diverse community. It addresses the modernization of emergency services, the enhancement of public amenities, and the integration of sustainability and accessibility into facility design. The element also includes a focused strategy for the future of the Petaluma Fairgrounds Property, emphasizing public benefit and community engagement. The element also includes a focused strategy for the future of the Petaluma Fairgrounds Property, emphasizing public benefit and community engagement.

Thirteen goal areas guide this element: providing and maintaining high-quality public facilities, providing superior educational opportunities, and implementing to Petaluma Fairgrounds Property Guiding Principles.

Infrastructure and Utilities Element

The Infrastructure and Utilities Element provides a roadmap for the maintenance and enhancement of Petaluma's essential infrastructure and utility systems. Responding to aging infrastructure, climate change, and evolving State mandates, the Element establishes pathways for zero-emission operations, water conservation, waste reduction, and renewable energy adoption.

The Element's policy direction is organized into ten goal areas: sustainable water supply, integrated water resources management, water conservation, groundwater sustainability, zero-emission water and wastewater systems, waste reduction, zero-emissions waste operations, renewable and resilient energy, digital infrastructure, and resilient high-speed internet.

Economic Development Element

The Economic Development Element outlines a comprehensive strategy to build a resilient, inclusive, and sustainable economy in Petaluma. It emphasizes supporting locally owned businesses, attracting emerging industries, and fostering innovation while ensuring equitable access to economic opportunities. The element is designed to strengthen Petaluma's fiscal health, enhance job creation, and promote industries aligned with environmental sustainability and community values.

Six goal areas guide this element: economic diversity and resilience, equity and workforce development, municipal revenue generation, tourism and destination development, transportation access for businesses and workers, and support for new and existing businesses. Key strategies include streamlining permitting, expanding industrial land, promoting heritage tourism, and supporting green industries, all while aligning with broader community goals for sustainability and livability.

Arts, Culture, and Creativity Element

The Arts, Culture, and Creativity Element celebrates Petaluma's creative identity and outlines strategies to support artists, cultural organizations, and creative businesses. It promotes the integration of arts into City programs and infrastructure, expands access to public art, and strengthens the creative economy. The element positions Petaluma as a regional hub for arts and culture, fostering community engagement, economic vitality, and cultural tourism.

Seven goal areas guide this element: integrating artists into City processes, strengthening City arts programs, enhancing the Public Art Program, ensuring equitable access to public art, supporting creative businesses, establishing Petaluma as a regional creative center, and expanding arts venues. Key strategies include creative placemaking, artist residencies, multicultural programming, and partnerships with local organizations. The element ensures that arts and culture remain central to Petaluma's identity and future development.

Health, Equity, and Environmental Justice Element

The Health, Equity, and Environmental Justice Element centers Petaluma's commitment to advancing equity, improving public health, and addressing environmental injustices. Developed in response to Senate Bill 1000, the element identifies nine Equity Priority Areas and outlines targeted strategies to reduce pollution exposure, promote access to public facilities and healthy food, ensure safe housing, and foster civic engagement. It also expands upon state-mandated topics by including goals for age-friendly communities and leadership in equity.

Nine goal areas guide this element: fostering public health, building equity in the community, reducing pollution, ensuring equitable access to services and facilities, ensuring access to healthy food, ensuring access to safe and sanitary housing, promoting physical activity, encouraging community engagement, and incorporating age-friendly planning. It emphasizes cross-sector collaboration, inclusive community engagement, and data-informed decision-making to ensure that all residents benefit from Petaluma's growth and investments.

Noise Element

The Noise Element establishes goals and policies to manage environmental noise and vibration in Petaluma, ensuring a healthy and livable community. It addresses both ongoing and temporary noise sources, including transportation, industrial operations, construction, and special events, while promoting land use compatibility and mitigation strategies. The element aligns with state requirements and CEQA guidelines to protect sensitive receptors and maintain appropriate sound levels citywide.

Five goal areas guide this element: ensuring appropriate sound levels through land use planning, managing noise impacts from development, minimizing temporary noise sources, addressing transportation-related noise, and mitigating vibration impacts. The element promotes acoustical studies, nature-based sound barriers, construction noise reduction, and vibration standards, while encouraging collaboration with transit agencies and community stakeholders.

Implementation and Governance

The Implementation and Governance Element outlines the structures and processes through which Petaluma's General Plan Update is carried out, monitored, and updated. It provides a framework for integrating General Plan goals into city operations, budgeting, and decision-making, while establishing mechanisms for public engagement, performance tracking, and interdepartmental

coordination. The element also addresses consistency with state requirements and encourages collaboration with regional partners and the use of technology to support transparency and accessibility in governance.

Four goal areas guide this element: proactive General Plan implementation, transparent government and engagement, regional leadership, and embracing new technologies. The element promotes openness, transparency, and accessibility of information and community engagement and empowerment to participate in the City's decision-making process.

2.4 Required Discretionary Approvals

With recommendations from the City's Planning Commission, the Petaluma City Council will need to take the following discretionary actions in conjunction with the proposed project:

- Certification of the Final EIR
- Adoption of the updated General Plan

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3 Environmental Setting

This section provides a general overview of the environmental setting for the proposed project. More detailed descriptions of the environmental setting for each environmental issue area can be found in Section 4, *Environmental Impact Analysis*.

3.1 Physical Setting

3.1.1 General Geographic Setting

Petaluma is a community located in south Sonoma County along Highway 101, approximately 39 miles north of the City of San Francisco. The City encompasses approximately 14.5 square miles, and approximately 43 percent is designated for residential uses (City of Petaluma 2008). Petaluma is located between the City of Novato to the southeast and the cities of Cotati and Rohnert Park to the north. Unincorporated lands of Sonoma County border the City. The Petaluma Adobe State Historic Park is located directly east of Petaluma. Additionally, Helen Putnam Regional Park is adjacent to the southwest edge of the city.

Highway 101 (US 101) is a major north-south freeway in Sonoma County that runs through the City, generally providing three travel lanes in each direction through Petaluma–two general purpose lanes plus one high-occupancy vehicle (HOV) lane. Highway 101 provides regional access to major employment and residential centers in Sonoma County, Marin County, and San Francisco. State Route 116 (SR 116) which intersects with US 101 serves as a key east-west highway through southern Petaluma, providing access from the City of Petaluma to the Sonoma Valley. Sonoma-Marin Area Rail Transit (SMART) is a commuter rail line that has two stations in Petaluma and runs between Larkspur in Marin County and Windsor in Sonoma County. Transfers in Larkspur are provided between the SMART Station and the Golden Gate Ferry to San Francisco. The two SMART stations are located in North Petaluma on Corona Road at N. McDowell Boulevard and in downtown Petaluma at Lakeville Street and East Washington Street. Petaluma Transit provides public transit along major routes throughout the city as well as on-demand shuttle service. The city is also served by Sonoma County Transit and Golden Gate Transit. Figure 2-1 in Section 2, *Project Description*, shows Petaluma's regional location.

The Urban Growth Boundary, which is part of the Plan Area for the General Plan Update, sits just outside the city limits. The Urban Growth Boundary is largely made up of agricultural land, open space, and rural residential or very low residential land uses.

3.1.2 Topography and Drainage

Petaluma is located within the Santa Rosa-Petaluma Valley where the underlying geologic structure is characterized by sediments deposited by streams on floodplains and basins. The landscape of Petaluma is generally flat with hills and mountains rising to the south and northeast. Prior to diking and draining for agriculture, the area was mostly characterized by low lying wetlands. Petaluma is located within the Petaluma River watershed (City of Petaluma 2006). Downtown Petaluma sits along the western bank of the Petaluma River with industrial and commercial uses along the north and eastern edge of the river.

3.1.3 Climate

The climate of Petaluma is a chaparral biome which has a mediterranean climate, characterized by hot, dry summers and mild, moist winters (Underwood et al. 2018). Petaluma receives most of its precipitation during the months of October through April, though rainfall is most heavily concentrated between December and February (WRCC 2010).

3.2 Demographics

Petaluma was incorporated in 1858 and experienced intermittent growth through the early 20th century, followed by accelerated growth between 1950 and 2000. Since 2010, population growth has slowed relative to prior decades. Between 2010 and 2020, the city's population increased by approximately 3.26 percent, from 57,941 to 59,828 (California Department of Finance [DOF] 2025). This rate slightly exceeded Sonoma County's growth of approximately 0.7 percent but remained below the statewide growth rate of 5.8 percent over the same period.

Families, defined by the U.S. Census as two or more people related by birth, marriage, or adoption residing in the same household make up over half (66 percent) of Petaluma's population. The percentage of families has been increasing since 2010 (U.S. Census Bureau 2025).

As of 2023, approximately 66.9 percent of Petaluma residents identified as White, non-Hispanic. This proportion is higher than that of Sonoma County overall, indicating that Petaluma exhibits comparatively lower ethnic and racial diversity. In 2023, the median household income in the city was $109,823 and the per capita income was $59,036 (U.S. Census Bureau 2025).

As of 2025 household size in Petaluma is 2.55 persons per household (DOF 2025). There are an estimated 24,067 housing units in Petaluma as of 2020. These consist of 18,846 single family units, 4,481 multi-family units, and 740 mobile homes (DOF 2025).

3.3 Cumulative Development

CEQA defines cumulative impacts as two or more individual actions that, when considered together, are considerable or will compound other environmental impacts. Cumulative impacts are the changes in the environment that result from the incremental impact of development of the proposed project and other nearby projects. For example, construction noise impacts of two nearby projects may be insignificant when analyzed separately, but could have a significant impact when analyzed together. Cumulative impact analysis allows an EIR to provide a reasonable forecast of future environmental conditions and can more accurately gauge the effects of a series of projects.

CEQA Guidelines Section 15130(b) presents two possible approaches for analyzing cumulative impacts:

- A list of past, present, and reasonably anticipated future projects producing related or cumulative impacts, including those projects outside the control of the agency; or
- A summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such

document shall be referenced and made available to the public at a location specified by the lead agency.

For a conservative approach, the cumulative analyses included in each of the environmental analysis areas in Chapter 4 of this Draft EIR will consider buildout of local planning documents as well as past, present, and reasonably anticipated future individual development projects throughout Petaluma and adjacent areas. Local planning documents include the current City of Petaluma General Plan as well as those applicable to the nearby cities of Cotati, Rohnert Park, and Sonoma, as well as adjacent areas of unincorporated Sonoma County.

- City of Cotati General Plan (adopted 2015)
- City of Rohnert Park General Plan (adopted in 2000, General Plan update in progress)
- City of Sonoma General Plan (adopted in 2006, General Plan update in progress)
- Petaluma North Priority Development Area Specific Plan (under development)
- Central Petaluma Specific Plan (proposed for update starting in 2026)
- Corona/Ely Specific Plan (adopted in 1989)

Currently planned and pending projects in Petaluma and within one mile of the city in surrounding areas are listed in Table 3-1. Planned and pending projects that do not increase the number of residential units or square footage of non-residential uses are not included in this list. These projects are considered in the cumulative analyses in Chapter 4, *Environmental Impact Analysis*.

Cumulative analysis involves a two-step process. In the first step, the impacts of the proposed project and cumulative projects are considered together to gauge whether a cumulative impact would occur compared to baseline/background conditions. If the first step indicates a significant cumulative impact, the second step is to determine whether the proposed project's incremental contribution to the cumulative significant impact is deemed to be of a "cumulatively considerable" nature. If it is, then the project is found to have a significant cumulative impact.

By its nature, a general plan considers cumulative impacts insofar as it considers cumulative development that could occur within the city limits. CEQA requires cumulative impact analysis in EIRs to consider either a list of planned and pending projects that may contribute to cumulative effects or a forecast of future development potential. This EIR uses a hybrid approach for the cumulative analysis in Section 4, *Environmental Impact Analysis*, considering both specific planned and pending projects as well as a forecast of future development in the region. Each chapter within Section 4, *Environmental Impact Analysis*, explains the geographic setting for the cumulative analysis given that some cumulative effects tend to be fairly localized while others (e.g., greenhouse gas emissions or energy) are more appropriately considered at a regional or statewide scale based on their nature.

Table 3-1 Cumulative Plans and Projects List

Project Name	Location	Project Details	Status
City of Petaluma			
Petaluma Public Safety	866 E Washington Street	Construction of 45,000 square foot facility	Entitlements received
Deer Creek 1 – SPAR application for 217 dwellings	Bordered by Highway 101 to the north, Holly Lane to the east, and Petaluma River to the south – SB330 preliminary application	217 residential units	Complete application, in Planning Review
Deer Creek 2 -	SPAR 80 units	https://cityofpetaluma.org/deer-creek-2-spar/	Complete application, in Planning Review
Sid Commons	Terminus of Graylawn Avenue	180 residential units	Entitlements Received
Riverview Apartments	8 Casa Grande Road	264 residential units	Entitlements Received, in Building Permit Review
Tribal lands of Graton Rancheria			
Graton Resort and Casino Expansion	288 Golf Course Drive, Rohnert Park	144,000-sf casino floor; 221-room hotel, 5-level parking structure, 3,500-seat theater, swimming pool, restaurant, water tank, central plant (expansion to existing structures)	Undergoing review
City of Cotati			
Cotati Village 1 Community	Northeast corner of Gravenstein Highway and Alder Avenue	177 residential units, 29,415-sf ground floor retail or office space, and 3,449-sf clubhouse	Entitled
Cotati Village 2	Northeast corner of Gravenstein Highway and Alder Avenue	126 residential units, 2,250 square foot commercial space	Entitled
Redwood Row	Northwest corner of Highway 116 and Redwood Drive	134 residential units, 10.032 square feet of commercial space, and a public park	Entitled
Cotati Hotel and Market	Southwest corner of Old Redwood Highway and Gravenstein Highway	Four-story hotel, 153 rooms, 20,050-sf retail, and restaurant	Construction paused due to financing
Santero Way Specific Plan and TOC Area	Along Santero Way and East Cotati Avenue	Specific Plan Area: 535 new units; 459,000 sf commercial (includes Cotati Station) TOC Area: 235 new units; 192,000 sf commercial	Plan Adopted
Sonoma County			
Sonoma County Housing Element	Unincorporated county near the City of Santa Rosa (17 sites) and in the community of Penngrove (12 sites)	1,454 residential units	Rezone complete
Sonoma County General Plan Update	Unincorporated Sonoma County	Comprehensive update the County's General Plan to guide land use, housing, transportation, climate adaption, resource management, and public services through 2045	Development phase

Project Name	Location	Project Details	Status
City of Rohnert Park			
Rohnert Park General Plan Update	Citywide	Update to the existing city general plan.	Environmental Review in progress

Sources: City of Petaluma, Sonoma County, City of Cotati, City of Rohnert Park

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4 Environmental Impact Analysis

This section discusses the possible environmental effects of the City of Petaluma General Plan Update for the specific issue areas that were identified through the scoping process as having the potential to experience significant effects. A "significant effect" as defined by the *CEQA Guidelines* Section 15382:

> means 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. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

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 the City 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 pursuant to 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, *Environmental Setting*. The Executive Summary of this EIR summarizes all impacts and mitigation measures that apply to the proposed project.

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4.1 Aesthetics

This section evaluates the potential impacts to aesthetics that could arise from implementation of the City of Petaluma General Plan Update, or proposed project. The analysis includes possible impacts to scenic resources, visual character and quality, and those arising from the possible introduction of new sources of light and glare.

4.1.1 Setting

The following subsections discuss the existing setting of the project site as it pertains to scenic vistas, scenic highways, scenic resources, visual character and quality, and light and glare. The California Environmental Quality Act (CEQA) and the CEQA Guidelines focus on addressing effects to public views (defined as those experienced from publicly accessibly vantage points); therefore, public views are the focus of this discussion.

a. Scenic Vistas

For the purposes of analysis, a scenic vista is a view from a public place (roadway, designated scenic viewing spot, etc.) that is expansive and considered by the city to be important. It can be obtained from an elevated position (such as from a trail near the top of a hillside) or it can be seen from a roadway with a longer-range view of the landscape. The City of Petaluma identifies views of the hills to the west and south of the city which are visible from the Plan Area, the Sonoma Hills, Sonoma Mountain, and the Petaluma River, as scenic vistas (City of Petaluma 2021).

b. Scenic Highways

The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been officially designated. A highway may be designated scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. Scenic highways must have an approved Corridor Protection Program and remain in compliance to maintain scenic highway status.

According to the California Department of Transportation (Caltrans) State Scenic Highway Mapping System, there are no designated State scenic highways in the Plan Area. The nearest eligible State Scenic Highway is a portion of SR 116 that is in Rohnert Park which is approximately ten miles northwest of the Planning Area (Caltrans 2025).

c. Scenic Resources

Most communities identify scenic resources as important visual assets that contribute to community identity. These resources can include landforms, trees, water features, and the built environment insofar as they enhance and define the visual character of a landscape. Scenic resources include natural and open spaces, as well as the built environment, particularly if certain architecture is of historic or artistic value.

Scenic resources/scenic vistas and landmarks within the city, identified by the City of Petaluma, include (City of Petaluma 2021):

- Open ridgelines and hillsides
- Greenbelts, parks, and open spaces
- Trail and pathway corridors
- The old railroad depot
- St. Vincent de Paul Parish Church
- Petaluma Historical Library and Museum
- Historic districts and structures
- Sonoma Mountains
- Petaluma River and Tributaries
- The Great Petaluma Mill
- The Petaluma and Santa Rosa Railroad Trestle
- Red Barn Complex (Scott Ranch)
- Heritage and Landmark Trees

d. Visual Character and Quality

Visual character in the context of CEQA is an impartial description of the defining physical features, landscape patterns, and distinctive physical qualities within a landscape. Visual character is informed by the composition of land, vegetation, water, and structure and their relationship (or dominance) to one another, and by prominent elements of form, line, color, and texture that combine to define the composition of views. Visual character-defining resources and features within a landscape may derive from notable landforms, vegetation, land uses, building design and façade treatments, transportation facilities, overhead utility structures and lighting, historic structures or districts, or panoramic open space.

The City of Petaluma is located along the Petaluma River, with a backdrop of hills to the west and south, and vistas of Sonoma Mountain to the east (Figure 4.1-1, Photos 1 and 2). The rural residential, agricultural, and open space greenbelt that surrounds Petaluma is a distinctive aspect of the city's identity. The city lies in the Petaluma River Valley, which extends northwest-southeast between Sonoma Mountain and Mount Burdell. Foothills rising to these peaks flank the city, providing views of rolling, oak-dotted landscape and small-scale agricultural uses (Figure 4.1-1, Photos 3 and 4). Historically, radial streets—such as Western Avenue, D Street, and Washington Street—provide access to the river from other parts of the city and the surrounding countryside. Commercial uses focused on and around the river (Figure 4.1-1, Photos 5 and 6), while residences were built farther to the west on higher ground, out of potential flood areas. Residential subdivisions, shopping centers, and, more recently, business parks, dominate the urban landscape east of Highway 101 (Figure 4.1-1, Photos 7 and 8). Significant gateways to the city occur along Highway 101, Petaluma Boulevard, D Street, and arterial streets. Commercial and industrial uses are gathered along these transportation corridors, with heavy industry (both river dependent and agricultural support) clustering around the river; business parks and light industry close to highways on the northwest and southeast ends of town; and commercial uses on city arterials. The warehouses along the river offer a blend of historical and functional industrial activity alongside both low- and high-density residential uses.

The City includes the Petaluma Historic Commercial District which encompasses much of Downtown including 96 contributing buildings. Additionally, B and D Streets, and the "A" Street and Oakhill-Brewster neighborhoods are historical areas in Petaluma are identified as special historical neighborhoods within the Plan Area (Figure 4.1-1, Photos 9 through 13). Downtown is characterized by its historic structures and a walkable street scale. B and D Streets are tree-lined residential roads that traverse Downtown and the warehouse district on the southwest bank of the river, containing historic residences and lush, mature trees (City of Petaluma 2021). The character of residential neighborhoods varies throughout the city – ranging from a mix of modest, one-to-two-story single-family residences in intensely residential areas; to larger footprint residences nestled in the hillside districts; to higher-density housing closer to commercial cores (Figure 4.1-1, Photos 14 through 16).

Figure 4.1-1 Visual Character



Photograph 1. Petaluma River (City of Petaluma 2025a**).**



Photograph 2. Agricultural lands and open space along Matzen Ranch Circle



Photograph 3. Agricultural lands and open space at eastern gateway to the city.



Photograph 4. Open space along the western edge of the city.

Figure 4.1-1 Visual Character



Photograph 5. Historic Great Petaluma Mill and waterfront commercial uses



Photograph 6. Petaluma River and waterfront commercial/industrial development.



Photograph 7. Commercial development along Kenilworth Drive



Photograph 8. Business Park development along Corporate Circle

Figure 4.1-1 Visual Character



Photograph 9. Historic residence near downtown Petaluma (Raimi and Associates 2025a).



Photograph 10. Historic downtown (City of Petaluma 2025b).



Photograph 11. Historic Downtown (Raimi and Associates 2025b).



Photograph 12. Petaluma Historical Library and Museum (Raimi and Associates 2025c).

Figure 4.1-1 Visual Character



Photograph 13. Saint Vincent de Paul Rectory (Raimi and Associates 2025d).



Photograph 14. Single family residential home on Bodega Avenue (Raimi and Associates 2025e).



Photograph 15. Hillside residential neighborhood along Cambridge Lane



Photograph 16. Medium-high density residential development on Jacquelyn Lane (Raimi and Associates 2025f)

e. Light and Glare

In the context of the CEQA Guidelines, light is nighttime illumination that stimulates sight and makes things visible; glare is difficulty seeing in the presence of bright light such as direct or reflected sunlight. Typical sources of light include streetlights, exterior building lighting, and interior building lighting shining through windows as well as vehicle headlights. Typical sources of glare include reflective building materials such as large windows or reflective coatings and parked cars.

Light conditions in the Plan Area are typical of those found in urban and suburban areas (e.g., roadway lighting, commercial parking lot and building lighting, residential buildings, headlights from motor vehicles). Sources of daytime glare include direct beam sunlight and reflections from the water, windows, architectural coatings, glass, and other reflective surfaces. Sources of nighttime light include structure illumination, decorative landscape lighting, lighted signs, streetlights, and vehicle headlights, particularly from Highway 101, SR-116, and other high traffic roadways.

4.1.2 Regulatory Setting

a. Federal Regulations

No existing federal plans, policies, regulations, or laws related to aesthetics are applicable to the proposed project.

b. State Regulations

California Scenic Highway Program

The California Department of Transportation manages the State Scenic Highway Program. The program was created in 1963 with the goal of protecting the aesthetic significance of scenic highways throughout California. According to California Streets and Highways Code Sections 260 through 263, a highway may be designated as scenic based on its scenic quality, how much of the natural landscape can be seen by travelers, and the extent to which development intrudes on the traveler's enjoyment of the view. The State Scenic Highway Program's Scenic Highway System List identifies scenic highways that are either eligible for designation or have already been designated as such. Caltrans manages the State Scenic Highway Program and defines a scenic highway as any freeway, highway, road, or other public right-of-way, that traverses an area of exceptional scenic quality. Suitability for designations as a State scenic highway is based on the vividness, intactness, and unity of their view corridors, as described in Caltrans' Scenic Highway Guidelines (Caltrans 2008):

- *Vividness* is the extent to which the landscape is memorable. This is associated with the distinctiveness, diversity, and contrast of visual elements. A vivid landscape makes an immediate and lasting impression on the viewer.
- *Intactness* is the integrity of visual order in the landscape and the extent to which the natural landscape is free from visual intrusions (e.g., buildings, structures, equipment, grading).
- *Unity* is the extent to which development is sensitive to and visually harmonious with the natural landscape.

California Code of Regulations, Title 24

Title 24 of the California Code of Regulations (CCR), also known as the California Building Standards Code, consists of regulations to control building standards throughout the State. The California Electrical Code (Title 24, Part 3) and Green Building Standards Code (also referred to as the CALGreen Code; Title 24, Part 11) stipulate minimum light intensities for safety and security at pedestrian pathways, circulation ways, and paths of egress.

- The CALGreen Code (24 CCR, Part 11, Paragraph 5.106.8, *Light Pollution Reduction*) provides that all nonresidential outdoor lighting must comply with the following:
  - The minimum requirements in the California Energy Code (CEC) for Lighting Zones 0 to 4 as defined in Chapter 10 of the California Administrative Code;
  - Backlight ratings as defined in the Illuminating Engineering Society's Technical Memorandum on Luminaire Classification Systems for Outdoor Luminaires (IES TM-15-11);
  - Uplight and Glare ratings as defined in the CEC; and
  - Allowable backlight, uplight, and glare ratings not exceeding those shown in Table 5.106.8 in Section 5.106.8 of the CALGreen Code, or a local ordinance lawfully enacted pursuant to Section 101.7 of the CALGreen Code, whichever is more stringent.

The City of Petaluma provides indoor and outdoor lighting requirements as part of the City's development standards based on Title 24 (City of Petaluma 2024a).

SB 743

SB 743 established Transit Priority Areas (TPAs) which are defined as areas within 0.5 miles of an existing or planned major transit stop. There are two TPAs within the City of Petaluma, one near downtown and one in northern Petaluma centered around the Petaluma North SMART train station (ABAG 2021). Development within TPAs are encouraged to reduce Vehicle miles travelled. SB 743 also allows for streamlined CEQA review for projects within a TPA. SB 743 mandates that, for CEQA purposes, aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a Transit Priority Area shall not be considered significant impacts on the environment.

c. Regional and Local Regulations

Sonoma County Community Separators

Community Separators are rural open space and agricultural lands that separate cities, prevent sprawl, protect natural resources, and provide visual relief from continuous urbanization (County of Sonoma 2025). The lands within Community Separators are frequently subject to pressure for development because they are close to developed areas and major roads. Two Community Separators are located near the Plan Area including in the Petaluma-Rohnert Park separator (located between Petaluma, Penngrove, and Rohnert Park-Cotati) and a second Separator located south of the city, beginning at the southern city limits of Petaluma and extending towards Sears Point Road (County of Sonoma 2025). The Community Separator designation does not affect underlying land use designations or allowable land uses.

City of Petaluma General Plan

The Land Use, Growth Management, and the Built Environment Element of the Petaluma General Plan (City of Petaluma 2021) contains goals and policies related to aesthetics and visual resources, including:

> **Policy 1-P-3:** Preserve the overall scale and character of established residential neighborhoods.
>
> **Policy 1-P-13:** Maintain Downtown as the City's geographic and symbolic center and a focus of commercial and cultural activities.
>
> **Policy 1-P-14:** Require provision of street trees, landscaping, parking and access features to help integrate land uses and achieve an effective transition between uses of disparate intensities.

Goal 1-G-2: Hillsides/Ridgelines. Preserve the essential scenic and natural resources of the open ridgelines and hillsides that help define the unique character of Petaluma.

> **Policy 1-P-16:** Allow development in hillside areas that preserve ridgelines and are site sensitive.
>
> **Policy 1-P-17:** Retain ridgelines and prominent hillsides as open space through appropriate clustering and/or transfer of density to other parts of a development site (applies to Rural and Very Low Residential areas within the West Hills, South Hills and Petaluma Boulevard North subareas only).

Goal 1-G-3: Land Use. Maintain a well-defined boundary at the edge of urban development.

> **Policy 1-P-18:** Maintain a permanent open space around the city by the continuation of the Urban Separator and the use of an Urban Separator Pathway, as designated.
>
> **Policy 1-P-23:** Establish public scenic or overlook areas in appropriate locations within the Urban Separator concurrently with project design.
>
> **Policy 1-P-27:** Encourage innovative site and building design to address parking solutions such as shared, structured, and/or underground facilities.
>
> **Policy 1-P-33:** Every effort shall be made to keep the visual separation that now exists between communities, outside the Urban Growth Boundary. All references to the Urban Limit Line in this General Plan and other City policies, ordinances, and regulations shall be considered references to the Urban Growth Boundary.
>
> **Policy 1-P-36:** For properties adjoining the Urban Growth Boundary, it is the intent of the City that projects developed in the City or requesting City services shall be of limited density (as shown on the General Plan Land Use Map), unless greater density is required to satisfy the requirements of state housing laws, and shall be designed to preserve the visual and physical openness and preserve the aesthetic and natural features of that portion of the property proximate to the rural areas outside of the designated Urban Growth Boundary
>
> **Policy 1-P-43:** Development shall incorporate the River as a major design focal point, orienting buildings and activities toward the River and providing water access, to the extent deemed feasible.

Goal 1-G-7: Trees and the Built Environment. Recognize that trees are a community asset, an essential element in the interface between the natural and built environment, and part of the urban infrastructure.

> **Policy 1-P-49:** Preserve existing tree resources and add to the inventory and diversity of native/indigenous species.

The Community Design, Character, and Green Building Element of the Petaluma General Plan (City of Petaluma 2021) contains goals and policies related to aesthetics and visual resources, including:

Goal 2-G-1: City Form and Identity. Preserve Petaluma's setting as an urban place surrounded largely by rural land uses and densities, agriculture and open space.

Goal 2-G-2: City Form and Identity. Maintain and enhance Petaluma's unique identity and sense of community, history and place.

> **Policy 2-P-3:** Maintain landmarks and aspects of Petaluma's heritage that foster its unique identity.
>
> **Policy 2-P-5:** Strengthen the visual and aesthetic character of major arterial corridors.
>
> **Policy 2-P-6:** Create a strong sense of entry into the city at key locations, identified as Gateways. Each gateway should be considered individually with some requiring architectural and/or landscape treatments and others more simply protecting/ enhancing what already exists (e.g. cultural landscapes and ecological diversity) to provide a sense of transition or entry to Petaluma.
>
> **Policy 2-P-8:** Require single-loaded streets along the Urban Separator and riparian corridors to ensure the creation of linear open space corridors with maximum public accessibility, visibility, and opportunities for stewardship.

Goal 2-G-4: Washington Corridor. Encourage the evolution of land uses to create a corridor of mixed-use development.

> **Policy 2-P-23:** Facilitate development patterns that provide an urban edge along East Washington Street, providing visual continuity and cohesiveness, and increased safety.

Goal 2-G-6: Payran-McKinley. Maintain and develop the area with a diverse range of residential densities appropriate to the character of this central urban neighborhood while enhancing the creek corridors.

> **Policy 2-P-35:** Through site planning techniques, protect residential units from visual and noise impacts from Highway 101.

Goal 2-G-7: Petaluma Boulevard South. Create a strong sense of entry into the community and provide a transition from the highway to the Central Petaluma Specific Plan area.

> **Policy 2-P-41:** Provide gateway improvements both east and west of the Highway 101 overcrossing.
>
> **Policy 2-P-42:** Provide vistas eastward to the Petaluma River and across toward Sonoma Mountain.

Policy 2-P-44: In the stretch between Mountain View Avenue and D Street, maintain a mix of uses similar to those at CPSP, but at a lower height and intensity (to address views, shading, sense of scale, etc.), while preserving historic structures along the corridor

Goal 2-G-8: North of Cinnabar Avenue. Maintain the rural character of the entry roadway with large median trees and significant building setbacks along Petaluma Boulevard North.

Policy 2-P-47: Reinforce Petaluma Boulevard North as a gateway into the city. Maintain the area north of Cinnabar Avenue along the western edge of Petaluma Boulevard in a rural character (except for a minor neighborhood commercial node at Corona Road), with trees, vegetation, and building setbacks reinforcing the historical design of the corridor as a landscaped boulevard.

Policy 2-P-48: Maintain the rural character to the west of this corridor by limiting density: To primarily Rural Residential uses west and north of Gossage Avenue.

- A combination of Rural and Low Density Residential uses south of Gossage Avenue.
- Limiting the mixed use of the KOA site to allow continuation and possible expansion of the variety of uses on the site (i.e. recreation/ camping, support commercial, RV storage, outdoor recreational activities, seasonal events, etc.)

Policy 2-P-50: Ensure that all development along Petaluma Boulevard North, north of Cinnabar Road, provides significant building setbacks, with vegetation and trees to maintain a rich ecological diversity and landscaped character along the street.

Goal 2-G-9: South of Cinnabar Avenue. Create a transition from the northern rural gateway to Downtown.

Policy 2-P-56: Preserve and enhance the oak woodland setting and integrate development to protect and enhance these resources.

Goal 2-G-10: Petaluma River. Incorporate the River as a focal point for development along the Boulevard.

Policy 2-P-59: Promote greater accessibility and views to Petaluma River through road extensions, bikeways, and trails, including:

- Requiring new development to be oriented to the river, and provide continuous public access parallel to the riverfront.
- Extending Industrial Avenue south of Corona Road.
- Requiring a new pedestrian/bicycle connection to the river east of Jessie Lane and intersecting with Petaluma Boulevard North.
- Requiring a new street connection to the river at, or near, the intersection of Gossage Avenue.
- Requiring paths from the area of Jessie Lane southwest toward Magnolia Avenue to link with existing neighborhoods.
- Enhancing the ecological diversity of the riparian corridor.
- Requiring development to enhance the natural ecology along the river.

Goal 2-G-11: West Hills. Reinforce the existing rural character and densities of the hillside neighborhoods.

Policy 2-P-62: Preserve the rural aspect of the area by maintaining the existing density (Rural, Very Low and Low Residential) and land use patterns.

Policy 2-P-66: Develop gateways at City entrances on Bodega Avenue, Western Avenue and "D" Street that recognize the transition from a rural to urban area by enhancing existing natural to urban tree patterns.

Policy 2-P-68: Preserve the uniqueness of the property at the intersection of D Street and Windsor Drive (Scott Ranch) through incorporation of the following criteria in the future development process:

- Respect the gateway value with a minimum 100'-setback from D Street with no sound walls. Maintain a minimum of a 100'-setback along Kelly Creek and its tributaries.
- Preserve the red barns in place, designate them historic and encourage the incorporation of a nature study area.
- Preserve and maintain habitat areas and trees.
- Avoid slide areas and minimize grading.
- Provide a minimum 300'-wide Urban Separator.
- Provide a minimum of a 3-acre park site.
- Include the provision of trailhead facilities with restrooms and parking with a connection to Helen Putnam Regional Park.
- Respect City hillside regulations.

Goal 2-G-12: South Hills. Reinforce the existing natural character of the hillside neighborhoods, preserving topography and ridgelines.

Policy 2-P-71: Develop a strong gateway at I Street with landscape treatment and views of the Petaluma Valley. Maintain the rural character and interface of the adjacent outlying areas of the UGB when designing gateway improvements.

Policy 2-P-72: Preserve the existing public viewsheds featuring the Petaluma community.

Policy 2-P-75: Allow development and redevelopment to intensify the land uses while preserving the quality and character of the Old East D Street neighborhood.

Policy 2-P-76: Develop the area with a diverse range of commercial and residential uses with intensity and character appropriate to a central urban neighborhood.

Policy 2-P-77: Capitalize on opportunities to provide Regional and Community Commercial facilities at the old Kenilworth school site, while integrating new development with the intended scale and new character for East Washington Street.

Policy 2-P-104: Keep Corona Road as a rural two-lane road (east of Sonoma Mountain Parkway) with an improved cross-section to facilitate safer bicycle and pedestrian use utilizing innovative design standards that increase connectivity and safety while maintaining the rural context.

Policy 2-P-112: Encourage neighborhood beautification projects emphasizing street tree programs and traffic calming (e.g. medians, roundabouts, road diets, street trees, etc.).

Goal 2-G-17: West. Preserve the density, scale, architectural quality and character of existing neighborhoods while allowing intensification of Downtown's unique mix of uses.

Policy 2-P-114: Maintain design and development standards in the Development Code reflective of traditional development patterns:

- Allow for smaller lots and setbacks.
- Include design and structure massing controls to prevent large homes on small lots.

Policy 2-P-115: Allow lot consolidation in residential areas only when finding that this will not negatively impact the existing neighborhood character.

Goal 3-G-1: Historic Preservation. Identify, recognize and protect Petaluma's unique and irreplaceable cultural heritage through the implementation of policies and programs that maintain the character and identity of the community, enhance the quality of the built environment, encourage awareness and appreciation for its history and culture, and contribute to its economic vitality. Ensure that future plans, ordinances, and City programs are complimentary to the historic preservation goals and policies contained within this plan.

Policy 3-P-1: Protect historic and archaeological resources for the aesthetic, cultural, educational, environmental, economic, and scientific contribution they make to maintaining and enhancing Petaluma's character, identity and quality of life.

Policy 3-P-5: The protection of historic resources shall be a key consideration and an equal component in the development review process.

Policy 3-P-6: Ensure that new development adjacent to eligible historic and cultural resources is compatible with the character of those resources.

Policy 3-P-7: Recognize landscape features, including trees in both their urban and natural environment as part of Petaluma's identity and part of the character defining features of the City's historic districts.

Goal 5-G-7: Neighborhood Traffic Management. Enhance quality of life and community character within neighborhoods through the use of neighborhood traffic management techniques.

Goal 6-G-1: Parks and Recreation. Retain and expand city-wide park and recreation assets and programs to maintain the quality of life they provide to the community.

Policy 6-P-1: Develop additional parkland and recreational facilities in the city, particularly in areas lacking these facilities and where new growth is proposed, to meet the standards of required park acreage.

Program F: Require land development along designated trails and pathway corridors to provide sufficient right-of-way for trails and amenities and to ensure that adjacent new development does not detract from the scenic and aesthetic qualities of the corridor.

Policy 9-P-7: Incorporate access and amenity features into retail, rehabilitation and intensification projects, including streetscape improvements, relocation of parking behind buildings to add visual appeal, and improved bicycle and pedestrian connections between existing and new retail areas and to adjoining neighborhoods to promote non-auto access.

Policy 9-P-9: Incorporate sustainability as a characteristic of Petaluma's image.

City of Petaluma Municipal Code

Section 7 of the Petaluma Municipal Code (PMC) establishes standards for historic resource conservation and preservation, including resources which contribute to the city's character and identity. Chapter 8.28 provides protections for heritage and landmark trees, which are considered scenic resources that contribute to the city's character. Chapter 14.44 provides comprehensive standards for the development of telecommunication facilities, including those protecting the visual character and the city's scenic corridors and ridgelines from visual encroachment associated with overhead utility infrastructure. Chapters 14.44.220 and 20.36.130 regulate lighting fixtures, requiring lights to be shielded and directed downward to minimize offsite light spill.

City of Petaluma Implementing Zoning Ordinance

Chapter 4 of the Petaluma Zoning Ordinance provides basic standards for site layout and building size for each designated land use. Chapter 7 establishes standards for specific land uses, specifically Chapter 7.120 establishes objective design standards for qualifying residential projects - including those which enhance and reflect the city's community character. Chapters 11.070, 20.030, and 21.040.D regulate lighting standards to minimize light spill and offsite glare by requiring fixtures to be shielded, downward-facing, and screened as not to interfere with public views. Chapter 16 establishes regulations for development of properties in hillside and ridgeline areas in order to preserve scenic views and natural resources which characterize the city. Chapter 24.050 adopts the City's site plan and architectural review process to promote orderly development and ensure compatible, high-quality design implementation. Chapter 15 provides guidelines for Historic Site Plan and Architectural Review which is required for development within a historic district in order to preserve historic structures and ensure consistency with existing development. Chapter 17 includes regulations for tree removal in order to protect heritage trees within the city. Additionally, Chapter 18 of the IZO requires the integration of public art into private and public development projects.

There are also several zoning overlays in the city, including the downtown housing and economic opportunity overlay, which serve to encourage residential development while also preserving historic buildings and the commercial historic district.

City of Petaluma Objective Design Standards

The City of Petaluma adopted objective design standards in 2024. These standards set design guidelines for qualifying residential development in order to strengthen community character and further community goals. Specifically, The Objective Design Standards create requirements for site and building design including facade articulation and modulation, landscaping, internal circulation, screening, among others (City of Petaluma 2024b).

Central Petaluma Specific Plan

The Central Petaluma Specific Plan (City of Petaluma 2003) applies to approximately 400 acres of the city near downtown Petaluma. This area is a small part of the Plan Area for the proposed project.

The Central Petaluma Specific Plan Land Use, Community Design, Public Space and River Access, Circulation, and Historical Preservation Elements contain goals and policies related to aesthetics and visual resources, including:

Land Use Element Goal 1: Support existing viable uses, and provide for new uses that complement and complete the urban fabric.

> **Objective 1:** Provide for a mixture of industrial, office, retail, and compatible residential development.
>
> **Objective 4:** Provide for a mix of compatible light industrial, office, retail and residential uses that maintains the unique character of the area.
>
> **Policy 4.1:** Allow office, research and development, and light industrial uses that are consistent and compatible with the existing use, scale and character of the area.

Community Design Element Goal 1: Enhance Central Petaluma's identity and unique sense of place.

Community Design Element Goal 2: Create a strong sense of entry and orientation within Central Petaluma.

Community Design Element Goal 5: Utilize public space to open up views and vistas from inland areas to the river and the mountains.

Community Design Element Goal 6: Maintain visual landmarks.

Community Design Element Goal 7: Emphasize creativity and sustainability in design.

Public Space and River Access Element Goal 5: Utilize public space to open up views and vistas from inland areas to the river and the mountains.

Public Space and River Access Element Goal 8: Enhance the public space character of city streets.

Circulation Element Goal 4: Complete the urban pattern with a pedestrian-scaled grid of streets.

Historical Preservation Element Goal 1: Protect, enhance, perpetuate, and adaptively reuse properties of historic and architectural significance.

> **Objective 1:** Preserve the industrial and commercial complex of structures including the Dairymen's Feed and Supply Coop, one of the community's most visible structures.

Petaluma SmartCode

The SmartCode is a form-based code that implements the CPSP. The SmartCode provides a system for ensuring that the design of the public realm and the design of private buildings are rigorously coordinated and are focused on the pedestrian experience. It defines what is essentially a "kit of parts", with instructions, for building an urban district. The SmartCode is designed to be used both as a guide for property owners and their designers - to allow them to understand from the outset the parameters that the community has set for development in Central Petaluma - and also as a framework and systematic checklist for the City's use as it plans its investment in capital projects and evaluates the design of proposed building projects within the CPSP area.

Petaluma River Access and Enhancement Plan

The Petaluma River Access and Enhancement Plan (City of Petaluma 1996) contains policies related to aesthetics and visual resources, including:

Goal 2.1: Encourage the design of flood protection alterations in as environmentally sensitive and aesthetically pleasing a manner as possible.

Goal 3.1: Encourage the development of properties along the river corridor in a manner that responds to the riverfront location, enhances the riverfront environment, and provides public access, and is consistent with the general plan, as further defined by this plan.

Goal 3.2: Encourage the renovation and reuse of existing facilities along the river to reflect the traditional waterfront heritage of the community.

Goal 3.6: Encourage preservation, restoration and enhancement of the river's natural habitats, in order to reestablish the riparian landscape as an integral and prominent part of the city.

Goal 5.10: Provide informal resting areas with seating and views of significant features along the river.

Objective 3.3.3(1): Emphasize the natural features of the greenway and landscape setting throughout the upstream river segment, integrating the riparian corridor into the site design of new development

Objective 3.3.3(2): Preserve significant views to the mountains from the river and to the rit7er from adjacent roads.

Policy 3.3.4(18): New development should emphasize its location on the greenway, and encourage awareness and enjoyment of the river and use of the trail system.

Policy 3.3.4(22): Future improvements within the upstream segment shall place special emphasis on the protection of existing view corridors between the greenway and the Sonoma Mountains.

Objective 3.5.3(1): Maintain a balance between the urban and industrial nature of this segment, the requirements for flood control modifications, vegetation appropriate for wildlife habitat, public access, privacy and security, and views of the river and industrial areas.

Objective 3.5.3(2): New development along the river should reflect existing industrial forms and materials, and provide an active urban, pedestrian oriented edge to the historic downtown.

Objective 3.6.3(1): Fully capitalize on the existing dense urban activity and historic architectural character along the river by emphasizing river orientation of new and existing buildings, and pedestrian and boating activities at the water's edge.

Policy 3.6.4(12): Maintain open views of the historic buildings rather than screening with dense trees.

Policy 3.6.4(14): Allow non-aggressive, non-native vegetation where it will beautify a scene, provide a splash of color, or create a desired aesthetic effect.

Policy 3.7.4(10): Reinforce and perpetuate the izard warehouse "wall" character that has historically existed along this river segment.

Policy 3.7.4(14): Preserve the historic and aesthetic character of the First Street warehouse area.

Petaluma SMART Rail Station Areas: TOD Master Plan

This plan, adopted in 2013, outlines future development in the SMART Rail Station areas within the City of Petaluma. It includes discussion of residential development and historic preservation. The plan also includes recommendations for design elements such as building height (City of Petaluma 2013).

Petaluma Historic Commercial District Design Guidelines

The City of Petaluma adopted design guidelines for development within the historic commercial district in 1999. These guidelines apply to any rehabilitation, remodel, or alteration as well as routine maintenance work on buildings within this area. The guidelines regulate these activities in order to preserve the historic architecture and character within the historic commercial district.

4.1.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

Visual resources are generally defined as including natural and built features in the visible landscape. Landforms, water, and vegetation are among the natural elements that define an area's visual character. Buildings, roads, and other structures reflect human modifications to the natural landscape. The assessment of aesthetic impacts involves a qualitative analysis that is inherently subjective in nature because different viewers react to views and aesthetic conditions differently. This evaluation is limited to public views because impacts to private views do not constitute an environmental impact under CEQA. This analysis evaluates changes to the existing visual environment resulting from the proposed project.

Scenic Vistas/Scenic Resources

The evaluation of potential impacts to scenic vistas and scenic resources is based on review of the Plan Area and surrounding environment. In determining the level of significance, this analysis focuses on the nature and magnitude of visual change in relationship to scenic vistas and scenic resources, the number of public vantage points from where this change would be visible, and the number of viewers who would be affected by this change. In addition, this analysis considers viewer sensitivity as a function of the visibility of resources in the landscape, the proximity of the viewers to the visual resource, elevation of the viewers relative to the visual resource, frequency and duration of views, numbers of viewers, and types and expectations of individuals and viewer groups.

Visual Character and Quality of Public Views

CEQA Guidelines Section 21071 defines an urbanized area as:

1. An incorporated city that has either:
    a. A population of at least 100,000 persons, or
    b. A population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons.
2. An unincorporated area that is either:

a. Completely surrounded by one or more incorporated cities and both of the following criteria are met:
   i. The population of the unincorporated area and the population of the surrounding incorporated city or cities equals at least 100,000 persons
   ii. The population density of the unincorporated area at least equals the population density of the surrounding city or cities.

b. Located within an urban growth boundary and has an existing residential population of at least 5,000 persons per square mile.

Pursuant to CEQA Guidelines Section 21071, the Plan Area is in a non-urbanized area because the City of Petaluma has a population of 59,828 (California Department of Finance 2025). Therefore, it does not meet criterion a because it is an incorporated city but does not have a population over 100,000 residents. Additionally, the parts of the Plan Area outside the city are located within an urban growth boundary, but do not have an existing residential population of least 5,000 persons per square mile[1]. Therefore, the entire Plan Area is within a non-urbanized area. The impacts on visual character or quality attributable to proposed project implementation were evaluated relative to visual conditions under buildout, as compared to existing visual experiences from public viewpoints within the Plan Area. Given that the proposed project would facilitate development in a non-urbanized area, the impact discussion of visual character and views is focused on degradation of the existing visual character or quality of public views of the Plan Area and its surroundings.

It should be noted that, as described under Section 4.1.2, Regulatory Setting, there are two TPAs within the City. Pursuant to Public Resources Code Section 21099(d)(1), "aesthetic and parking impacts of residential, mixed-use residential, or employment center projects on an infill site within a transit priority area shall not be considered significant impacts on the environment." Therefore, this analysis focuses on areas outside the two TPAs within the Plan Area.

Light and Glare

The analysis of light and glare impacts focuses on the nature and magnitude of changes in light and glare conditions associated with implementation of the proposed project on the Plan Area and surroundings. If proposed and existing light and glare conditions are similar, then the visual compatibility would be high. If the proposed light and glare conditions strongly contrast with existing light and glare conditions or conflict with applicable policies and guidelines, then light and glare compatibility would be low, and significant impacts may result.

Significance Thresholds

In accordance with Appendix G of the CEQA Guidelines, an impact related to aesthetics would be significant if the proposed project would:

1. Have a substantial adverse effect on a scenic vista;
2. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;

[1] The residents per mile calculation for The incorporated city of Petaluma is approximately 4,031 persons per square mile (58,445 residents/ 14.5 miles = 4,030.7 residents per square mile). The unincorporated parts of the Plan Area are less densely populated than the city; therefore, it is unlikely they would have 5,000 residents per square mile.

3. In non-urbanized areas, substantially degrade existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; and/or
4. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

b. Project Impacts and Mitigation

Threshold 1: Would the project have a substantial adverse effect on a scenic vista?

Impact AES-1 THE GENERAL PLAN UPDATE WOULD NOT FACILITATE DEVELOPMENT THAT COULD SUBSTANTIALLY OBSTRUCT SCENIC VIEWS, INCLUDING THOSE OF HILLSIDES AND RIDGELINES AND THE PETALUMA RIVER. ADHERENCE TO GENERAL PLAN UPDATE POLICIES AND CHAPTER 16 OF THE IMPLEMENTING ZONING ORDINANCE WOULD REDUCE POTENTIAL IMPACTS TO SCENIC VIEWS AND THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

As described in Section 4.1.1, *Setting,* there are no state-identified scenic vista points in proximity to the Plan Area. Locally designated scenic views in Petaluma include views of the hills to the west and south of the city which are visible from the Plan Area, the Sonoma Hills, Sonoma Mountain, and the Petaluma River, as scenic vistas (City of Petaluma 2021). From central parts of the city, public views of the surrounding mountains are largely obscured due to intervening features (i.e. structures, topography, distance). Views of the Petaluma River are also available in its proximity, but distant views of the river are generally blocked by surrounding development. Development of the proposed project is projected to result in approximately 6,449 net new residential units and 1,414,741 square feet of new non-residential land uses by the year 2050, primarily located within urbanized areas of the Plan Area (see Section 2, *Project Description*). Development facilitated by the proposed project would generally occur on sites that have already been developed, or infill sites that are surrounded by existing development where views of scenic resources such as the mountains or the river are already limited. Additionally, scenic views would continue to be preserved along Highway 101 and at local parks and open spaces, and become more accessible toward the perimeter of city limits where development becomes less dense.

Although development facilitated by the proposed project could result in the obstruction of intermittent views of scenic resources, such impacts would be limited to urbanized areas of the Plan Area where existing views are already constrained. Further, the General Plan Update includes the following objectives and policies within the Land Use Element that would minimize impacts to scenic vistas:

Goal LU-2: **Surrounding Open Space is Preserved.** The open space surrounding the city is preserved and protected.

> **Policy LU-2.4: Preserve scenic ridgelines and hillsides**. Preserve the essential scenic and natural resources of the open ridgelines and prominent hillsides that help define the unique character of Petaluma, including the West Hills, the South Hills, and near Petaluma Boulevard North.

Goal LU-5: Goal LU-5: Land Uses Along the Petaluma River Advance Ecological, Resilience, and Public Access Goals. Land uses along the Petaluma River and other riparian areas enhance natural habitat and the watershed, mitigate flooding, and maximize public access.

> **Policy LU-5.1: Preserve open space along the Petaluma River.** Preserve open space adjacent to the Petaluma River to protect water quality, prevent erosion, stabilize the riverbank, protect natural habitat, mitigate flooding, and allow for infrastructure improvements, trails and pathways, and public access.

Furthermore, upon adoption of the General Plan Update, the Petaluma River Corridor would be divided into three Resilience Sectors for regulatory purposes: the Upstream, Core, and Downstream sectors. Within these Resilience Sectors, the General Plan Update would establish four types of areas: Buffer Areas, Retention Areas, Preservation Areas, and River-Oriented Development Areas. Each River Area within each Resilience Sector would require different setbacks, development restrictions, and flood adaptation or mitigation strategies. Most notably, the General Plan Update would include buffers within the Upstream Resilience Sector to be a minimum 330 feet from the top of the bank, consistent with the River Access and Enhancement Plan, which would further reduce impacts to the views of the Petaluma River in areas where new development is permitted.

As stated in Section 2, *Project Description*, Subsection 2.3.3, *Project Objectives and Guiding Principles*, one of the primary objectives of the General Plan Update is to preserve and enhance Petaluma's natural environment and open spaces. Policies in the proposed Land Use Element would encourage the protection of scenic vistas including views of hillsides, ridgelines, and the Petaluma River and its tributaries. Additionally, future development facilitated by the General Plan Update would be required to comply with Chapter 16 of the IZO which establishes regulations for development near hillside and ridgeline areas with the intent to preserve the scenic and natural resources in these areas. Specifically, it restricts development depending on the slope of the hillside and requires architectural drawings, visual analysis, and landscape plans for buildings proposed within subdivisions located on hillsides within the city. Future development involving new buildings, development in the historic district, subdivisions with more than five units, development in the South or West Hills, and developments with more than one dwelling unit per lot would also be subject to Site Plan and Architectural Review (SPAR) to ensure development would not substantially degrade existing scenic views within the city. Adherence to General Plan Update policies, Chapter 16 of the IZO, and SPAR would minimize the potential for new development facilitated by the proposed project to have a substantially adverse effect on scenic views within the Plan Area. Therefore, the proposed project's impact on scenic vistas would be less than significant.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2:	Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Impact AES-2 THERE ARE NO DESIGNATED STATE SCENIC HIGHWAYS IN THE VICINITY OF THE PROPOSED PROJECT. NO IMPACT TO SCENIC RESOURCES WITHIN A STATE SCENIC HIGHWAY WOULD OCCUR.

As described in Section 4.1.1, *Setting*, there are no designated state scenic highways in the vicinity of the Plan Area. Individual parcels within the Plan Area are not visible from a designated scenic

highway. Consequently, the proposed project would not have the potential to result in damage to scenic resources within a state scenic highway. No impact would occur.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

No impact.

Threshold 3:	Would the project, 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?

Impact AES-3 IMPLEMENTATION OF THE PROPOSED PROJECT WOULD CHANGE LAND USE DESIGNATIONS AND DEVELOPMENT STANDARDS INCLUDING RESIDENTIAL DENSITY, BUILDING HEIGHTS, ALLOWED USES, AND PARKING REQUIREMENTS. HOWEVER, SCENIC QUALITY WOULD BE PROTECTED THROUGH ADHERENCE TO APPLICABLE OBJECTIVE DESIGN STANDARDS, DEVELOPMENT STANDARDS IN THE IMPLEMENTING ZONING ORDINANCE, THE SMARTCODE, HISTORIC COMMERCIAL DISTRICT DESIGN GUIDELINES, AND IMPLEMENTATION OF GOALS AND POLICIES IN THE PETALUMA GENERAL PLAN THAT ADDRESS VISUAL CHARACTER AND QUALITY OF PUBLIC VIEWS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Pursuant to Public Resources Code Section 21071, the City of Petaluma is not an "urbanized area" because it is not a city or part of a group of contiguous cities with a population of 100,000 or more. Additionally, the unincorporated parts of the Plan Area do not have an existing population exceeding 5,000 people per square mile.

As described under Impact AES-1, there are existing scenic views of the hills to the west and south of the Plan Area, the Sonoma Hills, Sonoma Mountain, and the Petaluma River.

The proposed project would facilitate development on previously undeveloped parcels and would change development standards including residential density, building heights, allowed uses, and parking standards. This new development and intensification of existing development could affect scenic vistas through obstruction of views, alteration of natural landscapes, and changes to the City's skyline. The adjusted standards would apply to sites within the city where the location, height and size of the proposed addition is appropriate for the site and existing configuration of the structure, and where the addition is substantially similar in size and height of structures in the immediate vicinity. Additionally, development and redevelopment would be concentrated on infill sites that are already developed and largely surrounded by development within the city which would ensure increased height allowances would have a minimal impact on existing public views. Furthermore, adherence to proposed general plan policies, Chapter 16 of the IZO (Hillside Protection), Objective Design Standards, as well as the City's SPAR process, as applicable, would reduce these potential impacts. Additionally, as described in Section 2, *Project Description*, within Section 2.3.3, *Project Objectives and Guiding Principles*, the General Plan Update would prioritize infill development within the city and not on the edge of town where the hills are more prominent. The General Plan Update also supports development that compliments the existing natural and built environment. This is illustrated by the following goals and policies included in Land Use Element of the General Plan Update and those included under impact AES-1:

Goal LU-3: Development is Focused Within City Boundaries.

> **Policy LU-3.1: Facilitate infill development.** Facilitate infill urban development at densities and intensities depicted on the Land Use Map.

Goal LU-10: **Strong Identity and Sense of Place.** Petaluma's unique identity as an agricultural and river town and strong sense of place is enhanced.

> **Policy LU-10.1: Maintain heritage sites.** Maintain Petaluma's industrial, agricultural, and river-oriented heritage that foster its unique identity and contribute to its overall historic character.

Implementation of proposed General Plan policies, the City's Site Plan and Architectural Review process, and objective design standards (as applicable) would ensure that future development would be designed in a way that is concentrated in infill areas, consistent with nearby development, consistent with the existing character of the city, and which preserves scenic views and resources within the Plan Area as well.

Additionally, future development, maintenance, or redevelopment within historic districts would be subject to the guidelines for Historic Site Plan and Architectural Review included in Chapter 15 of the IZO. This would ensure that the historic architecture and nature of existing buildings in historic districts is preserved. Impacts to historic resources are discussed further in Chapter 4.5, *Cultural Resources*. In addition to adherence to General Plan Update goals and policies, all new development and modifications to existing structures facilitated by the proposed project would be subject to design, density, and height standards applicable to particular land use and zoning designations. Compliance with established standards and the above goals and policies in the General Plan Update would ensure that new development complements and enhances the City's existing visual character and quality. Therefore, new development associated with the proposed project would not substantially degrade Petaluma's existing visual character or quality of public views, and the impact to visual character and quality would be less than significant.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 4:	Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Impact AES-4 DEVELOPMENT FACILITATED BY THE PROJECT WOULD INTRODUCE NEW SOURCES OF LIGHT AND GLARE IN THE PLAN AREA. WITH ADHERENCE TO EXISTING ORDINANCES THAT REGULATE LIGHT AND GLARE FOR NEW DEVELOPMENT, IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As described in Section 4.1.1, *Setting,* the Plan Area is located within a developed community with open space and agricultural zones at its edges. Existing light levels in the Plan Area are moderately high in the developed areas, with car headlights, streetlights, exterior building lighting, and lighted signs contributing to the lighting levels. Lighting resulting from development facilitated by the proposed project would contribute to existing lighting levels in the Plan Area. Glare would be higher

where buildout of the proposed project results in structures with reflective windows or coating features and parking areas where cars may have sun reflecting off the windshields, which would contribute to existing glare in the Plan Area.

However, development facilitated by the project would be subject to the City's Site Plan and Architecture Review process as required by Chapter 24.050 of the IZO, which ensures compliance with objective design standards for residential projects (Zoning Code Chapter 7.120). Additionally, future development would be required to comply with IZO Chapter 7 standards for specific land use designations which include lighting and signage regulations. Future development would also be required to comply with the Implementing Zoning Ordinance (i.e. Chapters 7.120.D.9, 11.070, 20.030, and 21.040.D) which includes regulations to limit light spillover and glare by requiring shielded, downcast lighting fixtures. Adherence to the regulations included in the City's residential objective design standards (as applicable), Zoning Ordinance, and development standards would ensure that light and glare impacts from implementation of the General Plan Update remain less than significant.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.1.4 Cumulative Impacts

The geographic scope for cumulative aesthetic impacts is generally described by development located within one mile of the Plan Area. This geographic scope is appropriate for aesthetics because these are areas that are either located in close proximity to the Plan Area and would have views of similar scenic resources. Areas at a greater distance would be separated by intervening topography, vegetation, and buildings, obstructing views in all directions from the Plan Area, and lighting and glare generally only affects adjacent properties. The cumulative analysis considers the nearby past, present, and reasonably foreseeable future plans and projects listed in Table 3-1.

Development facilitated by the proposed project in conjunction with other cumulative plans and projects listed in Table 3-1 could result in impacts to scenic vistas, scenic resources, and visual quality. Buildout of cumulative projects would have limited, site-specific impacts on public viewsheds and scenic vistas throughout the Plan Area due to intervening features (i.e. topography, vegetation, and buildings) largely obscuring scenic resources in the area. Cumulative plans and projects are anticipated to increase development in areas already developed with other uses. Most of the cumulative projects would not result in substantial impacts to public viewsheds or scenic vistas given the proposed massing and heights of structures, or the proposed locations within developed areas with comparable structures. Cumulative discretionary projects would undergo site plan and architectural review to limit and/or environmental review to assess scenic vistas to the extent feasible. While some future projects may be eligible for ministerial review, these projects would still be reviewed for consistency with the City's objective design standards which would reduce impacts to scenic resources. Accordingly, cumulative impacts to scenic vistas would be less than significant.

As described under Impact AES-2, above, there are no designated or eligible state scenic highways in the vicinity of the Plan Area (Caltrans 2025). Therefore, cumulative impacts to scenic resources within a state scenic highway would not be significant.

Petaluma's visual character is safeguarded through the City's Zoning Ordinance, development regulations, General Plan Update policies, and the Urban Growth Boundary, which protects against future growth at the edge of town, as well as through the site plan and architecture review process. Cumulative development would be required to adhere to applicable regulations and requirements and undergo review. Cumulative development would be subject to established land use policies and development standards that already function to reduce potential visual impacts, such as the historic Sphere of Influence review procedures, river corridor setback requirements, and open space preservation provisions. Compliance with these existing regulations would limit encroachment into protected view corridors and help maintain the visual character of affected areas. While some future projects may be eligible for ministerial review, these projects would still be reviewed for consistency with the City's objective design standards which would reduce impacts to scenic resources. With these considerations prior to project approval, cumulative impacts related to visual character and the quality of public views would be less than significant.

An increase in light and glare, and associated adverse effects to daytime or nighttime views, could be cumulatively considerable as the cumulative projects area continues to be built out. Cumulative projects would be required to undergo individual site plan and architectural review, and regulations that govern light and glare would apply to cumulative projects, which would ensure adherence to applicable General Plan Update and IZO standards related to reducing sources of light and glare. Cumulative impacts related to substantial sources of light or glare and adverse effects to daytime or nighttime views would be less than significant.

4.2 Agricultural and Forestry Resources

This section summarizes the setting for agricultural and forestry resources and analyzes the impacts related to agricultural and forestry resources due to the project.

4.2.1 Setting

a. California Agricultural Setting

According to the California Department of Food and Agriculture (CDFA), over a third of the country's vegetables and two-thirds of the country's fruits and nuts are grown in California. In 2023, California's farms and ranches received $55.4 billion in cash receipts for their output. This represents a 1.4 percent increase in cash receipts compared to 2022. California agricultural exports totaled $23.6 billion in 2022, an increase of 4.4 percent from 2021. Top commodities for export included almonds, dairy and dairy products, pistachios, walnuts, and wine (California Department of Food and Agriculture 2024).

Important Farmlands

The California Department of Conservation (DOC) develops Important Farmland Maps as part of its Farmland Mapping and Monitoring Program (FMMP) and includes the following definitions for Important Farmland (DOC 2025):

Prime Farmland

Land which has the best combination of physical and chemical characteristics for producing crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming standards.

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

Land of lesser quality soils used for the production of specific high economic value crops. It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. It is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Examples of crops include oranges, olives, avocados, rice, grapes and cut flowers.

b. Regional Agriculture and Plan Area Agricultural Resources

Agriculture is an important part of the economy in Sonoma County. The total gross agricultural value for all commodities produced in 2023 was approximately $945 million, which represents an 18.8

percent increase compared to the 2022 value of approximately $796 million (Sonoma County 2024). Formalized agriculture within Sonoma County began in the 1800s. Today Sonoma County is home to several productive agricultural activities, including organically produced crops and notable vineyards. The region's agricultural lands are predominantly used for vineyards, dairy farms, and pasturelands, with additional cultivation of row crops, orchards, and specialty crops. Petaluma, in particular, has a strong history in dairy and poultry farming, while Sonoma County as a whole is known for its vineyards and wine production, alongside apple orchards, hay production, and grazing lands. The area's mild Mediterranean climate and rich alluvial soils contribute to its agricultural productivity, supporting both large-scale commercial operations and small, family-owned farms.

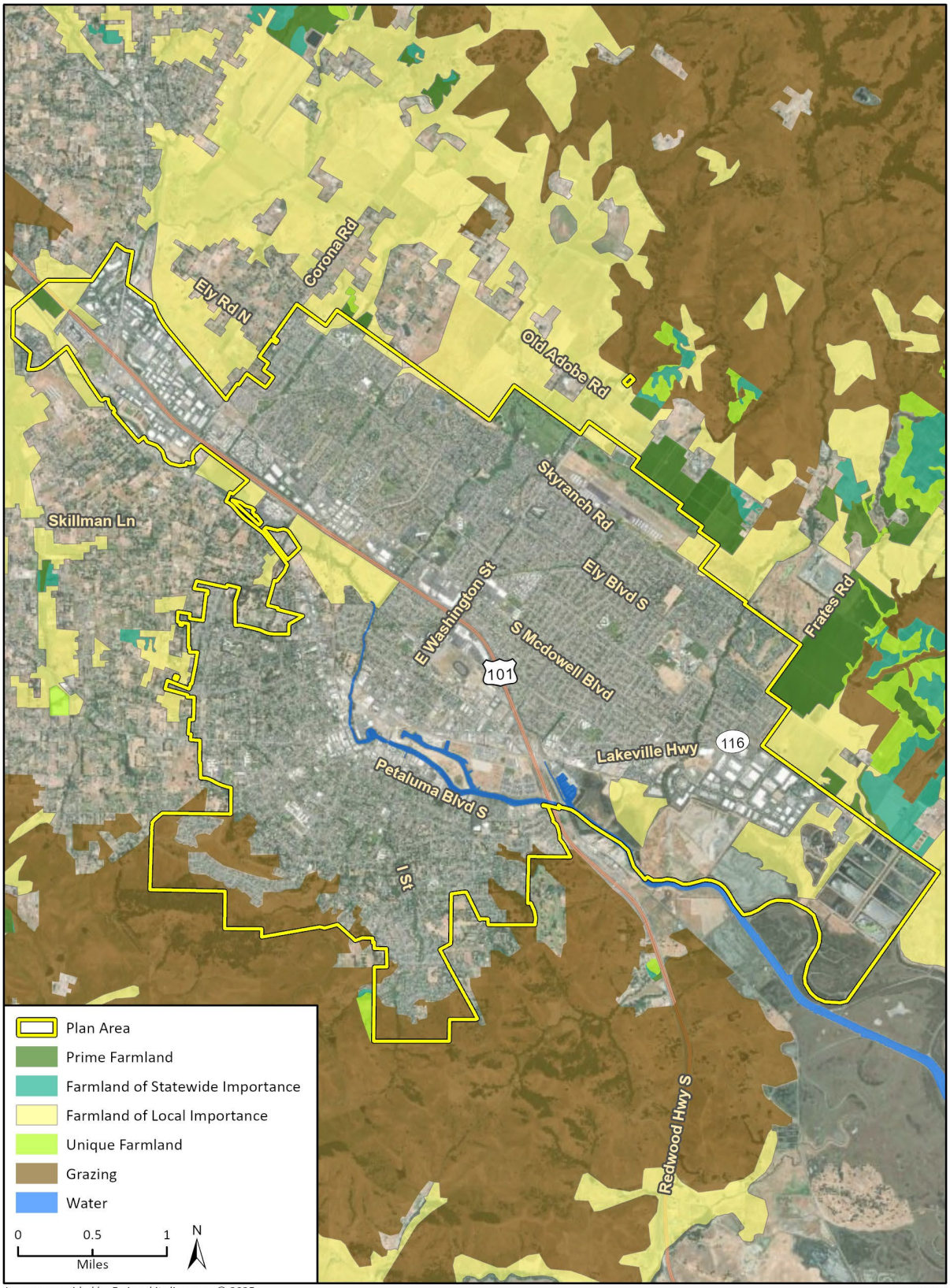
Agricultural production has been an important part of the regional economy for generations and agricultural lands provide a pastoral quality that helps define the character of the region. To preserve this agricultural identity, the City of Petaluma has historically limited agricultural land under its jurisdiction to non-urban, agricultural uses. As shown in Table 4.2-1, the Plan Area itself is mainly urban with some Prime Farmland, Unique Farmland, and Farmland of Statewide Importance inside the city limits. As shown within Table 4.2-1, within the Plan Area, there are roughly 1,484 acres of Important Farmland comprised primarily of Farmland of Local Importance (1,430 acres) and Prime Farmland (53 acres).

Table 4.2-1 Summary of Important Farmland in the Plan Area

Farmland Designation	Acreage in City Limits	Acreage in the Sphere of Influence	Acreage in the Urban Growth Boundary	Total Acreage in the Plan Area
Prime Farmland	19	20	14	53
Farmland of Statewide Importance	0	0	0	0
Unique Farmland	0.19	0.13	0.14	0.47
Farmland of Local Importance	520	455	455	1,430
Total				**1,484**

Most of this Important Farmland is located at the east end of the proposed Sphere of Influence (SOI). Additionally, there are some parcels within the Plan Area that are designated as farmland of local importance. There are also approximately 1,888 acres of Grazing Land within the Plan Area. However, Grazing Land is not considered Important Farmland for the purposes of CEQA as there are no unique soil characteristics underlying this classification and is not included further within this analysis. As shown in Figure 4.2-2, the Plan Area does not have any parcels under a Williamson Contract.

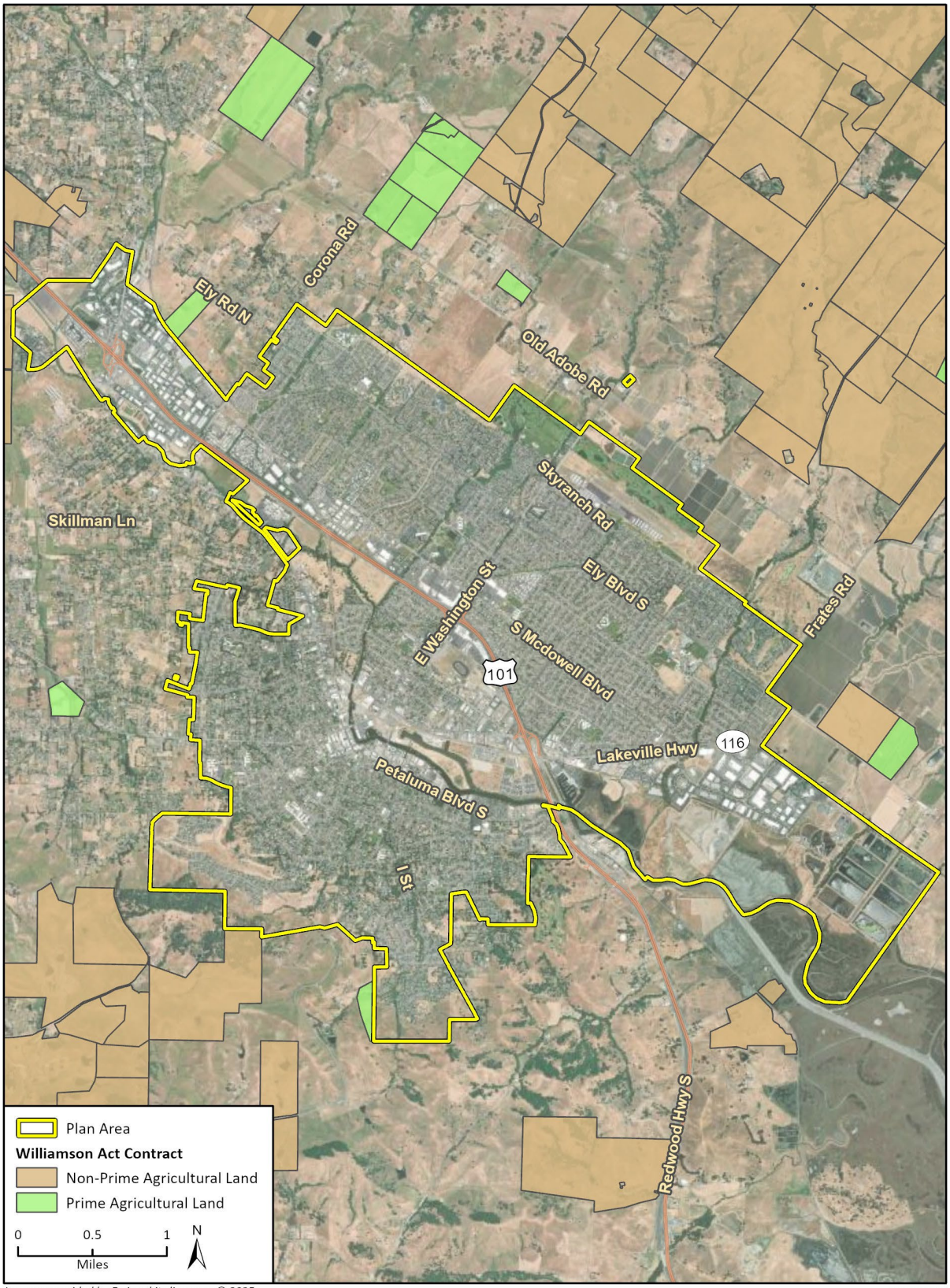
Figure 4.2-1 Important Farmland in the Plan Area



Imagery provided by Esri and its licensors © 2025.
Additional data provided by FMMP, 2022.

20-10614 EPS
Fig X Important Farmlands

Figure 4.2-2 Williamson Act Contract Lands in the Plan Area



Imagery provided by Esri and its licensors © 2025.
Additional data provided by Permit Sonoma, 2025.

20-10614 EPS
Fig X Williamson Act Contracts

Regional Farmland Trends

Conversion of farmland is the loss of farmland due to development or land use changes that do not support agricultural production. The FMMP, which is updated biennially, provides land use conversion information for decision makers to use in their planning for the present and future of California's agricultural land resources.

According to the DOC, irrigated farmland in California decreased by 56,186 net acres between 2016 and 2018. Prime Farmland, the highest quality farmland, decreased by 38,683 net acres, coupled with a Farmland of Statewide Importance decrease of 30,052 net acres. Partially offsetting these losses was the addition of 12,549 net acres of irrigated crops on lesser quality soils, mapped as Unique Farmland (DOC 2019). Although this farmland conversion was partially caused by urbanization, long-term land idling was the largest factor contributing to irrigated land decreases over this period. Land idling, where irrigated land was converted to non-irrigated land due to a lack of irrigation over time or conversion to dry farming, was responsible for 77 percent of this type of farmland.

Irrigated land conversions due to idling are often associated with water resource limitations, market conditions, and salinity-related land idling. Land was removed from irrigated categories at a rate 19 percent higher than compared with the prior update (128,105 acres in 2014-2016 and 152,627 acres in 2016-2018) (DOC 2019).

Table 4.2-2 shows the number of acres that have been converted in Sonoma County from 2016 to 2018, the most recent data available. As shown, the County lost 2,279 acres of agricultural land and gained 2,795 acres, resulting in a net increase of 516 acres.

Table 4.2-2 Farmland Conversion in Sonoma County

Farmland Designation	Total Acreage Inventoried 2016	Total Acreage Inventoried 2018	Total Acreage Inventoried Acres Lost (-)	Total Acreage Inventoried Acres Gained (+)	Total Acreage Inventoried Total Acreage Changed	Total Acreage Inventoried Net Acreage Changed
Prime Farmland	29,859	30,339	195	675	870	480
Farmland of Statewide Importance	17,483	17,782	332	631	963	299
Unique Farmland	34,041	34,455	181	595	776	414
Farmland of Local Importance	79,914	79,226	1,571	894	2,465	-677
Important Farmland Subtotal	**161,297**	**161,802**	**2,279**	**2,795**	**5,074**	**516**

Source: DOC 2019

c. Forest Land, Timberland, Timber Production Zones

Forest land is land that can support, under natural conditions, 10 percent native tree cover of any species, including hardwoods, and that allows for the preservation or management of forest-related resources such as timber, aesthetic value, fish and wildlife, biodiversity, water quality, recreational facilities, and other public benefits (PRC Section 12220(g)).

Timberland means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species are determined by the board on a district basis (PRC Section 4526(g)).

Timberland production zones or "TPZ" means an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h) (CGC Section 51104).

Within the Plan Area, there are no official timberland, forest land, or TPZ zoning districts or land use designations. Several locations in the Plan Area are covered with more than 10% native tree cover including scattered open spaces and parks. However, these concentrations of trees would not be considered forestland or timberland because they do not possess the size, continuity, or ecological and commercial characteristics required to support forest management activities or timber production. Instead, they occur as small, fragmented stands within urban parks, riparian corridors, and landscaped open spaces that lack the acreage, natural conditions, and commercial tree species necessary to meet the statutory definitions of forest land or timberland.

4.2.2 Regulatory Setting

Various policies and regulations are enforced at the federal, state, and local level to protect agriculture, forestry, and timberland resources, as outlined below.

a. Federal Regulations

Farmland Protection Policy Act (FPPA)

The Farmland Protection Policy Act (7 U.S.C. Section 4201 et seq.) is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that to the extent possible federal programs are administered to be compatible with state, local units of government and private programs and policies to protect farmland. Projects are subject to Farmland Protection Policy Act 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.

b. State Regulations

California Farmland Conservation Program Act

The California Farmland Conservancy Program Act, also known as Senate Bill (SB) 1142, established the California Farmland Conservancy Program, which provides grants for agricultural conservation easements. An agricultural conservation easement aims to maintain agricultural land in active production by preventing development on the subject parcel and prohibiting practices that would damage or interfere with the agricultural use of the land. Because the easement is a restriction on the deed of the property, the easement remains in effect even when the land changes ownership. While other benefits may accrue because the land is not developed (scenic and habitat values, for example), the primary use of the land is agricultural. Easements funded by the California Farmland Conservancy Program must be of a size and nature suitable for viable commercial agriculture.

California Farmland Mapping and Monitoring Program

The DOC, under the Division of Land Resource Protection, developed the FMMP to monitor the conversion of the state's farmland to and from agricultural use. Data is collected at the county level to produce a series of maps identifying eight land use classifications using a minimum mapping unit of 10 acres. The program also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The program maintains an inventory of state agricultural land and updates the "Important Farmland Series Maps" every two years (DOC 2016).

Right to Farm Act 1981

The Right to Farm Act (Civil Code Section 3482.5) is designed to protect commercial agricultural operations from nuisance complaints that may arise when an agricultural operation is conducting business in a "manner consistent with proper and accepted customs." The code specifies that established operations that have been in business for 3 or more years that were not nuisances at the time they began shall not be considered a nuisance as a result of new land use.

Williamson Act

The California Land Conservation Act of 1965, Sections 51200 et seq. of the California Government Code, commonly referred to as the "Williamson Act," enables local governments to restrict the use of specific parcels of land to agricultural or related open space use. Landowners enter into contracts with participating cities and counties and agree to restrict their land to agriculture or open space use for a minimum of ten years. In return, landowners receive property tax assessments that are much lower than normal because they are based upon farming and open space uses as opposed to full market (speculative) value.

c. Local Regulations

City of Petaluma General Plan

The Land Use, Growth Management & the Built Environment Element; Natural Environment Element; and Economic Health & Sustainability Element of the City of Petaluma General Plan contain goals and policies related to agricultural and forestry resources. The following policies are relevant to the project (City of Petaluma 2008).

Goal 1-G-2. Preserve the essential scenic and natural resources of the open ridgelines and hillsides that help define the unique character of Petaluma.

> **Policy 1-P-16**. Allow development in hillside areas that preserve ridgelines and are site sensitive. Establish development and design standards related to residential development in hillside areas that address: Location of hillside residential units, including preserving ridgelines.
>
> - Specific provisions to preserve open space, natural assets (woodlands, creeks, etc.).
> - Standards for building height and massing.
> - Appropriate forms of clustered development, including amount of bonus, alternate development forms, common recreational facilities, phasing, etc.
>
> **Policy 1-P-17**. Retain ridgelines and prominent hillsides as open space through appropriate clustering and/or transfer of density to other parts of a development site (applies to Rural

and Very Low Residential areas within the West Hills, South Hills and Petaluma Boulevard North subareas only).

Goal 1-G-3. Maintain a well-defined boundary at the edge of urban development.

Policy 1-P-18. Maintain a permanent open space around the city by the continuation of the Urban Separator and the use of an Urban Separator Pathway, as designated.

Policy 1-P-24. Support designation of land uses in the unincorporated area beyond the Urban Growth Boundary as rural, agricultural and/or open space.

Goal 9-P-18. Strengthen the tourism sector.

- Identify and encourage retail activities that enhance local agricultural businesses and local agricultural products. The PCDC may use redevelopment powers to assist major agriculture-related businesses to expand and/or relocate in Petaluma. Work with representatives of agricultural support businesses to receive recommendations on what the City can do to increase their viability.

Goal 4-G-2. Promote resource protection within the Petaluma Watershed to conserve grassland habitats, oak woodlands, and other natural resources that are found in areas between the UGB and the Planning Area boundary.

Policy 4-P-4. Continue to support rural land use designations and Agricultural Best Management Practices within the Sonoma County General Plan.

Sonoma County Agricultural Preservation and Open Space District

The Sonoma County Agricultural Preservation and Open Space District is an independent special district. The Sonoma County Agricultural Preservation and Open Space District's Acquisition Plan 2000 defines agriculture open space designations. The entire Plan Area south of the city's UGB is designated for coastal agriculture, while all lands north of Adobe Road are designated for greenbelt agriculture. Agricultural areas can include grazing land, active ranches and/or cropland, or community agricultural operations (e.g., farmers market, co-ops).

Petaluma Municipal Code

Within Chapter 4 of the Petaluma Municipal Code, Table 4.1 clearly identifies a range of agricultural uses as permitted within the Open Space (OSP), Agriculture (AG), Rural Residential (RR), and Residential 1 (R1) zoning districts. Specifically, the Table lists crop production, horticulture, orchard, and vineyard as permitted uses across all four zones, and likewise designates farm animal keeping as a permitted use in OSP, AG, RR, and R1. These allowances indicate that the City's natural, rural, and low-density residential zoning categories include agricultural activities and small-scale animal husbandry among the land uses permitted within these districts.

4.2.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

Agricultural and forestry impact assessments involved a review of data available through the Department of Conservation's FMMP and Williamson Act Land maps. An adverse effect would occur if a proposed development would have an impact on existing, mapped agricultural or forest land.

Significance Thresholds

According to Appendix G of the CEQA Guidelines, impacts related to agricultural and forestry resources from implementation of the project would be significant if it would:

1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use
2. Conflict with existing zoning for agricultural use, or a Williamson Act contract
3. 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))
4. Result in the loss of forest land or conversion of forest land to non-forest use
5. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use

b. 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?
Threshold 2:	Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?
Threshold 5:	Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

Impact AG-1 DEVELOPMENT FACILITATED BY THE PROJECT IS DESIGNED TO ENCOURAGE THE CONTINUED OPERATION OF EXISTING AGRICULTURE IN AND SURROUNDING THE PLAN AREA. BUILDOUT OF THE GENERAL PLAN UPDATE WOULD NOT CHANGE EXISTING LAND USE DESIGNATIONS SUCH THAT THERE WOULD BE A DECREASE OF DESIGNATED AGRICULTURAL LAND WITHIN THE PLAN AREA. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As noted in Table 4.2-1, the Plan Area contains approximately 1,484 acres of Important Farmland. Important Farmland (i.e., Prime Farmland, Farmland of Local Importance, and Unique Farmland) is

mapped within City limits. There are no Williamson Act lands located within City limits; therefore, the project would not result in any impacts to Williamson Act lands and this topic is not discussed further.

As shown in Figure 4.2-1, there are several parcels designated as Farmland of Local Importance within the Plan Area. Some of these parcels, those located along the southwestern border of the Plan Area, would undergo land use designation changes under the General Plan Update. However, these changes would not differ greatly from the existing designations on these parcels. Specifically, parcels would be changing from community commercial and medium density residential to maker/microbusiness, neighborhood commercial and diverse low density residential. The change of these land use designations would not inherently change the existing land use on site or remove agricultural uses from these lands. Furthermore, because these sites are not currently designated as agricultural lands under the existing general plan, the General Plan Update would not result in a loss of land designated for agricultural use within the Plan Area. Moreover, the proposed General Plan emphasizes infill development in urbanized portions of the Plan Area. Infill development would generally limit agricultural resource impacts, since development would be located within existing urban areas.

Additionally, the General Plan Update would include the following policies which encourages agricultural business and infill development within the Plan Area:

> **Policy ED-1.6: Grow ecologically stable businesses.** Focus resources to encourage business growth and entrepreneurship in industries aligned with Petaluma's industry strengths and opportunities for ecologically sustainable businesses, such as agriculture, green building, renewable energy, and green manufacturing.
>
> **Policy LU-3.1: Facilitate infill development.** Facilitate infill urban development at densities and intensities depicted on the Land Use Map.
>
> **Policy HEEJ-5.1 Strengthen the local food economy.** Improve access to fresh produce and culturally-celebrated and relied-upon foods and strengthen the local economy by encouraging urban food production and food microenterprises.

Implementation of these policies would preserve and strengthen Petaluma's existing agricultural economy and encourage infill development on areas not classified as agricultural land within the Plan Area. Overall, impacts to important farmland and impacts related to the conversion of farmland to nonagricultural use 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 3:	Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?
Threshold 4:	Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Impact AG-2 THE PROJECT WOULD NOT CONFLICT WITH EXISTING ZONING FOR FOREST LAND, TIMBERLAND, OR TIMBERLAND PRODUCTION, NOR RESULT IN THE LOSS OF FOREST LAND OR CONVERT FOREST LAND TO NON-FOREST USES. NO IMPACT WOULD OCCUR.

As discussed above in Section 4.2.1c, there are no zoned timber production zones or forest lands within the city limits or Plan Area. The General Plan Update land use pattern would not result in changes in land use designation for any existing forest land or timberlands within the Plan Area. Because no forest land or timber areas are within the city, there would be no impact on conversion of forest land or conflicts with land zoned for forest land, timberland, or timberland production.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.2.4 Cumulative Impacts

A project's environmental impacts are "cumulatively considerable" if the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (CEQA Guidelines Section 15065[a][3]). A project's environmental impacts are "cumulatively considerable" if the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (CEQA Guidelines Section 15065[a][3]). Regional cumulative impacts consider the City-wide impacts together with similar impacts of reasonably anticipated regional projects/programs. The general approach to cumulative impact analysis used in this EIR, as well as the determination of the cumulative impact analysis area, is discussed in Section 3, *Environmental Setting*, Subsection 3.3, *Cumulative Development*.

The cumulative setting for agricultural and forestry impacts is the City of Petaluma and the Urban Growth Boundary around the city. Cumulative agriculture and forestry impacts, such as the conversion of farmland or timberland, are typically site- and project-specific. Cumulative impacts could occur if non-agricultural development occurred on all parcels designated as Farmland of Local Importance within the Plan Area. Subsequent projects facilitated by the project may result in non-agricultural development on land designated as Farmland of Local Importance, as described in Impact AG-1 above; however, the nature of future developments and associated infrastructure improvements are not known at this time, so it would be speculative to predict when impacts may occur. The project itself would not result in any land use designations that would remove agricultural land uses from the Plan Area since the parcels that are designated as Farmland of Local

Importance are not currently zoned for or designated for agricultural use in the current general plan; therefore cumulative impacts to agricultural resources would be less than significant.

Because there is no forestland within the Plan Area or immediately adjacent areas, future development within the cumulative impact analysis area would not convert forestland to non-forest uses and thus, would not result in conflicts to forest zoning. Cumulative impacts to forestland and timber resources would be less than significant.

4.3 Air Quality

This section analyzes air quality related impacts associated with development facilitated by the project, including temporary air quality impacts relating to construction activity and long-term air quality impacts from operation. Vehicle miles traveled (VMT) for both existing conditions and buildout of the proposed project were provided by Transportation Analysis (Appendix B), as detailed in Section 4.14, *Transportation.* Greenhouse gas emissions and global climate change impacts are discussed in Section 4.7, *Greenhouse Gas Emissions*.

4.3.1 Setting

a. 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, influence the relationship between air pollutant emissions and air quality.

California is divided geographically into 15 air basins for managing the air resources of the state on a regional basis. Areas within each air basin are considered to share the same air masses and, therefore, are expected to have similar ambient air quality.

The Plan Area is located in the San Francisco Bay Area Air Basin (SFBAAB), which is comprised of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma Counties. SFBAAB covers approximately 5,540 square miles of complex terrain, consisting of coastal mountain ranges, inland valleys, and the San Francisco Bay. The SFBAAB is generally bounded on the west by the Pacific Ocean, on the north by the Coast Ranges, and on the east and south by the Diablo Range.

The climate within the SFBAAB is dominated by a strong, semi-permanent, subtropical high-pressure cell over the northeastern Pacific Ocean. Climate is also affected by the adjacent oceanic heat reservoir's moderating effects. Mild summers and winters, moderate rainfall and humidity, and daytime onshore breezes characterize regional climatic conditions in the San Francisco Bay Area (Bay Area). In summer, when the high-pressure cell is strongest and farthest north, fog forms in the morning and temperatures are mild. In winter, when the high-pressure cell is weakest and farthest south, occasional rainstorms occur.

Winter daytime temperatures in the SFBAAB typically average in the mid-50s, with nighttime temperatures averaging in the low 40s. Summer daytime temperatures typically average in the 70s, with nighttime temperatures averaging in the 50s. Precipitation varies in the region, but in general, annual rainfall is lowest in the coastal plain and inland valley, higher in the foothills, and highest in the mountains.

b. 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), fine particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), and lead. Ozone is considered a secondary criteria pollutant because it is created by atmospheric chemical and photochemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_X). The

project would generate CO, PM_{10}, $PM_{2.5}$, SO_2, and lead as well as ozone precursors ROC and NO_X (including NO_2) during construction and operation. 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 is produced by a photochemical reaction (triggered by sunlight) between NO_X and VOC.[1] Nitrogen oxides are formed during the combustion of fuels, while VOC are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it usually occurs in substantial concentrations between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions (United States Environmental Protection Agency [U.S. EPA] 2025a). Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide

Carbon monoxide is a local pollutant that is found in high concentrations near fuel combustion equipment and other sources of CO. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Therefore, elevated concentrations are usually only found near areas of high traffic volumes. The health effects of CO are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulty in people with chronic diseases, nausea, reduced lung capacity, and impaired mental abilities (U.S. EPA 2025a).

Nitrogen Dioxide

Nitrogen dioxide is a byproduct of fuel combustion, with the primary source being 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 an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Elevated levels of NO_2 can also cause respiratory irritation, impaired pulmonary function, and bronchitis (U.S. EPA 2025a). Nitrogen dioxide absorbs blue light, gives a reddish-brown cast to the atmosphere, and reduces visibility. It can also contribute to the formation of ozone/smog and acid rain.

Sulfur Dioxide

Sulfur dioxide is a colorless, pungent, irritating gas formed primarily by the combustion of sulfur-containing fossil fuels. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as sulfur oxides (SO_X). In humid atmospheres, SO_2 can also form sulfuric acid mist, which can eventually react to produce sulfate particulates that can

[1] Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, two groups are important from an air quality perspective: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC). The Bay Area Air District uses the term ROG to denote organic precursors.

inhibit visibility. Combustion of high sulfur-content fuels is the major source, while chemical plants, sulfur recovery plants, and metal processing are minor contributors. At sufficiently high concentrations, SO_2 irritates the upper respiratory tract. At lower concentrations, when in conjunction with particulates, SO_2 appears to do still greater harm by injuring lung tissues. This compound also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. Sulfur dioxide causes respiratory irritation, including wheezing, shortness of breath, and coughing (U.S. EPA 2025a). Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease. Sulfur oxides, in combination with moisture and oxygen, can yellow leaves on plants, dissolve marble, and eat away iron and steel.

Particulate Matter

Atmospheric particulate matter is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. The particulates that are of particular concern are PM_{10} (small particulate matter that measures 10 microns or less in diameter) and $PM_{2.5}$ (fine particulate that measures 2.5 microns or less in diameter). The characteristics, sources, and potential health effects associated with PM_{10} and $PM_{2.5}$ can be different. Major man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and entrainment of road dust into the atmosphere. Natural sources include windblown dust, wildfire smoke, and sea spray salt. The finer $PM_{2.5}$ particulates are generally associated with combustion processes as well as formation in the atmosphere as a secondary pollutant through chemical reactions. Elevated levels of PM_{10} can cause respiratory irritation, reduced lung function, aggravation of cardiovascular disease, and cancer (U.S. EPA 2025a). $PM_{2.5}$ is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. Elevated levels of $PM_{2.5}$ can cause respiratory stress and decreased lung function and increase the risk of long-term disease (U.S. EPA 2025a). More than half of the small and fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Lead

Lead is a metal found naturally in the environment, as well as in manufacturing products. Lead occurs in the atmosphere as particulate matter. The major sources of lead emissions historically have been mobile and industrial sources. In the early 1970s, the U.S. EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The U.S. EPA completed the ban prohibiting the use of leaded gasoline in highway vehicles in December 1995. As a result of the U.S. EPA's regulatory efforts to remove lead from gasoline, atmospheric lead concentrations have declined substantially over the past several decades. The most dramatic reductions in lead emissions occurred prior to 1990 due to the removal of lead from gasoline sold for most highway vehicles. Lead emissions were further reduced substantially between 1990 and 2008, with reductions occurring in the metals industries in part due to national emissions standards for hazardous air pollutants (U.S. EPA 2014). As a result of phasing out leaded gasoline, metal processing is currently the primary source of lead emissions. The highest level of lead in the air is generally found near lead smelters. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. Lead may cause a range of health effects, including anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases).

Toxic Air Contaminants

A toxic air contaminant (TAC) is an air pollutant that may cause or contribute to an increase in mortality or serious illness or which may pose a present or potential hazard to human health. TACs may result in long-term health effects such as cancer, birth defects, neurological damage, asthma, or genetic damage, or short-term acute effects such as eye watering, respiratory irritation, runny nose, throat pain, and headaches. TACs are considered either carcinogenic or non-carcinogenic based on the nature of the health effects associated with exposure. For carcinogenic TACs, potential health impacts are evaluated in terms of overall relative risk expressed as excess cancer cases per one million exposed individuals. Non-carcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

TACs include both organic and inorganic chemical substances. One of the main sources of TACs in California is diesel engines that emit exhaust containing solid material known as diesel particulate matter (DPM; California Air Resources Board [CARB] 2025a); however, TACs 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.

c. Air Quality Standards and Attainment

The federal and state governments have authority under the federal and state Clean Air Acts (CAA) to regulate emissions of airborne pollutants and have established ambient air quality standards (AAQS) for the protection of public health. An air quality standard is defined as "the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harming public health" (CARB 2016). The U.S. EPA is the federal agency designated to administer air quality regulation, while CARB is the state equivalent in California. Federal and state AAQS have been established for six criteria pollutants: O_3, CO, NO_2, SO_2, $PM_{10,}$ $PM_{2.5}$, and lead. AAQS are designed to protect those segments of the public most susceptible to respiratory distress, such as children under the age of 14, the elderly (over the age of 65), persons engaged in strenuous work or exercise, and people with cardiovascular and chronic respiratory diseases (U.S. EPA 2025b). In addition to the federal criteria pollutants, the California Ambient Air Quality Standards (CAAQS) also specify standards for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride (CARB 2016). Table 4.3-1 lists the current National Ambient Air Quality Standards (NAAQS) as well as the CAAQS for regulated pollutants.

Table 4.3-1 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS	CAAQS
Ozone	1-Hour	–	0.09 ppm
	8-Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	Annual	–	–
	24-Hour	–	0.04 ppm
	1-Hour	0.075 ppm	0.25 ppm

Pollutant	Averaging Time	NAAQS	CAAQS
PM_{10}	Annual	–	20 µg/m^3
	24-Hour	150 µg/m^3	50 µg/m^3
PM_{25}	Annual	9 µg/m^3	12 µg/m^3
	24-Hour	35 µg/m^3	–
Lead	30-Day Average	–	1.5 µg/m^3
	3-Month Average	0.15 µg/m^3	–

NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m^3 = micrograms per cubic meter

Source: CARB 2016; U.S. EPA 2025b

U.S. EPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the AAQS standards are classified as nonattainment areas. The NAAQS (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The CAAQS are not to be exceeded during a three-year period. The attainment status for Sonoma County is included in Table 4.3-2.

Table 4.3-2 Attainment Status of Criteria Pollutants in SFBAAB

Pollutant	State Designation	Federal Designation
O_3	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Attainment

Sources: Bay Area Air District 2025

Pursuant to the CAA, U.S. EPA designates areas as attainment, nonattainment, or maintenance for each criteria pollutant based on whether the NAAQS have been achieved. Whether an area meets the state and federal standards is based on air quality monitoring data. Areas that are unclassified have insufficient monitoring data for a specific pollutant to determine attainment or nonattainment status, although unclassified areas are typically treated as attainment for a specific pollutant. Since attainment and nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The SFBAAB is designated non-attainment for the federal standards for ozone and $PM_{2.5}$ and in non-attainment for the State standard for ozone, $PM_{2.5}$, and PM_{10}.

Current Ambient Air Quality

The Plan Area is located in Sonoma County, which is under the jurisdiction of the Bay Area Air District (Air District). The Air District is responsible for achieving and maintaining the state and

federal AAQS within its jurisdiction. The Air District operates a network of air quality monitoring stations throughout the SFBAAB. The monitoring stations aim to measure ambient concentrations of pollutants and determine whether ambient air quality meets the state and federal standards. The monitoring station closest to the Plan Area is the Sebastopol – 103 Morris Street Station, approximately 14 miles north of the Plan Area. This station measures 8-hour O_3, hourly O_3, $PM_{2.5}$, and NO_X. The San Rafael air monitoring station (located at 534 4th Street in San Rafael) is the closest air monitoring station to the Plan Area that measures PM_{10}. This station is approximately 18 miles south of the Plan Area. Table 4.3-3 indicates the number of days each federal and state standard was exceeded at the Sebastopol – 103 Morris Street and San Rafael – 534 4th Street air monitoring stations. As shown in Table 4.3-3, $PM_{2.5}$ measurements exceeded federal $PM_{2.5}$ standards in 2023. No other state or federal standards were exceeded at these air monitoring stations.

Table 4.3-3 Ambient Air Quality Data at San Rafael and Sebastopol Stations

Pollutant	2021	2022	2023
8 Hour Ozone (ppm), 8-Hour Average[1]	0.063	0.055	0.051
Number of Days of state exceedances (>0.070 ppm)	0	0	0
Number of days of federal exceedances (>0.070 ppm)	0	0	0
Ozone (ppm), Worst Hour[1]	0.071	0.064	0.067
Number of days of state exceedances (>0.09 ppm)	0	0	0
Carbon Monoxide (ppm), Worst-Hour	*	*	*
Number of days of state exceedances (>20.0 ppm)	*	*	*
Nitrogen Dioxide (ppm) - Worst Hour[1]	0.026	0.031	0.027
Number of days of state exceedances (>0.18 ppm)	0	0	0
Number of days of federal exceedances (>0.10 ppm)	0	0	0
Particulate Matter 10 microns, μg/m³, Worst 24 Hours[2]	29.4	38.2	41.9
Number of days of state exceedances (>50 μg/m³)	0	0	0
Number of days above federal standard (>150 μg/m³)	0	0	0
Particulate Matter <2.5 microns, μg/m³, Worst 24 Hours[1]	29.5	25.5	**42.0**
Number of days above federal standard (>35 μg/m³)	0	0	2

[1] Measurements were taken from the Sebastopol – 103 Morris Street Station.

[2] Measurements taken from the San Rafael – 534 4th Street Station.

*Insufficient data available to determine the value.

Bold lettering indicates an exceedance of applicable AAQS.

Source: CARB 2025c

Sensitive Receptors

Sensitive receptors are facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. According to the Air District, sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals and residential areas (Air District 2017). There are residential sensitive receptors throughout the Plan Area. Schools within the city include Grant Elementary School, McDowell Elementary School, Valley Vista Elementary School, San Antonio High School, Petaluma High School, and several other nursery schools, charter schools, and private schools.

4.3.2 Regulatory Setting

a. Federal Regulations

Federal Clean Air Act

The federal CAA governs air quality in the United States. The CAA is administered by U.S. EPA at the federal level, CARB at the State level, and by the air quality management districts at the regional and local levels. The CAA of 1970 and the CAA Amendments of 1971 required the U.S. EPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that CO_2 is an air pollutant covered by the CAA; however, no NAAQS have been established for CO_2. (Massachusetts v. Environmental Protection Agency (Massachusetts v. EPA), 549 U.S. 497 (2007))

The U.S. EPA is responsible for enforcing the federal CAA. The U.S. EPA is also responsible for establishing NAAQS. NAAQS are required under the 1977 CAA and subsequent amendments. The U.S. EPA 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 those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by CARB.

U.S. EPA Emission Standards for New Off-road Equipment

Before 1994, there were no standards to limit the amount of emissions from off-road equipment. In 1994, U.S. EPA established emission standards for hydrocarbons, NOx, CO, and PM to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by U.S. EPA, as well as by CARB. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards.

b. State Regulations

California Clean Air Act

The California CAA allows the state to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

California State Implementation Plan

The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins, as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS. The U.S. EPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

State law makes CARB the lead agency for all purposes related to the SIP. (California Health and Safety Code section 39602) Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the U.S. EPA for approval and publication in the Federal Register. The Bay Area Air District 2017 Clean Air Plan is the SIP for the SFBAAB. The 2017 Clean Air Plan accommodates growth by projecting the growth in emissions based on different indicators. For example, population forecasts adopted by the Association of Bay Area Governments (ABAG) are used to forecast population-related emissions. Through the planning process, emissions growth is offset by basin-wide controls on stationary, area, and transportation sources of air pollution.

California Airborne Toxics Control Measure for Asbestos

Construction sometimes requires the demolition of existing buildings where construction occurs. Buildings often include materials containing asbestos. Asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers into the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present. The Plan Area is not located in an area likely to contain naturally occurring asbestos (California Department of Conservation 2000).

CARB has adopted Airborne Toxics Control Measures for sources that emit a particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology to minimize emissions. In July 2001, CARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices (BMPs) to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying, or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a “Dust Mitigation Plan” and approval by the air district prior to the start of a project.

Verified Diesel Emission Control Strategies

U.S. EPA and CARB tiered off-road emission standards only apply to new engines and off-road equipment can last several years. CARB has developed Verified Diesel Emission Control Strategies (VDECS), which are devices, systems, or strategies used to achieve the highest level of pollution control from existing off-road vehicles, to help reduce emissions from existing engines. VDECS are designed primarily for the reduction of diesel PM emissions and have been verified by CARB. There are three levels of VDECS, the most effective of which is the Level 3 VDECS. Tier 4 engines are not required to install VDECS because they already meet the emissions standards for lower tiered equipment with installed controls.

California Diesel Risk Reduction Plan

CARB Diesel Risk Reduction Plan has led to the adoption of new state regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles to reduce DPM emissions by about 90 percent overall from year 2000 levels. The projected emission benefits associated with the full implementation of this plan, including federal measures, were reductions in DPM emissions and associated cancer risks of 75 percent by 2010, and 85 percent by 2020.

Tanner Air Toxics Act and Air Toxics Hot Spots Information and Assessment Act

TACs in California are primarily regulated through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), also known as the Hot Spots Act. To date, CARB has identified more than 21 TACs and has adopted the U.S. EPA list of Hazardous Air Pollutants (HAPs) as TACs.

Carl Moyer Memorial Air Quality Standards Attainment Program

The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program), a partnership between CARB and local air districts, issues grants to replace or retrofit older engines and equipment with engines and equipment that exceed current regulatory requirements to reduce air pollution. Money collected through the Carl Moyer Program complements California's regulatory program by providing incentives to effect early or extra emission reductions, especially from emission sources in environmental justice communities and areas disproportionately affected by air pollution.

The program has established guidelines and criteria for the funding of emissions reduction projects. Within the SFBAAB, the Air District administers the Carl Moyer Program. The program has established guidelines and criteria for the funding of emissions reduction projects. Within SFBAAB, the Air District administers the Carl Moyer Program. The program establishes cost-effectiveness criteria for funding emission reductions projects, which under the final 2017 Carl Moyer Program Guidelines are $30,000 per weighted ton of NO_X, ROG, and PM.

c. Regional Regulations

Bay Area Air District

The Air District is responsible for assuring that the federal and state ambient air quality standards are attained and maintained in the Bay Area. The Air District is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary

sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities.

The Air District adopted the *Bay Area Clean Air Plan: Spare the Air, Cool the Climate (Bay Area Clean Air Plan)* on April 19, 2017 as an update to the 2010 Clean Air Plan. The Air District prepared the 2017 Clean Air Plan in cooperation with the Metropolitan Transportation Commission (MTC) and the ABAG. The goals of the 2017 Clean Air Plan are to reduce regional air pollutants and climate pollutants to improve the health of Bay Area residents for the next decades. The 2017 Clean Air Plan aims to lead the region into a post-carbon economy, continue progress toward attaining all State and federal air quality standards, and eliminate health risk disparities from air pollution exposure in Bay Area communities. The 2017 Clean Air Plan defines an integrated, multi-pollutant control strategy that includes 85 distinct feasible control measures to reduce emissions for four categories: 1.) ground-level ozone and its precursors, ROG and NO_X; 2.) PM (primarily $PM_{2.5}$, and precursors to secondary $PM_{2.5}$); 3.) TACs; and 4.) greenhouse gas emissions. The control measures are categorized based on the economic sector framework and include stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water. To protect public health, the control strategy will decrease population exposure to PM and TACs in communities that are most impacted by air pollution with the goal of eliminating disparities in exposure to air pollution between communities. The control strategy will also protect the climate by reducing greenhouse gas emissions and developing a long-range vision of how the Bay Area could look and function in a year 2050 post-carbon economy.

The focus of control measures includes aggressively targeting the largest source of GHG, ozone pollutants, and PM emissions: transportation. This includes more incentives for electric vehicle infrastructure, off-road electrification projects such as Caltrain and shore power at ports, and reducing emissions from trucks, school buses, marine vessels, locomotives, and off-road equipment. Additionally, the Air District will continue to work with regional and local governments to reduce Vehicle Miles Traveled (VMT) through the further funding of rideshare, bike and shuttle programs.

Bay Area Air District Particulate Matter Plan

To fulfill federal air quality planning requirements, the Air District adopted a 2010 $PM_{2.5}$ emissions inventory in 2012. The Bay Area Clean Air Plan also included several measures for reducing PM emissions from stationary sources and wood burning. In 2013, U.S. EPA issued a final rule determining that the Bay Area has attained the 24-hour $PM_{2.5}$ NAAQS, suspending federal SIP planning requirements for the SFBAAB. Despite this U.S. EPA action, the SFBAAB will continue to be designated as nonattainment for the national 24-hour $PM_{2.5}$ standard until the Air District submits a redesignation request and a maintenance plan to U.S. EPA, and U.S. EPA approves the proposed redesignation.

The SFBAAB is in nonattainment for the federal PM_{10} and federal $PM_{2.5}$ standards. U.S. EPA lowered the 24-hour $PM_{2.5}$ standard from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$ in 2006, and designated the Air Basin as nonattainment for the new $PM_{2.5}$ standard effective December 14, 2009.

The Air District believes that it would be premature to submit a redesignation request and $PM_{2.5}$ maintenance plan at this time. Therefore, the Air District will prepare a “clean data” SIP to address the required elements, including:

An emission inventory for primary $PM_{2.5}$, as well as precursors to secondary PM formation; and Amendments to the Air District's New Source Review regulation to address $PM_{2.5}$.

The SFBAAB will continue to be designated as nonattainment for the 24-hour $PM_{2.5}$ NAAQS until the Air District elects to submit, and the EPA approves, a redesignation request and maintenance plan. At this time, the Air District does not have an applicable SIP with which the project would be required to comply. However, development facilitated by the project would be subject to the Bay Area Clean Air Plan, in addition to CEQA guidelines and regulations set forth by the Air District as discussed in the following sections.

Bay Area Air District Regulations

REGULATION 2, RULE 1 (PERMITS–GENERAL REQUIREMENTS)

The Air District regulates new sources of air pollution and the modification and operation of existing sources through the issuances of authorities to construct and permits to operate. Regulation 2, Rule 1 provides an orderly procedure which the project would be required to comply with to receive authorities to construct or permits to operate from the Air District for new sources of air pollutants, as applicable.

REGULATION 2, RULE 5 (NEW SOURCE REVIEW PERMITTING)

The Air District regulates backup emergency generators, fire pumps, and other sources of TACs through its New Source Review (Regulation 2, Rule 5) permitting process. Although emergency generators are intended to be used only during periods of power outages, monthly testing of each generator is required. The Air District limits testing to no more than 50 hours per year. Each emergency generator installed is assumed to meet a minimum of Tier 2 emission standards (before control measures). As part of the permitting process, the Air District limits the excess cancer risk from any facility to no more than 10 per 1-million-population for any permits that are applied for within a 2-year period, and would require any source that would result in an excess cancer risk greater than 1 per 1 million to install Best Available Control Technology for Toxics.

REGULATION 6, RULE 1 (PARTICULATE MATTER–GENERAL REQUIREMENTS)

The Air District regulates PM emissions through Regulation 6 by means of establishing limitations on emission rates, emissions concentrations, and emission visibility and opacity. Regulation 6, Rule 1 provides existing standards for PM emissions that could result during project construction or operation that the project would be required to comply with, as applicable, such as the prohibition of emissions from any source for a period or aggregate periods of more than 3 minutes in any hour which are equal to or greater than 20 percent opacity.

REGULATION 6, RULE 6, (PARTICULATE MATTER–PROHIBITION OF TRACKOUT)

One rule by which the Air District regulates PM includes Regulation 6, Rule 6, which prohibits PM trackout during project construction and operation. Regulation 6, Rule 6 requires the prevention or timely cleanup of trackout of solid materials onto paved public roads outside the boundaries of large bulk material sites, large construction sites, and large disturbed surface sides such as landfills.

REGULATION 8, RULE 3 (ARCHITECTURAL COATINGS)

This rule governs the manufacture, distribution, and sale of architectural coatings and limits the reactive organic gases content in paints and paint solvents. Although this rule does not directly apply to the project, it does dictate the ROG content of paint available for use during the construction.

REGULATION 8, RULE 15 (EMULSIFIED AND LIQUID ASPHALTS)

Although this rule does not directly apply to the project, it does dictate the reactive organic gases content of asphalt available for use during construction by regulating the sale and use of asphalt and limiting the ROG content in asphalt.

REGULATION 1, RULE 301 (ODOROUS EMISSIONS)

The Air District enforces odor control by helping the public to document a public nuisance. Upon receipt of a complaint, the Air District sends an investigator to interview the complainant and to locate the odor source if possible. The Air District typically brings a public nuisance court action when there are a substantial number of confirmed odor events within a 24-hour period. An odor source with five or more confirmed complaints per year averaged over 3 years is considered to have a substantial effect on receptors. Several Air District regulations and rules apply to odorous emissions. Regulation 1, Rule 301 is the nuisance provision that states that sources cannot emit air contaminants that cause nuisance to a number of persons. Regulation 7 specifies limits for the discharge of odorous substances where the Air District receives complaints from 10 or more complainants within a 90-day period. Regulation 7 also precludes discharge of an odorous substance that causes the ambient air at or beyond the property line to be odorous after dilution with 4 parts of odor-free air, and specifies maximum limits on the emission of certain odorous compounds.

REGULATION 9, RULE 8 (INORGANIC GASEOUS POLLUTANTS–NITROGEN OXIDES AND CARBON MONOXIDE FROM STATIONARY INTERNAL COMBUSTION ENGINES)

Under Regulation 9, Rule 8, the Air District regulates the emissions of nitrogen oxides and carbon monoxide from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower. As such, any proposed stationary source equipment (e.g., backup generators, fire pumps) which would be greater than 50 horsepower would require an Air District permit under Regulation 9, Rule 8 to operate.

REGULATION 11, RULE 2 (HAZARDOUS POLLUTANTS–ASBESTOS DEMOLITION, RENOVATION, AND MANUFACTURING)

Under Regulation 11, Rule 2, the Air District regulates emissions of asbestos to the atmosphere during demolition, renovation, milling, and manufacturing and establishes appropriate waste disposal procedures. Any of these activities which pose the potential to generate emissions of airborne asbestos are required to comply with the appropriate provisions of this regulation.

Plan Bay Area

On October 2021, the Metropolitan Transportation Commission (MTC) approved Plan Bay Area 2050. Plan Bay Area includes integrated land use and transportation strategies for the region and was developed through OneBayArea, a joint initiative between ABAG, the Air District, MTC, and the San Francisco Bay Conservation and Development Commission. Plan Bay Area is also considered the ABAG/MTC Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). In

accordance with SB 743, Plan Bay Area included elements designed to encourage the type of land-use development to meet three primary objectives. First, Roadway Level of Service (LOS) could not be considered an environmental impact under CEQA. Second, it introduced changes to VMT per capita as a determinant of environmental impact. Third, the use of VMT as an environmental impact in CEQA is considered a mechanism for achieving State and regional GHG reduction goals. As a regional land use plan, Plan Bay Area aims to reduce per-capita air pollutant and GHG emissions through the promotion of more compact, mixed-use residential and commercial neighborhoods located near transit (ABAG; MTC 2021). Strategies contained in Plan Bay Area target reductions in key criteria pollutants, including PM_{10}, $PM_{2.5}$, NO_X, and ROG.

d. Local Regulations

City of Petaluma 2025 General Plan

The City's current 2025 General Plan was originally adopted in May 2008 and revised in May 2021. The 2025 General Plan includes 11 Elements: Land Use, Growth Management, and the Built Environment; Community Design, Character, and Green Building; Historic Preservation; The Natural Environment; Mobility; Recreation, Music, Parks, and the Arts; Community Facilities, Services and Education; Water Resources; Economic Health and Sustainability; Health and Safety; and Housing (City of Petaluma 2008). The 2025 General Plan guides how land in the city may be developed and used by designating each parcel of land for a particular use or combination of uses and by establishing broad development policies.

Several Elements of the 2025 General Plan contain the following goals and policies applicable to the project (City of Petaluma 2008):

Goal 4-G-3: Air Quality. Improve air quality and meet all Federal and State ambient air quality standards and goals by reducing the generation of air pollutants from stationary and mobile sources.

> **Policy 4-P-7:** Reduce motor vehicle related air pollution. Enforce land use and transportation strategies described in Chapter 1: Land Use and Chapter 5: Mobility that promote use of alternatives to the automobile for transportation, including walking, bicycling, bus transit, and carpooling.
>
> **Policy 4-P-8:** Support, where feasible, the development of alternative fuel stations.
>
> **Policy 4-P-9:** Require a percentage of parking spaces in large parking lots or garages to provide electrical vehicle charging facilities.
>
> **Policy 4-P-15:** Improve air quality by reducing emissions from stationary point sources of air pollution (e.g. equipment at commercial and industrial facilities) and stationary area sources (e.g. wood-burning fireplaces & gas powered lawn mowers) which cumulatively emit large quantities of emissions.
>
> **Policy 4-P-17:** To avoid potential health effects and citizen complaints that may be caused by sources of odors, dust from agricultural uses, or toxic air contaminants the following measures may be considered:
>
> Locate new stationary sources of air pollutants, such as industrial facilities, at sufficient distances away from residential areas and facilities that serve sensitive receptors to avoid significant impacts caused by odors, dust, and toxic air contaminants.

Include buffer zones within new residential and sensitive receptor site plans to separate those uses from potential sources of odors, dust from agricultural uses, and stationary sources of toxic air contaminants

City of Petaluma Senate Bill 743 Implementation Program

The City of Petaluma adopted *Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines Final* (2021 VMT Guidelines) through City Council Resolution No. 2021-112 and replaced automobile delay with VMT analysis as the City's CEQA Transportation analysis metric, pursuant to SB 743. The 2021 VMT Guidelines shifts the focus away from vehicle delays on local roadways to regional traffic patterns and reducing GHG emissions and establishes the methods, VMT metrics, thresholds of significance, screening criteria, and mitigation strategies for CEQA evaluation of discretionary projects. Given the City's commitment to climate resilience, City Council adopted a significance threshold in alignment with the California Air Resources Board's (CARB) identified reduction at 16.8 percent below baseline VMT levels. As the City updates its General Plan, the 2021 VMT Guidelines will be reviewed to ensure continued alignment with the City's commitment to the climate emergency and reflective of the Blueprint for Climate Action. While the City's current VMT threshold of 16.8 percent below baseline remains valid and supported by CARB scoping guidance, CARB's 2022 Scoping Plan establishes more ambiguous statewide expectations for reducing per-capita VMT. Future revisions to Petaluma's VMT threshold may therefore consider CARB's recommended 25 percent reduction by 2030 and 30 percent reduction by 2045 to better reflect the City's climate priorities. Evaluation of potential threshold updates will be completed through the General Plan Update process in coordination with Fehr & Peers and the project team to ensure technical defensibility and policy consistency.

Petaluma Blueprint for Climate Action

The City adopted the Blueprint for Climate Action in 2024 which establishes a target of achieving carbon neutrality by 2030 and identifies transportation as the largest source of communitywide greenhouse gas emissions (approximately 67 percent). The Blueprint sets forth transportation-related actions to minimize greenhouse gas emissions from transportation, including implementing transportation demand management programs, prioritizing 15-minute neighborhoods and transit-oriented development, and transitioning municipal and transit fleets to zero-emission vehicles. The Blueprint also calls for comprehensive EV charging infrastructure, parking reform to discourage single-occupancy vehicle use, and integration of mobility hubs to support mode shift. Implementation of the Blueprint's transportation actions ensure alignment with the City's VMT guidelines, active transportation investments, and long-range land use policies.

Petaluma Implementing Zoning Ordinance

Section 21.040(C) of the City of Petaluma's Implementing Zoning Ordinance provides a performance standard for odors. It requires that no emission shall be permitted of odorous gases or other odorous matter in such quantities as to be readily detectable when diluted in the ratio of one volume of odorous air to four volumes of clean air at the points of measurement specified or at the point of greatest concentration. Section 21.040(H) regulates smoke, fumes, gases, dust, and particulate matter by prohibiting the violation of the current regulations of the Air District.

4.3.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

Construction Emissions

Construction-related emissions are temporary but may still cause adverse air quality impacts. Construction of development associated with the proposed project would generate temporary emissions from three primary sources: the operation of construction vehicles (e.g., scrapers, loaders, dump trucks, concrete mixers, delivery trucks, etc.); ground disturbance during site preparation and grading, which creates fugitive dust; and the application of asphalt, paint, or other oil-based substances.

Because it is not known which individual projects would be constructed, a programmatic approach is taken to ensure implementation of the most recent standards at the time of project approval. At this time, there is not sufficient detail to allow project-level analysis and thus it would be speculative to analyze project-level impacts. Rather, construction impacts for the proposed project are discussed qualitatively and emissions are not compared to the project-level thresholds.

Operational Criteria Pollutant and TAC Emissions Thresholds

Stationary and mobile sources generate air pollutant emissions in the basin. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and are generated by residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products, among other things. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and construction equipment. Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

Based on plan-level guidance from the Air District 2022 CEQA Air Quality Guidelines, long-term operational emissions associated with implementation of the proposed project are discussed qualitatively by comparing the proposed project to the 2017 Clean Air Plan goals, policies, and control measures. In addition, comparing the rate of increase of plan VMT and population is recommended by Air District for determining significance of criteria pollutants. If the proposed project does not meet either criterion, then impacts would be potentially significant.

Significance Thresholds

Based on Appendix G of the *CEQA Guidelines* a project may be deemed to have a significant impact on air quality if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard;
3. Expose sensitive receptors to substantial pollutant concentrations; or

4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

This analysis uses the Air District's 2022 CEQA Air Quality Guidelines to evaluate air quality. The plan-level thresholds specified in the 2022 Air District CEQA Air Quality Guidelines were used to determine whether the proposed project impacts exceed the thresholds identified in *CEQA Guidelines* Appendix G.

Consistency with Air Quality Plan

Under Air District's methodology, a determination of consistency with *CEQA Guidelines* thresholds should demonstrate that a project:

1. Supports the primary goals of the 2017 Clean Air Plan.
2. Includes applicable control measures from the 2017 Clean Air Plan.
3. Does not disrupt or hinder implementation of any 2017 Clean Air Plan control measures.

Construction Criteria Pollutants

The Air District's 2022 CEQA Air Quality Guidelines have no plan-level significance thresholds for construction air pollutants emissions. However, they do include project-level screening and emissions thresholds for temporary construction-related emissions of air pollutants. These thresholds represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions and are discussed in detail below (Air District 2022). Construction emissions associated with plan implementation are discussed qualitatively to evaluate potential air quality impacts since the proposed project does not propose specific development projects and therefore individual project-specific information is currently not available.

The Air District developed screening criteria in the 2022 CEQA Air Quality Guidelines to provide lead agencies and project applicants with a conservative indication of whether a project could result in potentially significant air quality impacts. The screening criteria for residential land uses are shown in Table 4.3-4.

Table 4.3-4 Bay Area Air District Criteria Air Pollutant Screening Levels

Land Use Type	Operational Criteria Pollutant Screening Size	Construction Criteria Pollutant Screening Size
Single Family Housing (du)	421	254
Apartments (du)	638	416
Condo-Townhouse (du)	637	416
Mobile Home Park (du)	721	377
General Office Building (ksf)	765	452
Office Park (ksf)	706	452
General Light Industry (ksf)	998	452
Manufacturing (ksf)	1,009	452
Hotel (rooms)	633	312
Motel (rooms)	767	230
Strip Mall (ksf)	204	452

Land Use Type	Operational Criteria Pollutant Screening Size	Construction Criteria Pollutant Screening Size
Supermarket (ksf)	72	452

du = dwelling unit; ksf = 1,000 square feet

Source: Bay Area Air District 2022

In addition to the screening levels above, several additional factors are outlined in the 2022 CEQA Air Quality Guidelines that construction activities must satisfy for a project to meet the construction screening criteria:

All best management practices from the 2022 CEQA Guidelines must be included in project design and implemented during construction;

Construction-related activities would not overlap with operational activities; and

Construction-related activities would not include any of the following:

- Demolition;
- Simultaneous occurrence of more than two construction phases (e.g., paving and building construction occurring simultaneously);
- Extensive site preparation (e.g., grading, cut and fill, or earth movement);
- Extensive material transport (e.g., soil import and export requiring a considerable amount of haul truck activity); or
- Stationary sources (e.g., backup generators) subject to Air District rules and regulations.

If a project meets the screening criteria, then the lead agency or applicant would not need to perform a detailed air quality assessment of their project's air pollutant emissions. These screening levels are generally representative of new development on greenfield sites without any form of mitigation measures taken into consideration (Air District 2022).

For projects that do not meet the screening criteria above, the Air District construction significance thresholds for criteria air pollutants, shown in Table 4.3-5, are used to evaluate a project's potential air quality impacts.

Table 4.3-5 Bay Area Air District Criteria Air Pollutant Significance Thresholds

Pollutant	Construction Thresholds Average Daily Emissions (lbs/day)	Operational Threshold Average Daily Emissions (lbs/day)	Operational Threshold Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
Fugitive Dust	Best Management Practices	Not Applicable	Not Applicable

lbs = pounds; NO_X = oxides of nitrogen; ROG = reactive organic gases; $PM_{2.5}$ = particulate matter with an aerodynamic diameter equal to or less than 2.5 microns

Source: Bay Area Air District 2022

For all projects in the SFBAAB, the Air District 2022 CEQA Air Quality Guidelines recommends implementation of the Basic Best Management Practices for Construction-Related Fugitive Dust Emissions listed in Table 5-2 of the Guidelines (Air District 2022). For projects that exceed the thresholds in Table 4.3-5, the Air District 2022 CEQA Air Quality Guidelines recommends implementation of the Additional Construction Mitigation Measures listed in Table 8-3 of the Guidelines (Air District 2022).

CRITERIA AIR POLLUTANTS – OPERATION

The Bay Area Air District's 2022 CEQA Air Quality Guidelines contain specific operational plan-level significance thresholds for criteria air pollutants. Plans must show the following over the planning period:

Consistency with current air quality plan control measures, and

VMT or vehicle trips increase is less than or equal to the plan's projected population increase.

If a plan can demonstrate consistency with both criteria, then impacts would be less than significant. The current air quality plan is the 2017 Clean Air Plan.

For project-level thresholds, the screening criteria for operational emissions are shown in Table 4.3-4. For projects that do not meet the screening criteria, the Air District operational significance thresholds for criteria air pollutants, shown in Table 4.3-5, are used to evaluate a project's potential air quality impacts.

CARBON MONOXIDE HOTSPOTS

Air District provides a preliminary screening methodology to conservatively determine whether a proposed project would exceed CO thresholds. If the following criteria are met, the individual project would result in a less than significant impact related to local CO concentrations:

1. The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans;
2. Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
3. Project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

TOXIC AIR CONTAMINANTS

For health risks associated with TAC and $PM_{2.5}$ emissions, the Air District 2022 CEQA Air Quality Guidelines state a project would result in a significant impact if the any of the following thresholds are exceeded (Air District 2022):

Non-compliance with Qualified Community Risk Reduction Plan;

Increased cancer risk of > 10.0 in a million;

Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute); or

Ambient $PM_{2.5}$ increase of > 0.3 $\mu g/m^3$ annual average

LEAD

Projects would be required to comply with Bay Area Air District Regulation 11, Rule 1 (Lead), which is intended to control the emission of lead to the atmosphere. This rule sets standards and limits for emissions of lead and provides procedures for monitoring emissions.

ASBESTOS

Demolition of buildings would be subject to Bay Area Air District Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing). Bay Area Air District Regulation 11, Rule 2 is intended to limit asbestos emissions from demolition and the associated disturbance of asbestos-containing waste material generated or handled during these activities. This rule requires notification of Air District of any regulated demolition activity, and contains specific requirements for surveying, notification, removal, and disposal of material containing asbestos. Impacts related to asbestos emissions from projects that comply with Regulation 11, Rule 2 are considered to be less than significant since the regulation would ensure the proper and safe disposal of asbestos containing material.

ODORS

The Bay Area Air District provides minimum distances for siting of new odor sources, shown in Table 4.3-6. A significant impact would occur if the project would result in other emissions (such as odors) affecting substantial numbers of people or would site a new odor source as shown in Table 4.3-6 within the specified distances of existing receptors.

Table 4.3-6 Bay Area Air District Odor Source Thresholds

Odor Source	Minimum Distance for Less than Significant Odor Impacts (in miles)
Wastewater Treatment Plant	2
Wastewater Pumping Facilities	1
Sanitary Landfill	2
Transfer Station	1
Composting Facility	1
Petroleum Refinery	2
Asphalt Batch Plant	2
Chemical Manufacturing	2
Fiberglass Manufacturing	1
Painting/Coating Operations	1
Rendering Plant	2
Coffee Roaster	1
Food Processing Facility	1
Confined Animal Facility/Feed Lot/Dairy	1
Green Waste and Recycling Operations	1
Metal Smelting Plants	2

Source: Bay Area Air District 2023b

b. Project Impacts and Mitigation Measures

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

Impact AQ-1 THE PROPOSED PROJECT WOULD NOT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE 2017 CLEAN AIR PLAN. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Project Consistency with the Current Air Quality Plan

As stated above under "Significance Thresholds," according to the Bay Area Air District, a project is consistent with the Clean Air Plan if it:

1. Supports the primary goals of the 2017 Clean Air Plan.
2. Includes applicable control measures from the 2017 Clean Air Plan.
3. Does not disrupt or hinder implementation of any 2017 Clean Air Plan control measures.

The following includes a discussion of consistency with these criteria for the project. The 2017 Clean Air Plan contains 85 control measures aimed at reducing air pollution and protecting the climate in the Bay Area. For consistency with climate planning efforts at the State level, the control strategies in the 2017 Clean Air Plan are based on the same economic sector framework used by CARB, which encompass stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants (such as methane and hydrofluorocarbons). Table 4.3-7 identifies applicable control measures and discusses project consistency with the 2017 Clean Air Plan.

Table 4.3-7 Clean Air Plan Control Measures Consistency Analysis

Control Measures	Consistency
Stationary Sources	
SS18: Basin-Wide Combustion Strategy. Stabilize and then reduce emissions of GHGs, criteria air pollutant and toxic emissions from stationary combustion sources throughout the Air District by first establishing carbon intensity caps on major GHG sources, and then adopting new rules to (1) reduce fuel use on a source-type by source-type basis, and (2) evaluate alternatives to decarbonize abatement devices.	**Consistent.** Stationary sources are regulated directly by the Air District, which routinely adopts/revises rules or regulations to implement the Stationary Source control measures to reduce stationary source emissions. Therefore, any new stationary sources associated with development facilitated by the project would be required to comply with Air District regulations.
SS21: New Source Review for Air Toxics. Propose revisions to Air District Rule 2-5, New Source Review of Toxic Air Contaminants, based on OEHHA's 2015 Health Risk Assessment Guidelines and CARB/ CAPCOA's 2015 Risk Management Guidance. Revise the Air District's health risk assessment trigger levels for each toxic air contaminant using the 2015 Guidelines and most recent health effects values.	
Transportation	
TR2: Trip Reduction Programs. Implement the regional Commuter Benefits Program (Rule 14-1) that requires employers with 50 or more Bay Area employees to provide commuter benefits. Encourage trip reduction policies and programs in local plans, e.g., general and	**Consistent**: The Mobility Element includes proposed policies that encourage trip reduction programs. The following proposed goals and policies aim to reduce VMT through implementation of policies such as:

Control Measures	Consistency
specific plans, while providing grants to support trip reduction efforts. Encourage local governments to require mitigation of vehicle travel as part of new development approval, to adopt transit benefits ordinances in order to reduce transit costs to employees, and to develop innovative ways to encourage rideshare, transit, cycling, and walking for work trips. Fund various employer-based trip reduction programs.	▪ **Policy TP-3.4: Create a Low-Stress Walking and Bicycling Network:** Create and maintain a safe, low stress, comprehensive, and integrated bicycle and pedestrian system throughout Petaluma that encourages bicycling and walking and is accessible to all. ▪ **Policy TP-3.5: Invest in Public Transit:** Enhance the public transit network to serve citywide and regional travel needs and support transit-oriented communities. ▪ **Action TP-3.5.1:** Expand the fixed-route transit network through route additions and decreased headways as feasible to connect major destinations such as parks, schools, and 15-minute neighborhood nodes. ▪ **Action TP-3.5.5:** Implement the Petaluma portion of applicable local, county, and regional transit plans. ▪ **Policy TP-5.1: Integrate Development and Transportation Policies:** Ensure land use and transportation policies work in concert with one another to incentivize compact, accessible, livable, and sustainable development that supports a high quality of life and vibrant economy. ▪ **Action TP-5.1.1:** Integrate 15-minute Neighborhood objectives into land use and transportation planning to ensure all Petaluma residents have access to essential services within a 15-minute walk of their home. ▪ **Action TP-5.1.3:** Require that active transportation be an integral part of land use-based planning processes and decisions from inception. ▪ **Policy TP-5.3: Encourage Low Carbon Travel Through Transportation Demand Management:** Use TDM strategies on a citywide basis to encourage and create incentives for the use of active transportation and transit and reduce demand for vehicle travel and parking. Strategies should be aligned with the goals and best practices of SCTA and MTC's guidance and requirements. ▪ **Action TP-5.3.1:** Adopt a TDM policy that creates tiers of required TDM measures for new development or major renovations based on the size and type of land use, monitor the effectiveness of these strategies, and update the programs as new ideas emerge. ▪ **Action TP-5.3.2:** Develop and maintain a TDM program for City staff designed to reduce the City's carbon footprint.
TR13: Parking Policies. Encourage parking policies and programs in local plans, e.g., reduce minimum parking requirements; limit the supply of off-street parking in transit-oriented areas; unbundle the price of parking spaces; support implementation of demand-based pricing (such as "SF Park") in high-traffic areas.	**Consistent**: Development facilitated by the project would be required to comply with existing City parking standards and standards regarding EV parking in compliance with the latest CALGreen standards. The following proposed actions and policies aim to reduce minimum parking requirements and supply of off-street parking in transit-oriented areas:

Control Measures	Consistency
	▪ **Action LU-3.3.1:** Update the Municipal Code to be consistent with the Land Use Designation Standards and to increase flexibility for mixed-use development: Allow the addition of housing to creative/co-working spaces and the conversion of nonresidential space into housing. Allow co-working spaces to fulfill some portion of the required nonresidential component of mixed-use development, or to satisfy "storefront" form-based requirements. Expand zones where live/work is permitted, including allowing live/work as a permitted use by right in all mixed-use zones, with a conditional use permit (CUP) in R3, R4, and R5, and as a permitted use by right in Town Centers and Neighborhood Centers. Permit innovative site and building design that supports parking solutions such as shared, structured, and/or underground facilities ▪ **Action LU-3.4.1:** Update the Municipal Code to support flexible development practices, potentially including: Updated standards for ground floor space in mixed-used zones to allow flexibility to respond to market conditions over time by, for example, permitting flex and maker space, office floorplates that can later be converted to residential, co-working space, and either residential or commercial/employment uses Allowing the conversion of parking structures to non-parking uses. Allowing mass timber construction. Allowing prefabricated structures and materials. Diversifying the range of by-right and conditional uses in areas designated Business Park. ▪ **Action LU-7.2.1:** Establish a permitting process in the Municipal Code to facilitate new single-family residential infill development projects under certain conditions: Total Units: – Allow four total units (including ADUs) without a lot split. – Allow four units to be developed on all single-family (R1 & R2) residential parcels of at least 3,000 square feet. Do not require that units be separate buildings, and allow units to be developed as condominiums. – Allow a maximum FAR of 1.0 for 3-7 units and a maximum FAR of 1/25 for 8-10 units on lots designated Diverse Low Density Residential (RDIV). – Allow duplex and triplex housing developments by right in all low-density residential areas (Rural Residential/RR, Very Low/R1 & Low/R2).

Control Measures	Consistency
	Size: Develop FAR standards that scale based on the zone and the number of units to promote context-sensitive neighborhood infill. Maximum Heights: Maintain existing City standards for single-family units and ADUs. Parking Requirements: Require 0 or 0.5 off-street parking spaces per unit.
Energy	
EN1: Decarbonize Electricity Production. Engage with PG&E, municipal electric utilities and CCEs to maximize the amount of renewable energy contributing to the production of electricity within the Bay Area as well as electricity imported into the region. Work with local governments to implement local renewable energy programs. Engage with stakeholders including dairy farms, forest managers, water treatment facilities, food processors, public works agencies and waste management to increase use of biomass in electricity production. **EN2: Decrease Electricity Demand**. Work with local governments to adopt additional energy-efficiency policies and programs. Support local government energy efficiency program via best practices, model ordinances, and technical support. Work with partners to develop messaging to decrease electricity demand during peak times.	**Consistent.** Measures EN1 and EN2 are intended to decrease energy use as a means of reducing adverse air quality emissions. Development facilitated by the project would comply with 2025 Building Energy Efficiency Standards (or most recent version of the California Building Code) requirements that commercial buildings be electric-ready and standards for expanded solar and battery storage and residential development under three stories include rooftop photovoltaic panels. In addition, the following General Plan proposed policies would encourage energy efficiency and reduction: ▪ **Goal IU-8: Renewable and Resilient Energy.** The community uses renewable energy sources that do not contribute to the climate crisis and are resilient against possible disruptions due to earthquake, fire, or other disasters. ▪ **Policy IU-8.1: Encourage renewable energy sources.** Encourage the use and development of renewable or otherwise non-GHG emitting sources of energy through implementation of the Blueprint for Climate Action.
Buildings	
BL1: Green Buildings. Collaborate with partners such as KyotoUSA to identify energy-related improvements and opportunities for on-site renewable energy systems in school districts; investigate funding strategies to implement upgrades. Identify barriers to effective local implementation of the CALGreen (Title 24) statewide building energy code; develop solutions to improve implementation/enforcement. Work with ABAG's BayREN program to make additional funding available for energy-related projects in the buildings sector. Engage with additional partners to target reducing emissions from specific types of buildings. **BL2: Decarbonize Buildings.** Explore potential Air District rulemaking options regarding the sale of fossil fuel-based space and water heating systems for both residential and commercial use. Explore incentives for property owners to replace their furnace, water heater or natural-gas powered appliances with zero-carbon alternatives. Update Air District guidance documents to recommend that commercial and multi-family developments install ground source heat pumps and solar hot water heaters.	**Consistent**: Measures BL1 and BL2 focus on working with local governments to adopt the best GHG emissions control practices and policies. As discussed above for the Energy and Climate control measures, development facilitated by the project would comply with 2025 Building Energy Efficiency Standards' (or most recent version of the California Building Code) requirements that commercial buildings be electric-ready and standards for expanded solar and battery storage and residential development under three stories include rooftop photovoltaic panels. In addition, the following General Plan proposed policies would encourage energy efficiency and reduction: ▪ **Goal IU-8: Renewable and Resilient Energy.** The community uses renewable energy sources that do not contribute to the climate crisis and are resilient against possible disruptions due to earthquake, fire, or other disasters. ▪ **Policy IU-8.1: Encourage renewable energy sources.** Encourage the use and development of renewable or otherwise non-GHG emitting sources of energy through implementation of the Blueprint for Climate Action.

Control Measures	Consistency
Waste Management Control Measures	
WA4: Recycling and Waste Reduction. Develop or identify and promote model ordinances on community-wide zero waste goals and recycling of construction and demolition materials in commercial and public construction projects	**Consistent.** Measure WA4 includes strategies to increase waste diversion rates through efforts to reduce, reuse, and recycle. Development facilitated by the project would comply with Assembly Bill (AB) 341, which requires mandatory commercial recycling for businesses that generate four cubic yards or more of commercial solid waste per week. In addition, the following General Plan proposed policies would encourage energy efficiency and reduction: ▪ **Goal IU-6: Waste Reduction.** The City and its inhabitants see opportunities for recycling and reuse in everything, sending 90 percent less to landfills than they did in 2003. ▪ **Policy IU-6.1: Reduce solid waste.** Reduce solid waste and increase reduction, reuse, and/or recycling in compliance with the Countywide Integrated Waste Management Plan (CIWMP) and consistent with the Blueprint for Climate Action. ▪ **Goal IU-7: Zero-Emissions Waste Operations**. The City's waste management program has eliminated its net operational greenhouse gas emissions. ▪ **Policy IU-7.1: Promote composting within City limits**. Promote processing and reuse of organic waste within City limits, consistent with the Blueprint for Climate Action. ▪ **Policy IU-7.2: Prioritize maximum reuse and recycling of materials.** Prioritize recycling service contracts that reduce emissions and maximize reuse and recycling of materials, consistent with the Blueprint for Climate Action.

The Air District has identified examples of how a project or plan may disrupt or delay local government implementation of these control measures, such as a project that may preclude an extension of a transit line or bike path, or that propose excessive parking beyond parking requirements. Development within the project area would not disrupt or delay local government implementation of control measures. Overall, the project would be consistent with the three criteria for evaluating consistency with the 2017 Clean Air Plan. As such, the project would not conflict with or obstruct implementation of the applicable air quality plan, and this impact would be less than significant.

Mitigation Measures

No mitigation required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2:	Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

Impact AQ-2 CONSTRUCTION FACILITATED BY THE PROPOSED PROJECT WOULD TEMPORARILY INCREASE AIR POLLUTANT EMISSIONS, WHICH WOULD AFFECT LOCAL AIR QUALITY. ADHERENCE TO MITIGATION MEASURE AQ-1 WOULD REDUCE CONSTRUCTION EMISSIONS TO A LESS THAN SIGNIFICANT LEVEL. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

Construction

Future construction under the updated General Plan would involve activities that result in air pollutant emissions. Such activities would likely include demolition, grading, construction worker travel, delivery and hauling of construction supplies and debris, and fuel combustion by on-site construction equipment. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The extent of daily emissions, particularly ROGs and NO_X emissions, generated by construction equipment, would depend on the timing, duration, quantity of equipment used, and the hours of operation for each project. The extent of $PM_{2.5}$ and PM_{10} emissions would depend upon the following factors: 1) the amount of disturbed soils; 2) the length of disturbance time; 3) whether existing structures are demolished; 4) whether excavation is involved; and 5) whether transporting excavated materials offsite is necessary. Dust emissions can lead to both nuisance and health impacts. According to the Bay Area Air District 2022 CEQA Air Quality Guidelines, PM_{10} is the greatest pollutant of concern during construction (Bay Area Air District 2022).

As discussed above under Section 4.3.2, Bay Area Air District's 2022 CEQA Air Quality Guidelines have no plan-level significance thresholds for construction air pollutant emissions that would apply to the project. However, the guidelines include project-level thresholds for construction emissions. If an individual project's construction emissions fall below the project-level thresholds, the project's impacts on regional air quality would be individually and cumulatively less than significant. The Air District has also identified feasible fugitive dust control measures for construction activities. For a project to have a less-than-significant criteria air pollutant impact related to construction-related fugitive dust emissions, it must implement all Air District's basic best management practices (BMPs) listed in Table 5-2 of the 2022 Bay Area Air District CEQA Air Quality Guidelines (Bay Area Air District 2022). In addition, the Air District and CARB have regulations that address the handling of hazardous air pollutants such as lead and asbestos, which could be aerially disbursed during demolition activities. Future development facilitated by the General Plan would be required to comply with policies in the City's General Plan, specifically Policy HEEJ-3.1, which is aimed at protecting the public from exposure to air pollution, and Action HEEJ-3.1.7, which requires new development to implement Bay Area Air District CEQA guidelines and thresholds to limit air quality impacts. Additionally, new development would be required to comply with applicable Air District dust control measures for new construction. Nonetheless, construction of development envisioned under the project would temporarily increase air pollutant emissions, possibly creating localized areas of unhealthy air pollution concentrations or air quality nuisances. Because construction activities for future individual projects are currently unknown, even with adherence to the General Plan policies and compliance with the Air District's Basic Best Management Practices for Construction-Related Fugitive Dust Emissions, construction activities from the proposed project could still potentially result in a cumulatively considerable net increase of criteria pollutants. This impact would be potentially significant and Mitigation Measure AQ-1 would be required.

Mitigation Measures

The following mitigation measure would be required:

AQ-1 Construction Emissions Screening

For future development facilitated by the General Plan that does not meet the Bay Area Air Quality Management District (Air District) construction screening criteria provided in the 2022 Air District CEQA Guidelines (or the guidelines in place at the time of development), individual air quality analysis shall be conducted to determine project significance. Where individual projects exceed Air District significance thresholds, emission-reduction measures shall be incorporated to reduce emissions to below thresholds. Construction emission reduction measures may include, but are not limited to, incorporation of Tier 4 and/or alternative fueled equipment, use of onsite power sources instead of generators, and use of low/no-VOC content architectural coatings. Individual project analysis and accompanying emission-reduction measures shall be approved by the City prior to issuance of a grading or building permit.

Significance after Mitigation

Implementation of Mitigation Measure AQ-1 would require individual air quality analyses that would identify emission-reduction measures to reduce temporary construction impacts. Implementation of this mitigation measure would ensure that the proposed project would not 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. This impact would be less than significant with mitigation.

Impact AQ-3 VEHICLE MILES TRAVELED ASSOCIATED WITH DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD INCREASE AT A LOWER RATE THAN POPULATION GROWTH FACILITATED BY THE PROJECT. THEREFORE, OPERATIONAL IMPACTS ON CRITERIA POLLUTANTS WOULD BE LESS THAN SIGNIFICANT.

Operation

The greatest source of criteria pollutants in Petaluma is and would continue to be from transportation sources, specifically mobile emissions from roadway traffic. The project emphasizes reducing VMT on area roadways through emphasizing greater mixed use in the area and proximity of residents to jobs. The following General Plan proposed goals, policies, and actions would encourage active transportation modes, such as walking and bicycling, as well as the use of public transit, thereby reducing vehicle trips and associated criteria air pollutants in the Plan Area compared to existing conditions:

Goal TP-2: Achieve Carbon Neutrality in Transportation. The use of clean, energy-efficient, active, and economically sustainable means of travel in Petaluma supports increased resilience and adaptation to climate change, improved air quality, reduced carbon emissions, and improved public health.

> **Policy TP-2.1: Enable Low-Carbon Travel: Compact Development Pattern**. Maintain a compact development pattern that fosters a walkable and bikeable urban form.
>
> > **Action TP-2.1.1**: Implement the Transportation and Land Use Action Plan of the Blueprint for Climate Action and monitor transportation sector emissions reduction and mode share goals and metrics.

Policy TP-2.2: Encourage Electric Transportation. In coordination with Blueprint for Climate Action, develop a comprehensive package of incentives, disincentives, and actions to encourage the use of transit, e-bikes, and ZEVs.

Action TP-2.2.3: Establish standards for residential development and require pre-installing wiring necessary to support chargers for e-bikes and EVs, in coordination with Policy 5.2, and develop an incentive program for existing residences to install charging facilities.

Goal TP-5: Integrated Land Use and Transportation Planning. Support holistic mobility planning by integrating land use development, transportation decision-making, and infrastructure priorities.

Policy TP-5.1 Integrate Development and Transportation Policies. Ensure land use and transportation policies work in concert with one another to incentivize compact, accessible, livable, and sustainable development that supports a high quality of life and vibrant economy.

Action TP-5.1.1: Integrate 15-minute Neighborhood objectives into land use and transportation planning to ensure all Petaluma residents have access to essential services within a 15-minute walk of their home.

Action TP-5.1.2: Prioritize new and infill development along existing transit corridors and within proximity to major mobility hubs through zoning code, specific plans, and other land use plans.

Action TP-5.1.3: Require that active transportation be an integral part of land use-based planning processes and decisions from inception.

According to the Bay Area Air District 2022 *CEQA Air Quality Guidelines,* the plan-level threshold for criteria air pollutants and precursors requires an assessment of consistency with current air quality plan control measures and demonstration that the rate of plan VMT increase is less than or equal to the plan's projected population increase. Table 4.3-8 summarizes the net increase in population versus VMT for cumulative plus project buildout conditions based on data provided by Fehr & Peers (2025).

Table 4.3-8 Net Increase in Project Population versus VMT

Scenario	Existing	Project 2040 Buildout	Net Increase
Population	64,225	81,252	17,027
Percentage change			27%
VMT	1,895,596	2,281,422	385,825
Percentage change			20%

The project emphasizes changing land uses to concentrate growth and jobs and services near residences to reduce singular vehicle trips. As shown in Table 4.3-8, the City's population increase would be proportionately greater than the VMT increase. According to the Air District's 2022 CEQA Air Quality Guidelines, if a plan's VMT increase, under the cumulative condition, is less than or equal to the plan's projected population increase, impacts to operational criteria pollutant emissions would be less than significant. Furthermore, the proposed General Plan Update goals and policies would achieve greater air-quality emission reductions than those anticipated under the current General Plan, due to more efficient land use patterns and reduced per-capita vehicle travel. As such,

project operation would not conflict with Air District guidelines. Impacts would be less than significant.

Mitigation Measures

No mitigation required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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

Impact AQ-4 FUTURE DEVELOPMENT UNDER THE GENERAL PLAN WOULD POTENTIALLY EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS FROM EXISTING SOURCES OF TACS. CONSTRUCTION ACTIVITIES FOR INDIVIDUAL PROJECTS LASTING LONGER THAN TWO MONTHS OR LOCATED WITHIN 1,000 FEET OF SENSITIVE RECEPTORS COULD EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS. HOWEVER, THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH IMPLEMENTATION OF MITIGATION MEASURES AQ-2, AQ-3 AND AQ-4.

Carbon Monoxide Hotspots

The proposed project buildout would result in new development or redevelopment that would generate additional vehicle trips on area roadways. Areas with high vehicle density, such as congested intersections, have the potential to create high concentrations of CO ("CO hotspots") and could potentially expose sensitive receptors to harmful levels of pollution. The NAAQS for CO is 35.0 ppm and the CAAQS for CO is 20.0 ppm. A project's localized air quality impact would be significant if it caused CO concentrations to exceed these standards.

The entire Basin is in conformance with state and federal CO standards, as indicated by the recent air quality monitoring. There are no current exceedances of CO standards within the air district and have not had a CO exceedance in the Bay Area since before 1994.[2] For 2019, the Bay Area's reported maximum 1-hour and average daily concentrations of CO were 5.6 ppm and 1.7 ppm respectively (CARB 2025c).[3] These are well below the respective 1-hour and 8-hour standards of 20 ppm and 9 ppm. Given the ambient concentrations, which includes mobile as well as stationary sources, a project in the SFBAAB would need to emit concentrations three times the hourly maximum ambient emissions for all sources before project emissions would exceed the 1-hour standard. Additionally, the project would need to emit seven times the daily average for ambient concentrations to exceed the 8-hour standards. Typical development projects, even plan level growth, would not emit the levels of CO necessary to result in a localized hot spot. Therefore, impacts to CO hotspots from the proposed project would be less than significant.

Toxic Air Contaminants

Construction

Construction-related activities would result in short-term emissions of diesel particulate matter (DPM) exhaust emissions from off-road, heavy-duty diesel equipment for site preparation (e.g.,

[2] Bay Area Air District only has records for annual air quality summaries dating back to 1994.
[3] Data for 2019 was used as the data from 2021 through 2023 are not currently available.

excavation, grading, and clearing), building construction, and other miscellaneous activities. DPM was identified as a TAC by CARB in 1998. The potential cancer risk from the inhalation of DPM, as discussed below, outweighs the potential non-cancer[4] health impacts (CARB 2025b).

Generation of DPM from construction typically occurs in a single area for a short period. Construction of development facilitated by the project would occur over approximately a decade but use of diesel-powered construction equipment in any one area would likely occur for no more than a few years for an individual project and would cease when construction is completed in that area. It is not possible to quantify risk without identified specific project details and locations.

The dose to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual. The risks estimated for a Maximally Exposed Individual are higher if a fixed exposure occurs over a longer period. According to the California Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the development (OEHHA 2015). The Air District uses an exposure period of 30 years (Air District 2022).

The maximum PM_{10} and $PM_{2.5}$ emissions would occur during demolition, site preparation and grading activities, which would only occur for a portion of the overall estimated timeframe of 25 years for construction of housing units facilitated by the proposed project. These activities would typically last for approximately two weeks to two years, depending on the extent of grading and excavation required (e.g., projects with subterranean parking structures or geological constraints require additional grading as compared to those without). PM_{10} and $PM_{2.5}$ emissions would decrease for the remaining construction period because construction activities such as building construction and architectural coating would require less intensive construction equipment. While the maximum DPM emissions associated with demolition, site preparation, and grading activities would only occur for a portion of the overall construction period, these activities represent the worst-case condition for the total construction period. This would represent between 0.1 to 7 percent of the total 30-year exposure period for health risk calculation. Moreover, future development would be spread throughout Petaluma such that people affected by construction-related TAC emissions generated at one site would likely not be affected by construction-related TAC emissions generated at another site should construction activities occur simultaneously.

Furthermore, development facilitated by the proposed project would be required to implement additional emissions-reduction measures if project-specific analysis identifies the potential for construction-related TAC emissions to exceed Air District thresholds. Additionally, development facilitated by the project would be required to implement Bay Area Air District best available control measures and best management practices that would reduce construction-related TACs. The use of Tier 4 rated diesel construction equipment is also recommended to reduce construction-related TACs. Tier 4 engines emit significantly less NO_X, PM, hydrocarbons, and CO than less advanced engine tiers. For instance, Tier 4 engines emit approximately 90% less emissions of PM and NO_X than Tier 1 engines. According to the OEHHA, construction of individual projects lasting longer than two months and placed within 1,000 feet of sensitive receptors could potentially expose nearby sensitive receptors to substantial pollutant concentrations and therefore could result in potentially significant

[4] Non-cancer risks include premature death, hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma, increased respiratory symptoms, and decreased lung function (CARB 2025b).

risk impacts (OEHHA 2015). These projects could exceed Air District's thresholds of an increased cancer risk of greater than 10.0 in a million and an increased non-cancer risk of greater than 1.0 Hazard Index (Chronic or Acute). Because the exact nature and intensity of reasonably foreseeable development projects is not known at this time, it is speculative to determine whether project-specific mitigation measures would reduce project-level emissions below the Air District thresholds. Therefore, impacts would be potentially significant and implementation of Mitigation Measure AQ-2 would be required.

Operation

The Bay Area Air District CEQA Guidelines include methodology for jurisdictions to evaluate the potential impacts from placing sensitive receptors in proximity to major air pollutant sources. For assessing community risk and hazards for siting a new receptor, sources within a 500-foot radius of a project site are typically considered. Sources are defined as freeways or high-volume roadways with 10,000 vehicles or more per day and permitted sources (Air District 2022).

Development facilitated by the project could accommodate a net increase of approximately 6,449 residential units and approximately 1,414,741 square feet of non-residential land uses. Development facilitated by the General Plan in accordance with land use and zoning regulations would not site land uses that typically generate TAC, such as industrial land uses, near residential land uses. Additionally, if the proposed commercial, retail, office, and industrial uses site a new stationary TAC source, such as an emergency generator, then said stationary source would be required to receive a permit from the Air District. The permitting process would ensure that the stationary source does not present a health risk to existing nearby sensitive receptors.

There are several high-volume roadways in Petaluma, including Highway 101, Petaluma Boulevard, Washington Street, McDowell Boulevard, Old Redwood Highway, and Caulfield Lane. The General Plan may facilitate locating sensitive receptors in proximity to these high-volume roadways and freeways.

To minimize health risks to sensitive receptors located near stationary sources and/or high-volume roadways, the General Plan includes the following proposed goal and policies that aim to improve air quality and minimize exposure to TAC:

Goal HEEJ-3: Pollution Reduction. Petaluma neighborhoods, especially Equity Priority Areas, have reduced exposure to air pollution, noise pollution, and wildfire smoke.

> **Policy HEEJ-3.1: Minimize Air Pollution.** Minimize residents' exposure to harmful air pollutants and improve indoor air quality, especially in Equity Priority Areas and areas with higher air pollution exposure.
>
> > **Action HEEJ-3.1.2:** Update the zoning code to limit siting new sensitive land uses (e.g., schools, playgrounds, healthcare facilities, affordable housing, and elder and childcare centers) within 1,000 feet of Highway-101. For sensitive land uses that cannot be sited at least 1,000 feet away, require new development and work with existing property owners to implement appropriate mitigation measures to reduce indoor air pollution such as heating, ventilation, and air conditioning (HVAC) systems with High-Efficiency Particulate Air (HEPA) filters, vegetation barriers, and other physical improvements as recommended by the Air District and/or CARB.
> >
> > **Action HEEJ-3.1.4:** Update the zoning code to limit the siting of new industrial uses and facilities that emit air pollutants and/or toxic chemicals within 1,000 feet of existing

sensitive land uses (e.g., schools, playgrounds, healthcare facilities, affordable housing, and elder and childcare centers). For new industrial uses and facilities that cannot be sited at least 1,000 feet away, property owners to implement appropriate mitigation measures to reduce air pollution.

Policy HEEJ-3.2: Reduce Vehicle-Related Pollution. Reduce air pollution and vehicle-related emissions, especially from diesel-based trucks, which travel to, from, or through Petaluma.

Action HEEJ-3.2.2: Partner with local jurisdictions and agencies to advance strategies that reduce regional dependence on motor vehicles and decrease vehicle-related emissions, especially from Highway-101.

Action HEEJ-3.2.3: Establish a local ordinance that exceeds the State vehicle idling restrictions, including restrictions for bus layovers, delivery vehicles, trucks at warehouses and distribution facilities, and taxis, particularly when these activities take place near sensitive land uses. Manage truck idling in residential areas.

The primary mobile source of TACs within the Plan Area is truck idling and use of off-road equipment. New light industrial, maker-microbusiness, and commercial operations could generate substantial DPM emissions from off-road equipment use and truck idling. In addition, some industrial or maker-microbusiness facilities may include use of transport refrigeration units (TRUs) for cold storage. According to CARB, facilities that accommodate more than 100 trucks per day, or more than 40 trucks with operating TRUs per day, could generate an increase in DPM that would contribute to cancer and noncancer health risk at nearby sensitive receptors. Without project-specific analysis, operational health risk impacts from nonpermitted sources associated with development of non-residential land uses under the proposed plan would be potentially significant and Mitigation Measures AQ-3 and AQ-4 would be required.

Asbestos

Bay Area Air District Regulation 11, Rule 2 is intended to limit asbestos emissions from demolition or renovation of structures and the associated disturbance of asbestos-containing waste material generated or handled during these activities (Bay Area Air District 2022). The rule addresses the national emissions standards for asbestos along with some additional requirements. The rule requires the Lead Agency and its contractors to notify Air District of any regulated renovation or demolition activity. This notification includes a description of structures and methods utilized to determine whether asbestos-containing materials are potentially present. All asbestos-containing material found on the site must be removed prior to demolition or renovation activity in accordance with Bay Area Air District Regulation 11, Rule 2, including specific requirements for surveying, notification, removal, and disposal of material containing asbestos. Therefore, individual projects that comply with Regulation 11, Rule 2 would ensure that asbestos-containing materials would be disposed of appropriately and safely. By complying with Bay Area Air District Regulation 11, Rule 2, thereby minimizing the release of airborne asbestos emissions, demolition activity would not result in a significant impact to air quality. Pursuant to the Air District Guidelines, because Bay Area Air District Regulation 11, Rule 2 is in place, no further analysis about the demolition of asbestos-containing materials is needed in a CEQA document (Bay Area Air District 2022).

Mitigation Measures

The following mitigation measures would be required:

AQ-2 Construction Health Risk Assessment

For all individual discretionary projects where construction activities would occur within 1,000 feet of sensitive receptors, would last longer than two months, and would not utilize a fleet comprised only of EPA rated Tier 4 engines and/or alternative fuel construction equipment or equivalent, a construction health risk assessment (HRA) shall be performed.[5] The construction HRA shall be performed by a qualified air quality consultant coordinated through the City. The HRA shall be conducted following the Office of Environmental Health Hazards Association's (OEHHA) 2015 Health Risk Guidelines (OEHHA 2015) and Bay Area Air District guidelines to determine potential risk and compare the risk to the following Air District thresholds:

Increased cancer risk of > 10.0 in a million;

Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute); or

If risk exceeds the thresholds, measures such as requiring the use of Tier 4 and/or alternative fuel construction equipment or equivalent shall be implemented to reduce the risk to below thresholds.

AQ-3 Reduce Operational Toxic Air Contaminants Near Sensitive Receptors

For individual projects that would site sensitive receptors within 500 feet of a freeway, high-volume roadway (urban road with 100,000 vehicles/day or rural road with 50,000 vehicles/day), railyard, or rail line using diesel locomotives, the project applicant shall retain a qualified air quality consultant to prepare an HRA to determine the exposure of new sensitive receptors resulting from the project to existing emission sources. The HRA shall be conducted following the Office of Environmental Health Hazards Association's (OEHHA) 2015 Health Risk Guidelines (OEHHA 2015) and Air District guidelines to determine potential risk and compare the risk to the following Air District thresholds:

Increased cancer risk of > 10.0 in a million;

Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute)

If risk exceeds the thresholds, measures shall be implemented to reduce the risk to below thresholds. Measures may include, but are not limited to:

Install, operate, and maintain in good working order a central heating and ventilation system or other air take system in the building of a sensitive receptor that would be impacted by the project, or in each individual residential unit, that meets the efficiency standard of the minimum efficiency reporting value (MERV) of 16. The heating and ventilation system should include the following features: installation of a high-efficiency filter and/or carbon filter to minimize particulate and other airborne chemical matter from entering the building. Either high-efficiency particulate absorption filters or American Society of Heating, Refrigeration, and Air-Conditioning Engineers 85 percent supply filters should be used.

Ensure that positive pressure occurs in 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 four 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.

[5] Sensitive receptors are that segment of the public most susceptible to respiratory distress as a result of poor air quality, such as children under 14, persons over 65, persons engaged in strenuous work or exercise, and people with pre-existing cardiovascular and chronic respiratory diseases. Locations of sensitive receptors include schools, parks and playgrounds, hospitals, day cares, assisted living facilities, and residential communities (CARB 2005)

AQ-4 Operational Health Risk Assessment

Prior to permit approval for industrial or commercial land uses that would generate at least 100 diesel trucks per day or 40 or more trucks with diesel-powered transport refrigeration units per day, the applicant shall submit an operational health risk assessment (HRA) or submit proof that an HRA is not required in accordance with Air District thresholds to the City for review and approval. If required by the City, the operational HRA shall be prepared in accordance with the Office of Environmental Health Hazard Assessment and Air District requirements, and mitigated to an acceptable level. If risk exceeds the thresholds, measures shall be implemented to reduce the risk to below thresholds. Measures may include, but are not limited to:

- Restricting idling on-site beyond Air Toxic Control Measures idling restrictions, as feasible.
- Electrifying warehousing docks.
- Truck Electric Vehicle (EV) Capable trailer spaces.
- Requiring use of newer equipment and/or vehicles.
- Restricting off-site truck travel through the creation of truck routes.

Significance after Mitigation

Implementation of Mitigation Measure AQ-2 would ensure that construction activities would not result in exposure of offsite sensitive receptors to substantial TAC concentrations through incorporation of Tier 4 and/or alternative fuel construction equipment or equivalent. Mitigation Measure AQ-3 would ensure that existing sources of TACs would not expose future sensitive receptors to potential health risks. Mitigation Measure AQ-4 would ensure that new development facilitated by the proposed project would not expose sensitive receivers to substantial air pollutant concentrations. Implementation of these mitigation measures would reduce impacts from DPM and TACs to a less than significant level.

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

Impact AQ-5 THE PROJECT WOULD NOT CREATE OBJECTIONABLE ODORS THAT COULD ADVERSELY AFFECT A SUBSTANTIAL NUMBER OF PEOPLE. IMPACTS RELATED TO ODORS WOULD BE LESS THAN SIGNIFICANT.

Construction of development and mobility improvements associated with build out of the General Plan Update would require the operation of construction equipment and asphalt paving, which could generate oil, diesel fuel, and asphalt odors. The odors would be limited to the construction period and would be temporary. Therefore, odors emitted from the construction of individual future projects under the project would be less than significant.

Table 4.3-6 provides the Air District odor screening distances for land uses with the potential to generate substantial odor complaints. Those uses include wastewater treatment plants, landfills or transfer stations, refineries, composting facilities, confined animal facilities, food manufacturing, smelting plants, and chemical plants. Development facilitated by the General Plan would include residential and non-residential uses such as commercial, light industrial, and maker-microbusiness uses. Other odors from development of the General Plan include odors associated with vehicle and engine exhaust and idling; however, these odors are not stationary and are dispersed throughout the roadway network and would not result in significant odor emissions. The proposed residential and non-residential land uses under the General Plan would typically not produce objectionable

odors; furthermore, the General Plan does not propose any of the land uses identified by the Air District as having the potential to generate substantial odor complaints (see Table 4.3-6). Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.3.4 Cumulative Impacts

The geographic scope of the cumulative air quality analysis is the regional air basin, specifically the SFBAAB. This geographic scope is appropriate because emissions in one location affect the air quality of the entire air basin. The cumulative analysis considers the nearby past, present, and reasonably foreseeable future plans and projects, including those listed in Table 3-1 (refer to Section 3, *Environmental Setting*) located in Cotati, Petaluma, Sonoma County, and on tribal lands, in addition to the proposed plan.

The SFBAAB is in non-attainment for federal standards of ozone and $PM_{2.5}$ and in non-attainment for the State standard for ozone, $PM_{2.5}$, and PM_{10}. The SFBAAB is in attainment of all other federal and State standards. Cumulative development would generate particulate matter and the ozone precursors (ROG and NO_X) in the area during construction and operation; therefore, cumulative impacts would be significant. As described under Impact AQ-1, the General Plan would be consistent with the overall goal of the 2017 Clean Air Plan control measures as development would comply with the latest Title 24 regulations and would increase density in urban areas in proximity to transit, allowing for greater use of alternative modes of transportation. Development facilitated by the General Plan does not contain elements that would disrupt or hinder implementation of any 2017 Clean Air Plan control measures. In addition, the General Plan would support the primary goals of the 2017 Clean Air Plan. Therefore, the General Plan would not result in a considerable contribution to cumulative impacts related to conflicts with or obstruction of implementation of the applicable air quality plan.

As described under Impact AQ-2, construction would temporarily increase air pollutant emissions, possibly creating localized areas of unhealthy air pollution levels or air quality nuisances; therefore, without mitigation, cumulative impacts would be significant. Mitigation Measure AQ-1 would require individual projects to undergo air quality analyses if Air District screening criteria are not met. Where individual projects exceed Air District significance thresholds, emission-reduction measures shall be incorporated to reduce emissions to below thresholds. Therefore, the project would not result in a considerable contribution to cumulative impacts related to construction-related criteria pollutant emissions.

Cumulative projects would result in net increases of operational VMT, which could proportionally exceed the projected population increase per the Bay Area Air District CEQA Air Quality Guidelines for operational emissions from plans. Therefore, this cumulative impact is potentially significant. As described under Impact AQ-3, the General Plan would result in an increase of operational VMT that would not proportionally exceed the projected population increase per the Air District CEQA Air Quality Guidelines for operational emissions from plans. Nonetheless, given that cumulative projects would result in a net increase of operational VMT, the project would also result in an

increase in criteria pollutant emissions from transportation sources within the region. Therefore, the project would result in a considerable contribution to cumulative impacts related to operational criteria pollutant emissions.

Cumulative projects could result in toxic air contaminant emissions that would be significant without implementation of project-specific mitigation measures. As identified under Impact AQ-4, General Plan development would not have a significant impact from CO hotspots with implementation of General Plan policies. However, construction of future developments could result in substantial TAC emissions in close proximity to sensitive receptors. Mitigation Measure AQ-2 would ensure that sensitive receptors are not exposed to substantial TAC emissions during construction activities. Additionally, future commercial and industrial development could potentially site sources of TACs near sensitive receptors, and future residential development could site sensitive receptors near sources of TACs. Mitigation Measures AQ-3 and AQ-4 would ensure that future and existing sensitive receptors are not exposed to substantial TAC emissions. Therefore, the project would not result in a considerable contribution to cumulative impacts related to toxic air contaminants.

Cumulative development could contribute to cumulative odor emissions if construction and operation of development occurs simultaneously. However, construction emissions would disperse rapidly with distance, preventing combined odors from nearby construction projects from exceeding analyzed levels. Cumulative projects identified in Section 3, *Environmental Setting*, include land uses that could result in substantial odors. However, these uses also would be located throughout the region, and odors would disperse rapidly with distance. As identified under Impact AQ-5, the General Plan does not include land uses that could have the potential to generate nuisance odors. Therefore, the project would not result in a considerable contribution to the cumulative impacts related to odors.

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4.4 Biological Resources

This section summarizes the biological resources in the Plan Area and analyzes the potential effects on biological resources related to implementation of the General Plan Update. This section addresses direct and indirect impacts to biological resources, including regulated waterways and wetlands, sensitive habitats, sensitive plants and animals, wildlife movement corridors, as well as consistency with regulations protecting biological resources.

4.4.1 Location and Setting

The Plan Area is located in the southern portion of Sonoma County, approximately 11 miles northwest of San Pablo Bay. The Petaluma River is a tidally influenced river that flows generally southeast through the center of the city and is connected to the Petaluma Marsh east of United States (U.S.) Route 101, which bisects the center of the city north to south. The City of Petaluma is largely developed with urban and suburban uses. The following information was obtained through a desktop literature review of the United States Fish and Wildlife Service's (USFWS) National Wetlands Inventory (NWI, 2025c) and Information for Planning and Consultation (IPaC, 2025a); the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, 2025a); the National Marine Fisheries service's (NMFS) Critical Habitat Mapper (2025a); and the NMFS Essential Fish Habitat Mapper (2025b), and Sonoma County Vegetation Mapping Program (Sonoma Veg Map; Sonoma County Agricultural Preservation and Open Space District 2025).

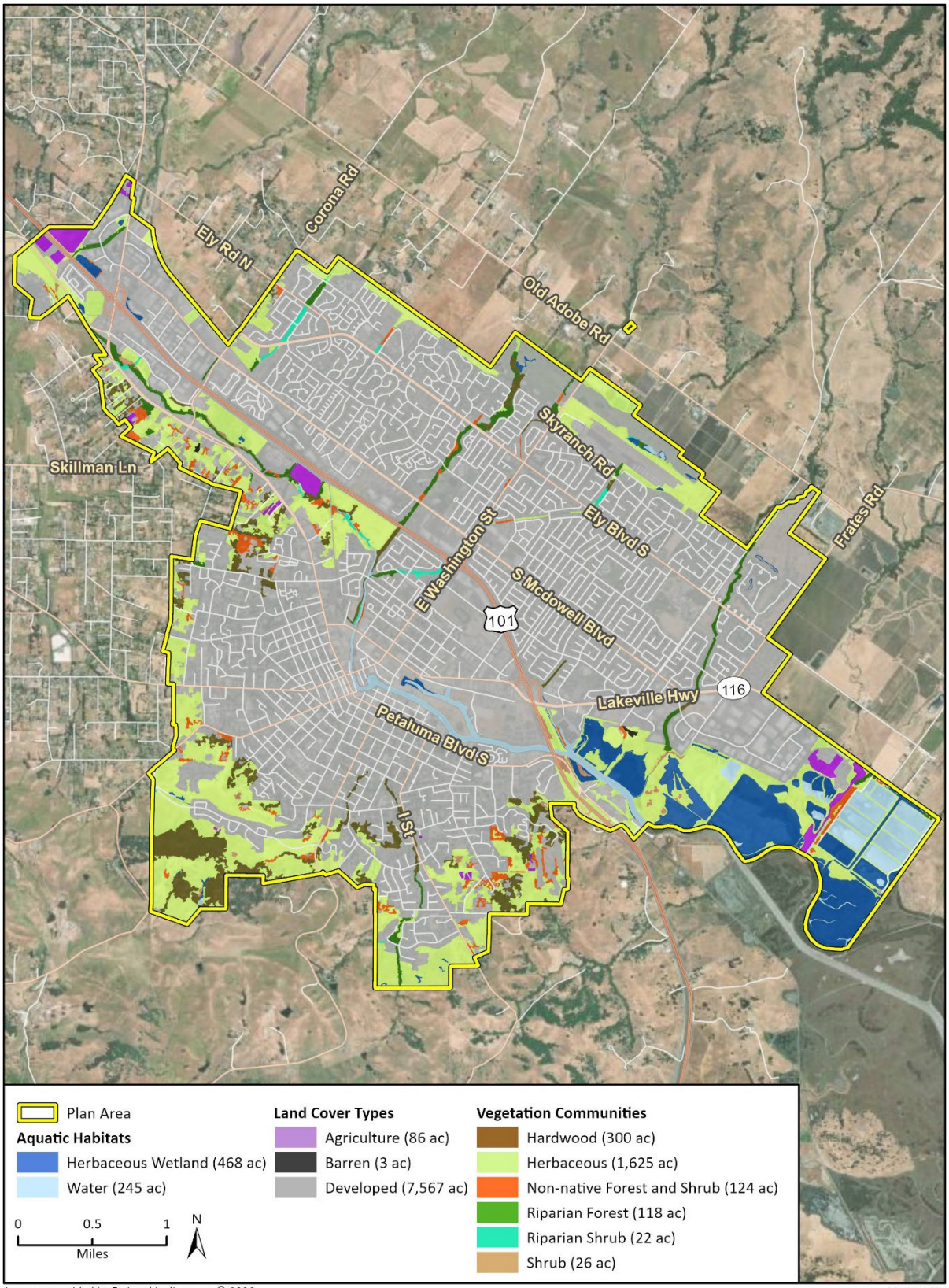
a. Physical Characteristics

The Plan Area is located west of the Sonoma Mountains on the Petaluma Valley floor. The Plan Area includes low hills along the western edge, but is largely composed of flat, open areas along the valley floor. Elevations in the Plan Area range from approximately 20 to 400 feet above mean sea level. The Santa Rosa Plain is situated northwest of Petaluma in the central portion of Sonoma County, and encompasses Santa Rosa, Rohnert Park, and Sebastopol in the Laguna de Santa Rosa watershed. The Petaluma River and the Santa Rosa Plain support a diverse range of terrestrial and aquatic habitat types, including marshes, seasonal wetlands, annual grasslands, riparian woodlands, and oak woodlands. Several creeks and other tributaries to the Petaluma River run through the city, and wetlands and marshes are concentrated in the southeastern portion of the city, as shown in Figure 4.4-1. These aquatic resources and other fragments of open space provide essential habitat for many plant and animal species, including special-status species. Habitat types and vegetation communities are shown in Figure 4.4-1.

b. Land Cover Types and Vegetation Communities

The vegetation communities and land cover types described below are based on a simplified version of the California Department of Fish and Wildlife (CDFW) California Wildlife Habitat Relationships (CWHR) classification scheme (Mayer and Laudenslayer 1988). Figure 4.4-1 shows the vegetation communities and land cover types within the Plan Area. This information is based on data from the Sonoma County Vegetation Mapping Program (Sonoma Veg Map; Sonoma County Agricultural Preservation and Open Space District 2025). Vegetation alliances used in the Sonoma Veg Map, in compliance with the U.S. National Vegetation Classification System, were grouped in accordance with the CWHR classification scheme.

Figure 4.4-1 Vegetation Communities and Land Cover Types



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Additional data provided by Sonoma County Vegetation Mapping, 2017.

20-10614 EPS
Fig X Vegetation and Land Cover Types

Land Cover Types

Agriculture

Agriculture is a developed land cover type, largely comprised of commercial cultivation of crops or rearing of animals. Within the Plan Area, agriculture includes annual cropland, intensively managed hayfield, irrigated pasture, orchard or grove, and vineyard. Agricultural land cover types generally provide low habitat value for wildlife, although annual cropland, intensively managed hayfield, and irrigated pasture provide some value as potential foraging habitat for raptors and some waterfowl species. The Plan Area contains 75 acres of agriculture.

Barren

This land cover type occurs where no vegetation or sparse vegetation is present and includes bare soil, gravel, mudflats, or rock. Bare soils may be the result of disturbance from development or construction activities. Barren areas provide limited habitat value for wildlife but may provide some habitat for disturbance-tolerant species.

Developed

The developed land cover type includes developed areas that are part of a developed urban core, the dense, highly developed center of the city where concentrated commercial, residential, and civic development, and high levels of human activity are present. This includes residential, commercial, and industrial areas as well as transportation corridors, parks, schools, an airport, and a golf course. Developed areas provide limited habitat value for wildlife but can support some urban and disturbance-tolerant species. The Plan Area contains 7,092 acres of developed areas.

Vegetation Communities

Hardwood

Hardwood vegetation communities are largely dominated by deciduous trees species. Hardwood forests within the Plan Area include:

- *Acer macrophyllum* Alliance, bigleaf maple forest and woodland
- *Aesculus californica* Alliance, California buckeye groves
- *Quercus* (*agrifolia, douglasii, garryana, kelloggii, lobata, wislizeni*) Alliance, mixed oak forest and woodland
- *Quercus agrifolia* Alliance, coast live oak woodland and forest
- *Quercus garryana* Alliance, Oregon white oak (Garry's oak) woodland and forest
- *Quercus lobata* Alliance, valley oak woodland and forest
- *Umbellularia californica* Alliance, California bay forest and woodland

Hardwood forests are natural vegetation communities that support a multilayered structure, including mature canopy, understory shrubs, and leaf-litter habitat that provides essential foraging, nesting, roosting, and cover opportunities for a wide variety of native wildlife. Species such as raptors, songbirds, bats, small mammals, and amphibians rely on hardwood forests for critical life-history functions, while the understory supports diverse native plants, fungi, and soil organisms. The Plan Area contains 136 acres of hardwood forest vegetation communities.

Herbaceous

Herbaceous vegetation communities are largely dominated by annual plant species, such as grasses, forbs, or perennials without woody stems, and are found in upland and wetland communities. Herbaceous communities in the Plan Area include California annual and perennial grassland. Species commonly found in California annual and perennial grasslands include oats (*Avena* spp.), mustard (*Brassica* spp.), bromes (*Bromus* spp.), knapweed (*Centaurea* spp.), dogtail grass (*Cynosurus* spp.), blue wild rye (*Elymus glaucus*), and California poppy (*Eschscholzia californica*). Herbaceous communities are natural vegetation communities and support many native wildlife and plant species by providing important ecological functions, including foraging habitat for raptors and small mammals, nectar and pollen resources for native pollinators, and seasonal cover for ground-dwelling wildlife. The Plan Area contains 1,113 acres of herbaceous vegetation communities.

Non-native Forest and Shrub

Non-native forest and shrub vegetation communities are largely dominated by non-native tree and shrub species, including *Eucalyptus* (*globulus, camaldulensis*) Semi-natural Alliance, Lombardy poplar (*Populus nigra*), and ornamental coast redwood (*Sequoia sempervirens*). Non-native forest and shrub communities provide limited habitat value for most native wildlife because they lack the structural diversity, plant composition, and ecological functions characteristic of native vegetation. Non-native forest and shrub communities provide limited habitat value for wildlife but could support some urban and disturbance-tolerant species, including generalist songbirds, small mammals, and some raptors that use these areas for perching or foraging. The Plan Area contains 54 acres of non-native forest and shrub vegetation communities.

Riparian Forest

Riparian forest communities occur along the Petaluma River and creeks and streams in the Plan Area. Riparian forests are dominated by deciduous and evergreen tree species, including valley oak (*Quercus lobata*), coast live oak, willow (*Salix* spp.), California sycamore (*Platanus racemosa*), and box elder (*Acer negundo*). Riparian forests are natural vegetation communities and provide habitat for many native upland and aquatic wildlife and plant species. Riparian forests provide essential ecological functions, including bank stabilization, shading and cooling of waterways, nutrient cycling, and filtration of runoff. They also support high wildlife diversity by offering nesting and roosting habitat for birds, movement corridors for mammals, and cover and foraging opportunities for amphibians and reptiles. The Plan Area contains 97 acres of riparian forest vegetation communities.

Riparian Shrub

Riparian shrub communities occur along the Petaluma River and creeks and streams in the Plan Area. Riparian shrub communities are dominated by deciduous shrubs or brambles, such as willow (*Salix* spp.) and Himalayan blackberry (*Rubus armeniacus*). Riparian shrub communities are natural vegetation communities and provide habitat for many native upland and aquatic wildlife and plant species. Riparian shrub habitat provides important ecological functions, including stabilizing streambanks, filtering runoff, and shading adjacent channels. The dense cover offers nesting and foraging habitat for songbirds, small mammals, and amphibians, and serves as a movement corridor that links riparian forest, wetlands, and upland habitats. The Plan Area contains 21 acres of riparian shrub communities.

Shrub

Shrub communities are dominated by low growing shrubby species. Shrub communities in the Plan Area include:

- *Baccharis pilularis* Alliance, coyote brush scrub
- *Rubus armeniacus* Alliance, blackberry brambles

Shrub communities are natural vegetation communities that provide habitat for many native wildlife and plant species. Shrub habitats provide important structural cover and foraging opportunities for a variety of wildlife, including songbirds, small mammals, reptiles, and pollinators. The dense vegetation offers nesting substrate, protective refuge, and movement pathways. Shrub habitats frequently occur along transitional areas between grasslands, riparian corridors, and oak woodlands, supporting high biodiversity and maintaining ecological connectivity. The Plan Area contains 14 acres of shrub communities.

c. Special-Status Plant and Wildlife Species

Special-status species are those plant and wildlife species listed or proposed for listing, as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (ESA), those listed or candidates for listing as threatened or endangered by the CDFW under the California Endangered Species Act (CESA), wildlife species designated as species of special concern by CDFW, and plants classified as rare by the California Fish and Game Commission or with a California Rare Plant Rank of 1 or 2, as assigned by the California Native Plant Society (CNPS) and catalogued in the Online Inventory of Rare and Endangered Plants of California (CNPS 2025a).

Data used to characterize biological resources in and adjacent to the Plan Area included aerial photographs, topographic maps, and accepted scientific texts to assess the potential for species to occur in the Plan Area. In addition, a query of the California Natural Diversity Database (CNDDB 2025a), the USFWS Information for Planning and Consultation (IPaC; USFWS 2025a) database, and the CNPS Inventory of Rare and Endangered Plants of California (CNPS 2025a) was made to determine the potential presence of species in and adjacent to the Plan Area. The CNDDB and CNPS queries included the *Cotati, Glen Ellen, Petaluma*, and *Petaluma River* USGS 7.5-minute series quadrangles surrounding the Plan Area (referenced herein as a 4-quad search area). The IPaC query included the Plan Area. This search range encompasses a sufficient distance to accommodate for regional habitat diversity and to overcome the limitations of the CNDDB (the CNDDB is based on reports of positive observations and does not constitute an exhaustive inventory of every resource that could occur in a specified area). The USFWS Critical Habitat Mapper (USFWS 2025b), National Marine Fisheries Service (NMFS) Critical Habitat Mapper (NMFS 2025a), Essential Fish Habitat (EFH) Mapper (NMFS 2025b), eBird citizen science project (2025), and Bumble Bee Watch (Bumble Bee Watch 2025) databases were also queried. In addition, the Santa Rosa Plain Conservation Strategy (USFWS 2005) was also reviewed.

A list of special-status plant and wildlife species that could potentially occur in the Plan Area was developed based on the results of the database queries and subsequent review by Rincon's regional biological experts for accuracy and completeness. The refined list of special-status species was evaluated based on documented occurrences in the four-quadrangle search area and biologists' expert opinions on species known to occur in the region.

Special-Status Plant Species

Thirty-three (33) special-status plant species are known to occur in the 4-quad search area or IPaC query. All of these species have potential to occur in different habitats in the Plan Area (Appendix C; Table 1), fifteen (15) of which are state or federally listed (Table 4.4-1).

Table 4.4-1 State or Federally Listed Special-status Plant Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Status
Sonoma Alopecurus	*Alopecurus aequalis* var. *sonomensis*	Federally endangered
Sonoma sunshine	*Blennosperma bakeri*	Federally and state endangered
Soft salty bird's beak	*Chloropyron molle* spp. *molle*	Federally endangered state rare
Sonoma spineflower	*Chorizanthe valida*	Federally and state endangered
Mason's ceanothus	*Ceanothus masonii*	State rare
Baker's larkspur	*Delphinium bakeri*	Federally and state endangered
Golden larkspur	*Delphinium luteum*	Federally endangered state rare
Marin western flax	*Hesperolinon congestum*	Federally threatened and state threatened
Burke's goldfields	*Lasthenia burkei*	Federally and state endangered
Contra Costa goldfields	*Lasthenia conjugens*	Federally endangered
Pitkin Marsh lily	*Lilum pardalinum* ssp. *pitkinense*	Federally and state endangered
Sebastopol meadowfoam	*Limnanthes vinculans*	Federally and state endangered
North Coast semaphore grass	*Pleuropogon hooverianus*	State threatened
Two-fork clover	*Trifolium amoenum*	Federally endangered
Pacific Grove clover	*Trifolium polyodon*	State rare

CDFW 2025a

Special-Status Wildlife Species

Thirty-four (34) special-status wildlife species are known to occur in the region and have the potential to occur in the Plan Area (Appendix C; Table 2). Eighteen (18) of which are state or federally listed (Table 4.4-1).

Table 4.4-2 State or Federally Listed Special-status Plant Species with Potential to Occur in the Project Area

Common Name	Scientific Name	Status
green sturgeon- southern DPS	*Acipenser medirostris,* pop. 1	Federally threatened
northwestern pond turtle	*Actinemys marmorata*	Federal proposed threatened
tricolored blackbird	*Agelaius tricolor*	State threatened
California tiger salamander- Sonoma County DPS	*Ambystoma californiense,* pop. 3	Federally endangered and state threatened
Burrowing owl	*Athene cunicularia*	State candidate endangered
Crotch's bumble bee	*Bombus crotchii*	State candidate endangered

Common Name	Scientific Name	Status
western bumble bee	*Bombus occidentalis*	State candidate endangered
Swainson's hawk	*Buteo swainsoni*	State threatened
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Federally threatened and state endangered
bald eagle	*Haliaeetus leucocephalus*	State endangered
salt-marsh harvest mouse	*Lasiurus frantzii*	Federally endangered and state endangered
California black rail	*Latarallus jamaicensis coturniculus*	State threatened
Steelhead - central California coast DPS	*Oncorhynchus mykiss irideus,* pop. 8	Federally threatened
California Ridgeway's rail	*Rallus obsoletus obsoletus*	Federally endangered and state endangered
California red-legged frog	*Rana draytonii*	Federally threatened
bank swallow	*Riparia riparia*	State threatened
northern spotted owl	*Strix occidentalis caurina*	Federally threatened and state threatened
California freshwater shrimp	*Syncaris pacifica*	Federally endangered and state endangered

CDFW 2025a
DPS= Distinct Population Segment

State or federally listed species are accorded the highest protection status.

d. Other Protected Species

Native non-game migratory birds protected under the California Fish and Game Code (CFGC) Section 3503 and Migratory Bird Treaty Act (MBTA) have the potential to breed throughout the Plan Area. Common bird species that typically occur in the region include red-tailed hawk (*Buteo jamaicensis*), California quail (*Callipepla californica*), California scrub jay (*Aphelocoma californica*), black phoebe (*Sayornis nigricans*), Anna's hummingbird (*Calypte anna*), house finch (*Haemorhous mexicanus*), American crow (*Corvus brachyrhynchos*), and turkey vulture (*Cathartes aura*). All non-game mammals, including bats, are protected by California Fish and Game Code Section 4150. Several different bat species could forage in the Plan Area and could roost in trees, bridges, culverts, and buildings.

e. Sensitive Natural Communities, Critical Habitat, and Essential Fish Habitat

Sensitive Natural Communities

Plant communities are considered sensitive biological resources if they have limited distribution, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in the CNDDB. Sensitive natural communities included in the CNDDB follow the original methodology according to *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). The methodology for determining sensitivity continues to be revised and is now based on the *Manual of California Vegetation online* (CNPS 2025b). Communities considered sensitive by CDFW are published in the California Sensitive Natural Communities List (CDFW 2025b). Vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Some

alliances with the rank of 4 and 5 have also been included in the 2018 sensitive natural communities list under CDFW's revised ranking methodology.

Sensitive natural communities which are known to occur in the Plan Area include *Aesculus californica* (California buckeye) Alliance, *Quercus garryana* (Garry's oak) Alliance, *Quercus lobata* (valley oak) Alliance, *Umbellularia californica* (California bay laurel) (Alliance, and other aquatic habitats which may be considered sensitive.

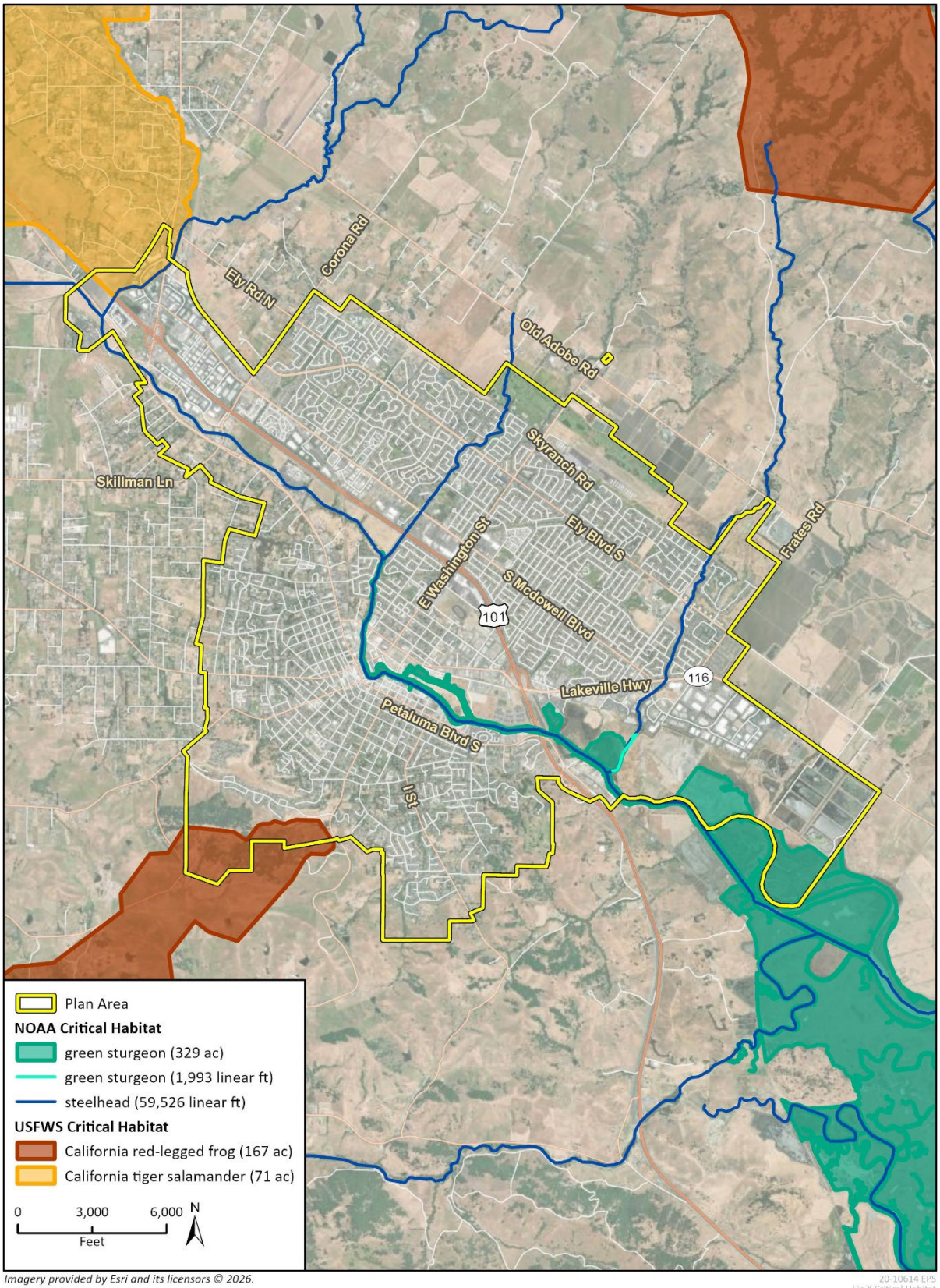
Critical Habitat

Critical habitat is defined in the ESA as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by a species but will be needed in the future for recovery of the species. An area is designated as critical habitat after the USFWS publishes a proposed federal regulation in the Federal Register and then receives and considers public comments on that proposal. The final boundaries of a critical habitat area, once identified, are published in the Federal Register.

Federally designated critical habitat is mapped for four species in the Plan Area (Figure 2), including:

1. California tiger salamander
2. California red-legged frog
3. steelhead – central California coast Distinct Population Segment (DPS)
4. green sturgeon - southern DPS

Figure 4-4-2 Critical Habitats in the Plan Area



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Additional data provided by Sonoma County Vegetation Mapping, 2017.

20-10614 EPS
Fig X Critical Habitat

California Tiger Salamander

The Santa Rosa Plain Unit includes a total of 55,800 acres of land designated as critical habitat in Sonoma County (USFWS 2011). The Santa Rosa Plain Unit is within the northernmost tip of the Plan Area and covers approximately 63.7 acres east of Highway 101; however, the Plan Area is situated in urban development with limited natural aquatic habitat that would support breeding for this species. Threats identified in the federal register for this species include habitat destruction, degradation, and fragmentation, predation and competition from non-native species, possible commercial overutilization, disease, hybridization with non-native salamanders, various chemical contaminants, road-crossing mortality, and rodent control operations. While present in the Plan Area, the Petaluma River does not provide suitable aquatic habitat for California tiger salamander because it is a tidally influenced, permanently inundated channel, whereas California tiger salamander require seasonal, fish-free vernal pools or ephemeral ponds with adjacent upland refuge. There are 71 acres of California tiger salamander critical habitat mapped within the Plan Area.

California Red-legged Frog

Designated California red-legged frog critical habitat unit SON-3, *Petaluma* occurs within the western edge of the Plan Area (USFWS 2010). The SON-3 unit is comprised of approximately 2,230 acres of land and is located at Helen Putnam Regional Park. This critical habitat unit is within the western edge of the Plan Area and covers approximately 167 acres of undeveloped land.

Steelhead

The Petaluma River and tributaries within the Plan Area are designated critical habitat for the central California coast steelhead DPS, including Willow Brook, Lynch Creek and Adobe Creek (NMFS 2006). These watersheds provide suitable spawning and rearing sites, with adequate water quality, shade, and submerged logs and debris, which are essential for the conservation of the species. Within the Plan Area, there is approximately 11.27 miles (59,526 feet) of critical habitat for steelhead.

Green Sturgeon

The Petaluma River and Petaluma Marsh are included in mapped designated critical habitat for the green sturgeon southern DPS, which totals an area of approximately 81,298 acres (NMFS 2009). The designated critical habitat in the Plan Area provides space for individual and population growth, shelter, sites for breeding, reproduction, rearing of offspring and protection from disturbance. Reduction of potential spawning habitat has been identified as a severe threat for this species' survival. There is approximately 0.38-mile (1,993 feet) and 329 acres of green sturgeon critical habitat mapped in the southern portion of the Plan Area.

Essential Fish Habitat

Essential Fish Habitat (EFH) for Coastal Pelagic Species is mapped approximately 0.14-mile south of the Plan Area in the Petaluma Marsh. Essential Fish Habitat is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growing to maturity. Substrate includes the sediment, hard bottom, structures underlying the waters and the associated biological communities. The east-west geographic boundary of EFH for each individual Coastal Pelagic Species finfish and market squid is defined to be all marine and estuarine water from the shoreline along

the coasts of California. Therefore, estuarine habitats within the Plan Area would be considered EFH.

f. Aquatic Resources

The Plan Area is in the Petaluma River Watershed, which encompasses a 146 square mile area (Sonoma Resource Conservation District 2015). Aquatic resources in the Plan Area include the Petaluma River (HUC 180500020601), Burdell Mountain-Frontal San Pablo Bay Estuaries (HUC 180500020606), San Pablo Bay Estuaries (HUC 180500020801), and Adobe Creek-Frontal San Pablo Bay Estuaries (HUC 180500020605) subwatersheds (USGS 2025). Major tributaries to the Petaluma River in the Plan Area include Willow Brook, Lynch Creek and Adobe Creek. Tidally influenced brackish marsh occurs at the south end of the Plan Area (Sonoma Resource Conservation District 2025). Ephemeral drainages, herbaceous wetlands, and freshwater ponds are also mapped in the Plan Area (Figure 4.4-1; USFWS 2025c).

The above-described features are potentially subject to regulatory oversight by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), CDFW, and the San Francisco Bay Conservation and Development Commission (BCDC). Ponds and wetlands that are permanently wet and have a relatively permanent hydrologic connection to the Petaluma River (a traditional navigable water as defined by USACE) may fall under jurisdiction of the USACE under Section 404 of the Clean Water Act (CWA), which includes stream, lake, and wetland features mapped to the ordinary high water mark, and to the edge of those wetlands with all three criteria that define federal wetlands, including hydric soils, hydrophytic vegetation, and wetland hydrology. The RWQCB also has jurisdiction over waters of the U.S. under Section 401 of the CWA. The RWQCB may also assert jurisdiction over waters of the State under the Porter-Cologne Water Quality Control Act.

The CDFW has jurisdiction over lakes, streams, and associated riparian areas under the California Fish and Game Code (CGFC) Section 1600 et seq. The CDFW has traditionally regulated activities within the bed and bank of lakes and streams, extending to the top of bank or edge of the riparian dripline, under its Lake and Streambed Alteration Program. The CDFW may also regulate activities conducted adjacent to, but outside these areas, if the activity results in a substantial alteration of the stream or lakebed downslope of the activity, such as through placement of materials that may wash into a water body.

g. 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 *California Essential Habitat Connectivity Project* (Spencer et al. 2010) evaluates critical wildlife movement corridors throughout California. Essential Connectivity Areas (ECA) represent the most critical wildlife movement areas for long-term conservation of California's special-status wildlife species (Spencer et al. 2010). While ECAs do not occur in the Plan Area, ECAs have been mapped in Sonoma County approximately three miles southwest of Petaluma, along the Coast Range. The California Bay Area Linkage Network, a collaborative, region-scale connectivity project led in large part by conservation practitioners (notably SC Wildlands and regional partners), identifies large,

intact habitat patches across 14 counties around the San Franciso Bay area that serve as core sources of biodiversity and resilience. Its goal is to protect and restore these blocks and the connective corridors between them so species can move, adapt to climate change, and sustain ecosystem processes. Actions include mapping and prioritizing large unfragmented blocks, coordinating conservation and restoration on public and private lands, and guiding local planning to avoid fragmentation. There are no Landscape Blocks within the Plan Area, however Landscape Blocks occur around Sonoma Mountain, the West Petaluma Hills, and the Petaluma River corridor function as nearby core habitats and stepping stones that enable movement between upland reserves and bay-land habitats (SC Wildlands 2010).

Additionally, the Plan Area is within the Sonoma Valley Wildlife Corridor Project, initiated by the Sonoma Land Trust, aims to secure, restore, and steward a connected network of natural lands and riparian corridors across Sonoma Valley to enable safe wildlife movement, protect biodiversity, and maintain ecosystem function; actions include landscape-scale land protection and easements, habitat restoration and riparian enhancement, baseline ecological and wildlife-use studies to inform priority areas, monitoring and management strategies, and partnership with landowners, agencies, and conservation groups to integrate corridor-friendly land use and development guidance (Sonoma County Land Trust 2025).

The California Essential Habitat Connectivity Project is a statewide, science-based planning framework that identifies broad “natural landscape blocks” and the linkages between them that are most important for long-term wildlife movement and ecological resilience. It provides a regional context for understanding where connectivity should be maintained or restored but does not map parcel-scale corridors or prescribe local actions. The Sonoma Valley Wildlife Corridor Project, led by Sonoma Land Trust, is a local conservation initiative that operates within this broader statewide framework. It focuses specifically on the Sonoma Valley, Sonoma Mountain, and Petaluma region, identifying finer-scale movement pathways, acquiring or securing conservation lands, restoring habitat, and working with landowners to maintain functional connectivity. It is intended to translate the statewide connectivity vision into local implementation and stewardship. These connectivity plans are advisory and non-regulatory; they inform planning but do not impose binding requirements on development.

Local wildlife movement corridors may be formed by creeks and drainages, uninterrupted riparian corridors, seasonal wetlands, and other natural areas, and can be used by a range of wildlife species. Within the Plan Area these include the Petaluma River, Lynch Creek, Adobe Creek, and other small creeks and drainages. These smaller local movement corridors may provide for access to foraging areas, localized movement associated with breeding, annual dispersal among isolated populations, and local migrations.

4.4.2 Regulatory Setting

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of federal and state statutes provide a regulatory structure that guides the protection of biological resources. Agencies with the responsibility for protection of biological resources within the project site include the following:

- U.S. Army Corps of Engineers (wetlands and other waters of the United States)
- U.S. Fish and Wildlife Service (federally listed species and migratory birds)
- National Marine Fisheries Service (marine wildlife and anadromous fishes)

- Regional Water Quality Control Board (waters of the State)
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes; state-listed species; nesting birds, marine resources)

a. Federal Regulations

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) is responsible for administering several federal programs related to ensuring the quality and navigability of the nation's waters, as described in detail below.

Clean Water Act Section 404

Congress enacted the Clean Water Act (CWA) "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the law was significantly reorganized and expanded in 1972. "Clean Water Act" became the law's common name with amendments in 1972.

Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Section 404 of the CWA authorizes the Secretary of the Army, acting through the USACE, to issue permits regulating the discharge of dredged or fill materials into the "navigable waters at specified disposal sites." Section 404 requires that a permit be issued before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from regulation under Section 404 (e.g., certain farming and forestry activities).

WATERS OF THE U.S.

The USACE and US Environmental Protection Agency (USEPA) have undertaken several efforts to modernize their regulations defining "waters of the United States" (e.g., the 2015 Clean Water Rule and 2020 Navigable Waters Protection Rule), but these efforts have been frustrated by legal challenges which have invalidated the updated regulations. As a result of the Supreme Court ruling in *Sackett v. Environmental Protection Agency*, EPA and USACE issued a final rule that amends the "Revised Definition of 'Waters of the United States'" to conform key aspects of the regulatory text to the U.S. Supreme Court's decision (88 Federal Register 61964–61969, September 8, 2023).

Under the "Revised Definition of 'Waters of the United States'; Conforming" rule, the term "waters of the United States" is defined as follows (33 CFR 328.3[a]):

(1) Waters which are:
   (i) Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
   (ii) The territorial seas; or
   (iii) Interstate waters;

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;

(4) Wetlands adjacent to the following waters:

(i) Waters identified in paragraph (a)(1) of this section; or

(ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;

(5) Intrastate lakes and ponds not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

In addition, the amended regulations include eight types of excluded waters (33 CFR 328.3[b]) which are not "waters of the United States" even where they otherwise meet the terms of paragraphs (a)(2) through (5) of this section:

(1) Waste treatment systems, including treatment ponds or lagoons, designed to meet the requirements of the Clean Water Act;

(2) Prior converted cropland designated by the Secretary of Agriculture. The exclusion would cease upon a change of use, which means that the area is no longer available for the production of agricultural commodities. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA;

(3) Ditches (including roadside ditches) excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water;

(4) Artificially irrigated areas that would revert to dry land if the irrigation ceased;

(5) Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;

(6) Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water for primarily aesthetic reasons;

(7) Waterfilled depressions created in dry land incidental to construction activity and pits excavated in dry land for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States; and

(8) Swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.

The lateral limits of USACE jurisdiction in non-tidal waters is defined by the "ordinary high-water mark" (OHWM) unless adjacent wetlands are present. The OHWM is a line on the shore or edge of a channel established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed upon the bank, shelving, changes in the character of soil, destruction of vegetation, or the presence of debris (33 CFR 328.3(e)). As such, waters are recognized in the field by the presence of a defined watercourse with appropriate physical and topographic features. If wetlands occur within, or adjacent to, waters of the United States, the lateral limits of USACE jurisdiction extend beyond the OHWM to the outer edge of the wetlands (33 CFR 328.4 (c)). The

upstream limit of jurisdiction in the absence of adjacent wetlands is the point beyond which the OHWM is no longer perceptible (33 CFR 328.4; see also 51 FR 41217).

WETLANDS

The USACE defines wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3). Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by site investigation, must be present at a site for USACE to classify the site as a wetland (Environmental Laboratory 1987).

LIMITATIONS ON JURISDICTION BASED ON SACKETT V. USEPA SUPREME COURT DECISION

On May 25, 2023, the U.S. Supreme Court issued its decision in Sackett v. USEPA, limiting federal authority under the Clean Water Act (CWA). The case involved the Sacketts, who the EPA alleged had illegally filled wetlands on their Idaho property near Priest Lake. The ruling clarified when wetlands and tributaries qualify as "waters of the United States" (WOTUS). The agencies incorporated the Court's direction into the September 2023 Conforming Rule. .

The Court decided:

- Wetlands are federally regulated only if they have a continuous surface connection to a navigable or relatively permanent water body—such that the boundary between them is difficult to distinguish. Temporary interruptions (e.g., drought, low tides) are still allowed. The Conforming Rule now defines "adjacent" as requiring this continuous surface connection.
- The Court rejected the Significant Nexus Standard, stating it is not supported by the CWA and relies on ecological factors outside the statute. The Conforming Rule eliminated this test entirely.
- While the Court did not directly rule on tributary jurisdiction, it emphasized that "waters" under the CWA include only relatively permanent, standing, or continuously flowing bodies commonly understood as streams, rivers, lakes, or oceans. The Conforming Rule similarly restricts tributary jurisdiction to relatively permanent waters.

Rivers and Harbors Act Section 10

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the USACE for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of a navigable water of the United States, and applies to all structures and work. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. It is important to note that Section 10 applies only to navigable waters, and thus does not apply to work in non-navigable wetlands or tributaries. In some cases, Section 10 authorization is issued by the USACE concurrently with CWA Section 404 authorization, such as when certain Nationwide Permits are used.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) implements several laws protecting the Nation's fish and wildlife resources, including the Endangered Species Act (ESA; 16 United States Code [USC] Sections 153 et seq.), the Migratory Bird Treaty Act (MBTA; 16 USC Sections 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668).

Endangered Species Act

The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. Generally, the USFWS 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 threatened or endangered wildlife species, or a threatened or endangered plant species if occurring on federal land, are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of the ESA, depending on the involvement by the federal government in funding, authorizing, or carrying out 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 the ESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

Migratory Bird Treaty Act

The MBTA of 1918 implements four international conservation treaties that the U.S. entered into with Canada in 1916, Mexico in 1936, Japan in 1972, and Russia in 1976. It is intended to ensure the sustainability of populations of all protected migratory bird species. The law has been amended with the signing of each treaty, as well as when any of the treaties were amended, such as with Mexico in 1976 and Canada in 1995. The MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS.

The list of migratory bird species protected by the law, in regulations at 50 CFR Part 10.13, is primarily based on bird families and species included in the four international treaties. A migratory bird species is included on the list if it meets one or more of the following criteria:

1. It occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family protected by one of the four international treaties or their amendments.
2. Revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States or U.S. territories as the result of natural biological or ecological processes.
3. New evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

In 2004, the Migratory Bird Treaty Reform Act limited the scope of the MBTA by stating the MBTA applies only to migratory bird species that are native to the United States or U.S. territories, and that a native migratory bird species is one that is present as a result of natural biological or ecological processes. The MBTA requires the USFWS to publish a list of all nonnative, human-

introduced bird species to which the MBTA does not apply, and an updated list was published in 2026 (USFWS 2026). The 2026 update identifies species belonging to biological families referred to in treaties the MBTA implements but are not protected because their presence in the United States or U.S. territories is solely the result of intentional or unintentional human-assisted introductions.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the USFWS, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

"Disturb" means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

b. State Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows:

- The quality of all the waters of the State shall be protected
- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason
- The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation

The Porter-Cologne Act established nine RWQCBs (based on watershed boundaries) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

Section 13260 of the Porter-Cologne Act requires any person discharging or proposing to discharge waste that could affect the quality of waters of the State to file a Report of Waste Discharge with the appropriate RWQCB. The RWQCB may then authorize the discharge, subject to conditions, by issuing Waste Discharge Requirements (WDRs). While this requirement was historically applied primarily to outfalls and similar point source discharges, the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*, effective May 2020, make it clear that the agency will apply the Porter-Cologne Act's requirements to discharges of dredge and fill material as well. The *Procedures* state that they are to be used in issuing CWA Section 401 Certifications and WDRs, and largely mirror the existing review requirements for CWA Section 404 Permits and Section 401 Certifications, incorporating most elements of the USEPA's *Section 404(b)(1) Guidelines*. Following issuance of the *Procedures*, the SWRCB produced a consolidated application form for dredge/fill discharges that can be used to obtain a CWA Section 401 Water Quality Certification, WDRs, or both.

Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) have jurisdiction over "waters of the State," which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code sec. 13050(e)). These agencies also have responsibilities for administering portions of the CWA.

Clean Water Act Section 401

Section 401 of the CWA requires an applicant requesting a federal license or permit for an activity that may result in any discharge into navigable waters (such as a Section 404 Permit) to provide state certification that the proposed activity will not violate state and federal water quality standards. In California, CWA Section 401 Water Quality Certification (Section 401 Certification) is issued by the RWQCBs and by the SWRCB for multi-region projects. The process begins when an applicant submits an application to the RWQCB and informs the USACE (or the applicable agency from which a license or permit was requested) that an application has been submitted. The USACE will then determine a "reasonable period of time" for the RWQCB to act on the application; this is typically 60 days for routine projects and longer for complex projects but may not exceed one year. When the period has elapsed, if the RWQCB has not either issued or denied the application for Section 401 Certification, the USACE may determine that Certification has been waived and issue the requested permit. If a Section 401 Certification is issued it may include binding conditions, imposed either through the Certification itself or through the requested federal license or permit.

Non-Wetland Waters of the State

The SWRCB and RWQCBs have not established regulations for field determinations of waters of the state except for wetlands currently. In many cases the RWQCBs interpret the limits of waters of the State to be bounded by the OHWM unless isolated conditions or ephemeral waters are present. However, in the absence of statewide guidance each RWQCB may interpret jurisdictional boundaries within their region and the SWRCB has encouraged applicants to confirm jurisdictional limits with their RWQCB before submitting applications. As determined by the RWQCB, waters of the State may include riparian areas or other locations outside the OHWM, leading to a larger jurisdictional area over a given water body compared to the USACE.

Wetland Waters of the State

Procedures for defining wetland waters of the State pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020. The SWRCB defines an area as wetland if, under normal circumstances:

(i) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;

(ii) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and

(iii) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The SWRCB's *Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State* (2020), states that waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

c. State Regulations

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) derives its authority from the Fish and Game Code of California and administers several State laws protecting fish and wildlife resources and the habitats upon which they depend:

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code Section 2050 et. seq.) prohibits "take" of state listed threatened or endangered. Take under CESA is defined as "Hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (Fish and Game Code sec. 86). This definition does not prohibit indirect harm by way of habitat modification, except where such harm is the proximate cause of death of a listed species. Where incidental take would occur during construction or other lawful activities, CESA allows the CDFW to issue an Incidental Take Permit upon finding, among other requirements, that impacts to the species have been minimized and fully mitigated. Unlike the federal ESA, CESA's protections extend to candidate species during the period (typically one year) while the California Fish and Game Commission decides whether the species warrants CESA listing.

Native Plant Protection Act

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (Fish and Game Code Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare, and prohibits the take of listed plant species. Effective in 2015, CDFW promulgated regulations (14 CCR 786.9) under the authority of the NPPA, establishing that the CESA's permitting procedures would be applied to plants listed under the NPPA as "Rare." With this change, there is little practical difference for the regulated public between plants listed under CESA and those listed under the NPPA.

Fully Protected Species Laws

The CDFW enforces Sections 3511, 4700, 5050, and 5515 of the Fish and Game Code, which prohibit take of species designated as "Fully Protected." A Fully Protected Species is one which may not be taken or possessed and for which CDFW is not allowed to issue an Incidental Take Permit; therefore, impacts to these species must be avoided. The exception is situations where a Natural Community Conservation Plan (NCCP) is in place that authorizes take of the fully protected species.

Avian Protection Laws

California Fish and Game Code sections 3503, 3503.5, and 3513 describe unlawful take, possession, or destruction of native birds, nests, and eggs. 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. Section 3513 makes it a state-level offense to take any bird in violation of the federal Migratory Bird Treaty Act.

Protection of Lakes and Streambeds

California Fish and Game Code section 1602 states that it is unlawful for any person to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake" without first notifying the California Department of Fish and Wildlife (CDFW) of that activity. Thereafter, if CDFW determines and informs the entity that the activity will not substantially adversely affect any existing fish or wildlife resources, the entity may commence the activity. If, however, CDFW determines that the activity may substantially adversely affect an existing fish or wildlife resource, the entity may be required to obtain from CDFW a Streambed Alteration Agreement (SAA), which will include reasonable measures necessary to protect the affected resource(s), before the entity may conduct the activity described in the notification. Upon receiving a complete Notification of Lake/Streambed Alteration, CDFW has 60 days to present the entity with a Draft SAA. Upon review of the Draft SAA by the applicant, any problematic terms are negotiated with CDFW and a final SAA is executed.

The CDFW has not defined the term "stream" for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. However, four relevant sources of information offer insight as to the appropriate limits of CDFW jurisdiction as discussed below.

The plain language of Section 1602 of the CFGC establishes foundational concepts for identifying regulated water features. The statute specifically references rivers, streams, and lakes, and emphasizes aspects such as natural flow and the physical structure of a watercourse, including the bed, bank, and channel."

Applicable court decisions, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602's use of "stream" to be as defined in common law. In Rutherford, the court relied on common-law definitions, explaining that a stream typically has a source and terminus, contains identifiable banks and a channel, and conveys flow at least periodically, even if it is not continuous and may appear dry at times. The ruling also clarified that a stream includes the depression created by regular water flow, the area between opposing banks (including sand bars), land covered during ordinary low flow, and all lands below the ordinary high-water mark.

Definitions in CDFW regulations provide additional clarity. These regulations describe a stream as a watercourse that flows periodically or intermittently through a defined bed and banks, supports fish

or aquatic life, and may be dry for part of the year. They also recognize that streams include areas where surface or subsurface flow sustains riparian vegetation.

CDFW Guidance documents, *including A Field Guide to Lake and Streambed Alteration Agreements* (CDFG 1994) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (Brady and Vyverberg 2013), offer expanded, practical criteria for identifying stream systems. They explain that streams may be perennial or episodic and are defined by the course of current or historically recent (approximately 200-year) flow. These documents emphasize that the width of a stream course can be identified through physical or biological indicators; streams may exhibit single or multiple channels; and features such as braided channels, low-flow pathways, floodplains, islands, and stream-associated vegetation are interrelated components of the watercourse.

Guidance documents also acknowledge that certain man-made features, such as canals, aqueducts, and irrigation ditches may qualify as streams if they support aquatic life, riparian vegetation, or wildlife dependent on stream systems. Biological elements, including aquatic species, riparian vegetation, and terrestrial wildlife that rely on stream functions, are considered integral components of a stream system.

The tenets listed above, among others, are applied to establish the boundaries of streambeds in various environments. Importance of each factor may be weighted based on site-specific considerations and the applicability of the indicators to the streambed at hand.

d. Local Regulations

City of Petaluma General Plan

The Land Use, Growth Management & the Built Environment Element; Natural Environment Element; and Recreation, Music, Parks & the Arts Element of the City of Petaluma General Plan contain goals and policies related to biological resources. The following policies are relevant to the project (City of Petaluma 2008).

Goal 1-G-7. Recognize that trees are a community asset, an essential element in the interface between the natural and built environment, and part of the urban infrastructure.

> **Policy 1-P-49.** Preserve existing tree resources and add to the inventory and diversity of native/indigenous species.

Goal 4-G-1. Protect and enhance biological and natural resources within the UGB.

> **Policy 4-P-1.** Protect and enhance the Petaluma River and its tributaries through a comprehensive river management strategy of the following programs (listed in General Plan 2025).
>
> **Policy 4-P-2.** Conserve wildlife ecosystems and sensitive habitat areas in the following order of protection preference: 1) avoidance, 2) on-site mitigation, and 3) off-site mitigation.
>
> **Policy 4-P-3**. Protect special status species and supporting habitats within Petaluma, including species that are State or Federal listed as endangered, threatened, or rare.

Goal 4-G-2. Promote resource protection within the Petaluma Watershed to conserve grassland habitats, oak woodlands, and other natural resources that are found in areas between the UGB and the Planning Area boundary.

Policy 4-P-5. Support wetland mitigation and oak woodlands restoration in the unincorporated areas outside the UGB

Goal 6-G-3. Increase public knowledge and understanding of the importance of sustaining a healthy urban forest for the well-being of the entire community.

Policy 6-P-20. Where trees, larger than 8" in diameter, must be removed to accommodate development, they shall be replaced at a ratio established in the Development Code. Replacement trees may be planted on, or in the vicinity of, the development site, subject to approval by the Community Development Department or through the discretionary approval process.

Petaluma River Access and Enhancement Plan

The Petaluma River Access and Enhancement Plan (1996) outlines the City's vision for river enhancement activities and riverfront development. Guiding concepts of this plan include the restoration and preservation of wildlife habitat and linkages. Goals identified in the plan include:

- Promote balanced use of the river corridor.
- Restore, create, and protect natural habitats, and enhance native vegetation along the river corridor.
- Create guidelines to integrate development into the river corridor.

Habitat and Vegetation Objectives include:

(4.1) Protect and restore habitat areas, including seasonal and perennial tributaries and wetlands, along and adjacent to the river as identified in the individual river segment descriptions.

(4.2) Encourage continuous native riparian and aquatic vegetation along the low-flow channel, channel banks and terraces to promote natural habitat for land and water animals.

(4.3) Establish and maintain habitat management zones within the river corridor.

(4.4) Establish locations for mitigation.

Petaluma Municipal Code

The City of Petaluma's Municipal Code includes protections for Heritage and Landmark Trees (Chapter 8.28). Heritage trees are typically over 100 years old, historically significant, and often native species. These may be individual trees or small groups. Criteria for designation as a heritage tree include:

1. Indigenous species of historic, cultural or environmental significance to the community.
2. Commemorative planting by a group of citizens or the city in recognition of a significant community member or event.

Landmark trees are trees designated for their exceptional size, age, species, or cultural value. Criteria for designation as a landmark tree include:

1. Exceptional size/age as relates to generally accepted horticultural standards for the species.
2. Unusual or distinctive form, character, function or visual impact as related to the species and setting.

3. Association with a historically significant person, structure, or event.
4. Groves or stands of trees which collectively meet one or more of the criteria set forth in 1 through 3 above.

Removal of heritage and landmark trees requires a permit from the City. Applicants must submit an application filed with the Community Development Department on a form prescribed by the director, and shall be accompanied by any other pertinent information and fees that may be required. Tree removal may be conditioned upon replacement of lost trees in kind or with twenty-four inches box (one and one-half inch caliper) specimens of similar character.

Chapter 17 Tree Preservation of the City of Petaluma's Implementing Zoning Ordinance (IZO) also outlines the requirements for regulation of protected trees and tree removal permits. The City defines a protected tree as any of the following:

- Black oak (*Quercus kelloggii*) four inches Diameter at Breast Height (DBH) or greater
- Valley oak (*Quercus lobata*) four inches DBH or greater
- Blue oak (*Quercus douglasii*) four inches DBH or greater
- Interior live oak (*Quercus wislizenii*) four inches DBH or greater
- Coast live oak (*Quercus agrifolia*) four inches DBH or greater
- Oracle oak (*Quercus x morehus*) four inches DBH or greater
- Oregon oak (*Quercus garryana*) four inches DBH or greater
- Other native California oak four inches DBH or greater
- California buckeye (*Aesculus, californica*) six inches DBH or greater
- California bay (*Umbellularia, californica*) twelve inches DBH or greater
- California or coast redwood (*Sequoia*) eighteen inches DBH or greater
- Heritage trees as approved by Council resolution per chapter 8.28 of the Petaluma Municipal Code
- Significant groves or stands of trees
- Trees located in riparian corridors
- Any tree required to be planted or preserved as environmental mitigation or condition of approval for a discretionary development application or other development permit.

Chapter 17 of the IZO also outlines the requirements for an arborist report, tree protection during development, and tree replacement requirements.

4.4.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

The assessment of potential impacts to biological resources below was based on a review of the database queries and other information described above. As a programmatic document, this section of the EIR provides an assessment of the potential for adoption of the Petaluma General Plan Update to result in significant impacts to biological resources, including types and intensity of new development, redevelopment, and infrastructure maintenance and expansion forecasted under the

proposed project. Because the EIR is a long-term document intended to guide actions for many years into the future, this analysis relies on a program-level and quantitative evaluation. Consistent with the tiering framework of the EIR, future development facilitated by the proposed project would be required to conduct a project-level Biological Resources Screening where habitat is present or where mapped occurrences or sensitive habitats may be affected; in these cases, site-specific surveys and mitigation measures derived from the project-specific Biological Resources Screening will be required.

Significance Thresholds

Based on Appendix G of the CEQA Guidelines, a project may have a significant impact on biological resources if it would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
3. Have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
4. 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;
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

b. 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 Wildlife or U.S. Fish and Wildlife Service?

Impact BIO-1 DEVELOPMENT FACILITATED BY THE GENERAL PLAN UPDATE COULD HAVE A SUBSTANTIAL ADVERSE EFFECT ON SPECIAL-STATUS SPECIES. HOWEVER, IMPLEMENTATION OF PROPOSED GENERAL PLAN POLICIES, FEDERAL, STATE, AND LOCAL REGULATIONS, AS WELL AS MITIGATION MEASURES BIO-1 THROUGH BIO-7 WOULD ENSURE THAT IMPACTS FROM DEVELOPMENT FACILITATED BY THE GENERAL PLAN UPDATE ON CANDIDATE, SENSITIVE, OR SPECIAL-STATUS SPECIES WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

As discussed in Section 4.4.1.c, there are 33 special-status plant species and 34 special-status wildlife species that may occur in the Plan Area, and additional species may become sensitive or regulated by state and/or federal agencies during the life of the project (roughly 25 years). In

addition, the Plan Area contains riparian corridors, coastal saltmarsh, mixed hardwood forest, and oak woodland which all provide habitat for special-status species. Critical habitat for federally listed species is also present in the Plan Area. Potentially significant temporary and permanent impacts to species listed under CESA or FESA, or species that are candidates or proposed for listing, and sensitive, or special-status species could occur during construction activities. Temporary impacts would result from noise, dust, vibration and increased human presence, and permanent impacts due to grading, paving, and construction of new facilities could result in the loss of habitat, fragmentation of larger open areas and wildlife corridors, or injury, mortality, or removal of special-status wildlife or plant species.

As shown in Figure 4.4-1, the Plan Area is primarily developed and vegetation communities and aquatic habitats primarily exist on the edges of the Plan Area, particularly in the southwestern portion of the Plan Area, with the exception of the Petaluma River which flows through the center of the Plan Area. Most of the land in the Plan Area is currently developed and largely lacks value as habitat for the majority of special-status plant and animal species because the built environment is dominated by impervious surfaces, landscaped vegetation, and highly fragmented open spaces that do not provide the soil conditions, vegetation structure, hydrology, connectivity, or disturbance regimes required by these species. The General Plan Update includes changes in land use designations and allowable densities for future development across residential, mixed-use, commercial, industrial, and public sectors. Parcels that would undergo a change in land use designation from the existing General Plan occur within the Plan Area center and developed areas, along Lakeville Highway, Petaluma Boulevard, and Interstate 101. No changes in land use designations would occur within parcels currently designated for parks or open space. However, some special-status species may use habitats in and adjacent to parcels that would undergo a change in land use designation. However, the General Plan Update includes the following goals, policies, and actions which would minimize impacts to protected biological resources and preserve habitats that may support special-status species and sensitive habitats:

Goal NAT-2: A Network of Healthy Habitats, Ecosystems, and Natural Lands. Petaluma's cohesive network of healthy, protected, and productive natural lands facilitates the coexistence of people and the natural environment, including plants, wildlife, fungi, and insects, and advances implementation of the Blueprint for Climate Action.

> **Policy NAT-2.1: Create a network of healthy habitats.** Facilitate the connection of open spaces, urban separators, and conservation easements to create a network of healthy habitats around and throughout the city.
>
> > **Action NAT-2.1.2:** Continue to seek new opportunities to conserve more open space and habitats in partnership with the Sonoma Land Trust, Sonoma County Parks Foundation, Sonoma Water, and the Sonoma County Agricultural Preservation and Open Space District by creating a coordinated plan for identifying and procuring land for preservation.
> >
> > **Action NAT-2.1.4:** Coordinate with State and local agencies to enhance tributary corridors within the broader Petaluma River watershed to provide improved bank stabilization, stormwater retention, and habitat quality.
>
> **Policy NAT-2.2: Create a network of open spaces**. Identify opportunities to create a network of interconnected open spaces to create a network of healthy and functional wildlife corridors within the 147 square mile Petaluma River Watershed. Include multi-use trails to increase residents' access to open spaces where feasible.

Policy NAT-2.3: Preserve open space. Explore the continued use of transfer of development rights (TDR) in infill development projects to preserve open space land.

Action NAT-2.3.1: Study the feasibility of a voluntary transfer of development rights (TDR) program to promote infill development and preserve open space areas within the Municipal Code. If feasible:

- Pair TDR with density bonus incentives for the receiving area.
- Establish standardized procedures for the permanent preservation of land, such as conservation easements, in the sending area.
- Establish specific procedures for utilizing a TDR program to facilitate the creation of floodable recreation areas and dedicated retention basins where needed.

Policy NAT-2.5: Maintain natural lands. Provide for continued stewardship, management, and maintenance of natural lands and open space throughout Petaluma, consistent with the Blueprint for Climate Action.

Action NAT-2.4.1: Develop a plan for natural resource management and maintenance of natural lands, including definitions and indicators of ecosystem health, and an implementation plan for City staff, including the following steps:

- Identify a responsible department lead to oversee implementation and coordination.
- Develop a community involvement strategy including key partners, stipend programs, and an engagement plan for community members.
- Track and pursue regional, State, and federal funding to implement projects identified in the River Access and Enhancement Plan and other projects that restore and protect the natural environment.
- Conduct an annual progress report of progress and findings from community engagement activities.

Policy NAT-2.5: Protect special status species and supporting habitats. Protect special status species and supporting habitats within Petaluma, including species that are State or federal listed as endangered, threatened, or rare.

Action NAT-2.5.1: Conserve wildlife ecosystems and sensitive habitat areas in the following order of protection preference: 1) avoidance, 2) on-site mitigation, and 3) off-site mitigation.

Action NAT-2.5.2: As part of the development review process, site-specific biological resource assessments may be required to consider the impacts on riparian and aquatic resources and the habitats they provide for invertebrates, fish, amphibians, reptiles, birds, mammals, and plants. If development is located outside these ecologically sensitive regions, no site-specific assessment of biological resources may be necessary. The City shall impose on a project-by-project basis appropriate conditions to reduce potential effects to sensitive habitats and special status species according to the City's environmental review process and State law.

Action NAT-2.5.3: Require construction activities involving vegetation removal or disturbance during the bird nesting season (February 1–September 15) to comply with the Migratory Bird Treaty Act and California Fish and Game Code by avoiding impacts to

active nests. Where active nests are present, require appropriate avoidance buffers, monitoring, and construction timing or methods to prevent disturbance until nesting has concluded, consistent with best available biological practices.

Action NAT-2.5.4: Protect bat roosting habitat by requiring that tree removal and structure demolition activities include pre-activity assessment for bat use, avoidance of active maternity roosts, and implementation of appropriate exclusion or timing measures, consistent with state and federal wildlife protections.

Action NAT-2.5.5: For development projects on sites where tree or vegetation/habitat removal is necessary and where the existence of sensitive species and/or bird species protected by California Fish and Wildlife Code Sections 3503 and 3503.5 and Migratory Bird Treaty Act has been determined by a qualified biologist, a qualified biologist retained by the developer shall conduct surveys for nesting birds within 14 days prior to project activities for all construction sites where activities occur during nesting bird season. If active nests are located, the City shall require that all construction work be conducted outside a buffer zone from the nest, to be determined by the qualified biologist.

Goal NAT-3: Water Resource Management. Water resources are managed proactively and in an integrated way.

Policy NAT-3.2: Protect the River and creeks Preserve the wildlife and recreational benefits associated with the Petaluma River and tributary creeks by protecting the river from pollution and contamination in coordination with local key partners and river-focused non-profit organizations.

Implementation of proposed policies in the Petaluma General Plan Update would preserve and maintain open space, natural lands, the Petaluma River, and tributary creeks in the Plan Area. However, the General Plan Update would not require a screening for special-status species and associated habitats or other sensitive biological resources prior to development. The project also does not specify what level of mitigation would be required if impacts to special-status species and sensitive habitats are unavoidable. Development facilitated by the project could result in indirect and direct impacts to special-status species if they are present in areas proposed for development. In previously developed and disturbed areas of the Plan Area, high-quality habitat for special-status species is absent; therefore, development facilitated by the project would not contribute to habitat loss. However, it may indirectly or directly impact special status-species if individuals are present in these areas during construction activities. Therefore, impacts to special-status species listed in Section 4.4.1c would be potentially significant.

Construction activities associated with development facilitated by the project could result in indirect and direct impacts to native nesting birds during the nesting season (February 1-August 31). Birds may use a variety of habitats for nesting throughout the Plan Area during the nesting season, including buildings, trees and shrubs, rocky outcrops, power poles, and bare ground. Urban vegetation, including street trees, provides important nesting substrate, perching opportunities, and cover from predators. In accordance with the MBTA and CFGC Sections 3503, 3503.5, and 3513, the take, possession, or destruction of active nests, eggs, or young of protected bird species is prohibited. While compliance with these regulations is required, existing City policies do not mandate specific procedures to ensure avoidance of take, such as pre-construction nesting bird surveys or seasonal work restrictions. As a result, future development facilitated by the project

could inadvertently disturb nesting birds, potentially resulting in unauthorized take and noncompliance with applicable federal and state laws. Therefore, impacts to nesting birds would be potentially significant.

Implementation of Mitigation Measures BIO-1 through BIO-7 would reduce potential impacts to special-status species and nesting birds to a less than significant level by requiring Biological Resources Screening and Assessments, protocol surveys, avoidance and minimization, habitat restoration, and preconstruction surveys.

Mitigation Measures

BIO-1 Biological Resources Screening and Assessment

For projects proposed within undeveloped parcels, or when site conditions do not clearly demonstrate that the parcel is fully developed, the City shall require project applicants to engage a qualified biologist (having the appropriate education and experience level) to perform a baseline Biological Resources Screening and Assessment to determine whether projects proposed within undeveloped parcels have any potential to impact special-status biological resources, inclusive of special-status plants and animals, sensitive vegetation communities (including vernal pools and other wetlands), and critical habitat. If it is determined that the project has no potential to impact biological resources, no further action is required. If the project would have the potential to impact biological resources, prior to construction, a qualified biologist shall conduct a project-specific biological analysis to document the existing biological resources within a project footprint plus a minimum buffer of 500 feet around the project footprint, as is feasible, to determine the potential impacts to those resources. The project-specific biological analysis shall evaluate the potential for impacts to all biological resources including, but not limited to special-status species, nesting birds, wildlife movement, sensitive plant communities, critical habitats, and other resources judged to be sensitive by local, state, and/or federal agencies. If the project would have the potential to impact these resources Mitigation Measures Bio-2 through Bio-7 shall be required as applicable. Pending the results of the project-specific biological analysis, design alterations, further technical studies (e.g., protocol surveys) and consultations with the USFWS, CDFW, and/or other local, state, and federal agencies may be required. Note that specific surveys described in the mitigation measures below may be completed as part of the project-specific biological analysis where suitable habitat is present.

BIO-2 Special-status Plant Species Surveys

Where the project-specific Biological Resources Screening and Assessment (Mitigation Measure BIO-1) determines that there is potential for significant impacts to federally or state-listed plants or regional population level impacts to species with a California Rare Plant Rank of 1 or 2 from project development, a qualified biologist shall complete protocol-level surveys for special-status plants prior to any vegetation removal, grubbing, or other construction activity (including staging and mobilization). The surveys shall be floristic in nature, shall be seasonally timed to coincide with the bloom period of the target species, and shall include evaluation of a reference site. All plant surveys shall be conducted by a qualified biologist during the blooming season prior to development permit approval. All special-status plant species identified on site shall be mapped onto a site-specific aerial photograph or topographic map with the use of Global Positioning System unit. Surveys shall be conducted in accordance with the most current protocols established by the CDFW, USFWS, and the local jurisdictions if said protocols exist. A report of the survey results shall be submitted to the City, and the CDFW and/or USFWS, as appropriate, for review and/or approval.

If special-status plants are not found during protocol-level special-status plant surveys, no further action is required. If federally- and/or state-listed individuals and/or California Rare Plant Rank 1B or 2B plant populations are found during special-status plant surveys, the Mitigation Measures BIO-3 and BIO-4 shall be implemented.

BIO-3 Special-status Plant Species Avoidance, Minimization, and Mitigation

If federally-listed and/or state-listed individuals, and/or CRPR 1B or 2 plant populations are found during special-status plant surveys (pursuant to Mitigation Measure BIO-2) and would be directly impacted, or there would be a population-level impact to non-listed sensitive species, then the project shall be redesigned to avoid impacting those plant species, where feasible. Rare and listed plant occurrences that are not within the immediate disturbance footprint but are located within 50 feet of disturbance limits shall have bright orange protective fencing installed at least 30 feet beyond their extent, or other distance as approved by a qualified biologist, to protect them from harm. Prior to initiation of construction activities the project proponent shall submit a site plan depicting the location(s) of special-status plants and avoidance buffers to the City and regulatory agencies for review and approval.

If special-status plants can be avoided, no further action is required. If federally- and/or state-listed individuals and/or California Rare Plant Rank 1B or 2 plant populations cannot be avoided, then Mitigation Measure BIO-4 shall be implemented.

BIO-4 Habitat Restoration Plan

If federally or state-listed plants or non-listed special-status CRPR 1 and 2 plant populations identified during special status plant surveys pursuant to Mitigation Measure BIO-2, cannot be avoided pursuant to Mitigation Measure BIO-3, and will be impacted by development, all impacts shall be mitigated by the applicant at a ratio not lower than 1:1 per acre of impact (and 1:1 per individual plant), and to be determined by the City in coordination with CDFW and USFWS for each species as a component of habitat restoration. A qualified biologist shall prepare and submit a restoration plan to the City for review and approval prior to City approval of project plans. (Note: if a federally and/or state-listed plant species will be impacted, the restoration plan shall be submitted to the USFWS and/or CDFW for review, and federal and/or state take authorization may be required by these agencies.) The restoration plan shall include, at a minimum, the following components:

1. Description of the project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type).
2. Goal(s) of the compensatory mitigation project (type[s] and area[s]) of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type[s] to be established, restored, enhanced, and/or preserved).
3. Description of the proposed compensatory mitigation site (location and size, ownership status, existing functions, and values).
4. Implementation plan for the compensatory mitigation site (rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan).
5. Maintenance activities during the monitoring period, including weed removal as appropriate (activities, responsible parties, schedule).
6. Monitoring plan for the compensatory mitigation site, including no less than quarterly monitoring for the first year (performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved, annual monitoring reports).

7. Success criteria based on the goals and measurable objectives; said criteria to be, at a minimum, 1:1 replacement by number of plants and habitat acreage impacted or other industry standards as determined by a qualified restoration specialist.
8. An adaptive management program and remedial measures to address any shortcomings in meeting success criteria.
9. Notification of completion of compensatory mitigation and agency confirmation.
10. Contingency measures (initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism).
11. All nursery plants used in restoration shall be inspected for sudden oak death and other pathogens or insects/disease of concern.
12. Restoration or compensatory mitigation shall be implemented ether on-site or off-site, at a separate location as approved by the City and applicable permitting agencies. Mitigation may also be satisfied through the purchase of mitigation credits from an agency approved mitigation bank. All mitigation actions or credit purchases must fully mitigate the projects permanent and temporary impact.

If a federally and/or state-listed plant species has the potential to be impacted, an Habitat Mitigation Plan shall be submitted to the USFWS and/or CDFW for review, and federal and/or state take authorization may be required by these agencies.

Within 30 days of completion of monitoring, a final monitoring report shall be submitted to the City for review and approval, documenting compliance with the Habitat Mitigation Plan and achievement of success criteria.

BIO-5 Special-status Species Habitat Assessments and Protocol Surveys

Where the project-specific biological analysis (Mitigation Measure BIO-1) determines that suitable habitat may be present for federal- or state-listed, candidate, or proposed species, the City shall require protocol habitat assessments/surveys be completed in accordance with current CDFW and/or USFWS protocols prior to issuance of any construction permits. If, through consultation with the CDFW and/or USFWS, it is determined that protocol habitat assessments/surveys are not required, the project applicant shall be required to complete and document this consultation and submit it to the City prior to issuance of any construction permits. Each protocol has different survey and timing requirements. The applicant shall be responsible for ensuring they understand the protocol requirements and shall hire a qualified biologist to conduct protocol surveys. (Note: if a federally and/or state-listed wildlife species will be impacted, federal and/or state take authorization may be required by USFWS and CDFW.)

BIO-6 Special Status Animal Species Avoidance and Minimization

For development facilitated by the plan where potential impacts to aquatic and/or terrestrial animal species are identified by the project-specific Biological Resources Screening and Assessment required under Mitigation Measure BIO-1, the following measures shall be applied.:

1. Ground disturbance shall be limited to the minimum necessary to complete the project. A qualified biologist shall flag the project limits of disturbance. Areas of special biological concern within or adjacent to the limits of disturbance shall have highly visible orange construction fencing installed between said area and the limits of disturbance.

2. All projects occurring within/adjacent to aquatic habitats (including riparian habitats and wetlands) shall be completed outside of the breeding season of sensitive aquatic species. If a project cannot avoid work during this period due to technical or safety constraints, the applicant shall obtain approval from the City based on a project-level biological assessment demonstrating that impacts can be avoided or minimized through specific measures, and any required permits or authorizations from applicable resource agencies shall be secured prior to initiating work..
3. All projects occurring within or adjacent to sensitive habitats that may support federally and/or state-listed endangered/threatened species shall have a CDFW- and/or USFWS-approved biologist present during all initial ground disturbing/vegetation clearing activities. Once initial ground disturbing/vegetation clearing activities have been completed, said biologist shall conduct daily pre-activity clearance surveys for endangered/threatened species. Alternatively, and upon approval of the CDFW and/or USFWS, said biologist may conduct site inspections at a minimum of once per week to ensure all prescribed avoidance and minimization measures are fully implemented.
4. No endangered/threatened species shall be captured and relocated without express permission within a permit from the CDFW and/or USFWS.
5. If at any time during project construction an endangered/threatened species enters the construction site or otherwise may be impacted by the project, all project activities shall cease. A CDFW/USFWS-approved biologist shall document the occurrence and consult with the CDFW and USFWS, as appropriate, to determine whether it is safe for project activities to resume.
6. For all work occurring in areas where endangered/threatened species may be present and are at risk of entering the project site during construction, the applicant shall install exclusion fencing along the project boundaries prior to start of construction (including staging and mobilization). The placement of the fence shall be at the discretion of the CDFW/USFWS-approved biologist. This fence shall consist of solid silt fencing placed at a minimum of three feet above grade and two feet below grade and shall be attached to wooden stakes placed at intervals of not more than five feet. The applicant shall inspect the fence weekly and following rain events and high wind events and shall be maintained in good working condition until all construction activities are complete.
7. All vehicle maintenance/fueling/staging shall occur not less than 100 feet, or at a distance as determined by a qualified biologist, from any riparian habitat or water body, including seasonal wetland features. Suitable containment procedures shall be implemented to prevent spills. A minimum of one spill kit shall be available at each work location near riparian habitat or water bodies.
8. No equipment shall be permitted to enter wetted portions of any affected drainage channel or wetland.
9. At the end of each workday, excavations shall be secured with a cover or a ramp provided to prevent wildlife entrapment.
10. All trenches, pipes, culverts, or similar structures shall be inspected for animals prior to burying, capping, moving, or filling.
11. Considering the potential for the project to impact federally and state-listed species and their habitat, the City shall contact CDFW and USFWS to identify mitigation banks within Sonoma County during project development. If the results of the project-specific biological analysis (Mitigation Measure BIO-1) determine that impacts to federally and state threatened or

endangered species habitat are expected, City and/or applicant shall explore species-appropriate mitigation bank(s) servicing the region for purchase of mitigation credits.

12. Prior to grading and construction in natural areas of containing suitable upland habitat, a qualified biologist shall conduct a preconstruction survey as determined necessary during the biological analysis (Mitigation Measure BIO-1). The survey should include a transect survey over the entire project disturbance footprint (including access and staging areas), and mapping of suitable habitat features, such as burrows, that are potentially suitable for listed species. If any listed species are detected, no work shall be conducted until the individual(s) leaves the site of their own accord, unless federal and/or state "take" authorization has been issued for relocation. Typical preconstruction survey procedures, such as burrow scoping and burrow collapse, cannot be conducted without federal and state permits. If any life stage of listed species are found within the survey area, the City and/or applicant shall consult with the USFWS and CDFW to determine the appropriate course of action to comply with the FESA and CESA, if permits are not already in place at the time of construction.

BIO-7 Pre-Construction Bird Surveys, Implement Avoidance Measures, and Provide Notification

For all future development facilitated by the General Plan, construction activities initiated during the bird nesting season (February 1 – September 15), involving removal of vegetation (e.g., trees and shrubs), abandoned structures, or other nesting bird habitat, a pre-construction nesting bird survey shall be conducted no more than 5 days prior to initiation of ground disturbance and vegetation removal. The nesting bird pre-construction survey shall be conducted on foot and shall include a buffer around the construction site at a distance determined by a qualified biologist, including staging and storage areas. The minimum survey radii surrounding the work area shall be the following: 250 feet for non-raptors and 1,000 feet for raptors, but shall be adjusted as necessary by a qualified biologist. The survey shall be conducted by a qualified biologist familiar with the identification of avian species known to occur in the region. If construction lapses for seven days or longer, the qualified biologist shall conduct another focused survey before project activities are reinitiated. If nests are found, an avoidance buffer shall be determined by the biologist dependent upon the species, the proposed work activity, existing disturbances associated with land uses outside of the site. The qualified biologist shall observe the active nest to establish a behavioral baseline of the adults and nestlings, if present. The qualified biologist shall continuously monitor the active nests to detect signs of disturbance and behavioral change as a result of construction impacts, such as noise, vibration, odors, or worker/equipment motion. If signs of disturbance and behavioral changes are observed, the qualified biologist shall require that construction causing those changes cease and may contact CDFW or USFWS for guidance. The buffer shall be demarcated by the biologist with bright orange construction fencing, flagging, construction lathe, or other means to demarcate the boundary. All construction personnel shall be notified of the buffer zone as an "Ecologically Sensitive Area" and to avoid entering the buffer zone during the nesting season. No ground disturbing activities shall occur within the buffer until the biologist has confirmed that breeding/nesting is completed and the young have fledged the nest. Encroachment into the buffer shall occur only at the discretion of the qualified biologist on the basis that the encroachment will not be detrimental to an active nest. A report summarizing the pre-construction survey(s) shall be prepared by a qualified biologist and shall be submitted to the City prior to the commencement of construction activities.

Project site plans shall include a statement acknowledging compliance with the federal MBTA and California Fish and Game Code that includes avoidance of active bird nests and identification of Best

Management Practices to avoid impacts to active nests, including checking for nests prior to construction activities during February 1 to September 15, and what to do if an active nest is found so that the nest is not inadvertently impacted during grading or construction activities.

Significance After Mitigation

Implementation of Mitigation Measures BIO-1 through BIO-7 would reduce potential impacts to special-status species listed in Section 4.4.1c and nesting birds to a less than significant level by requiring Biological Resources Screening and Assessments, protocol surveys, avoidance and minimization, habitat restoration, and preconstruction nesting bird surveys. Impacts would be less than significant with mitigation.

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, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
Threshold 3:	Would the project have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact BIO-2 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD BE SUBJECT TO ADOPTED CITY REGULATIONS TO MINIMIZE IMPACTS TO RIPARIAN HABITAT, SENSITIVE NATURAL COMMUNITIES, AND WETLANDS. THE PROPOSED PROJECT WOULD BE REQUIRED TO COMPLY WITH THE NPDES CONSTRUCTION GENERAL PERMIT, MS4 STORM WATER PERMIT, AND PROPOSED POLICIES IN THE GENERAL PLAN UPDATE. WITH IMPLEMENTATION OF MITIGATION MEASURES BIO-1 AND BIO-4 POTENTIAL IMPACTS TO RIPARIAN HABITAT, SENSITIVE NATURAL COMMUNITIES, AND WETLANDS WOULD BE LESS THAN SIGNIFICANT. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

Sensitive natural communities which could occur in the Plan Area include *Aesculus californica* Alliance, *Quercus garryana* Alliance, *Quercus lobata* Alliance, *Umbellularia californica* Alliance (Sonoma County Agricultural Preservation and Open Space District 2025, CDFW 2025b). According to the USFWS NWI, wetlands in and surrounding the Plan Area consist of herbaceous wetlands, waters, including the Petaluma River, riparian forest, and riparian scrub (USFWS 2025). Development facilitated by the proposed project is not likely to result in direct impacts to sensitive habitats such as the removal of riparian habitat or other sensitive natural communities, as it would occur in areas of the Plan Area that are disturbed or developed and surrounded by existing development. However, indirect impacts from runoff and sedimentation, as well as hazardous materials spills could occur during construction activities.

Future development and projects under the General Plan Update would be subject to the Petaluma River Access and Enhancement Plan requirements to protect riparian habitat and sensitive natural communities along the Petaluma River. Development in state and/or federally protected wetlands and riparian areas would be subject to USACE, CDFW, and RWQCB permitting requirements. Additionally, the updated Land use Map includes a revised river buffer for the upper reach of the Petaluma River (from Lynch Creek north to the City limits) that limits development within 330 feet of the top of bank of the river.

To protect special-status species and associated habitats, the General Plan Update includes the following proposed goals and policies:

Goal NAT-3: Water Resource Management. Water resources are managed proactively and in an integrated way.

> **Policy NAT-3.1**: **Minimize erosion and runoff**. Minimize soil erosion and discharge of sediments into surface runoff, drainage systems, and water bodies.
>
> **Policy NAT-3.2: Protect the River and creeks.** Preserve the wildlife and recreational benefits associated with the Petaluma River and tributary creeks by protecting the river from pollution and contamination in coordination with local key partners and river-focused non-profit organizations.
>
> **Policy NAT-3.3: Prevent development pollutant discharge.** Continue to require that all development activities are constructed and maintained in accordance with Phase 2 National Pollutant Discharge Elimination System (NPDES) permit requirements.
>
> **Policy NAT-4-2: Advance Low Impact Development.** Promote sustainable urban development through the adoption and implementation of LID strategies and Best Management Practices (BMPs) for new construction projects, aimed at safeguarding and enhancing water quality in local creeks and the Petaluma River.

Goal LU-5: Land Uses Along the Petaluma River Advance Ecological, Resilience and Public Access Goals

Land uses along the Petaluma River and other riparian areas enhance natural habitat and the watershed, mitigate flooding, and maximize public access.[1]

> **Policy LU-5.1 Preserve open space along the Petaluma River.** Preserve open space adjacent to the Petaluma River to protect water quality, prevent erosion, stabilize the riverbank, protect natural habitat, mitigate flooding, and allow for infrastructure improvements, trails and pathways, and public access.
>
> For regulatory purposes, upon adoption of the General Plan, the Petaluma River Corridor is divided into three Resilience Sectors—the Upstream, Core, and Downstream sectors—and four types of areas—Buffer Areas, Retention Areas, Preservation Areas, and River-Oriented Development Areas—as originally conceptualized in the River Access and Enhancement Plan and defined below. Each River Area within each Resilience Sector has different setbacks, development restrictions, and flood adaptation or mitigation strategies.
>
> Resilience Sectors:
>
> - The **Upstream Resilience Sector** is upstream of the Payran Wier (located upstream of the Payran Street river overcrossing), south of Highway 101. (Minimum 330 foot buffer from top of bank or higher to be consistent with the River Access and Enhancement Plan)
> - The **Core Resilience Sector** is between the Wier and the Highway 101 river overcrossing. ("Ribbon of Green", minimum 25 foot buffer from the top of the bank or higher to be consistent with the River Access and Enhancement Plan)
> - The **Downstream Resilience Sector** includes the shore north of the River and McNear Channel, below the intersection of Hopper and the railroad, and downstream of Highway 101 overcrossing; the Downstream Resilience Area also includes Adobe Creek

[1] See the Blueprint for Climate Action and the Natural Features, Systems, and Resources, Flood Resilience, Parks and Recreation, and Transportation Elements for related goals, policies, and actions.

up to Lakeville Highway. (Minimum 75 foot buffer from the top of the bank or higher to be consistent with the River Access and Enhancement Plan)

River Areas:

- **Retention Areas** are existing parks and open spaces, the Floodway, and areas immediately adjacent to the River and/or are projected to flood two feet or more by 2100 during a 1 percent (100 year) storm according to the City's most recent flood modeling.
- **Buffer Areas** are areas that protect water quality, prevent erosion, stabilize the riverbank, and/or could feature trails, pathways, and public access. New encroachment into Buffer Areas is not permitted, but lot-specific vested development rights may be transferred elsewhere on the lot to cluster development outside of the Buffer Area and/or elsewhere in the City through a Transfer of Development Rights (TDR) program. On vacant parcels that are entirely within the Buffer Area, development pursuant to vested rights shall be as far from the River as legally possible.
- **Preservation Areas** are environmentally sensitive habitat areas (ESHA) and areas with significant riparian restoration potential (to be determined on site- and project-specific basis), including natural habitat areas like oak woodlands and wetlands.
- **River Oriented Development Areas** are outside of the Buffer, Retention, and Preservation Areas and are projected to flood to at least a depth of one foot during a 1 percent (100 year) storm according to the City's most recent flood modeling.

Policy LU-5.3 Enhance Riparian Areas. Enhance riparian areas to protect water quality, prevent erosion, stabilize banks, protect natural habitat, mitigate flooding, and allow for infrastructure improvements, trails and pathways, and public access.

Action LU-5.3.1: Update development and design standards in the Municipal Code to:

- Establish a riparian buffer for natural courses of water other than the Petaluma River of up to 165 feet from top of bank , based on specific creek conditions and environments, into which new encroachment is not permitted, allowing for lot-specific vested development rights to be transferred elsewhere on the lot to cluster development outside of the riparian buffer and/or elsewhere in the City through a Transfer of Development Rights (TDR) program.
- Require a Bank Stabilization and Erosion Control Plan for all proposed development along riparian corridors if there is no existing or planned protective infrastructure.
- Ensure that development along single-loaded streets and designated public access points adjacent to riparian corridors, to the extent feasible, establish linear open space corridors with maximum public accessibility and opportunities for stewardship.

Implementation of proposed policies in the plan would ensure sensitive habitats are identified prior to project-specific siting and habitat areas are protected where applicable, and development facilitated by the plan would be subject to applicable federal, State, and City requirements, which would minimize potential impacts to riparian habitat, sensitive natural communities, and wetlands. In addition, as discussed in Section 4.9, *Hydrology and Water Quality*, development facilitated by the proposed project would be required to comply with the provisions of the NPDES Construction General Permit, MS4 Storm Water Permit, Petaluma Municipal Code, and proposed policies in the

General Plan Update. Moreover, each future development project would undergo its own project-level review under CEQA, which would include evaluation of any unusual, site-specific, or project-specific impacts not fully addressed at the program level. Incorporating these regulations during the project review phase and implementation of Mitigation Measures BIO-1 and BIO-4 would reduce potential impacts to sensitive natural communities and state or federally protected wetlands to a less than significant level by requiring Biological Resources Screening and Assessments and habitat restoration.

Mitigation Measure

See Mitigation Measures BIO-1 and BIO-4.

Significance After Mitigation

Implementation of Mitigation Measures BIO-1 and BIO-4, would reduce potential impacts to sensitive natural communities and state or federally protected wetlands by requiring a Biological Resources Screening and Assessment and habitat restoration. Impacts would be less than significant with mitigation.

Threshold 4:	Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Impact BIO-3 IMPLEMENTATION OF THE PROPOSED PROJECT WOULD NOT SUBSTANTIALLY IMPEDE THE MOVEMENT OF NATIVE RESIDENT OR MIGRATORY FISH OR WILDLIFE SPECIES, OR WITH ESTABLISHED NATIVE RESIDENT OR MIGRATORY WILDLIFE CORRIDORS AFTER IMPLEMENTATION OF PROPOSED POLICIES IN THE PETALUMA GENERAL PLAN UPDATE. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Habitat connectivity features for wildlife within the Plan Area are generally located to the southeast of the Plan Area, as well as within the riparian corridor along the Petaluma River and associated tributaries. Potentially significant impacts to wildlife movement could occur if temporary disturbance during construction or permanent new development facilitated by the project would result in the fragmentation or degradation of wildlife corridors or nursery sites. However, changes to land use designations in the General Plan Update do not allow for the development of parcels where development was not already allowed under existing conditions. Development facilitated by the project would occur in areas of the Plan Area that are already disturbed or developed and generally are surrounded by existing development and urban disturbance. Given that no new parcels previously considered undevelopable would be newly allowed to develop, the project is not expected to result in substantial new impacts on habitat connectivity. As a result, development facilitated by the project would not result in potentially significant impacts to wildlife movement because they would not obstruct wildlife corridors or fragment habitat such that wildlife movement is restricted. Additionally, there are no Essential Connectivity Areas in the Plan Area (Spencer et al. 2010).

In addition to the river buffers in Policy LU-5.1, and riparian enhancement in Policy LU-5.3, the General Plan Update includes the following proposed policy to establish a network of open spaces along the Plan Area's natural drainages and riparian corridors:

Goal NAT-2: A Network of Healthy Habitats, Ecosystems, and Natural Lands. Petaluma's cohesive network of healthy, protected, and productive natural lands facilitates the coexistence of people

and the natural environment, including plants, wildlife, fungi, and insects, and advances implementation of the Blueprint for Climate Action.

> **Policy NAT-2.1: Create a network of healthy habitats.** Facilitate the connection of open spaces, urban separators, and conservation easements to create a network of healthy habitats around and throughout the city.
>
> **Policy NAT-2.2: Create a network of open spaces**. Identify opportunities to create a network of interconnected open spaces to create a network of healthy and functional wildlife corridors within the 147 square mile Petaluma River Watershed. Include multi-use trails to increase residents' access to open spaces where feasible.
>
> **Policy NAT-2.3: Preserve open space.** Explore the continued use of transfer of development rights (TDR) in infill development projects to preserve open space land.
>
> **Policy NAT-2.5: Maintain natural lands.** Provide for continued stewardship, management, and maintenance of natural lands and open space throughout Petaluma, consistent with the Blueprint for Climate Action.

Goal NAT-3: Water Resource Management. Water resources are managed proactively and in an integrated way.

> **Policy NAT-3.2: Protect the River and creeks.** Preserve the wildlife and recreational benefits associated with the Petaluma River and tributary creeks by protecting the river from pollution and contamination in coordination with local key partners and river-focused non-profit organizations.

Moreover, each future development project would undergo its own project-level review under CEQA, which would include evaluation of any unusual, site-specific, or project-specific impacts not fully addressed at the program level. With implementation of the proposed policies in the General Plan Update, development facilitated by the plan would have a less than significant impact on the movement of any native resident or migratory fish or wildlife species or on established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites, within the Plan Area or adjacent open spaces.

Mitigation Measure

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 5:	Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Impact BIO-4 THE PROPOSED PROJECT WOULD IMPLEMENT PROPOSED POLICIES DESIGNED TO PROTECT BIOLOGICAL RESOURCES, SPECIFICALLY THE TREE ORDINANCE. DEVELOPMENT FACILITATED BY THE PROJECT WOULD BE REQUIRED TO ADHERE TO THESE POLICIES, AS WELL AS THE PETALUMA MUNICIPAL CODE REQUIREMENTS TO PROTECT BIOLOGICAL RESOURCES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Potential impacts to trees and other biological resources, such as those resulting from tree and vegetation removal, may result from future development under the updated General Plan. The Plan

Area has trees within its developed and disturbed areas, as well as its surrounding parks and open space. Chapters 8.28 of the Petaluma Municipal Code and 17 of the Petaluma Implementing Zoning Ordinance provides regulations governing heritage, landmark, and protected trees in the City. Pursuant to Chapters 8.28 and 17, heritage, landmark, and protected trees are required to be preserved unless otherwise approved by City as part of a development permit. Any tree removed as part of project-specific development would be required to be replaced on-site at a minimum size of a 24-inch box of the same species, unless specifically approved by the City based on health and structure as determined through an arborist report. In addition, the General Plan Update would implement the following proposed policy related to trees:

Goal NAT-5: Thriving Urban Forest. Petaluma sustains a thriving and healthy urban forest that forms an interface between the natural and built environment, beautifies the community, and mitigates climate impacts as well as air and noise pollution.

> **Policy NAT-5.1: Expand and maintain the urban forest.** Expand and maintain the urban forest throughout the city, prioritizing vulnerable communities and places lacking urban forest, to achieve an urban tree canopy cover of at least 25 percent.
>
> **Policy NAT-1.1: Establish an urban forest dataset.** Establish a comprehensive and accurate baseline dataset on the existing urban forest and tree canopy coverage within Petaluma, encompassing both public and private lands to inform decision-making and long-term management.
>
> **Policy NAT-1.2: Develop an urban forestry program.** Develop an urban forestry program to manage and enhance the city's urban forest by consolidating the various City policies and ordinances regarding tree planting, maintenance, and removal.
>
> **Policy NAT-1.3: Implement street tree soil and irrigation standards.** Develop and implement comprehensive soil and irrigation standards to support street trees.

Moreover, each future development project would undergo its own project-level review under CEQA, which would include evaluation of any unusual, site-specific, or project-specific impacts not fully addressed at the program level. Development facilitated by the project would adhere to the requirements of the Petaluma Municipal Code and the proposed polices in the General Plan Update. Therefore, the project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. This impact would be less than significant.

Mitigation Measure

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

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 IMPLEMENTATION OF THE PROPOSED PROJECT WOULD NOT CONFLICT WITH THE PROVISION OF AN ADOPTED HABITAT CONSERVATION PLAN, NATURAL COMMUNITY CONSERVATION PLAN, OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN. NO IMPACT WOULD OCCUR.

Currently, there are no habitat conservation plans, natural community conservation plans, or other approved local regional or state habitat conservation plans in the Plan Area. The City of Petaluma is a participating local jurisdiction in the Sonoma County Habitat Conservation Plan / Natural Community Conservation Plan Planning Agreement, along with Sonoma County, the City of Cotati, the City of Santa Rosa, and the Town of Windsor. The Habitat Conservation Plan / Natural Community Conservation Plan is under development and is in the early planning phase. Therefore, development and improvements in the Plan Area would not conflict with such plans. No impact would occur.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

There would be no impact and no mitigation would be required.

4.4.4 Cumulative Impacts

The geographic scope of the cumulative biological resources analysis is the Plan Area and the immediate vicinities in adjacent cities and in unincorporated Sonoma County. This geographic scope is appropriate for biological resources because it encompasses the mosaic of representative land cover and habitat types (and associated biological resources) affected by the project, including primarily urban, residential, commercial, and industrial development with areas of natural habitats. The cumulative analysis considers the nearby past, present, and reasonably foreseeable future plans and projects listed in Table 3-1 (refer to Section 3, Environmental Setting) located in Cotati, Petaluma, and unincorporated Sonoma County, and on tribal lands in addition to the Plan Area.

Most cumulative development would be located in already developed urban areas that have limited potential to support special-status wildlife and plant species, aquatic features, or riparian areas considered wetlands and/or sensitive natural communities. Although small portions of the Plan Area fall within designated critical habitat for California tiger salamander, California red-legged frog, and green sturgeon, these areas are limited in extent. Because development under the General Plan would not result in the loss of functional habitat or adversely affect the primary constituent elements of these critical habitat units, the Plan would not contribute substantially to cumulative impacts on designated critical habitat in the region. There are waterways that provide habitat for riparian species of flora and fauna, including the Petaluma River and its tributaries. Riparian habitat and open space within the Plan Areas are relatively small and generally isolated areas surrounded by urban development. Cumulative development listed in Table 3-1 consists predominantly of commercial and residential development. Cumulative development in the region would largely occur on similarly disturbed or previously developed parcels typical of urban environments, where

natural habitats have already been substantially altered or removed. These areas generally support only low-value ruderal vegetation and limited wildlife use, meaning additional development, or redevelopment, would not meaningfully contribute to regional loss of intact habitat or sensitive biological resources. However, due to the presence of habitat for some special-status species in and near Petaluma, special-status species also have the potential, albeit low, to occur within the cumulative projects area. Additionally, nesting birds protected by the MBTA and CFGC, and special-status bat species protected by CFGC have the potential to occur within the geographic scope for cumulative projects. Standard pre-construction surveys and, if necessary, avoidance procedures would be required for cumulative projects with the potential to impact nesting birds and protected bat species, and projects implemented under the General Plan would be required to comply with Mitigation Measures BIO-1 through BIO-7. While there are isolated pockets of natural habitat that can support special-status wildlife and plant species, the urban and built-up nature of the Plan Area as well as the other cumulative development areas preclude the possible adverse cumulative impacts to biological resources related to special-status wildlife and plant species. To address possible cumulative impacts to sensitive natural communities and wetlands, the General Plan Update includes several policies under the proposed General Plan Update Goal NAT-2: *Healthy, Protected, and Productive Natural Lands* and Goal NAT-3: *Water Resource Management* to address these issues and to avoid impacts to species status species and their habitats, and protect water resources including creeks and rivers. Therefore, the cumulative impact related to special-status wildlife and plant species, sensitive natural communities, and associated riparian habitat would be less than significant with implementation of Mitigation Measures BIO-1 through BIO-7, and compliance with all applicable state and federal laws; the project would not have a considerable contribution to this impact.

The City of Petaluma and surrounding areas contain a variety of habitats and open space features, including riparian corridors along local creeks, that can function as wildlife movement pathways. Development in these areas may require the removal or encroachment on protected trees regulated under the City's tree ordinances, and future projects near undeveloped areas may require an arborist report to identify and evaluate trees proposed for removal. Cumulative projects would similarly be required to comply with applicable tree protection ordinances and regulations adopted by the City, adjacent jurisdictions, and the County.

Cumulative development in the region would primarily occur within already disturbed or previously developed urban parcels, which generally provide limited habitat value. In addition, much of the land surrounding potential movement corridors in and around Petaluma is already developed, further constraining wildlife movement opportunities. Development facilitated by the General Plan Update would also be required to comply with Goal NAT-2: *Healthy, Protected, and Productive Natural Lands*, which promotes the protection and enhancement of habitat networks and reduces the potential for cumulative impacts on wildlife movement.

Cumulative development would be required to adhere to applicable local policies and ordinances protecting biological resources enforced by the agencies that have jurisdiction over a project site. There is no Natural Community Conservation Plan or Habitat Conservation Plan within the proposed Plan Area; therefore, no cumulative impacts related to conflicts with local policies or ordinances protecting biological resources or a Natural Community Conservation Plan or Habitat Conservation Plan.

4.5 Cultural Resources

The analysis in this section has been prepared in accordance with CEQA Guidelines Section 15064.5 and considers potential impacts to archaeological and historic resources related to implementation of the General Plan Update. This section includes a summary of cultural resources background information and a review of known archaeological and built environment resources as well as the project's potential impacts on these resources. Potential impacts to paleontological resources are addressed in Section 4.6, *Geology and Soils*, and potential impacts to tribal cultural resources are addressed in Section 4.15, *Tribal Cultural Resources*.

4.5.1 Setting

Native American History

The proposed project lies in the San Francisco Bay Area archaeological region (Milliken et al. 2007, Moratto 1984). Milliken et al. (2007) generally divided the prehistoric chronology of the Bay Area into five periods: Early Holocene (8,000-3,500 Before Common Era [BCE]), Early Period (3,500-500 BCE), Lower Middle Period (500 BCE to 430 Common Era [CE]), the Upper Middle Period (430-1050 CE), and the Late Period (1050 CE-contact).

It is presumed that early Paleoindian groups lived in the area prior to 8,000 BCE; however, no evidence for that period has been discovered in the Bay Area to date (Milliken et al. 2007). Sites dating to this period may be submerged or deeply buried as a result of rising sea levels and widespread sediment deposition that has occurred since the Terminal Pleistocene (Byrd et al. 2017).

Ethnographic Setting

Petaluma lies within an area traditionally occupied by the Coast Miwok. The Coast Miwok are members of the larger Miwokan subgroup of the Utian language family. Petaluma is within the ancestral territory of the Federated Indians of Graton Rancheria. A discussion of the ethnographic setting is discussed further in Chapter 4.15 *Tribal Cultural Resources*.

Post-Contact Setting

Post-Contact history for the state of California refers to the time after the arrival of Europeans and is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769 – 1822)

Spanish explorers made sailing expeditions along the coast of California between the mid-1500s and mid-1700s. In 1542, Juan Rodríguez Cabrillo led the first European expedition to observe what was known by the Spanish as Alta (upper) California. For more than 200 years, Cabrillo and other Spanish, Portuguese, British, and Russian explorers sailed the Alta California coast and made limited

inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 2003). The Spanish crown laid claim to Alta California based on the surveys conducted by Cabrillo and Vizcaíno (Bancroft 1885; Gumprecht 1999).

By the 18th century, Spain developed a three-pronged approach to secure its hold on the territory and counter against other foreign explorers. The Spanish established military forts known as presidios, as well as missions and pueblos (towns) throughout Alta California. The 1769 overland expedition led by Captain Gaspár de Portolá marks the beginning of California's historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. Portolá established the Presidio of San Diego as the first Spanish settlement in Alta California in 1769. Franciscan Father Junípero Serra also founded Mission San Diego de Alcalá that same year, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823 (Library of Congress n.d.a). Construction of missions and associated presidios was a major emphasis during the Spanish Period in California to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns; just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles).

Spain began issuing land grants in 1784, typically to retiring soldiers, although the grantees were only permitted to inhabit and work the land. The land titles technically remained property of the Spanish king (Livingston 1914).

The *Historic Resources Background Report* prepared by Page & Turnbull for the City of Petaluma to inform the development of the Petaluma General Plan Update (City of Petaluma 2022) provides the following historical background regarding Petaluma in the Spanish Period:

> With the arrival of Spanish explorers in the 18th century, several exploratory expeditions along the California coastline resulted in the strategic placement of Missions and proposed towns to secure the continued settlement of the territory. While the areas of present-day Santa Rosa and Petaluma were identified as promising locations for permanent settlement, early attempts to occupy these lands were met with fierce opposition from established Coast Miwok villages and groups. Through the beginning of the 19th century, Spanish colonial efforts in the area were focused on securing the Mission at Sonoma.

Mexican Period (1822– 1848)

Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos. Commonly, former soldiers and well-connected Mexican families were the recipients of these land grants, which now included the title to the land (Library of Congress n.d. b). Much of the land along the coast and in the interior valleys became part of Mexican land grants or "ranchos" (Shumway 2007). During the Mexican period there were small towns located where San Francisco

(then known as Yerba Buena) and Monterey are situated in the present day. The rancho owners tended to reside either in town or in an adobe house on the rancho itself.

Economic opportunity in northern California was based on seal and sea otter furs as well as cattle hides and tallow (Sonoma County Permit Sonoma 2023). Russian explorers ventured to northern California from Alaska in search of fur and established Fort Ross. The Russian American Fur Company prospered for thirty years by harvesting seal and otter furs (Sonoma County Permit Sonoma 2023). When extreme hunting decimated sea otter populations, the Russian American Fur Company sold Fort Ross to European immigrant John Sutter in 1841. After the Russians left, the Mexican government quickly monopolized the costal access by giving land grants from Estero de San Antonio to the Gualala River. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

The *Historic Resources Background Report* prepared by the firm Page & Turnbull for the City of Petaluma to inform the development of the Petaluma General Plan Update (City of Petaluma 2022) provides the following historical background regarding Petaluma in the Mexican Period:

> In 1834, the area of Petaluma was deeded by Governor José Figueroa to Mariano Guadalupe Vallejo as part of the 66,000-acre Rancho Petaluma land grant. The Rancho Petaluma Adobe (a local Petaluma landmark, a California Historic Landmark, and a National Historic Landmark) was constructed in Petaluma only two years later. The Petaluma Adobe was the site of a working ranch that produced meat, hides, and tallow, and functioned through the compulsory servitude of approximately 2,000 Native American people, who were generally paid only in food and clothing. Most of the ranch's workers were housed in tule huts outside the walls of Vallejo's adobe.

American Period (1848 – Present)

The United States went to war with Mexico in 1846. During the first year of the war, John C. Fremont traveled from Monterey to Los Angeles with reinforcements for Commodore Stockton and evaded Californian soldiers in Santa Barbara's Gaviota Pass by taking the route over the San Marcos grade instead (Kyle 2002). The war ended in 1848 with the Treaty of Guadalupe Hidalgo, ushering California into its American Period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as US territories (Waugh 2003). The discovery of gold initiated the 1849 California Gold Rush, which brought thousands of miners and settlers to the Sierra foothills east and southeast of Sacramento. Agriculture became the major economic interest replacing lumber on the coast. Livestock ranchers held large properties to the north on the coastal plain, just before the Gualala River (Sonoma County Permit Sonoma 2023). Wheat and livestock were major agricultural products but overgrazing and soil erosion forced farmed to dairy products (Sonoma County Permit Sonoma 2023).

Rapid population increase occasioned by the Gold Rush of 1849 allowed California to become a state in 1850. Most Mexican land grants were confirmed to the grantees by United States courts, but usually with more restricted boundaries, which were surveyed by the United States Surveyor General's office. Land outside the land grants became federal public land which was surveyed into sections, quarter-sections, and quarter-quarter sections. The federal public land could be purchased

at a low fixed price per acre or could be obtained through homesteading after 1862 (National Archives 2021).

Local History

The following excerpt from the City of Petaluma's 2025 General Plan EIR offers an overview of the City's history from the nineteenth century to the early Post-World War II Era (City of Petaluma 2008)

> Contemporary Petaluma began as a settlement over 150 years ago when the burgeoning City of San Francisco began to place increasing demands on the surrounding region to supply food and supplies. In 1850, a group of hunters established a primitive camp on the west bank of the Petaluma River, near the present-day Lakeville Street Bridge. These pioneers were soon followed by others seeking access to the hunting fields and ranch lands in Bodega Bay and the Point Reyes area. As an increasing number of settlers negotiated the complex meanders of the River, a trading post was built and settlement began. Buildings were clustered along the River, on the block of Main Street (now Petaluma Boulevard North) between Washington Street and Western Avenue. By 1852, a squatter named Keller surveyed the town and platted a 40-acre site extending north from Western Avenue to Galland Street and east from Liberty Street to the River. The Hopper Street (Lakeville) Bridge was built in 1853, and the East Washington Street Bridge was built in 1857. Petaluma incorporated in 1858 with approximately 1,340 residents.
>
> For a few decades, the old east side of Petaluma remained as undeveloped property held by the rail companies and was subject to flooding. After it was platted, development began to occur on this side of the city, and the river became the central feature and focal point for neighborhoods on the periphery of the Central Petaluma area. The east bank of the river began to take on a more commercial/industrial character flanked by residential neighborhoods, comprising a large area known for years as "Old East" Petaluma. Rail service shifted to the east bank of the River and was slowly extended in increments up the coast until it reached Eureka in 1914. Rail service was abandoned for a long while on the west bank, as the Main Line and the Depot were established on the east.
>
> In Petaluma's early days, the banks of the Petaluma River were crowded with piers and boat landings and local manufacturing businesses, such as tanneries, flour mills, carpentry shops, and wagon-making shops. However, with the growth of the dairy and poultry industries, the riverfront began to change and evolve into a thriving center of agricultural businesses. Petaluma expanded beyond its role as the general shipping point for the produce of Sonoma and Mendocino Counties and became a center of intensive production as well. However, once the Golden Gate Bridge was built in 1936, and the subsequent suburbanization that took place following World War II, Petaluma began to transform in character, becoming more of a bedroom community to the Bay Area.

The *Historic Resources Background Report* prepared by the firm Page & Turnbull for the City of Petaluma to inform the development of the Petaluma General Plan Update (City of Petaluma 2022) provides the following historical background regarding Petaluma in the Post-World War II Era:

> Simultaneous to the decline in the poultry industry in the post-war period, Petaluma began to attract residents looking to live in a small town while commuting to San Francisco for work. The completion of the Golden Gate Bridge in 1937 had placed Petaluma within a relatively easy distance traveled by automobile to San Francisco. By removing the need for multiple modes of transport to reach San Francisco, the appeal of residing in the towns and small cities of Marin and Sonoma counties increased, and many of these communities became commuter towns

during the mid-20th century. The increasing suburbanization of the post-war period, coupled with the construction of US Highway 101 in the 1950s, caused Petaluma to experience additional growth as a residential community for commuters. As hatcheries and poultry farms began to close, the acreage that was previously devoted to agricultural use was sold and subdivided to support the construction of additional housing. The completion of US-101 through East Petaluma focused this new residential construction on the east side of the river and the construction of post-war tract housing – in the popular Minimal Traditional, Ranch, and Modern styles – allowed Petaluma to grow without the extensive redevelopment of its historic core. The increasing reliance on the automobile first resulted in the erection of automobile-focused uses, including car dealerships, gas stations, and repair facilities, along the northern section of Petaluma Boulevard, where a number of hatcheries and warehouses were already located. New recreation and entertainment uses, such as the Veterans Memorial Building constructed in 1959, were constructed towards the edges of the existing town center to take advantage of available land to provide adequate parking to attract guests. With the construction of US-101 through East Petaluma, the primary transit corridor moved east from the historic downtown, where several automobile-oriented commercial uses were erected through the end of the century.

As development pressures only increased into the 1970s, Petaluma voters approved the passage of the 1972 growth management plan, which allowed only 500 units of new housing to be constructed each year. In 1972, Petaluma experienced an average of 2,000 new residents each year, and its existing systems – including its school system as well as its sewage and water systems – were unable to support that scale of growth.19 While the initial growth management plan was only anticipated to last five years, at the time of its expiration, Petaluma passed additional growth management systems that controlled the town's residential construction. Since 1998, the growth management system has not been in use as its 500-unit limit has not been reached annually. The city's fixed Urban Growth Boundary (UGB), established in 1998, confines the growth and physical development of the city until 2025, providing time to assess the desired equilibrium between developed areas and rural or natural areas just outside Petaluma's UGB. Petaluma is currently engaged with long-term sustainability goals, including mitigating flood risk and increasing resilience. This includes developing alternative transit options for the region with the expansion of the SMART (Sonoma-Marin Area Rail Transit) system that has revived the historic interurban route of the Northwestern Pacific Railroad from Cloverdale to Larkspur, and includes bicycle and pedestrian paths in addition to the rail service. Today, Petaluma continues to balance its development pressures with community goals of retaining its small-town character.

Previously Identified Cultural Resources

Identification of known cultural resources, including built environment and archaeological resources, in the Plan Area included a review of the National Register of Historic Places (NRHP), California Register or Historical Resources (CRHR), the State Office of Historic Preservation (OHP) Built Environment Resource Directory (BERD), and the *Historic Resources Background Report* (City of Petaluma 2022) prepared in conjunction with the proposed project, Petaluma General Plan Draft EIR (Dyett & Bhatia Uran and Regional Planners 2006; State Clearinghouse No. 2004082065), and City of Petaluma General Plan 2025, adopted May 2008 and revised May 2021 (City of Petaluma 2008). This section includes a discussion of known cultural resources, including those that have been previously evaluated for listing in the NRHP or CRHR, designated as a landmark or historic district locally in Petaluma, and those that are unevaluated or for which evaluation status is unknown. For the

purposes of this EIR and consistent with *CEQA Guidelines* Section 15064.5(a), a historical resource is a cultural resource listed on, or recommended eligible for, the NRHP or CRHR, or designated or recommended eligible as a Landmark or historic district locally in Petaluma.

A review of the NRHP, CRHR, and BERD identified a total of 29 listed historical resources within the Plan Area, which are presented below in Table 4.5-1. A review of the Historic Resources Background Report identified approximately 293 properties that have been recommended eligible for the NRHP, CRHR, or local designation as part of a survey evaluation, and approximately 100 properties that have been identified as potentially eligible as the result of a windshield survey (City of Petaluma 2022).

Table 4.5-1 Listed Historical Resources in the Plan Area

Name	Address/Location	OHP Status Code
Ellis-Martin House/Martin House and Tank House	1197 E. Washington St.	1S; 1CS; 5S1
Free Public Library of Petaluma	20 Fourth St.	1S; 1CS; 5S1
Old Petaluma Opera House	147--149 Kentucky St.	1S; 5S1
Petaluma Historic Commercial District	Along Petaluma Blvd., between B and Prospect Sts.	1S; 1CS; 5S1
Petaluma Silk Mill	420 Jefferson St.	1S; 1CS
Sweed, Philip, House	301 Keokuk St.	1S; 1CS
US Post Office-Petaluma	120 4th St.	1S; 1CS; 5S1
Farrell Home (River House)	222 Weller Street	2S; 5S1
Poultry Producer's Cooperative (Dairymens Feed/Nulaid Foods)	323 E Washington Street	2S2
Hastack Landing CNW Railroad Bridge	Crosses Petaluma east of U.S. 101	2S2
Petaluma Creamery	611-621 Western Ave	2S2
34 Petaluma Boulevard	Petaluma Mill	2D2
119 Howard Street	119 Howard Street	5S1
Green Mill Sign	Relocated to Highway 101, near Holm Road and Scott Street	5S1
Coca-Cola Sign	Intersection of Western Avenue and Kentucky Street	5S1
Andresen Building	19 Western Avenue	5S1
W.C.T.U. Drinking Fountain	Intersection of Western Avenue and Petaluma Boulevard North	5S1
Great Petaluma Mill	6-8 Petaluma Boulevard North	5S1
Old Post Office Building,	10-22 Petaluma Boulevard North	5S1
McNear Building	15-25 Petaluma Boulevard North	5S1
Koby Residence & Carriage House	901 D Street	5S1
Hansen House	718 North McDowell	5S1
Lundholm/Patocchi House	200 West Street	5S1

Name	Address/Location	OHP Status Code
Quinn Residence	503 2nd Street	5S1
Burdell Building	405 East D Street	5S1
Lee Residence	206 E Street	5S1
Oakhill-Brewster Historic District	Defined generally by Howard Street, Galland Street, Kentucky Street, and Prospect Street.	5S1
"A" Street Historic District	5th and 6th streets limited generally A and D streets	5S1
Upham Street Historic District	117, 119A, 119B, 119C, and 121 Upham Street	5S1

Sources: Office of Historic Preservation (OHP) 2022; City of Petaluma 2015, 2022

1S: Individually listed in the NRHP by the Keeper. Listed in the CRHR.

1CS: Individually listed in the CRHR by the State Historical Resources Commission.

2S2: Individually determined eligible for the NRHP by consensus through the Section 106 process. Automatically listed in the CRHR.

2D2: Contributor to a multi-component resource determined eligible for the NRHP by consensus through Section 106 process. Automatically listed in the CRHR.

5S1: Individually listed or designated locally.

The City of Petaluma's 2025 General Plan Section 3, *Historic Preservation*, lists 33 cultural resources within the Petaluma Urban Growth Boundary, a part of the proposed project's Plan Area. Of these 33 resources, 14 are Native American archaeological sites and the remaining 19 are historic-period resources.

According to the City of Petaluma General Plan 2025 (City of Petaluma 2008), recorded Native American archaeological sites within Petaluma's UGB include sparse lithic scatters and large village sites with habitation debris and human burials. Three Native American ethnographic villages are known to have existed in the Plan Area and include the villages of *Tuchayelin*, *Likatuit*, and *Etem*.

Potential for Newly Identified/Previously Unrecorded Built Environment Resources

Historical aerial photographs were reviewed to identify the potential for undocumented built environment resources that could qualify as historical resources in the Plan Area (NETR Online 2025). In addition to the known cultural resources identified above, there is a potential for additional cultural resources to be identified in the future. Built environment resources that are or will become of age (more than 45 years old) over the life of the proposed project would meet the California OHP's age threshold for consideration as "historical resources" under CEQA. Types of historic-period built environment resources that may be expected in the Plan Area include those related to development of Petaluma, such as trading post with piers and boat landings, tanneries, flour mills, carpentry shops, wagon-making shops, residences, industrial and commercial properties, and agricultural businesses, in addition to buildings or structures representing significant architectural styles dating from the Spanish Period through the Historic Period (City of Petaluma 2006; State Clearinghouse No. 2004082065). A property-by-property review of the existing conditions in the Plan Area was not feasible; however, an analysis of historical aerial photographs of the Plan Area shows that many properties currently meet the 45-year age threshold for consideration as potential historical resources or will meet the age threshold during the life of the proposed project.

Archaeological Sensitivity

The following section assesses the archaeological sensitivity of the Plan Area. Sources consulted as part of this assessment include information pertaining to the natural and environmental setting of the Plan Area, CHRIS data (City of Petaluma 2008), geologic maps and soil survey maps that address the Plan Area, a previously prepared geoarchaeological overview that addresses Sonoma County (Meyer and Rosenthal 2007), and the City of Petaluma's 2025 General Plan EIR (City of Petaluma 2006). Ethnographic data, such as known Native American village sites was also considered (City of Petaluma 2008 and 2022).

Regionally, the City of Petaluma is located in central Sonoma County in the northern San Francisco Bay Area and lies within the Coast Ranges geomorphic province (California Geological Survey 2002). Locally, the Plan Area is located at the southern end of Sonoma County, north of San Pablo Bay. The Petaluma River runs through the center of the city and flows into the Petaluma marsh. The Plan Area is located west of the Sonoma Mountains, on the Petaluma Valley Floor. The Plan Area includes low hills along the western edge but is largely composed of flatter open areas along the valley floor. Elevations in the Plan Area range from approximately 50 to 400 feet above mean sea level.

The city and its sphere of influence are underlain by fifteen distinct geologic units as shown in Figure 4.6-6 of Section 4.6, *Geology and* Soils. The identified geologic units that date to the most commonly accepted period of human occupation in the region include artificial fill and Holocene-age deposits (alluvium, Bay Mud, and stream channel/terrace deposits).

Surficial soils within the Plan Area primarily consist of Clear Lake Clay, with 6 other types of soil present and typically concentrated in the southeastern portion of the Plan Area, aligned with riverine features. The most abundant soil series within the Plan Area include the Clear Lake Series, Haire Series, Reyes Series, Arbuckle Series, Cotati Series, Yolo Series, and Goulding Series. These soil series are found on the following geographic settings: flood basins; flood plains; swales; drainageways; level to moderately steep hills; saltwater marshes adjacent to bodies of sea water and are now drained by large ditches and protected by levees and dikes; low terraces; undulating to smooth terraces; nearly level to moderately sloping alluvial fans and flood plains; and hills and mountains (USDA 2025).

As indicated by Waters (1992), A horizons form on stable landforms and are not subject to intensive depositional or erosional processes, whereas B horizons represent the leaching of fine particles from the topsoil into the underlying sedimentary or alluvial parent material (C horizon), creating a distinct horizon. Therefore, most archaeological deposits will be associated with A and B horizons (Meyer and Rosenthal 2007). All primary soil series identified within the Plan Area include both A and B horizons.

In 2007, Meyer and Rosenthal prepared *Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4* in coordination with Caltrans. The report provides a framework for predicting the ages and locations of subsurface archaeological resources in nine Bay Area counties, including Sonoma County. The analysis considered various factors, such as age and type of landform, deposition/erosion, proximity to water, and known archaeological resources.

According to Meyer and Rosenthal (2007), pre-latest Pleistocene-age deposits cannot contain buried archaeological materials. However, there is a high likelihood of depositional landforms identified as Holocene to Historic Period to contain buried archaeological sites. Alluvial fan and levee deposits are primarily Holocene-age, with numerous archaeological sites having been identified in these deposits all throughout the Bay Area. Estuarine deposits, submerged landforms, and Bay Mud

formed during the Holocene as a result of rising sea levels and flooded interior valleys. Archaeological sites within these deposits have been found throughout the region. Artificial fill has been widely documented throughout the region and underlying archaeological sites may exist or may have been destroyed during the placement of fill soils. Meyer and Rosenthal (2007) indicate that nearly one third of the Bay Area has the correct depositional setting to have potential for buried or submerged archaeological resources. Therefore, the geologic formations from the Latest Pleistocene, Holocene, and Historic Period within the current Plan Area do have the potential to support the presence of buried archaeological resources as these soils are contemporaneous with the documented period of human habitation of the area and have potential to preserve cultural material in context, depending on the area-specific topographical setting, the depositional or erosional nature of landforms, and settlement and development patterns.

Given the presence of previously recorded cultural resources and the general archaeological sensitivity of the region, there is high potential to encounter previously unidentified archaeological resources throughout the Plan Area. As noted in the City of Petaluma's 2025 General Plan EIR, "geographic features with potential for encountering Native American archaeological resources include areas near ridgetops, midslope terraces, alluvial flats, ecotones, and sources of water (City of Petaluma 2006; State Clearinghouse No. 2004082065). Some examples of the types of Native American archaeological resources that may be encountered during future development include the remains of village settlements (e.g., habitation debris), cemeteries, seasonal/temporary camps, lithic and food processing resources, and special use or ceremonial sites. Historic-period archaeological resources that may be expected to occur in the Plan Area include those related to Spanish, Mexican, and American settlement (City of Petaluma 2022). Some examples of the types of historic-period archaeological resources that may be encountered include structural remains, foundations, privies, corrals, and refuse deposits associated with the historical settlement and development of Petaluma (City of Petaluma 2006; State Clearinghouse No. 2004082065).

4.5.2 Regulatory Setting

Cultural resources, including built environment and archaeological resources, may be designated as significant by National, State, or local authorities. In order for a resource to qualify for listing in the NRHP, the CRHR or as a locally significant resource, it must meet one or more identified criteria of significance. The resource must also retain sufficient historic integrity, defined in National Register Bulletin 15 as the "ability of a property to convey its significance" (National Park Service [NPS] 1990).

a. Federal Regulations

National Register of Historic Places

Although the project does not have a federal nexus, 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: Is associated with events that have made a significant contribution to the broad patterns of our history

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

Criterion C: Embodies 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: Has 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: 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 evaluate 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.

b. State Regulations

California Environmental Quality Act

California Public Resources Code (PRC) Section 21804.1 requires lead agencies to 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 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 culturally 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 Section15064.5 [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 Section15064.5[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 Section21083.2[a][b]).

Section 15126.4 of the CEQA Guidelines stipulates an EIR shall describe feasible measures to minimize significant adverse impacts. In addition to being fully enforceable, mitigation measures must be completed within a defined time period and be roughly proportional to the impact of the project. Generally, a project which is found to comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (the Standards) is considered to be mitigated below a level of significance (CEQA Guidelines Section 15126.4 [b][1]). For historical resources of an archaeological nature, lead agencies should also seek to avoid damaging effects where feasible. Preservation in place is the preferred manner to mitigate impacts to archaeological sites; however, data recovery through excavation may be the only option in certain instances (CEQA Guidelines Section 15126.4[b][3]).

California Register of Historical Resources

The CRHR is a guide to cultural resources that must be considered when a government agency undertakes a discretionary action subject to CEQA. The CRHR helps government agencies identify, evaluate, and protect California's historical resources, and indicates which properties are to be protected from substantial adverse change (Pub. Resources Code, Section 5024.1(a)). The CRHR is administered through the SHPO that is part of the California State Parks system.

A cultural resource is evaluated under four CRHR criteria to determine its historical significance. A resource must be significant at the local, state, or national level in accordance with one or more of the following criteria set forth in the *CEQA Guidelines* Section 15064.5(a)(3):

1. It is associated with events that have made a significant contribution to the broad pattern of California's history and cultural heritage;
2. It is associated with the lives of persons important in our past;
3. It 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; or
4. It has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, the CRHR requires that sufficient time must have passed to allow a "scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of the time needed to understand the historical importance of a resource according to SHPO publications. The CRHR also requires a resource to possess integrity, which is defined as "the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association." Archaeological resources can sometimes qualify as "historical resources" (*CEQA Guidelines*, Section 15064.5(c)(1)).

According to CEQA, all buildings constructed over 50 years ago and that possess architectural or historical significance may be considered potential historical resources. Most resources must meet the 50-year threshold for historic significance; however, resources less than 50 years in age may be eligible for listing on the CRHR if it can be demonstrated that sufficient time has passed to understand their historical importance.

In addition, if a project can be demonstrated to cause damage to a unique archaeological resource, the lead agency may require reasonable efforts 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, Section 21083.2[a], [b], and [c]).

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. 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.

Two other programs are administered by the state: California Historical Landmarks and California "Points of Historical Interest." California Historical Landmarks are buildings, sites, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other historical value. California Points of Historical Interest are buildings, sites, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other historical value.

Impacts to significant cultural resources that affect the characteristics of any resource that qualify it for the NRHP or adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. These impacts could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired (CEQA Guidelines Section 15064.5 [b][1], 2000). Material impairment is defined as demolition or alteration in an adverse manner [of] those characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the California Register… (CEQA Guidelines Section 15064.5[b][2][A]).

California Health and Safety Code

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined if the remains are subject to the Coroner's authority. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification.

California Public Resources Code Section 5097.98

Section 5097.98 of the California Public Resources Code states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code Section7050.5, shall immediately notify those persons (i.e., the Most Likely Descendant [MLD]) that it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

c. Local Regulations

City of Petaluma General Plan

The Community Design, Character, and Green Building Element and Historic Preservation Element of the City of Petaluma General Plan contains goals and policies related to cultural resources. The following policies are relevant to the project (City of Petaluma 2008).

Goal 2-G-3. Advance Downtown Petaluma as a focus of civic and cultural activity in the community, retain a strong pedestrian orientation and scale, preserve and enhance buildings of historic and architectural importance**.**

Policy 2-P-18. Develop Downtown uses and activities that relate to the city's history:

- Continue the preservation, rehabilitation, and reuse of historically significant structures within the Downtown, as directed by the Petaluma Historic Commercial District Design Guidelines.
- Build upon the public signage program to incorporate historical information.
- Develop a program for reflecting Downtown's agricultural past in the built space or through activities. Examples include retail outlets specializing in North Bay produced foodstuffs and other regional products, and events focused on the continuing vitality of regional agriculture (wine events, cheese tasting, produce and/or product award programs, etc.).

Goal 3-G-1. Identify, recognize and protect Petaluma's unique and irreplaceable cultural heritage through the implementation of policies and programs that maintain the character and identity of the community, enhance the quality of the built environment, encourage awareness and appreciation for its history and culture, and contribute to its economic vitality. Ensure that future plans, ordinances, and City programs are complimentary to the historic preservation goals and policies contained within this plan.

Policy 3-P-1. Protect historic and archaeological resources for the aesthetic, cultural, educational, environmental, economic, and scientific contribution they make to maintaining and enhancing Petaluma's character, identity and quality of life.

Policy 3-P-2. Provide incentives for encouraging the preservation and revitalization of historic and cultural resources.

Policy 3-P-5. The protection of historic resources shall be a key consideration and an equal component in the development review process.

Policy 3-P-6. Ensure that new development adjacent to eligible historic and cultural resources is compatible with the character of those resources

Petaluma Implementing Zoning Code, Chapter 15, Preservation of the Cultural and Historic Environment

Chapter 15 of the City's Zoning Code, Preservation of the Cultural and Historic Environment, establishes regulations to protect structures, sites and areas of special character of special historic, architectural or aesthetic interest from unnecessary destruction or impairment.

Section 15.020 establishes the Historic and Cultural Preservation Committee (HCPC), which is authorized to maintain a list of designated historic landmarks, and hear and make determinations or recommendations regarding properties within Historic Districts or have the potential to result in the alteration or demolition of designated landmarks. Section 15.040 authorizes the City Council to designate by ordinance a property as a landmark if it has a special character or special historical, architectural, or aesthetic interest or value or designate an area as a historic district if it contains a number of properties having special character or special historical architectural or aesthetic interesting value.

Regulations pertaining to permits to alter designated landmarks are provided in section 15.050. All work on a property designated as a landmark or a property located in a designated area (historic district) is subject to review and permit approval from the Historic and Cultural Preservation Committee unless eligible for Administrative review.

Under Section 15.060 a project proposing the demolition of a building not designated as a landmark may be referred to the Historic and Cultural Preservation Committed for review if the Director of Planning finds the property has the potential to be historically significant. A property must meet one of the following criteria to be considered historically or culturally significant.

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic value; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

If the Historic and Cultural Preservation Committee finds the property is historically or culturally significant, the committee shall deny the application for demolition, unless the applicant can provide adequate evidence that the denial of the application would impose an immediate and substantial hardship (Section 15.080).

Section 15.070 regulates applications for the alteration or demolition of designated landmarks and properties within historic districts. The Historic and Cultural Preservation Committee is authorized to evaluate such applications to ensure a project is consistent with the Standards and would not adversely affect a Landmark or historic district contributor's character-defining architectural features or, in the case of work in a historic district diminish the historical character of the district.

Resolution No. 2017 -122 NCS: Regulations and Procedures for Review of Demolition of Historic Buildings

Adopted by the City Council in 2017, Resolution No. 2017 -122 NCS amended Resolution 2005- 198 NCS (adopted in 2005) to update procedures for the review of proposals to demolish historic buildings. The resolution establishes that all requests for the demolition of a building constructed in 1945 or earlier shall require discretionary review and approval prior to the issuance of building permit. Pursuant to the resolution:

> Demolition means the removal of 50% or more of the exterior walls of a building or structure. Demolition may also include the addition of a second story if not appropriately designed and differentiated from the original structure to convey its history as determined by the Planning Manager. Demolition also includes the relocation of a building from one parcel of land to another or the raising of an existing structure beyond what is required for construction of a new foundation.

Applications proposing demolition of a building constructed in 1945 or earlier may be subject to an Administrative Site Plan and Architectural Review (SPAR). If it is determined the application for demolition may benefit from a public notice due to community interest or location or involve a building that may have historic significance but may have lost its integrity may be approved through Administrative SPAR at the discretion of the Planning Manager. Applications for demolition that involve a building that may be considered historically significant, have architectural or visual features important to Petaluma, located in a designated Historic District, or be a designated Local Landmark shall be at the discretion of the Historic and Cultural Preservation Committee and processed as a Major SPAR, which requires review and approval by the HCPC.

Prior to approval of demolition of a building built in 1945 or earlier, regardless of its formal designation on a local, state, or federal register, the following findings must be made to support the request:

1. The building is not listed or eligible for listing as a significant national, state or local historic resource.
2. The building does not represent or convey important architectural, visual or cultural features that are important in preserving the character of an existing neighborhood.

Historic District Design Guidelines

The City of Petaluma has adopted a separate set of design guidelines for three locally designated historic districts: the "A" Street Historic District, the Oakhill-Brewster Historic District, and the Petaluma Historic Commercial District. The small three-parcel Upham Street Historic District is subject to the provisions of the Oakhill-Brewster Historic District and guidelines. The "A" Street Historic District Preservation Guidelines and Standards were adopted by Resolution No. 86-274 N.C.S. in 1986; the Oakhill-Brewster Historic District Preservation Guidelines & Standards were adopted by Resolution No. 90-95 N.C.S. in 1990; and the Petaluma Historic Commercial District Design Guidelines were adopted by Resolution No. 99-168-A N.C.S. in 1999. Each of the three sets of design guidelines establish the Secretary of the Interior's Standards as the standard for review (consistent with the ordinance) and provide a description of the architectural styles represented within the district.

Central Petaluma Specific Plan

The Central Petaluma Specific Plan (CPSP) was adopted by the City of Petaluma on June 2, 2003. The CSPSP provides analysis pertaining to land use and development in Central Petaluma, as the area defined roughly by Lakeville Street and Lakeville Highway to the north, U.S. Hwy-101 to the east, the Petaluma River to the southeast, and Petaluma Boulevard N. and Petaluma Boulevard S. to the southwest. Chapter 9, Historic Preservation provides the following goals, objectives, and policies related to historical resources:

Goal 1: Protect, enhance, perpetuate, and adaptively reuse properties of historic and architectural significance.

Goal 2: Fund and complete a comprehensive survey and analysis of all potentially historic and architecturally significant properties within the Specific Plan area.

> **Objective 1:** Preserve the industrial and commercial complex of structures including the Dairymen's Feed and Supply Coop, one of the community's most visible structures.
>
> > **Policy 1.1:** Recognize the industrial structures in the North River as having local historic significance.
> >
> > **Policy 1.2:** Maintain the status of the Petaluma Historic Commercial District as a district listed in the National Register of Historic Places.
> >
> > **Policy 1.3:** Recognize the commercial buildings located north of the Petaluma Historic Commercial District along Petaluma Boulevard North (400 Block) as having historic significance.
>
> **Objective 2:** Preserve the industrial and commercial complex of structures, including the resources within the Petaluma Historic Commercial District.

Policy 2.1: Maintain the status of the Petaluma Historic Commercial District as a district listed in the National Register of Historic Places.

Policy 2.2: Recognize industrial structures with historic significance in the transition area between the commercial historic district and Riverfront Warehouse District.

Policy 2.3: Adaptively use the existing Depot buildings.

Objective 3: Preserve the industrial complex of structures on both sides of First Street between D and H Streets.

Policy 3.1: Recognize the industrial complex of structures along First and Second Streets, including those located across D Street in the Turning Basin.

Policy 3.2: Recognize the properties at 503 Second Street, 206 E Street, 110 G Street, and 523 Petaluma Boulevard South as having historic significance.

Objective 4: Preserve the individual historic resources located in the Lower Reach.

Policy 4.1: Recognize one individual historic resource, City of Petaluma Sewer Plant, as a historically important resource to the community.

Policy 4.2: Recognize 100 East D Street, Jerico Dredging as part of the industrial complex across the Petaluma River.

The CPSP also provides implementation policies pertaining to historical and archaeological resources:

Policy 1.5: Create local historic districts that recognize the historic significance of properties important to the community.

Policy 1.6: Prepare an amendment to the Petaluma Commercial Historic District to include the six properties in the 400 block of Petaluma Boulevard North.

Policy 1.7: Conduct additional historical research on individual properties and prepare a nomination for designation as a local historic landmark.

Policy 1.8: Engage the services of an archaeologist to conduct archival and field studies on a project specific basis.

City of Petaluma Smart Code, Chapter 7, Historic Resource Conservation & Preservation

Through a process of community workshops and Committee discussion, Petaluma developed the SmartCode for Central Petaluma. The Smart Code is designed to be used both as a guide for property owners and also as a framework and systematic checklist for the City's use as it plans its investment in capital projects and evaluates the design of proposed building projects. Petaluma SmartCode includes Section 7 – Historic Resource Conservation & Preservation, was adopted to provide standards "intended to protect sites and structures identified by the community as culturally and/or historically significant, that contribute to Petaluma's character and identity, and that should be preserved and/or restored." Section 7.10.030 provides a procedure for the designation of local Landmarks.

Section 7.10.040, establishes the requirement that the HCPC or in certain cases the Director approve a certificate of appropriateness for projects that would alter or demolish a property listed

individually or as a contributing property to a historic district that is designated on the City's Historic Register. Pursuant to Section 7.10.050 a certificate of appropriateness for alterations to a Landmark or historic district contributor shall be approved only if the reviewing authority determines the project would not adversely affect the significant architectural features of the property, conforms to applicable City design guidelines and the Standards. Section 7.10.060 regulates the issuance of certificates of appropriateness for the demolition of a Landmark or historic district contributor. The HCPC may approve an application pertaining to the demolition of a designated property only if it is submitted in conjunction with a replacement project and if the designated property cannot be adapted to a reasonable use, the denial of the application would substantially diminish the property's value, and the property cannot be rehabilitated or re-used in a manner that would allow a reasonable rate of return. If the certificate of appropriateness for the demolition of a designated property is approved, the applicant shall be required to memorialize the property through production of documentation meeting the standards of the Historic American Building Survey, and an archaeological survey may be required.

Petaluma Station Area Master Plan

Prepared in June 2013, the Petaluma Station Area Master Plan was focused on two stations planned for Sonoma-Marin Area Rail Transit. The stations included the Downtown Petaluma Station, located on Lakeville Street, between East Washington and East D streets, and Corona Station, located near the intersection of Corona Road and North McDowell Boulevard. Chapter 7 of the Petaluma Station Area Master Plan pertains to historic preservation and includes the following recommendations:

1. Complete a Citywide Historic Resource Inventory and Database.
2. Develop a Historic Context Statement.
3. Pursue Tax Credits for Restoration and Preservation.
4. Increase and Improve Public Access to Historic Resource Data.
5. Promote Historic Resources Through Programs and Signage.
6. Proceed with Establishing a Mills Act Program.
7. Pursue Certified Local Government Status.
8. Develop an Adaptive Reuse Program.
9. Clarify and Streamline Historic Designation Permit Procedures.

4.5.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

The evaluation of impacts to cultural resources addressed in this section is based on review of the following sources: 2025 General Plan and EIR, NRHP, CRHR, BERD, *Historic Resources Background Report* prepared for the General Plan Update (City of Petaluma 2022), geologic and soil maps, Section 4.6, *Geology and* Soils of this EIR, the *Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4* (Meyer and Rosenthal 2007), and previously analyzed project-specific EIRs in the vicinity of the Plan Area. In general, impacts could occur if there is demolition, destruction, relocation, or alteration of a cultural resource or its surroundings, or other disturbances.

Significance Thresholds

Based on Appendix G of the *CEQA Guidelines* a project may be deemed to have a significant impact on cultural resources if it would:

1. Cause a substantial adverse change in the significance of an historical resource pursuant to Section 15064.5
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5
3. Disturb any human remains, including those interred outside of dedicated cemeteries

Threshold 1 broadly refers to historical resources. To more clearly differentiate between built environment and archaeological resources, the analysis presented below under Threshold 1 considers impact to built environment resources. Archaeological resources, including those that may be considered historical resources pursuant to *CEQA Guidelines* Section 15064.5 and those that may be considered unique archaeological resources pursuant to PRC Section 21083.2, are considered under Threshold 2.

Under Threshold 1, the significance of a built environment resource is determined through evaluation of the resource for listing in the NRHP, CRHR, or local register. Resources listed or determined or recommended eligible for listing meet the definition of historical resource under CEQA.

Under Threshold 1, a project that may cause a substantial adverse change in the significance of an historical resource is considered to have a significant impact on the environment. As explained in *CEQA Guidelines* Section 15064.5, "[s]ubstantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" so that it would no longer convey its significant historical associations. Generally, impacts to historical resources can be mitigated to below a level of significance by following the Secretary of the Interior's Standards (*CEQA Guidelines* Section 15064.6[b]). Documentation of these types of historical resources by way of historic narrative photographs or architectural drawings will not mitigate the impact of demolition below the level of significance (*CEQA Guidelines* Section 15126.4[b][2]).

Under Threshold 2, the significance of an archaeological resource is also determined through evaluation of the resource for listing in the NRHP, CRHR, or local register. Significance is typically determined by consideration of whether or not that resource can increase our knowledge of the past and the importance of that resource to cultural groups, among other things. The determining factors are normally site content and degree of preservation. If a resource is ineligible for listing, significance can further be determined by assessing the resource against the criteria outlined in PRC Section 21083.2 to determine if it is a "unique archaeological resource." Significance under these criteria includes whether the resource contains important information, has a special quality such as being the oldest of its type, or is associated with important events or persons. A substantial adverse change in the significance of an archaeological resource could occur if there is destruction or alteration of the resource or its surroundings. Generally, impacts to these archaeological resources can be mitigated to below a level of significance through preservation in place and/or data recovery.

Preservation in place is the preferred form of mitigation for archaeological resources as it retains the relationship between artifact and context, and may avoid conflicts with cultural groups associated with the site (*CEQA Guidelines* Section 15126.4[b][3][A]). If an archaeological resource

does not meet the definition for historical resource or unique archaeological resource, impacts do not need to be mitigated (*CEQA Guidelines* Section 15064.5[e]).

Under Threshold 3, a project may cause a significant environmental effect if project-related ground-disturbing activities impact previously unidentified human remains within or outside of formal cemeteries. Compliance with existing regulations under the California Health and Safety Code Section 7050.5, Public Resources Code Section 5097.98, and *CEQA Guidelines* Section 15064.5(e) ensures proper treatment, including coroner notification and consultation with the NAHC and MLD if remains are of Native American origin. Adherence to existing regulations typically mitigate potential impacts to a less than significant level.

b. Project Impacts and Mitigation Measures

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

Impact CUL-1 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD HAVE THE POTENTIAL TO IMPACT HISTORICAL RESOURCES. PROPOSED GENERAL PLAN POLICIES WOULD REDUCE POTENTIAL IMPACTS BUT WOULD NOT FULLY AVOID THE POTENTIAL FOR ADVERSE EFFECTS ON HISTORICAL RESOURCES. THIS IMPACT WOULD BE SIGNIFICANT AND UNAVOIDABLE.

A review of the *Historic Resources Background Report*, BERD, and City documentation pertaining to locally designated resources identified 26 individual resources and three historic districts throughout the project area that are listed on, or have been determined eligible for listing on, the NRHP or CRHR or have received designation as a landmark or historic district locally in Petaluma. In addition, there are 293 properties that have been recommended eligible as the result of a survey evaluation and approximately 100 identified as potentially eligible as part of a windshield survey (City of Petaluma 2022). Because the properties currently listed on the NRHP, CRHR, or for local designation or have been identified as eligible for such listing, they qualify as historical resources pursuant to CEQA. Further study would be required to determine whether the approximately 100 properties identified as potentially eligible through the windshield survey meet the qualifications for historical resource pursuant to CEQA.

In addition, a review of historical aerial photographs of the project area shows that there are many age-eligible properties 45 years or older located throughout the project area and many others that will become age-eligible over the life of the proposed project. Because these properties contain buildings or structures 45 years or older, they have the potential to qualify as historical resources. As such, future study may identify properties eligible for listing in the NRHP, CRHR, or designation locally in Petaluma, which would qualify as historical resources pursuant to CEQA. Because the project would facilitate new development throughout the Plan Area, the project could potentially impact listed, eligible, or potentially eligible historical resources in the proposed project area.

The proposed project would guide new development, redevelopment, and infrastructure improvements and maintenance activities in Petaluma through 2050. The project's Historic Resources Element contains the following goals, policies, and actions intended to reduce potential impacts to historical resources:

Goal HR-1: **Historic Resources Policies, Programs, and Processes.** Foster and maintain Petaluma's unique and irreplaceable cultural heritage that is honored through its designated and undesignated historic resources through the implementation of city policies, programs, and project review processes to retain and enhance the quality of the historic built environment.

Policy HR-1.2: Maintain existing historic districts. Maintain existing historic districts with a high degree of historic integrity and significance, while encouraging adaptive reuse of historic buildings where appropriate and sensitive infill to address the changing needs of the community.

Action HR-1.2.1: Maintain the historic-era integrity and significance of designated historic districts by adhering to the City's adopted design guidelines and/or objective design standards, and utilizing the Secretary of the Interior's Standards to review proposed development projects.

Action HR-1.2.2: Update design guidelines for the adopted historic districts to reflect current best practices in the preservation planning field, current review processes, and current challenges and pressures. Specifically, updates to the design guidelines may provide additional guidance about compatible and sensitive in-fill development, accessibility, conversion of single-family homes to multiple units, appropriate murals and public art within historic districts, and when and how to consider landscape elements. Consider using the update of the design guidelines as an opportunity to expand on the information included in the historic district statements of significance to reflect more layered and diverse stories that may not have been reflected in the original designation documentation. Updated design guidelines should also address characteristics of the urban fabric that may not have previously been called out as district contributors because they are not individual buildings (such as structures, objects, "ghost signs," etc.). Updated design guidelines should also provide guidance for the review and approval of new murals and public artwork in designated historic districts.

Action HR-1.2.3: Consider developing and adopting objective design standards for infill development within historic districts and/or adjacent to individual historic landmarks. Design standards could include floor area ratio and other objective design standards that relate overall building size and bulk to site area for all adopted local historic districts. These objective design standards could also address the sensitive adaptation of existing buildings in a way that both retains historic integrity and addresses the needs of the community.

Policy HR-1.3: Minimize the loss of designated and eligible historic resources. Minimize the loss of designated and eligible historic resources by requiring the proposed demolition of age-eligible resources to be reviewed by the Historic and Cultural Preservation Committee (HCPC). All means shall be used to encourage preservation of eligible historic resources and avoid demolition (Resolution 2017-122 N.C.S. as thereafter amended).

Action HR-1.3.1: Amend Resolution 2017-122 N.C.S. to provide for HCPC review of demolition of properties 45 years or older that have been determined to be eligible historic resources as part of a CEQA review process.

Action HR-1.3.4: Require documentation of historic resources that are approved for full or substantial demolition as part of permit conditions of approval and/or CEQA mitigation measures. Documentation should be based on the Department of the Interior heritage documentation programs—Historic American Buildings Survey (HABS), Historic American Engineering Record (HAER), and/or the Historic American Landscapes Survey (HALS)—and submitted to local repositories and/or Library of Congress, as deemed appropriate.

Policy HR-1.4: Consider historic resources in the development review process. Protect historic resources during the development review process, including the consideration of age-eligible (45 years or older) potential historical resources during discretionary review, in accordance with CEQA.

Action HR-1.4.1: Clarify and articulate on the City website the procedure for preliminary review of projects involving historic or cultural resources, as well as properties with age-eligible potential historic resources. The procedure should include submittal of Historic Resource Evaluations and similar background materials that are prepared by qualified professionals early in the review process in order to resolve potential conflicts between preservation and proposed development early in the planning process. Develop a checklist and/or process flowchart that is easy for applicants to read and understand the historic review process.

Action HR-1.4.2: Continue to use the Secretary of the Interior's Standards as the standards for review in evaluating projects that involve qualified historical resources in accordance with CEQA. Qualified historical resources for CEQA include properties listed on a local, state, or national register, as well as properties that have been determined eligible for listing in the state or national register.

Goal HR-2: Aesthetic, Cultural, and Historical Contributions. Petaluma's diverse history and communities are celebrated by identifying historic and archaeological resources that are recognized for the aesthetic, cultural, and historical contribution they make to Petaluma's character, identity, and quality of life, and by creating reminders of Petaluma's unseen history in the fabric of the City.

Policy HR-2.1: Identify and designate historic resources: Continue to identify and designate historic resources in Petaluma, including historic resources that have been previously underrepresented, such as those associated with cultural and ethnic heritage, intangible resources, cultural landscapes, and resources from the recent past (less than 45 years old).

Action HR-2.1.2: Conduct a comprehensive, citywide survey of age-eligible potential historic and cultural resources for the purpose of creating a Historic Resource Inventory, using the citywide historic context statement as a framework for evaluation. A comprehensive citywide survey would identify properties significant for their cultural or intangible heritage, in addition to properties that are significant for association with events, persons, and/or architecture; surveys should also be updated periodically and could prioritize critical areas. An historic resource inventory should serve as a comprehensive list of historical resources for CEQA; this inventory would include properties that are currently locally designated, as well as properties listed in the National Register of Historic Places or California Register of Historical Resources and properties that have been identified as eligible for inclusion in the National Register or California Register.

Goal HR-6: Public Education and Information. The value of Petaluma's historic resources is highlighted, and public understanding of the City's history is increased.

Policy HR-6.1: Encourage public participation and education. Encourage greater public participation in education regarding the value of the preservation of cultural and historic resources.

Action HR-6.1.1: Create a program and standards for the installation of signs, kiosks, plaques, and/or interpretive art commemorating past events or sites of historical or cultural interest.

Action HR-6.1.2: Work with local groups, public schools, tribes, and organizations to provide tours, educational opportunities and other public information programs geared toward increased knowledge and understanding of Petaluma's historic and cultural resources. The historic downtown walking tours provided by the Petaluma Historical Library & Museum may be promoted and enhanced, as well as their Heritage Homes of Petaluma program. Programs may be developed through the Petaluma Regional Library and/or local public schools to educate people of all ages.

Policy HR-6.2: Celebrate all of Petaluma's history. Foster the celebration of the whole of Petaluma's history and habitation, including history that predates the construction of the oldest buildings, intangible cultural heritage, and the intersection of historic built and natural environments.

Action HR-6.2.1: Include intangible aspects of Petaluma's history in programs and standards for the installation of signs, kiosks, plaques, interpretive art, and/or the development of an online story map commemorating past events or sites of historical or cultural interest. These events and sites may not all be designated historic resources.

The proposed goals and policies identified above are intended to identify historical resources and, when historical resources are identified, reduce impacts due to new development. If adopted, actions proposed under Policy HR-1.2 would help to maintain the integrity of historic districts by requiring the implementation of City design guidelines and the Standards for new development (Action HR-1.2.1); implementing new historic district design guidelines applicable to infill, among other developmental pressures (Action HR-1.2.2); and implement objective design guidelines to ensure the massing of new development in historic districts is consistent with the character of the district (Action HR-1.2.3). Under Policy HR-1.3, the loss of designated and eligible historical resources would be minimized by requiring HCPC review of projects proposing to demolish designated and eligible resources 45 or years or more of age (Action HR-1.3.1) and requiring mitigative documentation of historical resources approved for full or substantial demolition (Action HR-1.3.4). Under policy HR-1.4, projects subject to discretionary review must consider potential impacts of age-eligible properties with the potential to qualify as historical resources. This policy includes a procedure requiring the preparation of a historical resource evaluation early in the development review process (Action HR-1.4.1) and the City's continued use of analysis based on the Standards to ascertain whether a development will impact a historical resource listed on or eligible for the NRHP, CRHR, or the local register (Action HR-1.4.2). Under Policy HR-2.1: the City would continue to identify and designate historic resources in Petaluma, in part by conducting a citywide historical resources inventory that should serve as a comprehensive list of historical resources for CEQA; this inventory would include properties that are currently locally designated, as well as properties listed in the NRHP or CRHR and properties that have been identified as eligible for inclusion in the NRHP or CRHR (Action HR 2.1.2). Goal HR-6 would reduce potential impact to historic resources by encouraging and promoting public education on the value of historic preservation.

Existing City regulations provide measures for the protection of locally designated individual resources and historic districts and in certain cases historical resources that have yet to be identified. This is accomplished primarily through the certificate of appropriateness process

provided in Petaluma Smart Code, Chapter 7 and the requirements of Planning Department and HCPC project review under Petaluma Implementing Zoning Code, Chapter 15 and City Council Resolution No. 2017 -122 NCS.

Under Smart Code Chater 7, Sections 7.10.040 through 7.10.060, projects that would alter or demolish an individual landmark or a historic district contributor designated by the City require the issuance of certificate of appropriateness, which would generally be issued only if the project under consideration is consistent with the Standards. However, the protections of Smart Code Chapter 7 do not extend to properties listed on the NRHP or CRHR, unless they are also listed on the City's historic register. In addition, under Section 7.10.060, exceptions may be made allowing for the demolition of a historical resource if it can be demonstrated that property cannot be rehabilitated or otherwise adaptively reused in a manner that would assure a reasonable rate of return. Any such project would be required to reduce the impacts of demolishing the historical resource by implementing mitigation memorializing the property. However, as discussed below in Significance After Mitigation, commemorative research cannot reduce impacts to less than significant.

Petaluma Implementing Zoning Code, Chapter 15 similarly requires HCPC review of a project involving known historical resource that has been designated locally. In addition, pursuant to Section 15.060 of the same chapter, a project involving resources that has not yet been designated may be referred, at the Director's discretion, for the review of the HCPC to determine whether it meets criteria for historical significance, and if so, ensure the project is consistent with the Standards and would not affect the historical significance of a Landmark or historic district. That the requirements of Section 15.060 rely on the discretion of the Planning Director suggests the potential that some yet-unidentified properties potentially eligible as historical resources could be or demolished altered without prior study to determine whether they qualify as historical resources pursuant to CEQA. In addition, Resolution No. 2017 -122 NCS provides for administrative or commission-level review of projects that would demolish a property constructed prior to 1945. The demolition of such a property may not be approved if the review determines the property represents or conveys important architectural, visual or cultural features that are important in preserving the character of an existing neighborhood. This measure provides only limited protection to yet unidentified historical because it does not apply to all properties meeting the typical 45-year age threshold for consideration as a potential historical resource, which currently applies to properties constructed in 1980.

Although the regulations described above provide protection for locally designated known historical resources and procedures to identify and protect historical resources not previously identified, they do not necessarily provide protections for properties that qualify as historical resources pursuant to CEQA that are listed in the NRHP and CRHR, unless they are the local register. Nor do the requirements help in all cases to identify and protect potential historical resources that have not been previously identified, including those constructed in 1946 or later, meaning some projects involving properties meeting the 45-year age threshold typically used for consideration of historical resources may not be subject to built environment resources studies to determine whether they will cause an impact to known or potential historical resources. Adherence to existing City regulations and, if implemented, the above-referenced General Plan Update policies and actions would ensure in most cases the protection of historical resources through formal evaluation of age-eligible properties involved in CEQA projects and adherence to the Standards and other design regulations, when required.

The requirement to prepare a historical resources evaluation is generally consistent with proposed General Plan Policy HR-1.4, which provides that historical resources documentation be completed

for projects involving properties 45 years or older subject to discretionary review. In addition, General Plan Action 1.4.1 requires that a historical resources evaluation be completed by qualified personnel. However, existing regulations and, if implemented, policies and actions of the proposed project do not require in all cases that a historical resources evaluation be prepared in conjunction with a project involving a known historical resource or age-eligible resource. Given the gaps in the proposed project's Policy HR-1.4 and Action HR-1.4.1, Mitigation Measure CUL-1 would be required.

Furthermore, despite the protections existing regulations and proposed policies and actions would provide, it may not be feasible under all circumstances to prevent the demolition of a historical resource as part of a development facilitated by the proposed project. Existing City regulations provide exceptions under which a historical resource may be demolished, generally due to considerations of public health and safety. If a development facilitated by the proposed project would result in the demolition of a historical resource, City regulations and Mitigation Measure CUL-1 would require the historical resource approved for demolition be memorialized in documentation consistent with HABS standards. However, as noted above, such memorialized documentation is no sufficient to adequately reduce potentially significant impact to level below significance. Therefore, impacts to historical resources would remain potentially significant even with implementation of CUL-1.

Mitigation Measure

CUL-1 Historical Resource Protection

Consistent with Policy HR-1.4 and Action HR-1.4.1, a historical resources evaluation (HRE) shall be prepared for any discretionary project carried out under the proposed project involving the demolition or physical alteration of any building, structure, object, or other built environment feature that is 45 years of age or older. The evaluation shall be prepared by a qualified architectural historian or historian who meets the Secretary of the Interior's (SOI) Professional Qualifications Standards (PQS) in architectural history or history (National Park Service 1983). The qualified architectural historian or historian shall conduct an intensive-level evaluation in accordance with the guidelines and best practices promulgated by the California OHP to identify historical resources within the proposed development site. All properties within and, if appropriate as determined by a qualified architectural historian, immediately adjacent to the proposed development site that are 45 years of age or older and have the potential to be directly or indirectly affected shall be evaluated within their historic context and documented in a report meeting California OHP guidelines. All evaluated properties shall be documented on California Department of Parks and Recreation Series 523 Forms. HREs shall be submitted to the City for review and concurrence. If the property is already listed in the NRHP or CRHR or designated locally in Petaluma, the HRE described above shall not be required.

If through an HRE a property is found to not qualify as a historical resource, no additional work relating to historical resources shall be required. If historical resources are identified within or adjacent to a proposed development site, efforts shall be made to the greatest extent feasible to ensure that impacts are mitigated. As applicable, alteration of the resource shall be undertaken in a manner consistent with the SOI Standards. In accordance with CEQA, a project that has been determined to conform with the Standards generally would not cause a significant adverse direct or indirect impact to historical resources (14 CCR Section 15126.4(b)(1)). Application of the Standards shall be overseen by a qualified architectural historian or historical architect meeting the SOI PQS in architectural history or architecture. In conjunction with any development application that may affect a historical resource, an SOI consistency report identifying and specifying the treatment of

character-defining features and construction activities shall be prepared by a historian or architectural historian meeting the SOI PQS in history or architectural history and provided to the City for review and concurrence. As applicable, the report shall demonstrate how the project complies with the Standards and be submitted to the City for review and approval prior to the issuance of any permits.

If significant historical resources are identified on a development site and compliance with the Standards and/or avoidance is not possible, appropriate site-specific mitigation measures shall be established and undertaken. Mitigation measures may include documentation of the historical resource in the form of a HABS-like report. If required, the report shall comply with the Secretary of the Interior's Standards for Architectural and Engineering Documentation and shall minimally follow the HABS Level III requirements, including digital photographic recordation, detailed historic narrative report, and compilation of historical research. Other types of mitigation that may be considered in addition to HABS-like documentation include, but are not limited to, publicly accessible interpretive signage, commemorative informative web sites, salvage and reincorporation of historical architectural materials and features into new buildings or interpretive displays. The HABS-like documentation or, if applicable, a salvage plan shall be completed by a qualified architectural historian or historian who meets the SOI PQS and submitted to the City of Petaluma Planning Department prior to issuance of any permits for demolition or alteration of the historical resource. Additional documentation shall be prepared by qualified personnel and submitted for review by the city prior to the issuance of a Certificate of Occupancy.

Significance After Mitigation

Mitigation Measure CUL-1 would reduce impacts to historical resources to the greatest extent feasible. However, commemorative documentation, as required as part of Mitigation Measure CUL-1, will not reduce impacts to a level of less than significant for historical resources that are demolished or substantially impacted by future projects associated with General Plan Update buildout. Although HABS-like documentation would reduce impacts to the greatest extent feasible in cases where compliance with the Standards or avoidance is not possible, legal precedent has established that such a measure cannot mitigate impacts to a level of less than significant, because the loss of historical fabric cannot be readily compensated for by commemorative mitigation.[1] Therefore, impacts to historical resources would be significant and unavoidable even with mitigation.

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

Impact CUL-2 DEVELOPMENT, CONSTRUCTION, AND MAINTENANCE ACTIVITIES FACILITATED BY THE PROPOSED PROJECT COULD HAVE THE POTENTIAL TO IMPACT ARCHAEOLOGICAL RESOURCES. APPLICABLE GENERAL PLAN UPDATE POLICIES, ADHERENCE TO STATE AND FEDERAL REGULATIONS, AND IMPLEMENTATION OF MITIGATION MEASURE CUL-2, IMPACTS TO ARCHAEOLOGICAL RESOURCES WOULD REDUCE THE SEVERITY OF IMPACTS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

As discussed under Section 4.5.1, *Setting*, 14 recorded Native American archaeological sites are known to exist in the Plan Area. These include sparse lithic scatters and large village sites with habitation debris and human burials. Additionally, three known Native American ethnographic

[1] League For Protection of Oakland's Architectural and Historic Resources, Plaintiff and Appellant, v. City of Oakland et al., Montgomery Ward & Co., Inc., et al. No. A074348. First District, Division One. Feb 10, 1997.

villages (*Tuchayelin*, *Likatuit*, and *Etem*) existed in the Plan Area. In addition to the previously identified archaeological resources, there is a high potential to encounter previously unidentified precontact and historic-period archaeological resources throughout the Plan Area. This could include resources associated with Native American settlement and resources associated with the historical settlement and development of Petaluma.

Because the proposed project would facilitate new development throughout the Plan Area, the project could potentially impact known and unknown archaeological resources. As previously stated within Section 4.5.1, *Setting*, under *Potential for Newly Identified/Previously Unrecorded Cultural Resources*, geographic features with potential for encountering Native American archaeological resources include areas near ridgetops, midslope terraces, alluvial flats, ecotones, and sources of water. Additionally, as detailed in the Setting section under *Archaeological Sensitivity*, geologic formations in the Plan Area date from the Latest Pleistocene, Holocene, and Historic Period and primary soil series identified within the Plan Area include both A and B horizons. Therefore, the Plan Area has the potential to support the presence of buried archaeological resources as these depositional landforms and soils are contemporaneous with the documented period of human habitation of the area and have potential to preserve cultural material in context, depending on the area-specific topographical setting, the depositional or erosional nature of landforms, and settlement and development patterns.

Implementation of the proposed General Plan Update therefore has potential to impact known and unknown archaeological resources. Effects on archaeological resources can only be determined once a specific project has been proposed because the effects are highly dependent on both the individual project site conditions and the characteristics of the proposed ground-disturbing activity. Ground-disturbing activities associated with development facilitated by the proposed project, particularly in areas that have not previously been developed with urban uses, have not been studied through a cultural resources investigation, or when excavation depths exceed those previously attained, have the potential to damage or destroy previously unknown historic-period or prehistoric archaeological resources that may be present on or below the ground surface. Consequently, damage to or destruction of previously unknown subsurface cultural resources could occur as a result of development under the proposed project.

The General Plan Update Historic Resources Element includes goals, policies, and actions designed to reduce potential impacts to archaeological resources, including those that may qualify as historical resources under CEQA and are presented below:

Goal HR-1: Historic Resources Policies, Programs, and Processes. Petaluma's unique and irreplaceable cultural heritage is honored through its designated and undesignated historic resources and the implementation of city policies, programs, and project review processes to retain and enhance the quality of the historic built environment.

> **Policy HR-1.4: Consider historic resources in the development review process.** Protect historic resources during the development review process, including the consideration of age-eligible (45 years or older) potential historical resources during discretionary review, in accordance with CEQA.
>
> > **Action HR-1.4.1:** Clarify and articulate on the City website the procedure for preliminary review of projects involving historic or cultural resources, as well as properties with age-eligible potential historic resources. The procedure should include submittal of Historic Resource Evaluations and similar background materials that are prepared by qualified professionals early in the review process in order to resolve potential conflicts between

preservation and proposed development early in the planning process. Develop a checklist and/or process flowchart that is easy for applicants to read and understand the historic review process.

Action HR-1.4.2: Continue to use the Secretary of the Interior's Standards as the standards for review in evaluating projects that involve qualified historical resources in accordance with CEQA. Qualified historical resources for CEQA include properties listed on a local, state, or national register, as well as properties that have been determined eligible for listing in the state or national register.

Goal HR-2: Aesthetic, Cultural, and Historical Contributions. Petaluma's diverse history and communities are celebrated by identifying historic and archaeological resources that are recognized for the aesthetic, cultural, and historical contribution they make to Petaluma's character, identity, and quality of life, and by creating reminders of Petaluma's unseen history in the fabric of the City.

Policy HR-2.1: Identify and designate historic resources: Continue to identify and designate historic resources in Petaluma, including historic resources that have been previously underrepresented, such as those associated with cultural and ethnic heritage, intangible resources, cultural landscapes, and resources from the recent past (less than 45 years old).

Action HR-2.1.4: Consider establishing a central, digital database of information related to the Historic Resources Inventory, including designated and identified eligible historic resources. This database should also serve as a repository for historic surveys, reports, guidelines, ordinances, etc., that are easily accessible to the public, while protecting confidentiality regarding archeological sites and Traditional Cultural Places. Update the Historic Resources Inventory database on a regular basis, adding individual properties that are determined to be eligible at the local, state, and/or national level through Historic Resource Evaluations prepared by qualified professionals, or other environmental compliance evaluations such as CEQA or Section 106 of the National Historic Preservation Act.

Implementation of the goals and policies listed above would protect archaeological resources. However, even with the above General Plan Update policies, there may be potential impacts to archaeological resources that are not specifically protected by these policies; therefore, mitigation measure CUL-2would be required to reduce impacts to archaeological resources to a less than significant level.

Mitigation Measures

CUL-2 Archaeological Resources Protection

Prior to approval of a project that involves ground disturbance activities, the project proponent shall provide an archaeological resources assessment prepared under the supervision of an archaeologist that meets the Secretary of the Interior's Professional Qualification Standards in either prehistoric or historic archaeology (qualified archaeologist) as defined in Code of Federal Regulations, Title 36, Part 61).

- Archaeological Resources Assessments shall include a California Historical Resources Information System records search at the Northwest Information Center (NWIC) with a minimum 0.5-mile radius and a Sacred Lands File search maintained by the Native American Heritage Commission. The records searches will characterize the results of previous cultural

resource surveys and disclose any cultural resources that have been recorded and/or evaluated in and around a project site. A Phase I pedestrian survey shall be undertaken at a project site to locate any surface cultural materials. A geoarchaeological review (examination of CHRIS and ethnographic data, historical, geological, and soil maps, aerial imagery, geotechnical reports) shall be conducted to assess the potential for the project to encounter unknown archaeological resources during construction. A qualified archaeologist shall identify known archaeological resources and classify the project site as having high, medium, or low sensitivity for unknown archaeological resources. The assessment shall also include recommendations for additional studies and/or mitigation, as necessary, such as monitoring during construction-related ground disturbance. Construction monitoring shall be recommended when archaeological resources are present and/or the assessment identifies a high likelihood of archaeological resources being present.

- If the CHRIS search or Phase I archaeological survey identifies resources that may be affected by a project, the archaeological resources assessment shall also include Phase II testing and evaluation. If resources are determined significant (i.e., eligible for the CRHR and/or NRHP) or unique the City shall first consider whether avoidance and preservation in place is feasible. and If resource avoidance and preservation in place is not possible, appropriate site-specific mitigation measures shall be identified in the Phase II evaluation.
- For archaeological resources found eligible under CRHR Criterion 4/NRHP Criterion D (data potential) that cannot be avoided and will be impacted by the project, mitigation shall include, but would not be limited to, a Phase III data recovery program. The data recovery program shall make provisions for adequately recovering the scientifically consequential information from and about the resource. For archaeological resources that are found eligible under CRHR Criteria 1/NRHP Criteria A (events), 2/B (persons), and/or 3/C (design/craftsmanship) that cannot be avoided and will be impacted by the project, other appropriate mitigation shall be determined by a qualified archaeologist in consultation with the implementing agency and, if the resource is also a tribal cultural resource, Federated Indians of Graton Rancheria Tribal Heritage Preservation Office. Mitigation may include but would not be limited to development of interpretive or educational materials or preservation of all or portions of the archaeological site.
- Final disposition of any recovered artifacts or samples, which could include but would not be limited to curation or onsite reburial, shall occur as specified by the qualified archaeologist in consultation with the City and, if the resource is a tribal cultural resource, Federated Indians of Graton Rancheria Tribal Heritage Preservation Office. Artifacts and samples include material recovered from all phases of work, including the Phase I survey, Phase II testing, Phase III data recovery, and construction monitoring.

Significance After Mitigation

With the implementation of General Plan Update Policies HR-1.4, HR-2.1, and HR-4.1; and mitigation measure CUL-2 impacts to archaeological resources would be less than significant.

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

Impact CUL-3 GROUND-DISTURBING ACTIVITIES ASSOCIATED WITH DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT MAY HAVE THE POTENTIAL TO ADVERSELY IMPACT PREVIOUSLY UNIDENTIFIED TO HUMAN REMAINS. ADHERENCE TO EXISTING REGULATIONS (CALIFORNIA HEALTH AND SAFETY CODE SECTION 7050.5, PRC SECTION 5097.98) AND IMPLEMENTATION OF MITIGATION MEASURE CUL-2 WOULD REDUCE THE SEVERITY OF IMPACTS BUT WOULD NOT FULLY AVOID POTENTIAL DISTURBANCE. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

Prehistoric burials have been identified within the Plan Area. If human remains are discovered during ground-disturbing activities, work must stop immediately and the County Coroner notified, in compliance with California Health and Safety Code Section 7050.5, PRC Section 5097.98, and CEQA Guidelines Section 15064.5(e). No further disturbance may occur until the Coroner determines the origin and disposition of the remains.

Adherence to existing regulations and implementation of Mitigation Measure CUL-2 would reduce potential project impacts to human remains to less than significant under CEQA.

Mitigation Measures

See mitigation measure CUL-2 provided above under Impact CUL-2.

Significance After Mitigation

Compliance with existing regulatory requirements for the inadvertent discovery of human remains under California Health and Safety Code Section 7050.5 and PRC Section 5097.98, and implementation of mitigation measure CUL-2, would reduce potential impacts to human remains to a less-than-significant level.

4.5.4 Cumulative Impacts

The cumulative analysis considers the nearby past, present, and reasonably foreseeable future plans and projects listed in Table 3-1 (refer to Section 3, *Environmental Setting*) located outside the Plan Area, in addition to the proposed plan. The geographic scope for cumulative impacts to cultural resources includes the city of Petaluma's Plan Area and adjacent jurisdictions such as Sonoma County, Cotati, Sebastopol, Santa Rosa, and Tribal lands of the Graton Rancheria.

Within the Plan Area, past and present projects primarily consist of residential development and parcel annexations, which are either approved, under construction, or in the planning phase. Adjacent areas are experiencing similar development patterns. The magnitude of impacts from these projects depends on factors such as location, size, depth of ground disturbance, and proximity to known or potential cultural resources (both historic built environment and archaeological resources). This geographic scope is appropriate because cultural resources are regionally and site-specific.

The combination of the proposed project and cumulative projects could potentially involve the cumulative demolition or alteration of historical resources. Therefore, the cumulative impact related to historical resources would be significant. Cumulative development and redevelopment could cause the loss of built-environment historical resources. Alteration or demolition of historical resources remains a possibility throughout the project area and immediate surroundings with potentially cumulative impacts. As such, the project would result in a considerable contribution to

this cumulative impact. While Mitigation Measure CUL-1 would reduce the General Plan Update's contribution to this impact, it would still result in a considerable contribution to this cumulative impact.

Development facilitated by the General Plan Update, combined with other nearby projects, could potentially disturb areas containing archaeological resources. It is anticipated that potential impacts to archaeological resources associated with individual cumulative projects would be addressed and mitigated on a case-by-case basis and would be subject to local and State regulations, applicable implementing policies and associated actions outlined in the General Plan Update. Therefore, the cumulative impact related to archaeological resources would not be considerable, and the proposed project would not contribute significantly to such impacts.

Similar to the proposed project, cumulative projects would be required to comply with Section 5097 of the California Public Resources Code and the California Health and Safety Code (Sections 7050.5, 7051, and 7054), with regard to potential impacts to buried human remains. Compliance with these code sections would ensure cumulative impacts to human remains are not significant.

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4.6 Geology and Soils

This section addresses the potential physical environmental effects related to seismic hazards, underlying soil characteristics, slope stability, and erosion within the City of Petaluma.

4.6.1 Setting

a. Regional Geology

The City of Petaluma is located in central Sonoma County in the San Francisco Bay Area and lies within the Coast Ranges geomorphic province (California Geological Survey [CGS] 2002). This geomorphic province runs nearly parallel to the San Andreas Fault, beginning in the Central Coast and extending north to the California-Oregon border. It is bounded by the Pacific Ocean to the west and includes the Coast Ranges. The Coast Ranges are composed of thick Mesozoic and Cenozoic sedimentary strata. The City of Petaluma is primarily underlain by the Franciscan Complex consisting of a mixture of deformed sedimentary, igneous, and metamorphic rocks.

The San Francisco Bay region is situated on a plate boundary marked by the San Andreas Fault system, which forms the tectonic boundary between the Pacific Plate and the North American Plate. The region consists of several northwest trending active and potentially active faults. Movement along this plate boundary is distributed across a complex system of strike-slip, right-lateral, parallel and sub-parallel faults. In the Plan Area, these include the Rodgers Creek, Bennet Valley, Tolay, Burdelll Mountain Lakeview and Bloomfield fault zones. The nearest potentially-active fault is the Rodgers Creek Fault (United States Geological Survey [USGS] 2025). Faults within the Plan Area are shown in Figure 4.6-2, below.

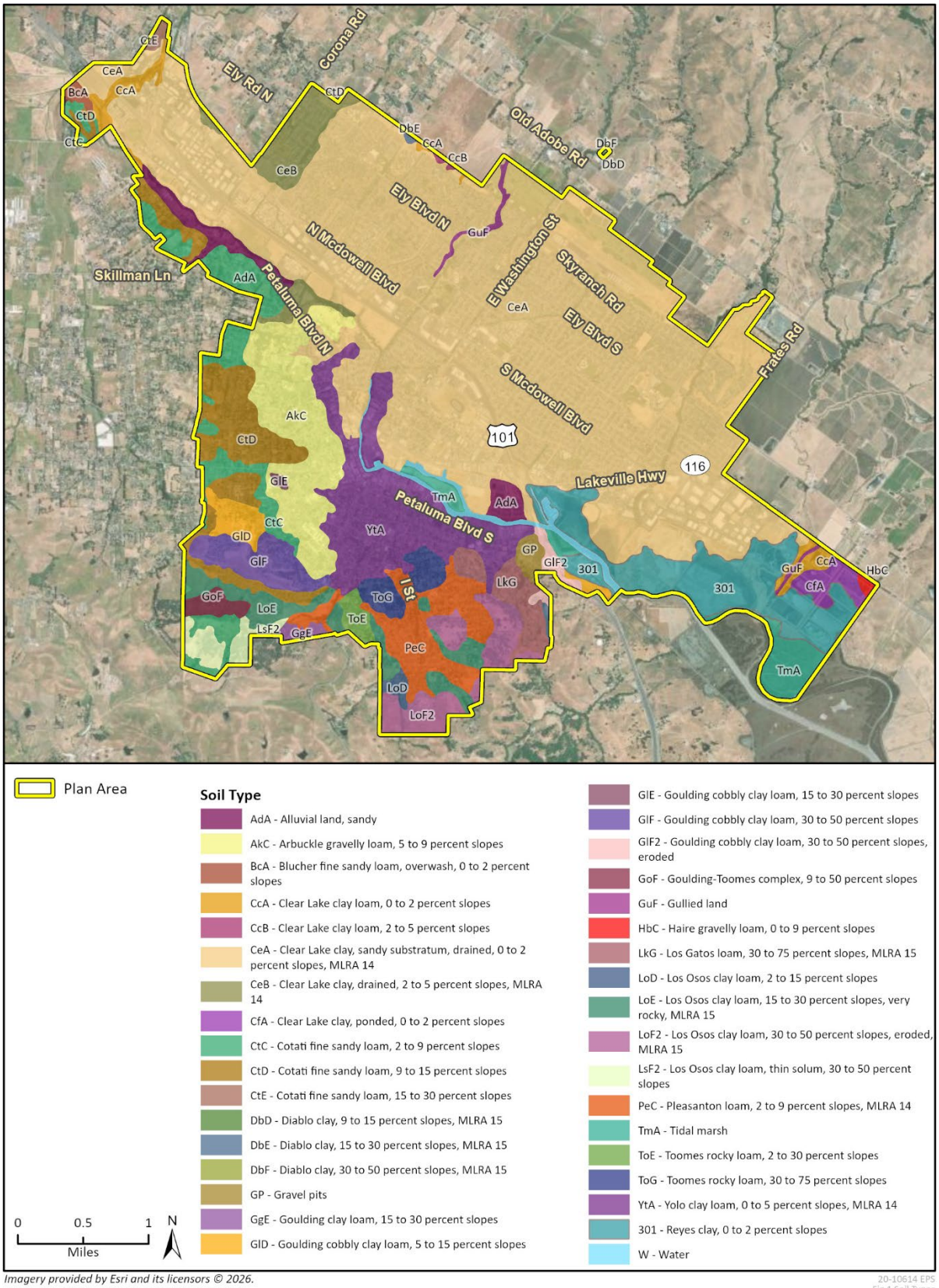
b. Local Geologic Setting

The Plan Area is located at the southern end of Sonoma County, north of San Pablo Bay. The Petaluma River runs through the center of the city and outflows into the Petaluma marsh. The Plan Area is located west of the Sonoma Mountains on the Petaluma Valley floor, which is a broad, low-lying alluvial plain at the southern end of Sonoma County, and includes low hills along its western edge, with most of the Plan Area consisting of flatter open areas (USGS 2022). Elevations in the Plan Area range from approximately 50 to 400 feet above mean sea level. Surficial soils primarily consist of Clear Lake Clay, with six other types of soil present and typically concentrated in the southeastern portion of the city aligned with riverine features, as shown on Figure 4.6-1. The most abundant soil series include the Clear Lake Series, Haire Series, Reyes Series, Arbuckle Series, Cotati Series, Yolo Series, and Goulding Series. The following discussion provides a description of the most abundant soil series found in the city of Petaluma.

Clear Lake Series

The Clear Lake series consists of very deep, poorly drained soils that formed in fine textured alluvium derived from mixed rock sources. Clear Lake soils are found in flood basins, flood plains, and in swales or drainageways. Slopes are 0 to 5 percent.

Figure 4.6-1 Soil Types



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Additional data provided by NRCS SSURGO 2025.

20-10614 EPS
Fig 1 Soil Types

Haire Series

The Haire series is a member of the clayey, mixed, thermic family of Typic Haploxerults with 0 to 5 percent slopes. Typically, Haire soils have gray and grayish brown, neutral or slightly acid, light clay loam A[1] (up to 24 inches below ground surface [bgs]) horizons; pale brown, strongly acid, clay B2t[2] (24 to 36 inches bgs) horizons; and pale yellow, strongly acid, gravelly clay loam C[3] (more than 36 inches bgs) horizons. This series is moderately well-drained with slow to rapid runoff and very slow permeability.

Reyes Series

The Reyes series consists of very deep, well-drained soils formed in alluvium from mixed rock sources. These soils have dark grayish brown, slightly acid A horizons (up to 10 inches bgs); and dark brown, neutral clay Bt[4] horizons (10 to 40 inches bgs). This series is well-drained with slow runoff and moderately slow permeability. Slopes are 0 to 2 percent.

Arbuckle Series

The Arbuckle series is a member of the fine-loamy, mixed, thermic family of Typic Haploxeralfs. These soils have dark brown, slightly acid A horizons (up to 12 inches bgs); and brown, neutral clay loam Bt horizons (12 to 36 inches bgs). This series is well-drained with medium runoff and moderately slow permeability. Slopes are 5 to 9 percent.

Cotati Series

The Cotati series consists of deep, well-drained soils formed in alluvium from mixed rock sources. These soils have dark brown, slightly acid A horizons (up to 10 inches bgs); and brown, neutral sandy clay loam Bt horizons (10 to 40 inches bgs). This series is well-drained with medium runoff and moderately slow permeability. Slopes are 9 to 15 percent

Yolo Series

The Yolo series consists of very deep, well-drained soils that formed in alluvium from mixed rocks. Yolo soils are found on alluvial fans and flood plains. This series is well-drained with slow to medium runoff and moderately slow permeability. Slopes range from 0 to 5 percent.

Goulding Series

The Goulding Series (Goulding cobbly clay loam, 30 to 50 percent slopes) consists of very deep, well-drained soils formed in colluvium from mixed rock sources. These soils have dark brown, slightly acid A horizons (up to 6 inches bgs); and brown, neutral clay loam Bt horizons (6 to 36 inches bgs). This series is well-drained with rapid runoff and moderately slow permeability. Slopes are 30 to 50 percent.

[1] A, or A horizon, refers to the topsoil layer, which is typically rich in organic matter and biological activity.
[2] B, or B Horizon, refers to the subsoil layer beneath the topsoil, or A horizon, where materials like clay or organic matter accumulate from the A horizon above. In this instance, the "2" modifier indicates that this is the second sublayer of B and "t" denotes the accumulation of clay, meaning that B2t refers to the second sublayer of the B horizon that is enriched with clay.
[3] C, or C horizon, refers to the layer of parent material beneath the subsoil, with little soil development. It typically consists of unconsolidated material from which the soil above developed, but shows little evidence of soil-forming processes.
[4] Similar to what was described in Footnote 2, Bt refers to a B horizon with an accumulation of clay.

Expansive Soils

Expansive soils are clay-rich soils that are subject to seasonal swelling and shrinking based on moisture content and occur naturally in low-lying areas and valley floodplains. These soils expand when water is absorbed and contract as moisture decreases. Within the Plan Area, expansive soils are present in clay and clayey loam substrates. Damage to structures, utilities, and roads can result from the shrinking and swelling of expansive soils (City of Petaluma 2019). As described above, the Plan Area is underlain by soils such as Clear Lake Clay and Haire Series soils, both of which are clay-rich and exhibit high shrink-swell potential. As shown in Figure 4.6-1, these soils are primarily located in central and southeastern portions of the Plan Area, including areas along the Petaluma River and adjacent floodplains, low-lying valley floor areas, and a small area of the southwestern portion of the Plan Area which contains clay-rich substrates that exhibit expansive characteristics.

c. Seismic Hazards

Northern California is a region of high seismic activity. Similar to most cities in the region, Petaluma is subject to risks associated with potentially destructive earthquakes. The city of Petaluma is in the vicinity of several major active faults, including the San Andreas, Rodgers Creek, Tolay, Bennett Valley, and Bloomfield fault zones (see Figure 4.6.2). The type and magnitude of seismic impacts on the Plan Area are dependent on the distance to the epicenter of the earthquake, the nature of the fault on which the earthquake is located, and the intensity and magnitude of the seismic event.

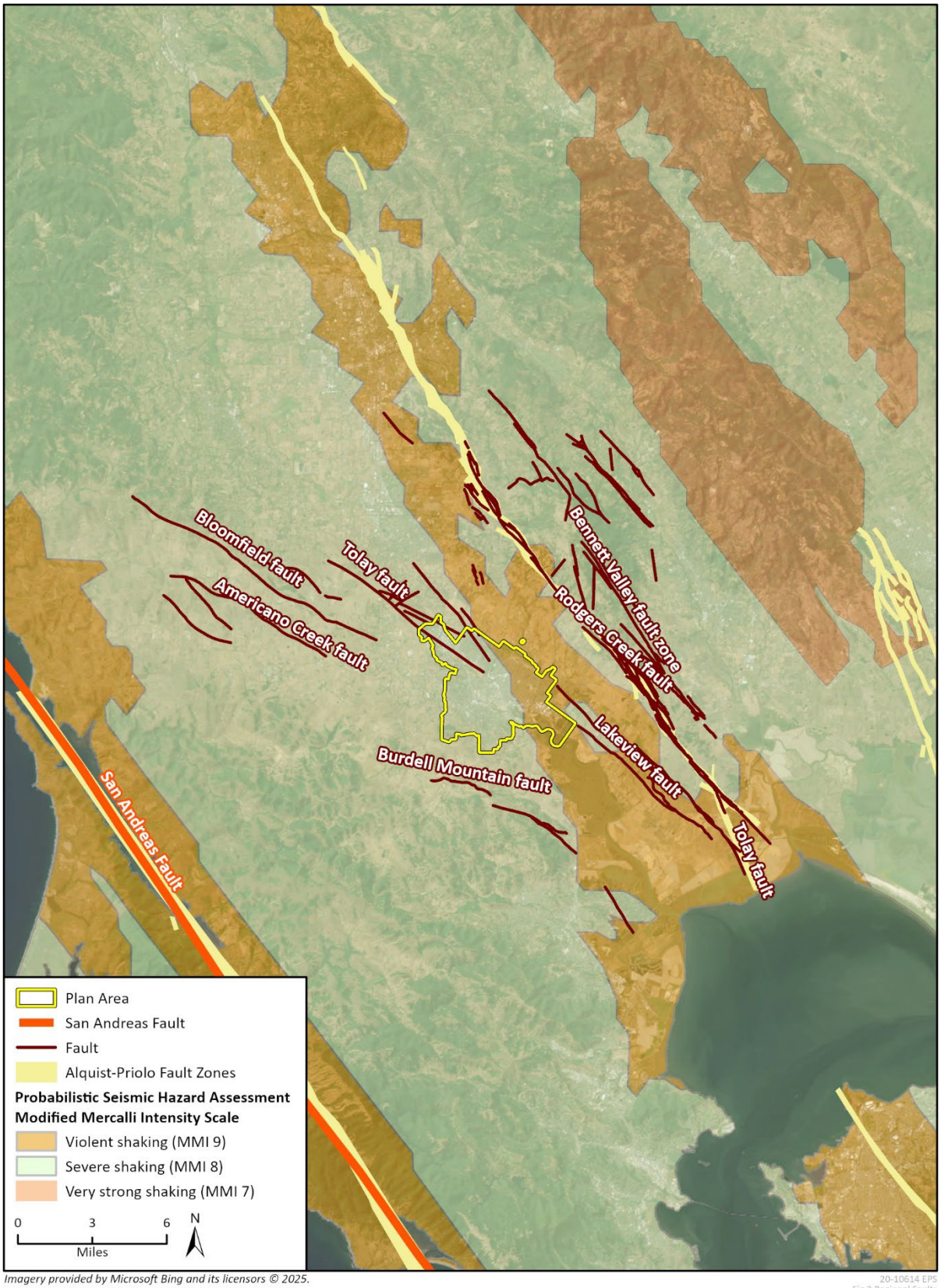
Faults

The California Geological Survey (CGS) establishes criteria for classification of faults as Holocene-active, Pre-Holocene, and Age-undetermined faults. Holocene-active faults are faults that have had surface displacement during the past 11,700 years. Surface displacement can be recognized by the existence of cliffs in alluvium, terraces, offset stream courses, fault troughs and saddles, the alignment of depressions, sag ponds, and the existence of steep mountain fronts. Pre-Holocene faults are faults that have not moved in the past 11,700 years, thus do not meet the criteria of "Holocene-active fault" as defined in the Alquist-Priolo Earthquake Fault Zoning Act (A-P Act) and State Mining and Geology Board (SMGB) regulations (California Code of Regulations, Title 14, Division 2, Section 3601[a]). This class of fault may still be capable of surface rupture, but is not regulated under the A-P Act. Age-undetermined faults are faults where the recency of fault movement has not been determined. Faults can be "age-undetermined" if the fault in question has simply not been studied in order to determine its recency of movement. Within the framework of the A-P Act, age-undetermined faults within regulatory Earthquake Fault Zones can be considered Holocene-active until proven otherwise (CGS 2018).

Regional and Local Faults

Earthquakes from several Holocene-active and Pre-Holocene faults in the San Francisco Bay region could affect future development that would be facilitated by the proposed project, although no known regional faults directly traverse the city. Figure 4.6-2 shows regional faults around the Plan Area. A summary of the faults nearest to the city of Petaluma is provided below.

Figure 4.6-2 Regional Faults and Probable Seismic Intensity



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Additional data provided by ABAG, CGS, USGS 2022, 2024.

20-10614 EPS
Fig 2 Regional Faults

SAN ANDREAS FAULT ZONE

This fault zone runs southeast to northwest and is located approximately 13 miles west of the Plan Area at its nearest point. The fault zone extends over 700 miles from the Gulf of California north to the Cape Mendocino area where it continues northward along the ocean floor. The length of the fault and its active seismic history indicates that it has a very high potential for large-scale movement in the near future (7.9 Moment Magnitude [Mw]), and should be considered in land use planning for most cities in California. The most recent large earthquake on the San Andreas Fault to affect the Bay Area was the Loma Prieta earthquake in 1989, which had a Mw of 6.9 (USGS 2024a).

RODGERS CREEK FAULT ZONE

The Rodgers Creek Fault runs through the northern San Francisco Bay Area and links two active creeping faults: the Hayward Fault to the southeast and the Maacama Fault to the northwest. It is located approximately 2 miles northeast of the Plan Area. The Rodgers Creek Fault is seismically active and two intermediate magnitude (5.6 and 5.7) earthquakes occurred near Santa Rosa in 1969. There is also evidence that the fault slipped about 2 meters (Mw of about 7) in the 18th century (Funning et al. 2007).

TOLAY FAULT ZONE

The Tolay Fault runs the length of the Plan Area paralleling Highway 101Plan Area, and is considered an extension of the Hayward Fault. There has been no significant strike-slip offset along the fault zone since the deposition of the Roblar Tuff, a widespread volcanic ash-flow unit dated to approximately 6.26 million years ago that serves as an important regional marker for defining Neogene-period fault movement in the North Bay (Langenheim et al. 2010). The USGS maps the Tolay Fault as "undifferentiated Quaternary," noting that it has exhibited evidence of movement within the last 1.6 million years and identifying the fault as having a slip rate of between 0.2 and 1.0 millimeters per year (USGS 2025). The California Geological Survey (CGS) does not map the Tolay Fault as being an earthquake zone of required investigation, indicating that the Tolay Fault is not part of an A-P Act Earthquake Fault Zone (CGS 2025a).

LAKEVIEW FAULT ZONE

The Lakeview Fault extends southeast, parallel to the Tolay Fault, 984 feet from the Plan Area. It exhibits evidence of movement within the last 1.6 million years, placing it in the Quaternary category. There is no documented evidence of movement within the last 11,700 years, the threshold used by the A-P Act to define an active fault capable of surface rupture. While slip rates are unspecified according to USGS mapping, the Lakeview Fault is not included in the CGS Earthquake Zones of Required Investigation, indicating that the fault is not part of an A-P Act Fault Zone (USGS 2025, CGS 2025a).

BURDELL FAULT ZONE

South of Petaluma, approximately 1.7 miles from the city limits, the Burdell Mountain Fault runs from west to east along the hills near Highway 101, just southeast of and roughly parallel to the Tolay Fault. CGS mapping indicates that the Burdell Fault is Pre-Quaternary, indicating that it has not been active in over 11,700 years, which is the threshold for consideration under the A-P Act (CGS 2010). The Burdell Fault Zone is not included in the CGS Earthquake Zones of Required Investigation map, further supporting that the fault is not part of an A-P Act Fault Zone (CGS 2025a).

BENNETT VALLEY FAULT ZONE

Northwest of the city, the Bennett Valley Fault is located approximately 2.9 miles from the Plan Area, just east of the Rodgers Creek Fault Zone. CGS mapping indicates that the Bennett Valley Fault Zone is Pre-Quaternary, indicating that it has not been active in over 11,700 years, which is the threshold for consideration under the A-P Act (CGS 2010). The Bennett Valley Fault Zone is not included in the CGS Earthquake Zones of Required Investigation map, further supporting that the fault is not part of an A-P Act Fault Zone (CGS 2025a).

BLOOMFIELD AND AMERICANO CREEK FAULT ZONES

The Bloomfield Fault and Americano Creek Fault are located approximately 6.2 miles northwest of Petaluma's city center. The faults run parallel to one another, with the Bloomfield Fault approximately one mile north of the Americano Creek Fault. CGS maps both faults as unspecified Quaternary, noting that they are not likely to have been active in the last 1.6 million years, which is well above the A-P Act threshold of 11,700 years (CGS 2010). Further supporting this, the faults are not mapped as Earthquake Zones of Required Investigation by CGS (CGS 2025a).

Recent Seismic Activity

Historically, earthquakes have caused substantial groundshaking in the San Francisco Bay Area region, and include the following major (magnitude [M] of 5.0 or greater) quakes: the 1906 Great San Francisco earthquake (magnitude 7.8 on Richter scale) along the San Andreas Fault; the 1911 Morgan Hill earthquake (magnitude 6.5) along the Calaveras Fault; the 1979 Coyote Lake earthquake (magnitude 6.0) along the Calaveras Fault; the 1980 Livermore earthquake (magnitude 6.0) along the Mt. Diablo-Greenville Fault; the 1984 Morgan Hill earthquake (magnitude 6.3) along the Calaveras Fault; the 1989 Loma Prieta earthquake (magnitude 6.9) along the San Andreas fault; the 2001 Napa earthquake (magnitude 5.1) along the West Napa fault; and the 2007 Alum Rock earthquake (magnitude 5.4) along the Calaveras Fault (Earthquake Safety 2020, USGS 2010). Since then, there has also been the 2014 South Napa earthquake (magnitude 6.0), which was the largest earthquake since the Loma Prieta Earthquake in 1989 and the first to rupture on the surface since the 1906 Great San Francisco earthquake (USGS 2024b).

Surface Rupture

Surface rupture occurs when the portion of a fault that breaks during an earthquake intersects the ground surface causing visible displacement along the fault trace. Fault displacement occurs when material on one side of a fault moves relative to the material on the other side of the fault. This can have particularly adverse consequences when buildings are located within the rupture zone. It is not feasible, from a structural or economic perspective to design and build structures that can accommodate rapid displacement involved with surface rupture. Amounts of surface displacement can range from a few inches to tens of feet during a rupture event.

The A-P Act regulates development near active faults to mitigate the hazard of surface fault rupture. Essentially, the A-P Act contains two requirements: (1) it prohibits the location of most structures for human occupancy across the trace of active faults; and (2) it establishes Earthquake Fault Zones and requires geologic/seismic studies of all proposed developments within 1,000 feet of the zone. Earthquake Fault Zones are delineated and defined by the State Geologist and identify areas where potential surface rupture along a fault could occur. There are no Alquist-Priolo Earthquake Fault Zones in the city of Petaluma. The Rodgers Creek Fault Zone, the nearest Alquist-Priolo Earthquake Fault Zone, is located 5 miles northeast of the city (CGS 2025a).

Groundshaking

The major cause of structural damage from earthquakes is groundshaking. The intensity of ground motion expected at a particular site depends on the magnitude of the earthquake, the distance to the epicenter, and the geology of the area between the epicenter and the site. Greater movement can be expected at sites located on poorly consolidated material, such as alluvium, within close proximity to the causative fault, or in response to a seismic event of great magnitude.

Secondary Seismic Effects

Potential hazards resulting from the secondary effects of ground-shaking include liquefaction, subsidence, and earthquake-induced landslides. Soil-disturbing activities such as grading, soil compaction, and cut and fill activities can create or exacerbate conditions that increase the chance of such effects during or independent of seismic activity.

Liquefaction

Liquefaction is a phenomenon that occurs in soils where granular sediment or fill material either contain, or lie immediately above, high moisture content. Groundshaking or other rapid loading can reduce the strength and stiffness of a soil and transform it momentarily from a solid state to a liquid state. Buildings in areas that experience liquefaction may suddenly sink or suffer major structural damage. Figure 4.6-3 illustrates liquefaction potential throughout the Plan Area. As shown therein, most of Petaluma soils are moderately susceptible to liquefaction, with a few areas located in the southwestern portion of the city having low to very low liquefaction potential. The central portion of Petaluma, the southeastern portion underlain by Bay Mud, and along the Petaluma River and creeks have a high liquefaction potential.

Subsidence

Subsidence refers to the sinking of a large area of ground surface in which material is displaced vertically with little or no horizontal movement. Subsidence originates at great depths below the surface when subsurface pressure is reduced by natural loss or by human withdrawal of fluids (e.g., groundwater, natural gas, or oil), or can occur due to soil compression. In California, land subsidence mainly occurs due to the removal of groundwater or natural gas. There is no history of subsidence induced by groundwater extraction in the Plan Area, as groundwater use within Petaluma is limited and the presence of private and city-owned emergency wells indicates a limited possibility of subsidence within city boundaries (USGS 2026, City of Petaluma 2008). Subsidence can also occur as a secondary seismic effect during earthquakes when fault movement or shaking causes compaction of unconsolidated sediments or differential displacement along fault zones. Subsidence as a secondary seismic effect occurs when ground shaking compacts loose, unconsolidated, water-saturated sediments, resulting in settlement, lateral displacement, or differential ground movement. Therefore, areas underlain by soft saturated sediments, such as along the Petaluma River or areas underlain by Bay Mud, have a higher susceptibility to subsidence as a secondary seismic effect.

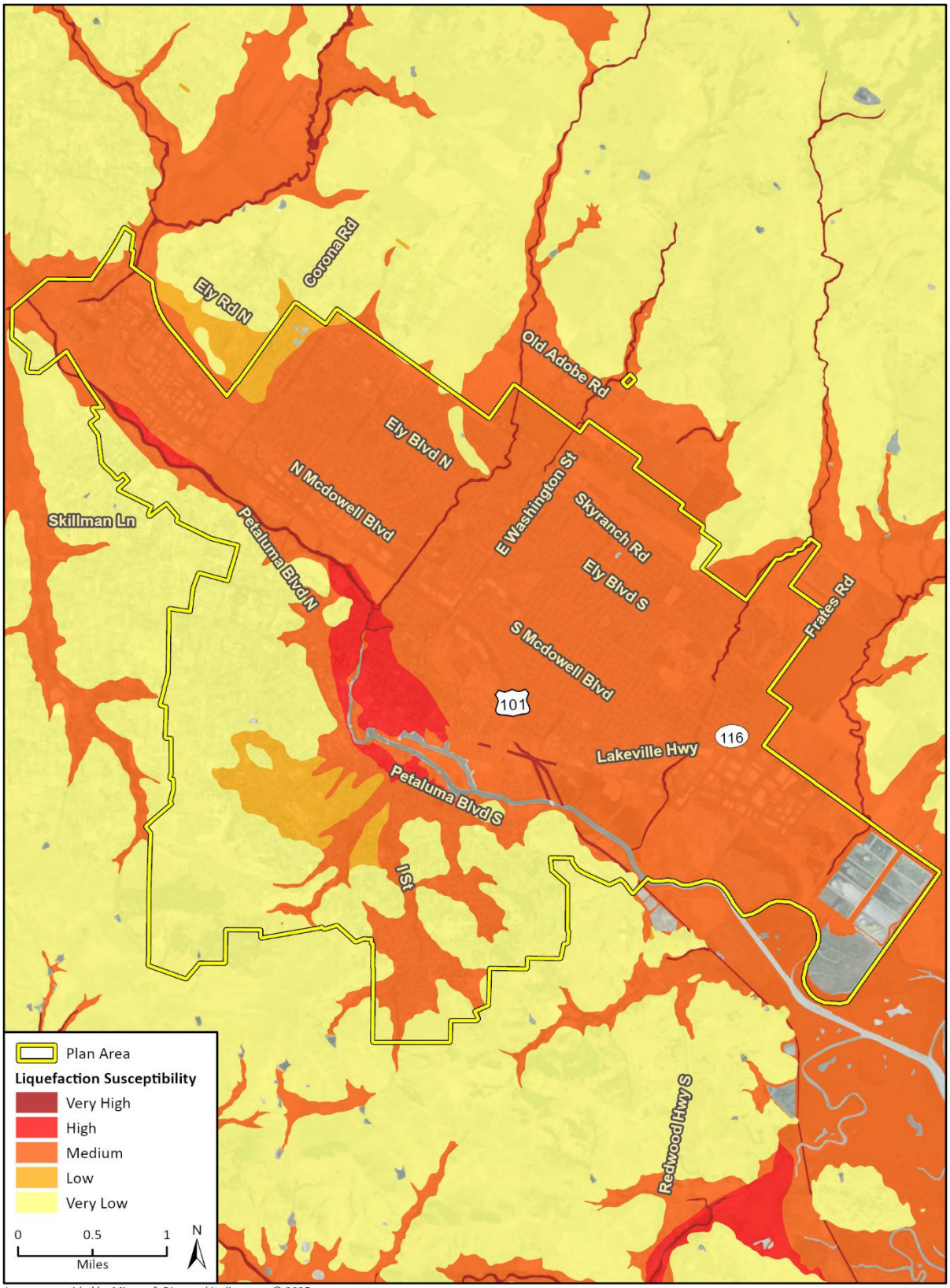
Landslides and Slope Stability

. Landslides occur when slopes become unstable and masses of earth material move downslope. Landslides are usually rapid events, often triggered during periods of rainfall or by earthquakes. Mudslides and slumps are a more shallow type of slope failure. They typically affect the upper soil horizons rather than bedrock features. Usually mudslides and slumps occur during or soon after periods of rainfall, but they can be triggered by seismic shaking. As shown in Figure 4.6-4, the potential for landslides exists in the southern portion and western hills of the Plan Area where there is a high susceptibility. Landslides and slope instability can also occur as a secondary seismic effect during earthquakes, primarily in areas with steep hillslopes, weak or weathered bedrock, and unconsolidated soils, particularly where slopes have previously failed. In addition, slopes along riverbanks and creek corridors, such as segments near the Petaluma River, may be more susceptible because saturated soils, soft alluvium, and undercut banks are more prone to loss of shear strength during strong ground shaking (CGS 2025b).

Soil Erosion

Erosion refers to the geological process of soil being broken down, removed, and transported by water or wind. Factors that influence erosion potential include the amount of rainfall and wind, the length and steepness of the slope, and the amount and type of vegetative cover. Depending on how well protected the soil is from these forces; the erosion process can be very slow or rapid. Removal of natural or manufactured erosion protection can result in substantial soil erosion and excessive sedimentation and pollution problems in streams, lakes, and estuaries. As shown on Figure 4.6-5, the highest potential erosion hazard is rated as severe in the southwestern portion of the Plan Area. The remainder of the Plan Area has a moderate to low erosion hazard.

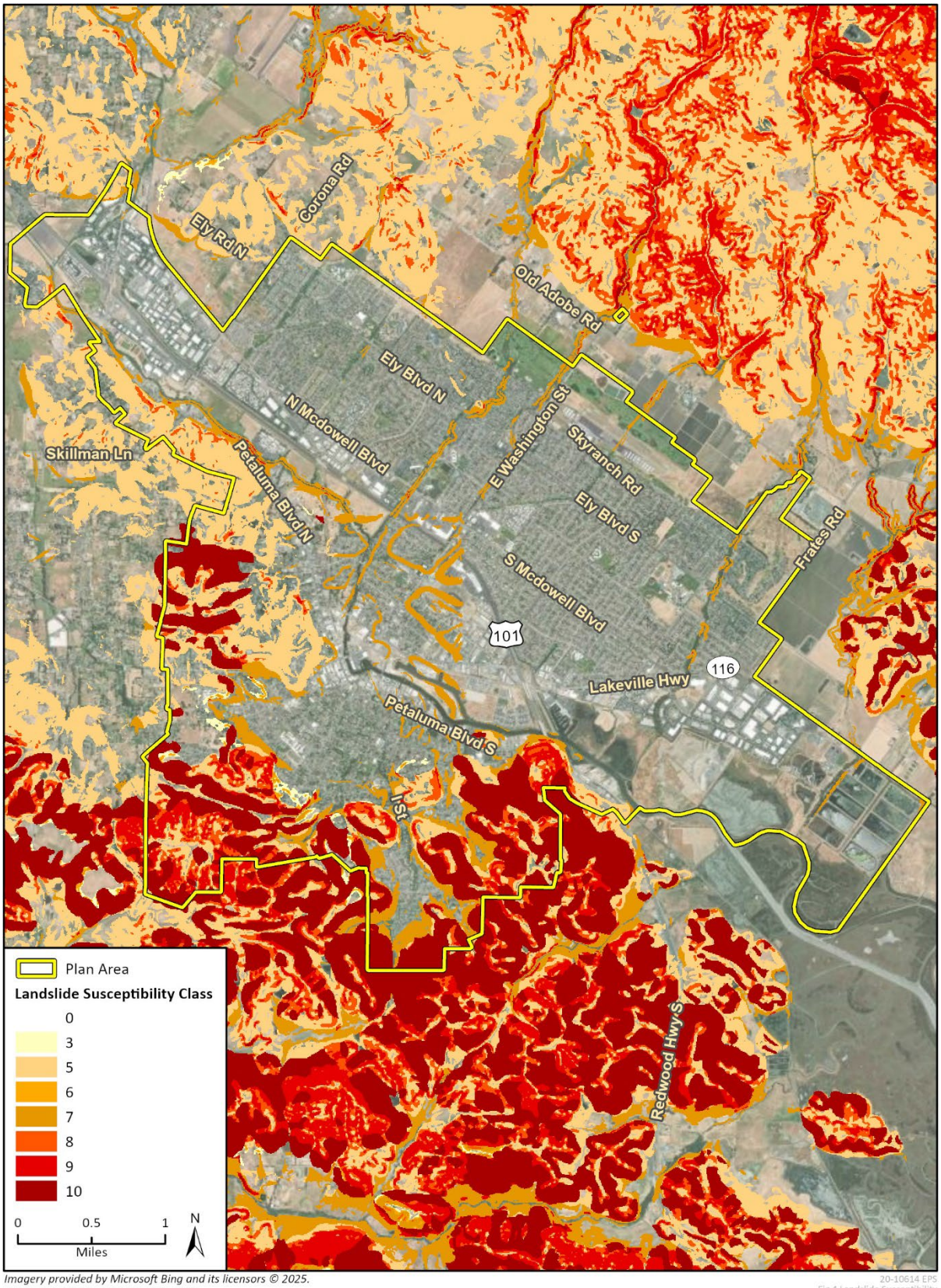
Figure 4.6-3 Liquefaction Risk



Imagery provided by Microsoft Bing and its licensors © 2025.
Additional data provided by ABAG, CGS, USGS 2019.

20-10614 EPS
Fig 3 Liquefaction Risk

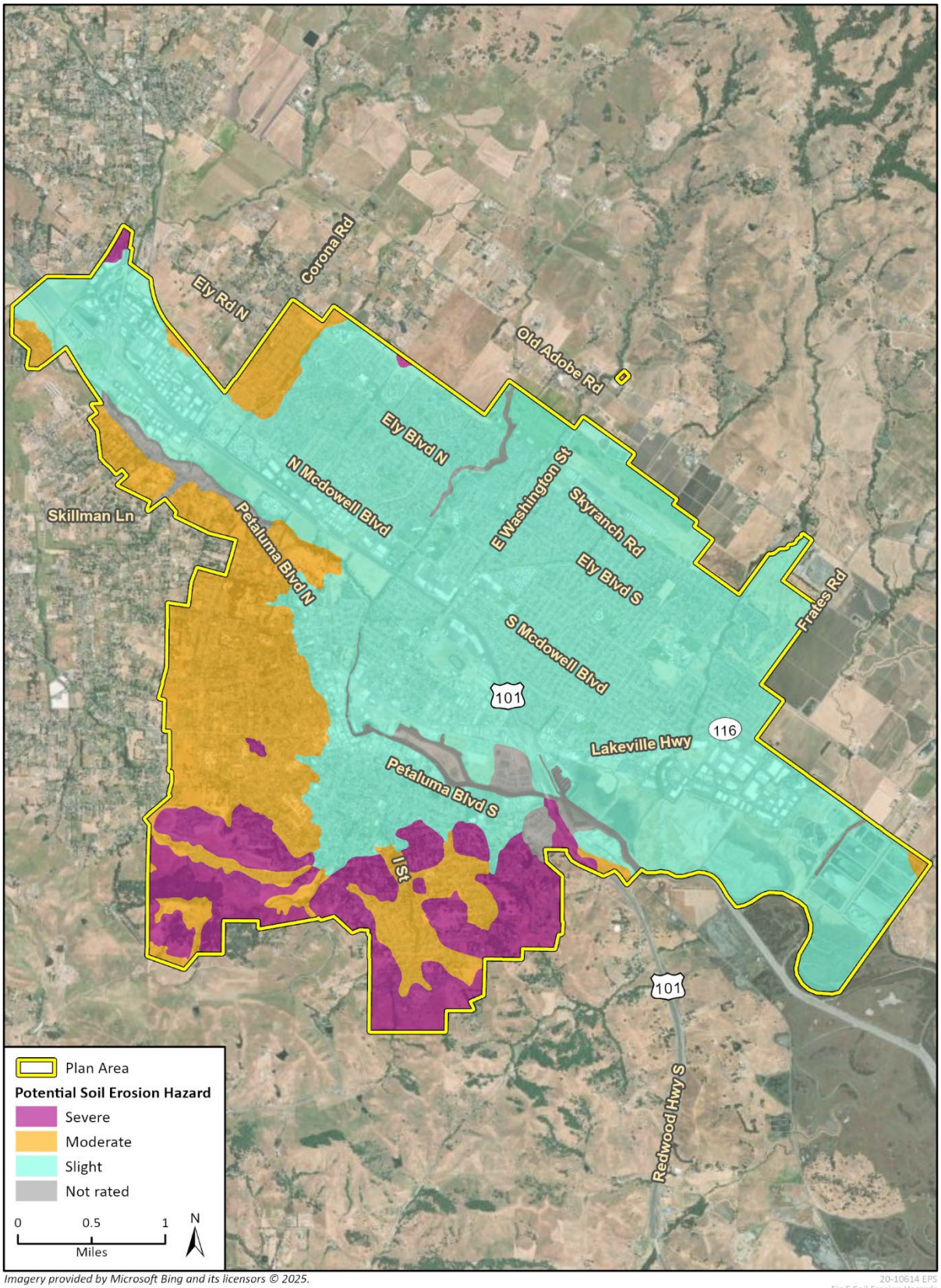
Figure 4.6-4 Landslide Susceptibility



Imagery provided by Microsoft Bing and its licensors © 2025.
Additional data provided by CGS, 2011.

20-10614 EP5
Fig 4 Landslide Susceptibility

Figure 4.6-5 Soil Erosion Hazards



Imagery provided by Microsoft Bing and its licensors © 2025.
Additional data provided by NRCS SSURGO 2024.

20-10614 EPS
Fig 5 Soil Erosion Hazards

Paleontological Resources

The Plan Area is located within the *Cotati*, *Glen Ellen*, *Petaluma*, and *Petaluma River* USGS 7.5-minute topographic quadrangles. The regional geology was mapped at a scale of 1:100,000 by Wagner and Gutierrez (2017). The City of Petaluma and its sphere of influence are underlain by 21 distinct geologic units as shown in Figure 4.6-6 and included below:

1. Artificial stream channels (ac)
2. Artificial fill (af)
3. Artificial levee fill (alf)
4. Young Holocene stream terrace deposits (Qhty)
5. Bay Mud (Qhbm)
6. Holocene stream terrace deposits (Qht)
7. Holocene stream channel deposits (Qhc)
8. Holocene alluvial fan deposits (Qhf)
9. Quaternary alluvium (Qa)
10. Holocene alluvium (Qha)
11. Quaternary landslide deposits (Qls)
12. Quaternary alluvial fan deposits (Qf)
13. Quaternary older alluvium (Qoa)
14. Pleistocene alluvial fan deposits (Qpf)
15. Wilson Grove Formation (Mwg)
16. Petaluma Formation (middle) (Mpm)
17. Sand and gravel of Cotati (Mco)
18. Tolay Volcanics, mafic rocks (Mtvm)
19. Franciscan Complex mélange (KJfm)
20. Franciscan Complex, sandstone and shale (KJfss)
21. Franciscan Complex, metamorphic rocks (KJfsch & sch)

Paleontological Resources Sensitivity

Paleontological resources, or fossils, are the remains and/or traces of prehistoric life. 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.

In the absence of other sensitivity criteria required by certain regulatory agencies, the Society of Vertebrate Paleontology's Fossil Prediction Map System (FPMS) is often used to assign paleontological sensitivity to geologic units (SVP 2025). FPMS assignments are 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. Fossil occurrences are correlated with the geologic units that contain them, so the history of a geologic unit in producing fossils can be used to predict its potential for producing fossils in the future. The FPMS is a 5-tier scale ranging from FPMS 1 (Very Low Potential) to FPMS 5 (Very High Potential) geologic units along with other rankings for geologic units with unknown potential or areas covered by water or ice. The paleontological sensitivity of each of the geologic units is discussed below with geologic units of similar paleontological sensitivity grouped together. The paleontological sensitivity of these geologic units is summarized in Table 4.6-1, below.

Table 4.6-1 Paleontological Sensitivities of Geologic Units in Petaluma

Geologic Unit	Age	Paleontological Sensitivity
Artificial stream channels	Late Holocene	FPMS 1 (Very Low) 0-5 ft; FPMS U (Unknown) >5 ft
Artificial fill	Late Holocene	FPMS 1 (Very Low) 0-5 ft; FPMS U (Unknown) >5 ft
Artificial levee fill	Late Holocene	FPMS 1 (Very Low) 0-5 ft; FPMS U (Unknown) >5 ft
Young Holocene stream terrace deposits	Late Holocene	FPMS 2 (Low) 0-5 ft; FPMS U (Unknown) >5 ft
Holocene stream channel deposits	Holocene	FPMS 2 (Low) 0-5 ft; FPMS U (Unknown) >5 ft
Holocene stream terrace deposits	Holocene	FPMS 2 (Low) 0-5 ft; FPMS U (Unknown) >5 ft
Holocene alluvial fan deposits	Holocene	FPMS 2 (Low) 0-5 ft; FPMS U (Unknown) >5 ft
Bay Mud	Holocene	FPMS 2 (Low) 0-15 ft; FPMS U (Unknown) >15 ft
Quaternary landslide deposits	Holocene and Pleistocene	FPMS 2 (Low)
Quaternary alluvium	Holocene to Late Pleistocene	FPMS 4 (High)
Quaternary alluvial fan deposits	Holocene to Late Pleistocene	FPMS 4 (High)
Pleistocene alluvial fan deposits	Late Pleistocene	FPMS 4 (High)
Quaternary older alluvium	Late to Early Pleistocene	FPMS 4 (High)
Wilson Grove Formation	Miocene	FPMS 4 (High)
Petaluma Formation (middle)	Miocene	FPMS 4 (High)
Sand and gravel of Cotati	Miocene	FPMS U (Unknown)
Tolay Volcanics, mafic rocks	Miocene	FPMS 1 (Very Low)
Franciscan Complex mélange	Cretaceous to Jurassic	FPMS 2 (Low)
Franciscan Complex, sandstone and shale	Cretaceous to Jurassic	FPMS 2 (Low)
Franciscan Complex, metamorphic rocks	Cretaceous to Jurassic	FPMS 1 (Very Low)

Artificial Stream Channels, Artificial Fill, and Artificial Levee Fill

The three artificially deposited geologic units (artificial stream channels, artificial fill, and artificial levee fill) are mapped in various places throughout the Plan Area (Figure 4.6-6). Additionally, large portions of the Plan Area have been developed for urban and/or agricultural use, so disturbed/artificial fill sediments underlie more areas than are mapped by Wagner and Gutierrez (2017). Any type of human-deposited sediments, such as artificial stream channels, artificial fill, and artificial levee fill, represent sediments removed from their original stratigraphic context, so they cannot contain significant paleontological resources. However, artificially deposited sediments are placed on top of other geologic units and generally do not extend far below the surface. Therefore, artificial stream channels, artificial fill, and artificial levee fill are considered to have FPMS 1 (Very Low) paleontological sensitivity from 0 to 5 feet below the surface and FPMS U (Unknown) paleontological sensitivity greater than 5 feet below the surface.

YOUNG HOLOCENE STREAM TERRACE DEPOSITS, HOLOCENE STREAM CHANNEL DEPOSITS, HOLOCENE STREAM TERRACE DEPOSITS, AND HOLOCENE ALLUVIAL FAN DEPOSITS

Four Holocene-aged geologic units (Young Holocene Stream Terrace Deposits, Holocene Stream Channel Deposits, Holocene Stream Terrace Deposits, and Holocene Alluvial Fan Deposits) underlie the majority of the Plan Area forming the floor of the Petaluma Valley (Figure 4.6-6). These four geologic units are generally similar lithologically, consisting of weakly bedded silt, sand, and gravel, with bedding features and degree of sorting varying depending on the depositional environment (e.g., basin, stream terrace, alluvial fan; Wagner and Gutierrez 2017). Holocene-aged sediments are generally considered too young to preserve significant paleontological resources (SVP 2025). However, such sediments increase in age with depth to a point where they are old enough to preserve paleontological resources. Pleistocene-aged sediments are known to preserve paleontological resources in Petaluma, suggesting that the depth at which these sediments become sensitive could be as shallow as 5 feet below the surface. Therefore, young Holocene stream terrace deposits, Holocene stream channel deposits, Holocene stream terrace deposits, and Holocene alluvial fan deposits are considered to have FPMS 2 (Low) paleontological sensitivity from 0 to 5 feet below the surface and FPMS U (Unknown) paleontological sensitivity greater than 5 feet below the surface.

BAY MUD

Bay Mud underlies southeastern parts of the Plan Area near the mouth of the Petaluma River (Figure 4.6-6). Bay Mud consists of peat, clay, silt, and fine sand deposited along the shoreline of San Pablo Bay (Wagner and Gutierrez 2017). Bay Mud is Holocene in age, so it is generally considered too young to preserve significant paleontological resources (SVP 2025). However, alluvial sediments, such as Bay Mud, increase in age with depth to a point where they are old enough to preserve paleontological resources. The depth at which Bay Mud is old enough to preserve paleontological resources is estimated to be 15 feet below the surface. Therefore, Bay Mud is considered to have FPMS 2 (Low) paleontological sensitivity from 0 to 15 feet below the surface and FPMS U (Unknown) paleontological sensitivity greater than 15 feet below the surface.

QUATERNARY LANDSLIDE DEPOSITS

Quaternary landslide deposits underlie small areas in the southern part of the Plan Area (Figure 4.6-6). Quaternary landslide deposits represent Holocene- to Pleistocene-aged landslides and debris flows and consist of poorly sorted sediments ranging from boulder- to silt-sized clasts (Wagner and Gutierrez 2017). The high-energy nature in which landslides are deposited is not conducive to fossil preservation. Therefore, Quaternary landslide deposits have FPMS 2 (Low) paleontological sensitivity.

QUATERNARY ALLUVIUM, QUATERNARY ALLUVIAL FAN DEPOSITS, QUATERNARY OLDER ALLUVIUM, AND PLEISTOCENE ALLUVIAL FAN DEPOSITS

Each of these four geologic units (Quaternary alluvium, Quaternary alluvial fan deposits, Quaternary older alluvium, and Pleistocene alluvial fan deposits) underlie relatively small areas abutting the edges of the Petaluma Valley near the northeastern and southwestern parts of the Plan Area (Figure 4.6-6). These four geologic units are generally similar lithologically consisting of weakly bedded silt, sand, and gravel (Wagner and Gutierrez 2017). Quaternary alluvium and Quaternary alluvial fan deposits range in age from Holocene to late Pleistocene; Pleistocene alluvial fan deposits are late Pleistocene; and Quaternary older alluvium is late to early Pleistocene. Pleistocene-aged

alluvial sediments have produced paleontological resources in Sonoma County, including multiple localities in Petaluma, yielding taxa such as Pacific mastodon (*Mammut pacificus*), ground sloth (*Paramylodon*), and bison (*Bison*) (Jefferson 2010; University of California Museum of Paleontology [UCMP] 2025). Given the fossil-producing history of Pleistocene-aged alluvial sediments in the region, Quaternary alluvium, Quaternary alluvial fan deposits, Pleistocene alluvial fan deposits, and Quaternary older alluvium, have FPMS 4 (High) paleontological sensitivity.

WILSON GROVE FORMATION

The Wilson Grove Formation underlies some southwestern parts of the Plan Area (Figure 4.6-6). This geologic unit is Miocene in age and represents deep to shallow marine environments as evidenced by sandstone and conglomerate beds (Wagner and Gutierrez 2017). The Wilson Grove Formation has produced multiple significant paleontological localities in Sonoma County, yielding taxa such as walrus (*Dusignathus*, *Gomphotaria*), dolphin, baleen whale, sea bird, shark, ray-finned fish, and invertebrates (Powell et al. 2021; Paleobiology Database 2025; UCMP 2025). Given this fossil-producing history, the Wilson Grove Formation is assigned FPMS 4 (High) paleontological sensitivity.

PETALUMA FORMATION (MIDDLE)

The Petaluma Formation underlies small portions of the northern part of the Plan Area (Figure 4.6-6). Wagner and Gutierrez (2017) specifically mapped this portion as 'middle' Petaluma Formation, which is Miocene in age and consists of sandstone, siltstone, and conglomerate often containing clasts of siliceous shale. The Petaluma Formation is known to produce paleontological resources including horses (*Neohipparion*), turtles, invertebrates, and petrified wood (Paleobiology Database 2025; UCMP 2025; Wagner and Gutierrez 2017). Given this fossil-producing history, the middle Petaluma Formation has FPMS 4 (High) paleontological sensitivity.

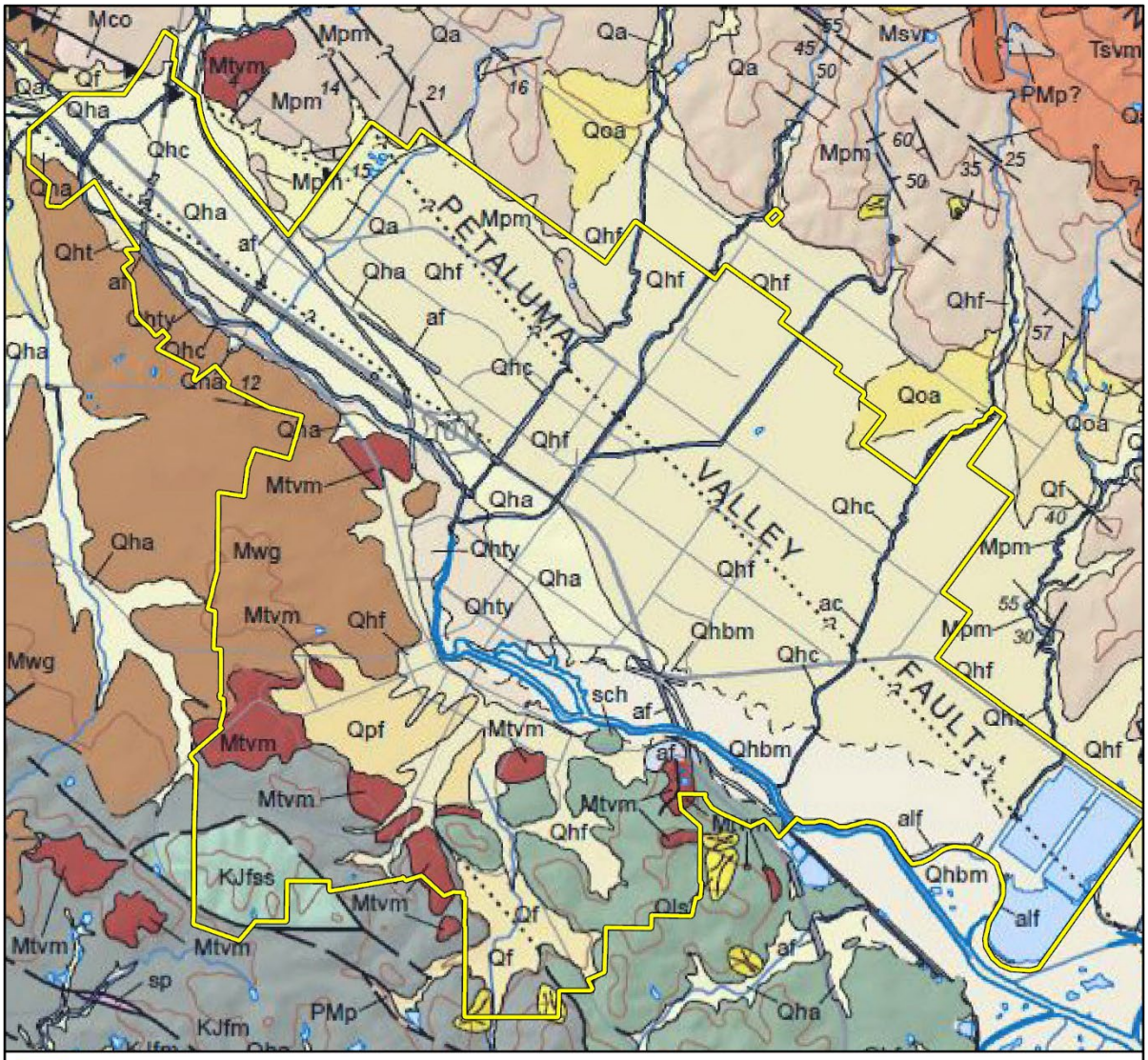
SAND AND GRAVEL OF COTATI

Sand and gravel of Cotati underlies a very small part of the northern Plan Area (Figure 4.6-6). This geologic unit is Miocene in age and represents littoral (beach) deposits consisting of pebbly sand and gravel (Wagner and Gutierrez 2017). No paleontological resources are yet known from this geologic unit, but its small geographic distribution means that it has been little explored. Nevertheless, the lithology of this geologic unit suggests it could be conducive to fossil preservation, so sand and gravel of Cotati is assigned FPMS U (Unknown) paleontological sensitivity.

TOLAY VOLCANICS, MAFIC ROCKS

Mafic rocks of the Tolay Volcanics are patchily distributed in the southern part of the Plan Area (Figure 4.6-6). The Tolay Volcanics are a group of volcanic rocks that range from approximately 10.6 to 8.5 million years old (i.e., late Miocene; Wagner and Gutierrez 2017). Mafic rocks of the Tolay Volcanics consist of basalt and basaltic andesite flows and breccia. Igneous rocks (aside from ashfall deposits) very rarely preserve paleontological resources; therefore, mafic rocks of the Tolay Volcanics are considered to have FPMS 1 (Very Low) paleontological sensitivity.

Figure 4.6-6 Geologic Map



Imagery provided by Wagner, D.L and C.I. Gutierrez, "Preliminary Geologic Map of the Napa and Bodega Bay 30' x 60' Quadrangles, California. California Geological Survey, Preliminary Geologic Maps," 2017.

20-10614 EPS
Fig 6 Geologic Map

FRANCISCAN COMPLEX MÉLANGE, AND FRANCISCAN COMPLEX, SANDSTONE AND SHALE

Franciscan Complex mélange and sandstone and shale of the Franciscan Complex are found in the southwestern part of the Plan Area (Figure 4.6-6). Both geologic units are Jurassic to Cretaceous in age. Sandstone and shale of the Franciscan Complex consists of thickly-bedded greywacke sandstone with interbedded shale and some conglomerate beds (Wagner and Gutierrez 2017). Franciscan Complex mélange consists of a tectonically sheared mixture of all rock types that form the Franciscan Complex, including sandstone, shale, metasedimentary rocks, metavolcanic rocks, and schist. Sedimentary rocks within the Franciscan Complex have produced paleontological resources, but these occurrences are rare and generally consist of non-significant invertebrate fossils (Paleobiology Database 2025; UCMP 2025). At least two records of Mesozoic marine reptiles are known from the Franciscan Complex (Camp 1942), but the scarcity of such finds in the large area covered by this geologic group demonstrates its relatively low fossil density. Therefore, Franciscan Complex mélange and sandstone and shale of the Franciscan Complex have FPMS 2 (Low) paleontological sensitivity.

FRANCISCAN COMPLEX, METAMORPHIC ROCKS

Metamorphic rocks of the Franciscan Complex occur in the southern part of the Plan Area (Figure 4.6-6). This geologic unit is Jurassic to Cretaceous in age and consists of a mixture of metasedimentary and metavolcanic rocks (Wagner and Gutierrez 2017). Metamorphic rocks almost never preserve significant paleontological resources; therefore, metamorphic rocks of the Franciscan Complex are considered to have FPMS 1 (Very Low) paleontological sensitivity.

4.6.2 Regulatory Setting

a. Federal Regulations

National Earthquake Hazards Reduction Program

The National Earthquake Hazards Reduction Program was established by the United States Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law 95-124. In establishing the National Earthquake Hazards Reduction Program, Congress recognized earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early warning systems, coordinated emergency preparedness plans, and public education and involvement programs. The four basic goals are as follows:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems.
- Improve earthquake hazards identification and risk assessment methods, and their use.
- Improve the understanding of earthquakes and their effects.

Several key federal agencies contribute to earthquake mitigation efforts. There are four primary National Earthquake Hazards Reduction Program agencies:

- National Institute of Standards and Technology of the Department of Commerce
- National Science Foundation

- USGS
- Federal Emergency Management Agency (FEMA)

Implementation of National Earthquake Hazards Reduction Program priorities are accomplished primarily through original research, publications, and recommendations to assist and guide state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

Landslide Hazard Program

The USGS created the Landslide Hazard Program in the mid-1970s; the primary objective of the program is to reduce long-term losses from landslide hazards by improving our understanding of the causes of ground failure and suggesting mitigation strategies. The federal government takes the lead role in funding and conducting this research, whereas the reduction of losses due to geologic hazards is primarily a State and local responsibility.

In the City of Petaluma, plans and programs designed for the protection of life and property are coordinated through the City's Local Hazard Mitigation Plan, managed by the City of Petaluma in collaboration with Sonoma County and overseen by the City's Hazard Mitigation Planning Committee.

Clean Water Act

Congress enacted the Clean Water Act (CWA), formerly the Federal Water Pollution Control Act of 1972, with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). NPDES permitting authority is administered by the California State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs).

Petaluma is within the Petaluma River watershed within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (Region 2). The City's Environmental Services Division manages stormwater programs, pollution prevention, and compliance with NPDES requirements and collaborates with regional initiatives such as the Petaluma Watershed Collaborative to maintain watershed health. While the CWA is primarily associated with protecting and enhancing surface water quality, some regulatory provisions of the CWA help to control erosion and soil loss and compliance with these provisions can help mitigate potential impacts to geology and soils.

Disaster Mitigation Act of 2000

Congress passed the Disaster Mitigation Act of 2000 to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act by invoking new and revitalized approaches to mitigation planning. Section 322 of the Act emphasized the need for state and local government entities to closely coordinate on mitigation planning activities, and makes the development of a hazard mitigation plan a specific eligibility requirement for any local government applying for federal mitigation grant funds. Communities with an adopted and federally-approved hazard mitigation plan thereby become pre-positioned and more apt to receive available mitigation funds before and after the next declared disaster. To implement the new Stafford Act provisions, FEMA published requirements and

procedures for local hazard mitigation plans in the Code of Federal Regulations (CFR) at Title 44, Chapter 1, Part 201.6. These regulations specify minimum standards for developing, updating, and submitting local hazard mitigation plans for FEMA review and approval at least once every five years.

b. State Regulations

California Building Code

The CBC, Title 24, Part 2 provides building codes and standards for the design and construction of structures in California. The current California Building Code is based on the most recent version of the International Building Code with the addition of more extensive structural seismic provisions. Chapter 16 of the California Building Code contains definitions of seismic sources and the procedure used to calculate seismic forces on structures. The CBC requires addressing soil-related hazards, such as treating hazardous soil conditions involving removal, proper fill selection, and compaction. In cases where soil remediation is not feasible, the CBC requires structural reinforcement of foundations to resist the forces of expansive soils. Section 1613 of the CBC further requires that every structure and its permanently attached nonstructural components, such as supports and attachments, be designed and constructed to resist the effects of earthquake motions.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (A-P Act) was passed into law following the destructive February 9, 1971, San Fernando earthquake that had a moment magnitude (Mw) of 6.6. The main purpose of the act is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The law requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps, known as Alquist-Priolo maps (California Department of Conservation 2025). The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. Generally, structures for human occupancy must be set back from active faults by approximately 50 feet. Therefore, if a project site is in an active earthquake fault zone, the local agency must withhold development permits until geologic investigations demonstrate the site is not threatened by surface displacement from future faulting.

Seismic Safety Act

The Seismic Safety Act established the California Seismic Safety Commission in 1975 with the intent of providing oversight, review, and recommendations to the Governor and State Legislature regarding seismic issues. The commission's name was changed to the Alfred E. Alquist Seismic Safety Commission in 2006. Since then, the Commission has adopted several documents based on recorded earthquakes, including but not limited to the 1994 Northridge earthquake, 1933 Long Beach earthquake, and the 1971 Sylmar earthquake.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 was passed into law following the destructive October 17, 1989, Mw 6.9 Loma Prieta earthquake. The act directs CGS to delineate Seismic Hazard Zones. In accordance with the mapping criteria, the CGS seismic hazard zone maps identify areas with the potential for a ground shaking event that corresponds to a 10-percent probability of exceedance in

50 years. The purpose of the act is to reduce the negative implications of seismic hazards to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. The act requires site-specific preparation of geotechnical investigations, including mitigation measures based on site-specific conditions, prior to permitting most urban development projects in seismic hazard zones.

California Public Resources Code Section 5097.5

California Public Resource Code (PRC) Section 5097.5 states "no person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface" any "vertebrate paleontological site" on public lands without the "permission of the public agency having jurisdiction over such lands." Violation of this section is a misdemeanor. As used in PRC Section 5097.5, "public lands" means lands 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 PRC Section 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others.

c. Local Regulations

City of Petaluma General Plan

The Natural Hazards Element of the City of Petaluma General Plan contains goals and policies related to hazards, including seismic hazards. The following policies are relevant to the project (City of Petaluma 2008).

Goal 10-P-1. Minimize risks of property damage and personal injury posed by natural hazards.

> **Policy 10-P-1 A.** Require geotechnical studies prior to development approval in geologic and/or seismic hazard areas. Require or undertake comprehensive geologic and engineering studies for critical structures regardless of location.
>
> **Policy 10-P-1 B.** On sites with slopes greater than 30 percent, require all development to be clustered outside of the 30 percent slope areas (and preferably on land less than 15 percent in slope) where possible.
>
> **Policy 10-P-1 C.** Regulate the grading and development of hillside areas for new urban land uses, by instituting a Hillside Overlay or other similar mechanism in the Development Code. Ensure that new development on hillsides is constructed to reduce erosion and landslide hazards and in compliance with any City hillside regulations, including, but not limited to:
>
> - Limit cut slopes to 3:1, except where an engineering geologist can establish that a steeper slope would perform satisfactorily over the long term.
> - Encourage use of retaining walls or rockfilled crib walls as an alternative to high cut slopes.
> - Ensure revegetation of cut-and-fill slopes to control erosion. Plant materials for revegetation should not be limited to hydro-seeding and mulching with annual grasses. Trees add structure to the soil and take up moisture while adding color and diversity.
> - Ensure blending of cut-and-fill slopes within existing contours, and provision of horizontal variation, in order to mitigate the artificial appearance of engineered slopes.
> - Ensure structural integrity of sites previously filled before approving redevelopment.

Policy 10-P-1 D. Adopt and amend as needed updated versions of the California Building Code (CBC) so that optimal earthquake-protection standards are used in construction and renovation projects.

- Earthquake-resistant design and materials must meet or exceed the current seismic engineering standards of the CBC Seismic Zone 4 requirements.

Policy 10-1-P E. Explore programs that would encourage, assist, or provide incentives to property owners to retrofit their buildings for seismic safety, such as the successful Unreinforced Masonry (URM) program.

Goal 10-P-2. Protect the community from risks associated with seismically induced surface ruptures, ground-shaking, ground failure, slope instability leading to mudslides and landslides, subsidence, liquefaction, and other seismic, geologic, and fire hazards.

Policy 10-P-2 A. Adopt and maintain a Hazard Mitigation Plan in compliance with applicable state and federal regulations.

City of Petaluma Municipal Code

The City of Petaluma adopts the California Building Code with local amendments through the Petaluma Municipal Code (PMC) Title 17, including Chapters 17.04 (California Codes), 17.31 (Grading and Erosion Control), and 17.34 (Earthquake Hazard Reduction in Existing Unreinforced Masonry Wall Buildings). Through local amendments, the City has adopted a number of code provisions that are specifically intended to address local geologic and soil conditions, as listed below:

- Modifications to California Building Code (CBC) Part 2 Sections 1803.1.1-1803.1.1.3 by requiring new development to be all-electric, mandating lot-specific soil investigations in areas with expansive soils or other related hazards, and requiring incorporation of geotechnical recommendations into construction as a condition of permit approval.
- Modifications to California Residential Code Part 2.5 by requiring lot-specific soil investigations and corrective actions for expansive soils and requiring incorporation of geotechnical recommendations as a permit condition.

In addition to these local amendments to the Building Code, the PMC includes several other provisions intended to address local geologic and soil conditions, as listed below:

- Section 17.31.180 requires a soils and geological reconnaissance report as part of the grading permit application process, unless specific conditions are met.
- Section 17.31.190 requires an erosion and sediment control plan to be prepared by a registered civil engineer as part of the grading permit application process, unless specific conditions are met.
- Chapter 15.80 implements the City's local stormwater requirements and supports compliance with National Pollution Discharge Elimination System regulations by requiring site design measures, construction-phase erosion and sediment controls, and post-construction stormwater treatment to reduce sedimentation, erosion, and pollutants in waterways.
- Zoning Code Chapter 16 (Hillside Protection) establishes development standards for hillside and steep-slope areas to reduce erosion, landslide risk, and geologic hazard exposure through measures such as limits on grading, vegetation removal, and slope disturbance.

City of Petaluma Local Hazard Mitigation Plan

The City of Petaluma's Local Hazard Mitigation Plan (LHMP), adopted in 2020, establishes and promotes a comprehensive mitigation policy and program to protect the health, safety, and welfare of residents (City of Petaluma 2020). The LHMP addresses earthquake hazards, including shaking and liquefaction, and implements mitigation regarding earthquake hazards. The LHMP:

- Meets the requirements of federal assistance grant programs, including FEMA's Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PMD) funding.
- Works in conjunction with other plans, including the City's General Plan, Floodplain Management Plan, and Emergency Operations Plan.
- Establishes a basis for coordination and collaboration among community entities such as private and public agencies, key stakeholders, and residents to provide for the fullest amount of transparency.
- Identifies and prioritizes future mitigation projects.

City of Petaluma Emergency Operations Plan

The City of Petaluma's Emergency Operations Plan (EOP) was adopted by the City in 2022 to establish a framework for managing natural and human-caused hazards that may affect the city, including geological risks such as earthquakes, landslides, and flooding. The EOP aligns with the Standardized Emergency Management System and National Incident Management System and emphasizes collaboration with Sonoma County and regional agencies to provide shared resources and a coordinated approach to governing during emergencies. The EOP adopts an all-hazards approach and establishes procedures for alert and warning and the provision of public information. Although the current version of the EOP was adopted in 2022, the EOP undergoes regular review and updates to maintain operational relevance and compliance with state and federal emergency management standards.

4.6.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

This section describes the potential environmental impacts of the proposed project relevant to geology and soils. The impact analysis is based on an assessment of baseline conditions for the Plan Area, including topography, geologic and soil conditions, landslides, and seismic hazards, as described above under Section 4.6.1, *Setting*. This analysis identifies potential impacts based on the predicted interaction between the affected environment and construction, operation, and maintenance activities related to development under the proposed project. This section describes impacts in terms of location, context, duration, and intensity, and recommends mitigation measures, when necessary, to avoid or minimize impacts.

Significance Thresholds

In accordance with Appendix G of the CEQA Guidelines, an impact related to geology and soils would be significant if the proposed project would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
   a. 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?
   b. Strong seismic ground shaking?
   c. Seismic-related ground failure, including liquefaction?
   d. Landslides?
2. Result in substantial soil erosion or the loss of topsoil?
3. 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?
4. 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?
5. 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?
6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

b. Impact Analysis

Threshold 1:	Would the project 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, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides?

Impact GEO-1 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT COULD RESULT IN EXPOSURE OF PEOPLE OR STRUCTURES TO A RISK OF LOSS, INJURY, OR DEATH INVOLVING RUPTURE OF A KNOWN EARTHQUAKE FAULT. HOWEVER, REQUIRED ADHERENCE TO THE CBC AND PMC, AND IMPLEMENTATION OF THE POLICIES AND ACTIONS OF THE GENERAL PLAN UPDATE, WOULD REDUCE THE POTENTIAL FOR LOSS, INJURY, OR DEATH INVOLVING RUPTURE OF A KNOWN EARTHQUAKE FAULT, STRONG SEISMIC GROUND SHAKING, OR SEISMIC-RELATED GROUND FAILURE, INCLUDING LIQUEFACTION AND LANDSLIDES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

As described in Section 4.6.1, *Setting*, there are known faults located within and around the Plan Area. In addition, as identified in the LHMP, Petaluma is at risk of liquefaction as a secondary hazard if one of the neighboring faults such as the Rogers Creek/Hayward Fault would erupt in an earthquake and cause substantial ground shaking (City of Petaluma 2020).

Under full buildout conditions, the General Plan Update would develop 2,437 housing units and 708,312 square feet of non-residential development. As described in Chapter 2, *Project Description*, the General Plan Update would also shift land use designations, allowing for increased land use intensity in some areas such as central and southeastern Petaluma where new mixed-use intensification is proposed. Although these areas overlap with portions of the Plan Area that have been identified as having moderate to high liquefaction susceptibility, the General Plan Update would concentrate most growth in infill locations in previously disturbed areas with compatible land

uses such as Downtown Petaluma, near transit facilities, and along major urban corridors, and would reduce allowable density in most geologically sensitive areas. In addition, the General Plan Update would not increase density in hillside areas where the Plan Area is susceptible to landslides, as these areas would maintain existing low-density residential and open space designations. These reduced-density land uses in hillside areas are further supported by the City's Hillside Protection ordinance, as described in Section 4.6.2, Regulatory Setting, which minimize disturbance in geologically sensitive slope areas.

Development facilitated by the proposed project would be subject to PMC and CBC engineering design and construction measures and requirements. Development designed in accordance with the CBC would be able to: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage, but with some non-structural damage; and 3) resist major earthquakes without collapse, but with some structural, as well as non-structural, damage. Compliance with the CBC would minimize potential structural damage and the exposure of people to the risk of injury or death from structural failure. Foundations and other structural support features would be designed to resist and absorb damaging forces from strong ground shaking and liquefaction in accordance with CBC requirements. Specifically, Section 1613 of the CBC requires every structure and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, to be designed and constructed to resist the effects of earthquake motions. The PMC also includes specific policies to ensure the seismic safety of new developments, as described above in Section 4.6.2, *Regulatory Setting*. Specifically, PMC Title 17 adopts the CBC with local amendments to require soil investigations in areas with expansive soils or related hazards, the incorporation of geotechnical recommendations into construction as a condition of permit approval, and the preparation of an erosion and sediment control plan by a registered civil engineer as part of the grading permit application process. Therefore, compliance with PMC Title 17 provisions would ensure that new developments are designed and constructed in accordance with best practices tailored to the local geologic, soil, and seismic conditions.

Additionally, the proposed project would include development on infill sites, which would in many cases replace older structures that may be subject to seismic damage with newer structures built to current seismic standards that can better withstand the adverse effects of strong ground shaking. As part of the Action SAF-9.2.3 of the proposed project's Safety Element, described below, the City would adopt Appendix A of the California Existing Building Code, meaning seismic risk potential would be reviewed for remodel and addition projects and proper design mitigations would be implemented as part of the development review process.

Development facilitated by the project would be required to be built to current seismic standards that could better withstand the adverse effects of strong seismic ground shaking, liquefaction, and landslides. Potential structural damage and the exposure of people to the risk of injury or death from structural failure associated with liquefaction or landslides would be minimized by compliance with CBC engineering design and construction measures. Foundations and other structural support features would be required to be designed to resist or absorb damaging forces from liquefaction and landslides. As required by Title 17 within the PMC, which adopts the current California Building Code, site-specific geotechnical investigations would identify liquefaction and landslide potential areas within individual development sites and include recommendations to reduce hazards associated with liquefaction and/or landslide.

In addition, the Safety Element of the proposed project contains the following policies and actions related to minimizing the risks associated with seismic and geologic hazards in order to protect public health, safety, property, and the environment:

Policy SAF-5.4: Prepare for multi-hazard scenarios. Continue to prepare City facilities for multi-hazard scenarios.

Action SAF-5.4.5. Seismically retrofit City facilities to ensure operational functions remain following a seismic event.

Policy SAF-9.1: Reduce seismic risk on critical infrastructure. Utilize advanced planning and investments in critical infrastructure to reduce the effects of geologic and seismic events.

Action SAF-9.1.1. Implement the California Building Code to address geologic and seismic hazards.

Action SAF-9.1.4. Promote evaluation of needed seismic strengthening in soft-story buildings, wood-framed cripple walls, and masonry chimneys.

Policy SAF-9.2: Consider geotechnical information for development. Update development standards to consider earthquake and liquefaction risk in building siting and design.

Action SAF-9.2.1. Minimize risks from liquefaction by requiring new developments to incorporate designs that minimize the potential for damage.

Action SAF-9.2.2. Require geotechnical reports demonstrating acceptable mitigation for foundation design in areas of high liquefaction susceptibility.

Action SAF-9.2.3. Adopt Appendix A of the California Existing Building Code entitled Guidelines for the Seismic Retrofit of Existing Buildings.

Action SAF-9.2.4. Enhance requirements for geotechnical investigations on all newly occupied buildings and structures.

Action SAF-9.2.5. Enhance requirements for building structural upgrades on existing occupied structures and buildings where substantial alterations occur.

In addition to identifying new geotechnical and seismic-safety requirements, the proposed Safety Element policies support safe implementation of land use changes proposed by the General Plan Update by ensuring that future development in areas planned for higher density or mixed-use intensification is designed to withstand the geologic and seismic hazards present in those locations. Furthermore, the General Plan Update generally directs growth to areas where geologic hazard risks can be reduced through engineering and design, while areas with constraints such as steep slopes and landslide risks would maintain lower-intensity land uses. Adherence to the new policies listed above would reduce impacts related to seismic and geologic hazards, specifically Policy SAF-9.1, which would ensure that existing development is retrofitted to comply with the latest seismic safety standards. Additionally, Policy SAF-9.2, which would require new developments to minimize risks related to liquefaction and to ensure that new developments are designed with geotechnical best practices. Accordingly, implementation of General Plan Update Policies SAF-5.4, SAF-9.1, and SAF-9.2 and compliance with relevant PMC sections would reduce the potential for loss, injury, or death associated with liquefaction and landslides to less than significant.

Implementation of the relevant policies and actions in the proposed project and compliance with the CBC and relevant PMC sections would reduce the potential for loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, including liquefaction and landslides to less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2:	Would the project result in substantial soil erosion or the loss of topsoil?

Impact GEO-2 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD INCLUDE GROUND DISTURBANCE SUCH AS EXCAVATION AND GRADING THAT WOULD RESULT IN LOOSE OR EXPOSED SOIL, INCREASING THE POTENTIAL FOR EROSION AND SOIL LOSS. COMPLIANCE WITH APPLICABLE REGULATIONS, INCLUDING THE NPDES GENERAL PERMIT AND PMC, AND IMPLEMENTATION OF POLICIES AND ACTIONS OF THE GENERAL PLAN UPDATE WOULD REDUCE THE POTENTIAL FOR EROSION AND LOSS OF TOPSOIL. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

As shown above in Figure 4.6-5, the majority of the city has a slight potential for erosion-related hazards, with portions in the southwestern and northwestern corners of the city ranging from moderate to severe risk. As shown in Figure 2-3 and Figure 2-4 in Chapter 2, *Project Description*, the General Plan Update would facilitate land use changes in these areas. Development facilitated by the proposed project would involve construction activities such as stockpiling, grading, excavation, paving, and other earth-disturbing activities. Loose and disturbed soils are more prone to erosion and loss of topsoil by wind and water.

Construction activities that disturb one or more acres of land surface are subject to the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit (Order No.2022-0057-DWQ) issued by the State Water Resources Control Board (SWRCB) (SWRCB 2025). Compliance with the permit requires each qualifying development project to file a Notice of Intent with the SWRCB. Permit conditions require development of a stormwater pollution prevention plan, which must describe the site, the facility, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of construction sediment and erosion control measures, maintenance responsibilities, and non-storm water management controls. Inspection of construction sites before and after storms would also be required to identify storm water discharge from the construction activity and to identify and implement erosion controls, where necessary. Construction activities that would disturb less than one acre would still be subject to the City's Stormwater Management and Pollution Control Ordinance (PMC Chapter 15.80), which applies to all development and redevelopment projects regardless of size. Similar to NPDES requirements, this PMC chapter authorizes the City to require erosion and sediment controls, prohibit non-stormwater discharges, and impose stormwater pollution prevention measures on any site that may contribute to stormwater pollution or sediment discharge, ensuring that all development facilitated by the General Plan Update would remain subject to erosion and stormwater protection regulations.

Development facilitated by the proposed project would be required to comply with the requirements of PMC Chapter 17.31. PMC Chapter 17.31 regulates grading on public and private property to control erosion and sedimentation, protect water quality, reduce pollutants in stormwater to the maximum extent practicable, and safeguard health, safety and public welfare. Specifically, PMC Section 17.131.180 requires a soil and geological reconnaissance report and PMC Section 17.131.190 requires an erosion and sediment control plan as part of the grading permit application process. Compliance with the requirements of the PMC would ensure proper

management of loose and disturbed soil. This would reduce the potential for construction and soil disturbance of development facilitated by the proposed project to cause erosion or the loss of topsoil.

Additionally, the proposed Natural Resources Element of the project contains the following policy related to minimizing risks associated with erosion in order to protect public health and safety, property, and the environment:

> **Policy NR-3.1: Minimize Erosion and Runoff**. Minimize soil erosion and discharge of sediments into surface runoff, drainage systems, and water bodies.
>
> > **Action NR-3.1.1.** Continue to require grading plans that address soil erosion and on-site sediment retention.
> >
> > **Action NR-3.1.3**. Review and, as needed, update the City's Municipal Code every 10 years to incorporate standards and best practices for reducing erosion and sediment discharge into local water bodies.

The proposed Natural Resources Element and Safety Element reinforce the PMC Grading Ordinance, PMC Section 17.131.180, and PMC Section 17.131.190 by requiring grading plans that address soil erosion prior to issuance of grading permits.

Adherence to the proposed General Plan Update policies and associated actions, as well as compliance with state regulation and the PMC provisions listed above would reduce impacts related to erosion, as Policy NR-3.1 and Action NR-3.1.1 would require development facilitated by the proposed project to prepare grading plans that address soil erosion, and similarly PMC Section 17.131.190 would require the preparation of site-specific erosion control plan in order to prevent sedimentation and contamination of streams. Implementation of policies from the General Plan Update and compliance with state and local regulations would ensure that development under the proposed project would have less than significant impacts.

Mitigation Measures

No mitigation would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 3:	Would the project 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?
Threshold 4:	Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Impact GEO-3 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT COULD BE LOCATED ON GEOLOGIC UNITS THAT ARE UNSTABLE OR EXPANSIVE, RESULTING IN POTENTIAL RISKS RELATED TO LANDSLIDE, LATERAL SPREADING, SUBSIDENCE, LIQUEFACTION, OR COLLAPSE. HOWEVER, REQUIRED ADHERENCE TO THE CBC, PMC, IZO, AND IMPLEMENTATION OF THE POLICIES AND ACTIONS OF THE PROPOSED PROJECT WOULD REDUCE POTENTIAL IMPACTS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As shown in Figure 4.6-3, a few open space and low density residential areas located near the southwestern Plan Area boundaries have very low to low liquefaction potential, while most of the soils in Petaluma are moderately susceptible to liquefaction and a small portion of central Petaluma (near Washington Street and Western Avenue) is designated as having a high liquefaction potential. This area of central Petaluma would have the highest increase in density under the General Plan Update, although this growth would be primarily facilitated by infill development. In addition, as identified in the LHMP, Petaluma is at risk of liquefaction as a secondary hazard if one of the neighboring faults such as the Rogers Creek/Hayward Fault would erupt in an earthquake that could cause substantial ground shaking (City of Petaluma 2020). The Plan Area is also located in an area with moderate to high expansive soils.

Development facilitated by the proposed project could occur on expansive soils, as defined by Table 1-B of the Uniform Building Code (1994), and thus could be subject to damage or instability when the underlying soil shrinks or swells. The adverse effects of expansive soils would be avoided through proper subsoil preparation, drainage, and foundation design as required by CBC and site specific geological report required by PMC.

Development facilitated by the proposed project would be required to be built to current seismic standards that could better withstand the adverse effects of strong ground shaking and potential damage or instability that could be caused by the shrinking or swelling of underlying expansive soils. However, the adverse effects of expansive soils would be avoided through proper subsoil preparation, drainage, and foundation design, as required by CBC, PMC, and the General Plan Update Safety Element policies. In addition, potential structural damage and the exposure of people to the risk of injury or death from structural failure would be minimized by compliance with CBC engineering design and construction measures. Foundations and other structural support features would be required to be designed to resist or absorb damaging forces from strong ground shaking and liquefaction. Allowable increases in height as a result of the General Plan Update could require foundations and other structural support features to be more robust to support the additional height; however, compliance with CBC regulations would ensure that the buildings would meet seismic safety standards. The applicable CBC regulations adopted by PMC are as follows:

- Modifications to California Building Code (CBC) Part 2 Sections 1803.1.1-1803.1.1.3 by requiring new development to be all-electric, mandating lot-specific soil investigations in areas with expansive soils or other related hazards, and requiring incorporation of geotechnical recommendations into construction as a condition of permit approval.

- Modifications to California Residential Code Part 2.5 by requiring lot-specific soil investigations and corrective actions for expansive soils and requiring incorporation of geotechnical recommendations as a permit condition.

Pursuant to the CBC and PMC, development facilitated by the project would be subject to minimum standards for engineered subgrade and slab reinforcement to allow concrete slabs to better resist expansive soil conditions. Rain gutters, downspouts, rain leaders, splash blocks, and concrete landings would be required to direct rainwater away from foundations and slabs to minimize the potential for the underlying expansive soils to damage structures. Future development would also be subject to Chapter 17 of the PMC, which includes the City's regulations for excavation, grading, and fill. PMC Title 17 also requires preparation of a site-specific geological reconnaissance report and incorporation of geotechnical recommendations prior to issuance of grading permits. Site-specific geotechnical investigations would identify liquefaction potential within individual development sites and include recommendations to reduce hazards associated with expansive soils.

In addition to compliance with mandatory CBC and PMC requirements that address safe building development, including requirements to seismically upgrade existing structures, related to these hazards, the following General Plan Update policies and actions would further minimize potential adverse effects related to liquefaction such that impacts would be reduced to less than significant:

Policy SAF-9.1: Reduce seismic risk on critical infrastructure. Utilize advanced planning and investments in critical infrastructure to reduce the effects of geologic and seismic events.

Action SAF-9.1.1. Implement the California Building Code to address geologic and seismic hazards.

Action SAF-9.1.4. Promote evaluation of needed seismic strengthening in soft-story buildings, wood-framed cripple walls, and masonry chimneys.

Policy SAF-9.2: Consider geotechnical information for development. Update development standards to consider earthquake and liquefaction risk in building siting and design.

Action SAF-9.2.1. Minimize risks from liquefaction by requiring new developments to incorporate designs that minimize the potential for damage.

Action SAF-9.2.2. Require geotechnical reports demonstrating acceptable mitigation for foundation design in areas of high liquefaction susceptibility.

Action SAF-9.2.3. Adopt Appendix A of the California Existing Building Code entitled Guidelines for the Seismic Retrofit of Existing Buildings.

Action SAF-9.2.4. Enhance requirements for geotechnical investigations on all newly occupied buildings and structures.

Action SAF-9.2.5. Enhance requirements for building structural upgrades on existing occupied structures and buildings where substantial alterations occur.

As described in Section 4.6.1, *Setting*, and shown in Figure 4.6-4 and in California Department of Conservation Earthquake Hazards Zone Application, the Plan Area is mostly outside of the landslide probability zone (DOC 2024). Despite this, as shown in Figure 4.6-4, there are some areas designated as higher landslide susceptibility in the west and south of the city where there is hilly terrain (City of Petaluma 2020). Six minor landslides have occurred in Sonoma County in areas adjacent to the city between 1950 and 2019; however, these events did not cause any physical

injuries or deaths. While there was some property damage, the majority of the city is at low risk to such events (City of Petaluma 2020). While overall landslide risk is low in Petaluma, the CBC and PMC require site-specific geotechnical investigations for projects on or near slopes, incorporation of engineering recommendations into design, and implementation of grading and erosion control measures to maintain slope stability. Furthermore, development near slopes would be subject to Petaluma Zoning Code Chapter 16, Hillside Protection, which establishes development standards for hillside and steep-slope areas to reduce erosion, landslide risk, and geologic hazard exposure through measures such as limits on grading, vegetation removal, and slope disturbance.

In addition to landslides, other forms of ground failure may occur during seismic events. As described in Section 4.6.1, *Setting*, lateral spreading can result when saturated soils lose strength during ground shaking, causing horizontal movement on gentle slopes or near stream channels, while subsidence, or the sinking of ground surfaces, may occur due to soil compaction during earthquakes or withdrawal of groundwater. Collapse of unconsolidated soils can also occur under seismic loading or heavy saturation, which can create risks for infrastructure and structural foundations. Implementation of the General Plan Update would not cause impacts related to seismic-related ground failure, lateral spreading, subsidence, and collapse, as development facilitated by the plan would be required to comply with CBC and PMC requirements that involve investigation of these hazards during individual project planning process and the implementation of measures to eliminate them in individual project design.

Implementation of applicable General Plan Update policies and actions, in addition to compliance with applicable laws and regulations such as CBC and PMC requirements, would ensure that development facilitated by the proposed project would meet seismic safety standards and would reduce potential impacts related to on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, as well as impacts related to expansive soils as defined in Table 1-B of the Uniform Building Code (1994). Therefore, General Plan Update impacts related to an unstable geologic unit or unstable soil 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 5:	Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Impact GEO-4 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD CONCENTRATE GROWTH WHERE EXISTING SEWER SYSTEMS ARE PRESENT. DEVELOPMENT OCCURRING IN AREAS OF THE URBAN GROWTH BOUNDARY WITHOUT EXISTING SEWER SYSTEMS WOULD BE REQUIRED TO CONNECT TO THE EXISTING MUNICIPAL SYSTEM. THEREFORE, IMPLEMENTATION OF THE PROPOSED PROJECT WOULD NOT RESULT IN A SIGNIFICANT IMPACT TO SOILS THAT ARE INCAPABLE OF SUPPORTING SEPTIC TANKS OR ALTERNATIVE WASTEWATER DISPOSAL SYSTEMS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The City of Petaluma has an extensive wastewater collection, treatment, and disposal system that includes 192 miles of sewer pipe, 9 lift stations, and 3.86 miles of pressure force mains. This system spans the entire city, portions of unincorporated Sonoma County, and the community of Penngrove

(City of Petaluma 2023). Development facilitated by the proposed project would primarily occur within developed areas served by existing sanitary sewer systems, with some development occuring in portions of the Plan Area outside of Petaluma city limits but within the Urban Growth Boundary that are not yet connected to an existing sewer system. New development would be required to connect to existing sewer systems pursuant to PMC Section 20.36.060 (Sanitary Sewer Facilities). Therefore, development facilitated by the project would not require the use of septic tanks or alternative wastewater disposal systems, and 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 6:	Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Impact GEO-5 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT HAS THE POTENTIAL TO IMPACT PALEONTOLOGICAL RESOURCES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

Consistent with SVP (2025) guidelines, the paleontological sensitivity of the 21 geologic units underlying the Plan Area was evaluated using geologic maps, a literature review, and online fossil locality databases. The paleontological sensitivities of geologic units in Petaluma are summarized above in Figure 4.6-6, in Section 4.6.1, *Setting*. As described in Table 4.6-1, five of the geologic units underlying the Plan Area are known to have very low sensitivity from 0-5 feet below ground surface, with three of these units having unknown sensitivity below 5 feet. Eight geologic units have low sensitivity, with four of these units having unknown sensitivity below 5 feet and 1 unit having unknown sensitivity below 15 feet. One geologic unit, Sand and gravel of Cotati, has unknown paleontological sensitivity. Six geologic units are known to have high sensitivity, including Quaternary alluvium, Quaternary alluvial fan deposits, Quaternary Older Alluvium, Pleistocene alluvial dan deposits, the Wilson Grove Formation, and the Middle Petaluma Formation. Quaternary alluvium and alluvial fan deposits, Quaternary Older Alluvium, and Pleistocene alluvial fan deposits occur primarily along the northeastern and southwestern edges of the valley floor. The Wilson Grove Formation is present in the southwestern portion of the Plan Area near the valley edge, while the Middle Petaluma Formation occurs in small portions of northern Petaluma.

Significant impacts to paleontological resources can only be determined once a specific project has been proposed because the effects are highly dependent on both the individual project site conditions and the characteristics of the proposed ground-disturbing activity. Most of the Plan Area is built out, and the General Plan Update concentrates growth through infill development. Accordingly, most ground-disturbing activities associated with proposed project buildout would occur on previously disturbed soils, the majority of which are Holocene-age and therefore too young to contain fossils. In addition, development facilitated by the project would be subject to PRC Section 5097.5, which prohibits excavation, removal, destruction, injury, or defacing of any vertebrate paleontological sites located on public lands without permission from the appropriate jurisdiction. Nonetheless, ground-disturbing activities within previously undisturbed sediments with high or undetermined paleontological sensitivity could result in significant impacts to paleontological resources. Ground-disturbing activities associated with construction facilitated by

the project have the potential to damage or destroy paleontological resources that may be present on or below the ground surface in areas of undetermined or high paleontological sensitivity. Consequently, damage to or destruction of fossils could occur due to development facilitated by the proposed project. Furthermore, because paleontological resources may occur at depth even where no surface indicators are present, construction activities could result in the inadvertent discovery of previously unknown fossil material. The plan's potential to significantly impact a unique paleontological resource or unique geologic feature would occur during construction and redevelopment activities such as grading and excavation. Impacts to paleontological resources as a result on implementation of the General Plan Update would be potentially significant, and Mitigation Measure GEO-1 and GEO-2 would be required.

Mitigation Measures

GEO-1 Paleontological Resources Protection

Projects involving excavations in sediments with undetermined and/or high paleontological sensitivity as delineated in Figure 4.6-6 and Table 4.6-1 shall be required to prepare a Paleontological Resources Mitigation Plan drafted by a Qualified Paleontologist (pursuant to Society of Vertebrate Paleontology guidelines). The Paleontological Resources Mitigation Plan shall be approved by the City prior to commencement of ground disturbing activities. The Paleontological Resources Mitigation Plan shall be written according to Society of Vertebrate Paleontology standards and shall outline actions that will be followed during excavation activities to ensure the preservation of any discovered paleontological resources. These actions may include, but are not limited to: paleontological sensitivity training, construction monitoring, protocols for paleontological discoveries (i.e., salvage, laboratory preparation, and permanent curation), and final reporting.

GEO-2 Unanticipated Discovery of Paleontological Resources

Projects involving ground disturbance shall include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. If a potential fossil is discovered during project construction, construction activity within 50 feet of the find shall cease until the discovery is examined by a Qualified Paleontologist. If the find is determined to be significant, the Qualified Paleontologist shall direct all mitigation efforts related to paleontological resources consistent with the Society of Vertebrate Paleontology standards, which may include, but are not limited to: paleontological monitoring; fossil salvage, preparation, and curation; and reporting to summarize the paleontological mitigation efforts.

Significance After Mitigation

With implementation of Mitigation Measures GEO-1 and GEO-2, development associated with the proposed project involving excavation in sensitive geologic units would be required to implement a Paleontological Resources Mitigation Plan and follow established procedures for inadvertent discoveries during construction. Together, these measures ensure that both anticipated and unanticipated paleontological resources are subject to appropriate monitoring, immediate work stoppage in the vicinity of any find, and evaluation by a Qualified Paleontologist. As a result, impacts would be less than significant with implementation of Mitigation Measures GEO-1 and GEO-2.

4.6.4 Cumulative Impacts

The geographic scope of cumulative geology and soils impacts is the Plan Area and the immediately surrounding vicinity. Adverse effects associated with geology and soils impacts tend to be localized; therefore, an area generally within a 0.25-mile radius of individual sites that would be developed by implementation of the General Plan Update would be the area most affected by activities in combination with the proposed project. In addition, adverse effects associated with paleontological resource impacts tend to be localized, because the integrity of any given resource depends on what occurs only in the immediate vicinity around that resource, such as disruption of soils. The cumulative analysis considers the nearby past, present, and reasonably foreseeable future plans and projects listed in Table 3-1 (refer to Section 3, *Environmental Setting*) located in Petaluma, Cotati, Rohnert Park, Sonoma, adjacent areas of unincorporated Sonoma County, and on tribal lands of Graton Rancheria in addition to the proposed plan.

Cumulative projects, including development facilitated by the proposed project, have the potential to experience strong to violent ground shaking from earthquakes. Cumulative projects listed in Table 3-1 would be subject to the same development requirements including the provisions of the CBC and policies of their respective general plans and municipal codes, reducing potential hazards associated with seismic ground shaking and ground failure. Therefore, cumulative impacts related to seismic-related hazards would be less than significant.

Soil-related hazards associated with the proposed project, including expansive soils, liquefaction, landslides, and erosion, are specific to individual sites and generally do not contribute to a cumulative effect. Some or all other cumulative projects may have similar conditions, but they similarly would not substantially contribute to cumulative effects. Development facilitated by the proposed project and cumulative projects would be subject to applicable General Plan Update policies, municipal code requirements, and CBC requirements related to reducing soil-related hazards. Therefore, the cumulative impacts to expansive soils, liquefaction, landslides, and erosion would be less than significant.

Cumulative impacts related to paleontological resources would be less than significant, as the likelihood of encountering significant paleontological resources is low and cumulative projects would be subject to similar mitigation to the proposed project that would mitigate any adverse effects to paleontological resources. However, construction activities associated with development of cumulative plans and projects in or within the vicinity of the Plan Area may have the potential to encounter undiscovered paleontological resources. Cumulative development would be required to comply with applicable federal and State laws governing paleontological resources. The likelihood that paleontological resources are present in the cumulative area is relatively low, given that the majority of soil disturbance associated with the area will take place within Holocene soils too young to contain fossils. Although there is the possibility that previously undiscovered resources could be encountered by subsurface earthwork activities, the implementation of standard construction measures, including requirements to halt work and evaluate unanticipated finds consistent with procedures outlined in Mitigation Measure GEO-2, would ensure that undiscovered resources are not adversely affected by cumulative project-related construction activities, which would prevent the destruction or degradation of potentially significant paleontological resources in the vicinity of the projects' areas. In addition, development facilitated under the General Plan Update would require implementation of Mitigation Measures GEO-1 and GEO-2, which would minimize the potential for cumulative projects to cause a substantial adverse change in known or unknown paleontological resources by establishing both proactive management procedures and specific protocols for inadvertent discoveries. Given the low potential for disruption and the

comprehensiveness of measures and/or programs that would apply to the cumulative projects in the vicinity, the proposed project, in conjunction with cumulative plans and projects, would result in a less than significant cumulative impact related to paleontological resources, and the proposed project would not have a considerable contribution to cumulative impacts.

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4.7 Greenhouse Gas Emissions

This section summarizes the setting for greenhouse gas (GHG) emissions and climate change and analyzes the impacts related to GHG emissions and climate change due to the project.

4.7.1 Setting

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 (HFCs) and perfluorocarbons (PFCs); 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.

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 100-year GWP of 30, meaning its global warming effect is 30 times greater than CO_2 on a molecule per molecule basis (United Nations Intergovernmental Panel on Climate Change [IPCC] 2021).[1]

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 (United States Environmental Protection Agency [USEPA] 2022a).

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 IPCC expressed in their Sixth Assessment Report that the rise and continued growth of atmospheric CO_2 concentrations is unequivocally due to human activities (IPCC 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, a total of 2,390 gigatons of anthropogenic CO_2 was emitted. It is likely that anthropogenic activities have increased the global

[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.

surface temperature by approximately 1.07 degrees Celsius between the years 2010 through 2019 (IPCC 2021).

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.

a. Greenhouse Gas Emissions Inventory

Global Emissions Inventory

Worldwide anthropogenic GHG emissions totaled 47,000 million metric tons (MT) of CO_2e in 2015, which is a 43 percent increase from 1990 GHG levels. 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 fuel use from 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 three percent and international transportation sources contributed two percent. These sources account for approximately 98 percent because there was a net sink of two percent from land-use change (including afforestation/reforestation and emissions removals by other land use activities) (USEPA 2022).

United States Emissions Inventory

United States GHG emissions were 6,343.2 MMT of CO_2e in 2022 or 5,489.0 MMT CO_2e after accounting for sequestration. Emissions increased by 0.2 percent from 2021 to 2022. The increase from 2021 to 2022 was driven by an increase in CO_2 emissions from fossil fuel combustion across most end-use sectors due in part to increased energy use from the continued rebound of economic activity after the height of the COVID-19 pandemic. In 2022, the energy sector (including transportation) accounted for 76.4 percent of nationwide GHG emissions while agriculture, industrial and waste accounted for approximately 23.6 percent of nationwide GHG emission (U.S. EPA 2024).

California Emissions Inventory

Based on a review of the California Air Resource Board (CARB) California Greenhouse Gas Inventory for the years between 2000-2021, California produced 381.3 MMT of CO_2e in 2021, which is 12.6 MMT of CO_2e higher than 2020 levels. The 2019 to 2020 decrease and the 2020 to 2021 increase in emissions is likely due in large part to the impacts of the COVID-19 pandemic. Emissions levels in 2020 are anomalous to the long-term trend, and the one-year increase from 2020 to 2021 should be considered in the broader context of the pandemic and subsequent economic recovery that took place over 2021. The major source of GHG emissions in California is the transportation sector, which comprises 38 percent of the state's total GHG emissions. The industrial sector is the second largest source, comprising 19 percent of the state's GHG emissions while electric power accounts for approximately 16 percent (CARB 2023). The magnitude of 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, the state of California achieved its 2020 GHG emission reduction target of reducing emissions to 1990 levels as emissions fell below 431 MMT of CO_2e. The annual 2030 statewide target emissions level is 260 MMT of CO_2e (CARB 2017) and carbon neutrality by 2045.

Local Emissions Inventory

Based on the City of Petaluma's 2024 climate action plan (CAP), known as the Petaluma Blueprint for Climate Action, the City generated approximately 472,422 MT of CO_2e in 2018 (City of Petaluma 2024). On-road transportation was the major source accounting for 67 percent of the total. Energy use was the second largest source of emissions at 24 percent. Solid waste represented 7 percent, and off-road transportation accounted for 2 percent. Water and wastewater accounted for less than 1 percent of emissions (City of Petaluma 2024).

b. 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. Each of the past three decades has been warmer than all the previous decades on record, and the decade from 2000 through 2010 has been the warmest. The observed global mean surface temperature from 2015 to 2017 was approximately 1.0°C higher than the average global mean surface temperature over the period from 1880 to 1900 (National Oceanic and Atmospheric Administration 2025). Furthermore, several independently analyzed data records of global and regional Land-Surface Air Temperature obtained from station observations jointly indicate that Land-Surface Air Temperature and sea surface temperatures have increased.

According to *California's Fourth Climate Change Assessment*, statewide temperatures from 1986 to 2016 were approximately 0.6 to 1.1°C higher than those recorded from 1901 to 1960. Potential impacts of climate change in California may include reduced water supply from snowpack, sea level rise, more extreme heat days per year, larger forest fires, and more drought years (State of California 2018). In addition to statewide projections, *California's Fourth Climate Change Assessment* includes regional reports that summarize climate impacts and adaptation solutions for nine regions of the state and regionally specific climate change case studies (State of California 2018). However, while there is growing scientific consensus about the possible effects of climate change at a global and statewide level, current scientific modeling tools are unable to predict what local impacts may occur with a similar degree of accuracy. A summary follows of some of the potential effects that could be experienced in California because of climate change.

Air Quality

Scientists project that the annual average maximum daily temperatures in California could rise by 2.4 to 3.2°C in the next 50 years and by 3.1 to 4.9°C in the next century (State of California 2018). Higher temperatures are conducive to air pollution formation, and rising temperatures could therefore result in worsened air quality in California. As a result, climate change may increase the concentration of ground-level ozone. The magnitude of the effect of the increased concentration of ground-level ozone, and therefore its indirect effects, are uncertain. In addition, as temperatures have increased in recent years, the area burned by wildfires throughout the state has increased, and

wildfires have occurred 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 could worsen. 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. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains could tend to temporarily clear the air of particulate pollution, which would effectively reduce the number of large wildfires and thereby ameliorate the pollution associated with them (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. Year-to-year variability in statewide precipitation levels has increased since 1980, meaning that wet and dry precipitation extremes have become more common (California Department of Water Resources 2018). 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. The average early spring snowpack in the western U.S., including the Sierra Nevada Mountains, decreased by about 10 percent during the last century. During the same period, sea level rose over 0.15 meter along the central and southern California coasts (State of California 2018). The Sierra snowpack provides most of California's water supply as snow that accumulates during wet winters is released slowly during the dry months of spring and summer. A warmer climate is predicted to reduce the fraction of precipitation that falls as snow and the amount of snowfall at lower elevations, thereby reducing the total snowpack (State of California 2018). Projections indicate 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 could affect the intensity and frequency of storms and flooding (State of California 2018). Furthermore, climate change could induce substantial sea level rise in the coming century. Rising sea level increases the likelihood of and risk from flooding. The rate of increase of global mean sea levels between 1993 to 2022, observed by satellites, is approximately 3.5 millimeters per year, double the twentieth century trend of 1.6 millimeters per year (World Meteorological Organization 2013; National Aeronautics and Space Administration 2022). Sea levels are rising faster now than in the previous two millennia, and the rise will probably accelerate, even with robust GHG emission control measures. While the City is not close to the Pacific coast, the Petaluma River is a tidal river that connects to San Pablo Bay, the San Francisco Bay, and the Pacific Ocean. As sea level rises, areas immediately adjacent to the river south of Lynch Creek may be subject to flooding during extreme high tides and storms that can create storm surges up river. Additionally, sea level rise may jeopardize California’s water supply due to saltwater intrusion and induce groundwater flooding and/or exposure of buried infrastructure (State of California 2018).

Agriculture

California has an over $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, which would increase water demand as hotter conditions lead to the loss of soil moisture. In addition, 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). Temperature increases could also 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

Climate change and the potential resultant changes in weather patterns could have ecological effects on the global and local scales. Soil moisture is likely to decline in many regions because of higher temperatures, and intense rainstorms are likely to become more frequent. Rising temperatures could have four major impacts on plants and animals: timing of ecological events; geographic distribution and range of species; species composition and the incidence of nonnative species within communities; and ecosystem processes, such as carbon cycling and storage (Parmesan 2006; State of California 2018).

4.7.2 Regulatory Setting

a. International

United Nations Climate Change Framework Convention

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Climate Change Framework Convention. Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

b. Federal Regulations

Federal Clean Air Act

There is no overarching federal law specifically related to climate change or the reduction of GHG emissions. Additionally, in March 2025, the current administration announced that the U.S. Environmental Protection Agency (USEPA) will undertake 31 actions, focusing primarily on reconsidering actions adopted by previous administrations, including numerous actions and regulations related to climate change and the reduction of GHG emissions. These include, but are not limited to, reconsideration of regulations on power plants, the Mandatory Reporting Rule, the Endangerment Finding, and fuel economy standards, among others. As of the writing of this EIR, none of these regulations have been repealed or replaced with newly adopted regulations. Therefore, these regulations are discussed below.

In *Utility Air Regulatory Group v. Environmental Protection Agency* (134 Supreme Court 2427 [2014]), the United States Supreme Court held the USEPA may not treat GHGs as an air pollutant for purposes of determining whether a source can be considered a major source required to obtain a Prevention of Significant Deterioration or Title V permit. The Court also held that Prevention of Significant Deterioration permits 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).

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.

c. State Regulations

CARB is responsible for the coordination and oversight of State and local air pollution control programs in California. There are numerous regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

California Advanced Clean Cars Program

California's Advanced Clean Cars program (also referred to as "Pavley"), or AB 1493 (2002), 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, the U.S. EPA granted the waiver of CAA preemption to California for its GHG emission standards for motor vehicles, beginning with the 2009 model year, which allows California to implement more stringent vehicle emission standards than those promulgated by the U.S. EPA. Pavley I regulates model years from 2009 to 2016 and Pavley II, now referred to as "Low Emission Vehicle III GHG," regulates model years from 2017 to 2025.

In 2022, CARB approved the Advanced Clean Cars II rule regulating model years from 2026 to 2035. The rule establishes a year-by-year roadmap so that by 2035, 100 percent of new cars and light trucks sold in California would be zero-emission vehicles, including plug-in hybrid electric vehicles (EVs). The regulation realizes and codifies the light-duty vehicle goals set out in Governor Newsom's Executive Order N-79-20. By 2040, CARB anticipates that the rule would reduce GHG emissions from light-duty vehicles by 50 percent for a cumulative total of 395 MMT CO2e from 2026 through 2040. The U.S. EPA granted CARB its California's Clean Air Act waiver request on December 18, 2024. However, Public Law 119-16, enacted on June 12, 2025, disapproves of this regulation under the Congressional Review Act, retroactively revoking the state's waiver issued by the U.S. EPA under the Clean Air Act to implement the Advanced Clean Cars II regulation. Also on June 12th, 2025, the California Attorney General filed a lawsuit challenging the federal government's use of the

Congressional Review Act to revoke waivers for regulations including Advanced Clean Cars II, Omnibus, and Advanced Clean Trucks standards.

Executive Order B-48-18: Zero-Emission Vehicles

On January 26, 2018, Governor Brown signed Executive Order B-48-18 requiring all State entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as install 200 hydrogen fueling stations and 250,000 electric vehicle (EV) charging stations by 2025. It specifies that 10,000 of the EV charging stations should be direct current fast chargers. This order also requires all State entities to continue to partner with local and regional governments to streamline the installation of ZEV infrastructure. The Governor's Office of Business and Economic Development is required to publish a Plug-in Charging Station Design Guidebook and update the 2015 Hydrogen Station Permitting Guidebook to aid in these efforts. All State entities are required to participate in updating the 2016 ZEV Action Plan, along with the 2018 ZEV Action Plan Priorities Update, which includes and extends the 2016 ZEV Action Plan (Governor's Interagency Working Group on Zero-Emission Vehicles 2016, 2018) to help expand private investment in ZEV infrastructure with a focus on serving low-income and disadvantaged communities.

Executive Order N-79-20

Governor Gavin Newsom signed Executive Order N-79-20 in September 2020, which sets a Statewide goal that 100 percent of all new passenger car and truck sales in the State will be zero-emissions by 2035. It also sets a goal that 100 percent of statewide new sales of medium- and heavy-duty vehicles will be zero emissions by 2045, where feasible, and for all new sales of drayage trucks to be zero emissions by 2035. Additionally, the Executive Order targets 100 percent of new off-road vehicle sales in the State to be zero emission by 2035. CARB is responsible for implementing the new vehicle sales regulation.

California Global Warming Solutions Act of 2006 (Assembly Bill 32, Senate Bill 32, and Assembly Bill 1279)

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 of CO_2e, 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).

The CARB approved the 2013 Scoping Plan update in May 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.

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 below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies.

AB 1279, "The California Climate Crisis Act," was passed on September 16, 2022 and declares the State would achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and to achieve and maintain net negative greenhouse gas emissions thereafter. In addition, the bill states that the State would reduce GHG emissions by 85 percent below 1990 levels no later than 2045. The 2022 Scoping Plan lays out a path to achieve AB 1279 targets (CARB 2022a). The actions and outcomes in the 2022 Scoping Plan would achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon.

Senate Bill 375

The Sustainable Communities and Climate Protection Act of 2008 (SB 375), signed in August 2008, enhances the state's ability to reach AB 32 goals by directing the CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. SB 375 aligns regional transportation planning efforts, regional GHG reduction targets, and affordable housing allocations. Metropolitan Planning Organizations (MPOs) are required to adopt a Sustainable Communities Strategy (SCS), which allocates land uses in the MPO's Regional Transportation Plan (RTP). Qualified projects consistent with an approved SCS or Alternative Planning Strategy (categorized as "transit priority projects") can receive incentives to streamline CEQA processing.

The City of Petaluma is within the planning area of the Association of Bay Area Governments (ABAG). ABAG was assigned targets of a 10 percent reduction in GHGs from transportation sources by 2020 and a 19 percent reduction in GHGs from transportation sources by 2035 (CARB 2022b).

Assembly Bill 1007 (State Alternative Fuels Plan)

AB 1007 (Chapter 371, Statutes of 2005) required the California Energy Commission (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.

CARB In-Use On-Road and Off-Road Diesel Rules

The CARB rule imposes limits on idling, restricts the addition of older vehicles, and requires the retirement or replacement of older engines depending on their fleet size category. This policy indirectly impacts energy consumption.

More specifically, CARB is also charged with developing air pollution control regulations based upon the best available control measures and implementing feasible control measures under the State and Federal Clean Air Act. (Health & Safety Code, Sections 39602.5, 39667, 43013, subds. (a) and (h), 43018, 40600, 40601, 40612(a)(2) and (c)(1)(A).) Pursuant to these statutory authorities, more stringent emission standards were adopted in 2004 for off-road construction equipment (i.e. "Tier 4" standards) (40 Code of Federal Regulations Parts 1039, 1065, and 1068; Cal. Code Regs., tit. 13, Section 2025; AR 2854). CARB also adopted emission standards for on-road heavy duty diesel vehicles (i.e., haul trucks). (Cal. Code Regs., title 13, Section 1956.8.) These haul truck regulations mandate fleet turn-over to ensure that by January 1, 2023, nearly all on-road diesel trucks will have 2010 model year engines or equivalent [i.e., Tier 4]. In addition, interim steps are incorporated into the regulations (e.g., vehicles older than 1999 will be replaced with newer engines by 2020).

California Integrated Waste Management Act (Assembly Bill 341)/Assembly Bill 1826 (Mandatory Recycling/Composting)

The California Integrated Waste Management Act of 1989, as modified by AB 341, requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows diversion away from landfills of 75 percent of all solid waste by 2020 and annually thereafter. AB 1826 requires recycling of organic waste (i.e., composting). All businesses and public entities that generate four or more cubic yards of solid waste per week and multi-family residential dwellings that have five or more units are required to recycle and compost.

Senate Bill 1383

Adopted in September 2016, SB 1383 requires CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. SB 1383 requires the strategy 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

SB 1383 also requires the California Department of Resources Recycling and Recovery (CalRecycle), in consultation with the CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

Senate Bill 100

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 (RPS) 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. The 2020 goal was met, with approximately 36 percent of electricity coming from renewable sources in March 2021.

Executive Order B-55-18

On September 10, 2018, the former 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.

California Refrigerant Management Program

California's Refrigerant Management Program (RMP) regulates refrigerants used in larger facilities, primarily industrial and supermarket land uses. Refrigerants regulated under the RMP include any refrigerant that is an ozone depleting substance as defined in Title 40 of the Code of Federal Regulation, Part 82, and any compound with a GWP value equal to or greater than 150 according to the GWPs specified in the IPCC Fourth Assessment Report of 2007. According to the RMP, all supermarket and industrial refrigeration systems with a full recharge capacity of 50 pounds (22.7 kilograms) or greater will be required to limit the refrigerants used to no greater than 150 GWP beginning in 2022. Similarly, according to the RMP, all room air conditioning unit systems with a full recharge capacity of 50 pounds or greater will be required to limit the refrigerants used to no greater than 750 GWP beginning in 2023.

Senate Bill 1020

Senate Bill 1020 (SB 1020), signed into law on September 16, 2022, 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 Public Utilities Commission, Energy Commission, 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. Additionally, SB 1020 requires the Public Utilities Commission 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.

CARB Gas Appliances Sales Ban

As part of the 2022 State Implementation Plan, CARB adopted a ban on new sales of natural gas heaters, water heaters, and furnaces by 2030 in September of 2022. This new measure is intended to reduce emissions from new residential and commercial space and water heaters sold in the State. An emission standard for space and water heaters will go into effect in 2030. Beginning in 2030, 100 percent of the sales of new natural gas-powered heaters and water heaters would need to comply with the emission standard, such as putting in electric heaters or other zero-emission options.

California Building Standards Code

The California Code of Regulations (CCR) Title 24 is referred to as the California Building Standards Code. It consists of a compilation of several distinct standards and codes related to building construction, including plumbing, electrical, interior acoustics, energy efficiency, and accessibility for persons with physical and sensory disabilities. The California Building Standards Code's energy-efficiency and green building standards are outlined below. These standards are updated every three years and future projects would be subject to the 2022 California Building Standards when they go into effect on January 1, 2023.

Part 6 – Building Energy Efficiency Standards/Energy Code

CCR Title 24, Part 6 is the Building Energy Efficiency Standards or California Energy Code. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and non-

residential buildings to reduce California's energy demand. New construction and major renovations must demonstrate their compliance with the current Energy Code through submittal and approval of a Title 24 Compliance Report to the local building permit review authority and the CEC. The current iteration is the 2019 Title 24 standards. The California Building Standards Code's energy-efficiency and green building standards are outlined below. The 2022 Standards have been adopted and will come into effect January 1, 2023.

Part 11 – California Green Building Standards

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11, first in 2009 as a voluntary code, which then became mandatory effective on January 1, 2011 (as part of the 2010 California Building Standards Code). The voluntary standards contained in the 2025 CALGreen are changes to model code language that serve as recommendations, examples, and templates for local jurisdictions to use in considering above-code ordinances (also known as "reach codes") and apply to newly constructed buildings and additions or alterations to existing buildings. Local jurisdictions must enforce the minimum mandatory CALGreen standards and may adopt additional amendments for stricter requirements.

The mandatory standards require:

- Minimum 20 percent reduction in indoor water use relative to specified baseline levels[2]
- Waste Reduction
  - Minimum 65 percent non-hazardous construction/demolition waste diverted from landfills;
  - A Construction Waste Management Plan is required for residential projects, demonstrating a minimum 65 percent diversion rate;
  - Non-residential and Multifamily dwellings with 5 or more units shall provide readily accessible areas identified for the depositing, storage and collection of nonhazardous materials for recycling including (at a minimum) paper, corrugated cardboard, glass, plastic, organic waste, and metals;
  - Nonresidential: 100 percent of trees, stumps, rocks and associated vegetation soils resulting from primary land clearing shall be reused or recycled.
- Inspections of energy systems to ensure optimal working efficiency
- Electric Vehicle (EV) Charging for New Construction[3]
  - Multifamily dwellings, hotels/motels with less than 20 units/rooms: Designation of at least 10 percent of the total number of parking spaces shall be EV capable and at least 25 percent of the total number of parking spaces shall be EV Ready.
  - Multifamily dwellings, hotels/motels with greater than 20 units/rooms: Designation of at least 10 percent of the total number of parking spaces shall be EV capable, at least 25 percent of the total number of parking spaces shall be EV Ready, and at least 5 percent of the total number of parking spaces shall be equipped with a Level 2 Charging Station.

[2] Similar to the compliance reporting procedure for demonstrating Energy Code compliance in new buildings and major renovations, compliance with the CALGreen water reduction requirements must be demonstrated through completion of water use reporting forms. Buildings must demonstrate a 20 percent reduction in indoor water use by either showing a 20 percent reduction in the overall baseline water use as identified in CALGreen or a reduced per-plumbing-fixture water use rate.

[3] EV Capable = a vehicle space with electrical panel space and load capacity to support a branch circuit and necessary raceways to support EV charging. EV Ready = a vehicle space which is provided with a branch circuit and any necessary raceways to accommodate EV charging stations including a receptacle for future installation of a charger. See 2022 California Green Building Standard Code, Title 24 Part 11 for full explanation of mandatory measures including exceptions.

- Non-residential land uses shall comply with the following EV charging requirements based on the number of passenger vehicle parking spaces
  - 0-9: no EV capable spaces or charging stations required;
  - 10 – 25: 4 EV capable spaces but no charging stations required;
  - 26 – 50: 8 EV capable spaces of which 2 must be equipped with charging stations;
  - 51 – 75: 13 EV capable spaces of which 3 must be equipped with charging stations;
  - 76 – 100: 17 EV capable spaces of which 4 must be equipped with charging stations;
  - 101 – 150: 25 EV capable spaces of which 6 must be equipped with charging stations;
  - 151 – 200: 35 EV capable spaces of which 9 must be equipped with charging stations;
  - >200: 20 percent of the total available parking spaces of which 25 percent must be equipped with charging stations;
- Non-residential land uses shall comply with the following EV charging requirements for medium-duty and heavy-duty vehicles: Warehouses, grocery stores, and retail stores with planned off-street loading spaces shall install EV supply and distribution equipment, spare raceway(s) or busway(s) and adequate capacity for transformer(s), service panel(s), or subpanel(s) at the time of construction based on the number of off-street loading spaces as indicated in Table 5.106.5.4.1 of the California Green Building Standards.

- Bicycle Parking
  - Non-residential short term bicycle parking for projects anticipated to generate visitor traffic: permanently anchored bicycle racks within 200 feet of visitor entrance for 5 percent of new visitor motorized vehicle parking spaces with a minimum of one two-bike capacity rack.
  - Non-residential buildings with tenant spaces of 10 or more employees/tenant-occupants: Secure bicycle parking for 5 percent of the employee/tenant-occupant vehicle parking spaces with a minimum of one bicycle parking facility.

- Shade Trees (Non-Residential)
  - Surface parking: Minimum No. 10 container size or equal shall be installed to provide shade over 50 percent of the parking within 15 years (unless parking area covered by appropriate shade structures and/or solar);
  - Landscape areas: Minimum No. 10 container size or equal shall be installed to provide shade of 20 percent of the landscape area within 15 years;
  - Hardscape areas: Minimum No. 10 container size or equal shall be installed to provide shade of 20 percent of the landscape area within 15 years (unless covered by applicable shade structures and/or solar or the marked area is for organized sports activities).

The CALGreen voluntary standards are only mandatory if a local ordinance requires them. The City has adopted Tier 1 Level Residential and Nonresidential Voluntary Measures and the following Tier 1 voluntary standards would be applicable to the project:

- Deconstruct existing buildings and reuse applicable salvaged materials;
- Residential Bicycle Parking:
  - Multifamily/hotel/motel short-term parking: Provide permanently anchored bicycle racks within 100 feet of visitor's entrance for 5 percent of visitor motorized vehicle parking capacity (minimum 1 two-bile capacity rack);

- Hotel/Motel long-term parking: Provide one acceptable on-site bicycle parking space for every 25,000 square feet but not less than two spaces;

The CALGreen voluntary standards are divided into two tiers. Tier 1 adds additional requirements beyond the mandatory measures, whereas Tier 2 further increases the requirements.

- **Tier I**
  - Stricter energy efficiency requirements;
  - Stricter water conservation requirements for specific fixtures;
  - Minimum 65 percent reduction in construction waste with third-party verification, Minimum 10 percent recycled content for building materials;
  - Minimum 20 percent permeable paving;
  - Minimum 20 percent cement reduction;
  - Multifamily developments/hotels/motels: Minimum 35 percent of total parking spaces shall be EV ready and for projects with 20 or more dwelling units/rooms a minimum of 10 percent of the total number of parking spaces shall be equipped with EV charging stations;
- **Tier II**
  - Stricter energy efficiency requirements,
  - Stricter water conservation requirements for specific fixtures;
  - Minimum 75 percent reduction in construction waste with third-party verification,
  - Minimum 15 percent recycled content for building materials;
  - Minimum 30 percent permeable paving;
  - Minimum 25 percent cement reduction;
  - Multifamily developments/hotels/motels: Minimum 40 percent of total parking spaces shall be EV ready and for projects with 20 or more dwelling units/rooms a minimum of 15 percent of the total number of parking spaces shall be equipped with EV charging stations

d. Regional and Local Regulations

Plan Bay Area 2050

Plan Bay Area 2050 is a State-mandated, integrated long-range transportation, land-use, and housing plan, known as an RTP/SCS, that would support a growing economy, provide more housing and transportation choices and reduce transportation-related pollution in the nine-county San Francisco Bay Area. Plan Bay Area 2050 builds on earlier efforts to develop an efficient transportation network and grow in a financially and environmentally responsible way. Plan Bay Area 2050 focuses on advancing equity and improving resiliency in the Bay Area by creating strategies in the following four elements: Housing, Economy, Transportation, and Environment. The Plan discusses how the future is uncertain due to anticipated employment growth, lack of housing options, and outside forces, such as climate change and economic turbulence. These uncertainties will impact growth in the Bay Area and exacerbate issues for those who are historically and systemically marginalized and underserved and excluded. Thus, Plan Bay Area 2050 has created strategies and considered investments that will serve those systemically underserved communities and provide equitable opportunities. The Plan presents a total of 35 strategies to outline how the $1.4 trillion dollar investment would be utilized. The strategies include, but are not limited to, the

following: providing affordable housing, allowing higher-density in proximity to transit-corridors, optimizing the existing roadway network, creating complete streets, providing subsides for public transit, reducing climate emissions, and expanding open space area. To bring these strategies to fruition, it will require participation by agencies, policymakers, and the public. An implementation plan is also included as part of the Plan to assess the requirements needed to carry out the strategies, identify the roles of pertinent entities, create an appropriate method to implement the strategies, and create a timeline for implementation (ABAG 2021).

City of Petaluma Climate Action Plan

The City of Petaluma's climate action plan (CAP), the "Blueprint for Climate Action", was adopted in November 2024 to articulate policies to achieve equitable climate action and provide a clear roadmap towards meeting climate goals. According to the Blueprint, implementation of strategies contained in the CAP would result in a 60 percent reduction in Petaluma's GHG emissions by 2030. The CAP also lays out a path towards carbon neutrality by reducing emissions from all activity in the city, including direct and indirect emissions, by reducing, sequestering, and, if necessary, offsetting emissions with local projects. The CAP includes 33 Cornerstone Actions and various additional actions to achieve these goals; the actions are summarized below in Section 4.7.3-b, *Project Impacts and Mitigation Measures*.

City of Petaluma 2025 General Plan

The City's current 2025 General Plan was originally adopted in May 2008 and revised in May 2021. The 2025 General Plan includes 11 Elements: Land Use, Growth Management, and the Built Environment; Community Design, Character, and Green Building; Historic Preservation; The Natural Environment; Mobility; Recreation, Music, Parks, and the Arts; Community Facilities, Services and Education; Water Resources; Economic Health and Sustainability; Health and Safety; and Housing (City of Petaluma 2008). The 2025 General Plan guides how land in the city may be developed and used by designating each parcel of land for a particular use or combination of uses and by establishing broad development policies.

Chapter 4 Health and Safety of the 2025 General Plan contain the following goals and policies applicable to the project (City of Petaluma 2008):

Goal 4-G-6: Greenhouse Gas Emissions. Reduce the contribution to greenhouse gases from existing sources and minimize the contribution of greenhouse gases from new construction and sources.

> **Policy 4-P-23:** Fund and/or designate a Green Program Manager to oversee implementation of all Greenhouse Gas Emissions policies and programs identified in the Greenhouse Gas Emissions section as well as the City's Climate Action Plan. The policies and programs will need to be reviewed and updated periodically as new information, regulatory standards, and technologies develop. A report shall be provided to the City Council biannually, reporting on the status of the City's efforts to reduce greenhouse gases, and recommendations for any changes that are deemed necessary.
>
> **Policy 4-P-24:** Comply with AB 32 and its governing regulations to the full extent of the City's jurisdictional authority.
>
> **Policy 4-P-25:** To the full extent of the City's jurisdictional authority, implement any additional adopted State legislative or regulatory standards, policies and practices designed to reduce greenhouse gas emissions, as those measures are developed

Policy 4-P-26: Implement all measures identified in the municipal Climate Action Plan to meet the municipal target set in Resolution 2005-118 (20% below 2000 levels by 2010).

Policy 4-P-27: The City shall prepare a Community Climate Action Plan to identify and prioritize programs, projects, and procedural policies that will help the City achieve the community greenhouse gas emission goals of Resolution 2005-118 (25% below 1990 levels by 2015).

4.7.3 Impact Analysis

a. Significance Thresholds and Methodology

Significance Thresholds

Based on Appendix G of the CEQA Guidelines a project may be deemed to have a significant impact on GHG emissions if it would:

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

Most individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence on climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. 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 15064[h][1]). The 2022 BAAQMD *CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans* provides two plan level thresholds for determining the significance of GHGs. The two approaches are as follows:

1. Consistency with a qualified GHG reduction plan
2. Meets the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045

Local governments have discretion on what levels or targets are established in a qualified GHG reduction plan, provided they address adopted policies and are based on substantial evidence. Most often, local targets align with the SB 32 reduction requirement of a 40 percent reduction below 1990 levels by 2030 to achieve qualified status (City of Petaluma 2024). The Blueprint has demonstrated the ability to achieve a 60 percent reduction by 2030.

However, the Blueprint is not considered a qualified GHG reduction plan because there is no enforcement mechanism (e.g., a checklist) currently available to require that development projects implement the necessary measures to achieve the reductions. Further, at this time, there are a number of actions in the Blueprint that are not yet implementable due to conditions outside the City's control. Thus for CEQA purposes, the existing Blueprint is not yet considered a "qualified GHG reduction plan" in accordance with CEQA Guidelines Section 15183.5. In the near future, when substantial evidence can demonstrate that the Actions will be implemented on a project by project

basis and thus would collectively achieve the GHG emission reduction targets described in the Blueprint, then the Blueprint would be considered "qualified" and in accordance with CEQA Guidelines Section 15183.5, can be used for tiering and/or streamlining the analysis of GHG emissions in future projects. Instead, future projects would be reviewed using the Bay Area Air District CEQA Thresholds of Significance for GHGs to determine whether a project would have a significant impact related to GHGs.

As such, for this EIR, the City uses the second approach to determine the significance of GHGs for development facilitated by the project on a programmatic level. The threshold of significance for whether a development project in the City of Petaluma would generate GHG emissions that would have a significant impact on the environment, therefore, would be whether or not the project meets the Air District Threshold for GHGs.

Methodology

Based on plan-level guidance from the 2022 BAAQMD *CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans,* GHG emissions associated with the General Plan Update is discussed qualitatively by analyzing the Plan's consistency with achieving the State's goals to reduce GHG emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045. For the purposes of this analysis, this is done by comparing the project to the City of Petaluma's Blueprint, namely whether policies are aligned with CAP strategies. The Blueprint has identified 33 Cornerstone Actions that would need to be implemented for the City to meet its local target of a 60 percent reduction below 1990 levels by 2030, which exceeds the SB 32 target of 40 percent. Although, as noted above, the Blueprint does not meet the criteria specified in CEQA Guidelines Section 15183.5(b) for a plan for the reduction of greenhouse gas emissions, project consistency with the Blueprint's Cornerstone Actions would indicate significant progress towards achieving the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045. Therefore, project impacts are determined based on consistency with the Blueprint's Cornerstone Actions. If a project cannot demonstrate consistency, then that project would be inconsistent with State targets, and the project would result in a potentially significant impact related to GHG emissions.

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
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-1 DEVELOPMENT FACILITATED BY THE PROJECT WOULD BE CONSISTENT WITH THE CITY'S BLUEPRINT FOR CLIMATE ACTION, INCLUDING THE BLUEPRINT'S CORNERSTONE. HOWEVER, WITHOUT AN ENFORCEMENT MECHANISM FOR THE BLUEPRINT, REDUCTIONS CANNOT BE GUARANTEED; THEREFORE, AT THIS TIME THE PROJECT WOULD NOT BE CONSISTENT WITH THE STATE'S GOALS TO REDUCE EMISSIONS TO 40 PERCENT BELOW 1990 LEVELS BY 2030 AND CARBON NEUTRALITY BY 2045. THEREFORE, IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Cornerstone Actions

The City has identified 33 Cornerstone Actions to jumpstart emissions reductions within the city. These strategies align with City Council priorities, generate GHG emissions reductions and co-

benefits, and are foundational actions that prepare the city for the implementation of additional actions in the future. The project's consistency with these actions are shown in Table 4.7-1. As shown in the table, the proposed project would be consistent with the Cornerstone Actions of the City's Blueprint.

Table 4.7-1 Project Consistency with the Blueprint's Cornerstone Actions

Cornerstone Action	Project Consistency
OSS-1: Climate Team staffing strategy. Implement a staffing strategy to drive climate action implementation and accountability across all City departments and on the Climate Team.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from implementing a Climate Team staffing strategy.
OSS-2: Climate Team and Blueprint Coordinators. Establish a Climate Team with departmental Blueprint Coordinators to collect data, lead educational activities, coordinate updated annual workplans, participate in established City Leadership activities, and incentivize actions consistent with the Blueprint vision.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from establishing a Climate Team with Blueprint Coordinators.
CST-1: Education and training program for City staff. Develop and implement an ongoing education program for new and continuing employees about the City's GHG reduction and climate adaptation programs, and explicitly integrate climate positive action into the City's mission.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from developing and implementing a GHG-related education program for City employees.
MR-1: Greenhouse gas emissions and Blueprint monitoring. Monitor the progress of the Blueprint implementation and take corrective actions to ensure programs are advancing and the City is on track to achieve the carbon neutrality targets for communitywide and municipal operations emissions.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from monitoring Blueprint implementation.
MR-2: Cost/benefit and funding sources. Post adoption, estimate the order of magnitude cost of Blueprint implementation. Establish the protocol to determine the cost/benefit estimation process for Blueprint implementation. Identify gaps in funding sources to complement the City's annual budget process and engage stakeholders in identifying and pursuing funding opportunities.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from estimating the cost of Blueprint implementation.
FEEE-1: Aligning decarbonization goal and capital improvement plan. Align the City's Capital Improvement Plan with the facility decarbonization goal of 15% annual average replacement of gas-fueled equipment (100% by 2030).	**Consistent.** The Infrastructure and Utilities Element of the proposed project includes Goal IU-5, which aims to achieve net-zero emissions from water supply and wastewater systems, Action IU-7.2.2, which would encourage waste management contractors to adopt zero emission or renewable fuel alternatives, Policy IU-8.1, which encourages the use and development of renewable energy sources, and Action IU-8.1.6, which would ensure that all City operations rely on non-fossil fuel energy sources using onsite and offsite generation.
FEEE-2: City asset and facilities management. Accelerate the City's own actions to achieve carbon neutrality through asset and facilities management, including facility audits and electrification.	**Consistent.** The Infrastructure and Utilities Element of the proposed project includes Policy IU-8.1, which encourages the use and development of renewable energy sources, and Action IU-8.1.6, which would ensure that all City operations rely on non-fossil fuel energy sources using onsite and offsite generation.

Cornerstone Action	Project Consistency
ZEVFB-1: Electrification of transit fleet. Accelerate the City's own actions to achieve carbon neutrality through electrification of the transit fleet.	**Consistent.** The proposed project includes goals, policies, and actions that support electrification of the transit fleet. Action HEEJ-3.2.4 would establish an EV ridesharing program with vehicles available throughout the city.
GS-1: Climate awareness and action program. Implement a robust, ongoing climate awareness and action program, focused on reduction of direct and indirect emissions, including consumption-based emissions, by residents, businesses, and contractors through educational events, media outreach, and other creative approaches.	**Consistent.** The proposed project includes goals, policies, and actions that support the implementation of a climate awareness and action program. Actions HEEJ-4.1.2 and HEEJ-4.1.3 would develop and distribute educational materials to support climate change adaptation.
TLUC-1: General Plan Update. Adopt the updated General Plan that defines transit-oriented communities, complete 15-minute neighborhoods, and incremental infill within the City's existing residential neighborhoods.	**Consistent.** The proposed project includes goals and policies that increase connectivity and discourage city-sponsored growth beyond the UGB. These include: Action TP-3.5.1 of the Transportation Element, which expands the fixed-route transit network to connect 15-minute neighborhood nodes, Policy 1.1 of the Housing Element, which promotes residential development within the UGB; Policy FAC-1.1 of the Public Facilities Element of the General Plan Update, which updates, expands, relocates, or replaces public facilities to efficiently meet the future needs of the community; and Policy TP-5.1 of the Transportation Element of the General Plan Update, which prioritizes new and infill development within the UGB along existing transit corridors.
TLUC-2: Zoning Code revision. Adopt a revised Zoning Code based on the updated General Plan.	**Consistent.** As required by state law, following adoption of the General Plan Update, the City shall revise the Zoning Code consistent with the updates in the General Plan.
AT-1: Active transportation and complete street improvements. Establish complete streets policy and incorporate complete streets improvements into all roadway and development projects to reduce vehicle miles traveled through implementation of the following plans and initiatives. Focus plan implementation in disadvantaged communities and those with poor access to active transportation corridors.	**Consistent.** The proposed project includes Policy TP-3.4, which would create and maintain an integrated bicycle and pedestrian system, and Action TP-3.4.1, which would implement the City's Active Transportation Plan. Policies TP-5.1 and TP-5.2 would integrate development and transportation policies and align land use and building codes with modal priorities, which would support sustainable development, enhance mobility, and reduce vehicle miles traveled.
TS-1: Petaluma transit service. Expand and improve Petaluma Transit and shared mobility services to be more accessible, affordable, and timely.	**Consistent.** The Economic Development Element of the proposed project includes Policy ED-5.1, which aims to concentrate development near SMART stations to encourage job access, business attraction, and business retention; Policy ED-5.2. which intends to enhance multimodal transportation connections between employment centers and SMART stations or major bus stops and between residential communities and employment and business destinations; and Policy TP-5.3, which aims to implement TDM strategies to encourage and create incentives for the use of alternative transportation. These policies would improve and expand accessibility to transit and shared mobility services.
VEEM-1: Electric vehicle charging infrastructure strategy. Develop an EV charging infrastructure strategy focusing on workplaces, schools, and multiunit dwellings aligned with utility and State provided incentives and focused initially on disadvantaged populations and neighborhood hubs.	**Consistent**. General Plan policy LU-13.1 and Action LU-13.1.1 would advance sustainable development by adopting EV reach codes to require the highest level of green building principles as feasible. The adoption of EV reach codes would ensure that future development facilitated by the plan is aligned with State EV charging infrastructure strategy.

Cornerstone Action	Project Consistency
TDM-1: Transportation Demand Management Policy. Revise the TDM policy for employers that requires employers to submit an emission reduction plan to the City to meet the City's greenhouse gas reduction target.	**Consistent.** Projects would be required to comply with the City's updated TDM policy.
PM-1: Parking management policy. Establish a parking management policy to balance supply and demand, to reduce demand for parking, and to meet target utilization rates at key destinations through the use of dynamic pricing.	**Consistent.** Projects would be required to comply with the City's parking standards.
CE-1: Barriers to renewable energy use. Partner with Sonoma Clean Power (SCP) and Pacific Gas & Electric (PG&E) to identify barriers for large users and/or sectors to participate at the 100% renewable tier and develop and conduct a robust awareness and education campaign to boost enrollment. Target 100% participation in EverGreen or similar 100% renewable energy tier.	**Consistent**. Development facilitated by the proposed project would comply with General Plan Policy IU-8.1, which encourages the use and development of renewable energy sources; and Policy IU-8.3, which promotes a resilient electrical grid. Future buildings developed under the project would be served by Pacific Gas and Electricity (PG&E). PG&E is required to increase its renewable energy procurement in accordance with SB 100 targets. SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard Program. It requires electricity providers to increase procurement from eligible renewable energy resources to 60 percent by 2030 and 100 percent by 2045.
CE-2: Gas-powered lawn and garden equipment phase out. Ban gas-powered lawn and garden equipment in the city and establish a program allowing electric equipment to be charged throughout the day as it is used with a phase out strategy that is in alignment with state and regional goals and programs to ensure that the transition considers equity impacts.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from banning gas-powered lawn and garden equipment on a city-wide scale.
NB-1: Track pending State standards. Utilize the City's existing cross-departmental task force to track pending State standards consistent with goal of carbon neutrality, including Marin's low-embodied carbon concrete code, CALGreen embodied carbon standards, NEC Article 750 and item 220.70, AB48, pending State law banning irrigation of non-functional lawns, and others.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from tracking State standards consistent with carbon neutrality goals.
xEBEE-1: Electrification and Efficiency Strategy. Develop a phased-in Existing Building Efficiency and Electrification strategy to retrofit 85% of existing homes and businesses to all-electric by 2030.	**Consistent**. Development facilitated by the plan would be required to comply with Chapter 17 of the City's Code of Ordinances, which adopts the State's energy efficiency regulations, including the California Energy Code and the California Green Building Standards Code—Part 11, Title 24, California Code of Regulations, to ensure development in Petaluma promotes the State's energy efficiency goals through project design. The proposed project also includes Policy LU-13.1, which would advance sustainable design and development, and Action LU-13.1.1, which would adopt solar, EV, and other reach codes to advance green building principles.

Cornerstone Action	Project Consistency
W-1: Resilient water supply. Create a resilient water supply by increasing conservation, utilizing and expanding existing incentive programs to include direct-install, implementing a tiered rate structure, and exploring greywater requirements as part of building code for all new construction and major renovations of existing buildings.	**Consistent**. Development facilitated by the proposed project would comply with General Plan IU-4.1, which would enact watershed restoration efforts in the City, Actions IU-5.1.1 and IU-5.1.2, which would develop an embodied carbon cost for water consumption,
UF-1: Petaluma Urban Forestry Management Plan. Develop and adopt a Petaluma Urban Forest Management Plan in partnership with community organizations.	**Consistent.** Development facilitated by the proposed project would comply with Policy HEEJ-3.3 which would support expansion of the tree canopy throughout the city. Action HEEJ-3.3.1 would develop a program to provide low-income homeowners with native, low-maintenance plants.
OSM-1: Local and regional sequestration projects. Develop a policy that prioritizes local and regional carbon sequestration partnerships, projects, and sources in the city.	**Consistent.** Development facilitated by the proposed project would comply with Policy HEEJ-3.3 would support expansion of the tree canopy throughout the city. Action HEEJ-3.3.1 would develop a program to provide low-income homeowners with native, low-maintenance plants. Action LU-13.1.2 would ensure tree preservation is considered in future developments.
OSM-2: Carbon gardening campaign. Create or support the creation of a carbon gardening campaign in school yards, community centers, resilience hubs, and neighborhoods that is widely engaging and highlights its multiple benefits: sequestration, consumption, food, biodiversity, water, health, cost savings, economic recovery and growth, resiliency, and climate justice and equity	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from creating a carbon gardening campaign.
OSM-3: Integrated Pest Management Plan for HOAs. Require new development to create an Integrated Pest Management Plan and provide templates for HOAs and the public.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from creating an Integrated Pest Management Plan.
OSM-4: Natural Open Space Management framework. By 2027, develop and adopt a Natural Open Space Management framework as part of a comprehensive update to the Petaluma River Plan with policies to enhance wildlife corridors and increase carbon sequestration, biodiversity, and public access for different typologies of natural open space.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from adopting a Natural Open Space Management framework for the Petaluma River.
SWD-1: Food waste and special event permitting. Update the special event permitting process to include zero waste requirements for events, such as requiring applicants to submit a "waste reduction plan" for each event.	**Consistent.** The Infrastructure and Utilities of the proposed project includes Policy IU-7.1, which would promote processing and reuse of organic waste within City limits. Action IU-7.1.1 would support the development of composing facilities.
SWD-2: Food recovery program. Partner with Recology and Zero Waste Sonoma JPA to implement and enforce an edible food recovery program for commercial food uses, farmers market vendors, and events.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from creating an edible food recovery program.
SWD-3: Zero Waste Sonoma model disposable foodware ordinance. Adopt the Zero Waste Sonoma model disposable foodware ordinance as amended by Sebastopol and Santa Rosa.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from adopting the Zero Waste Sonoma model disposable foodware ordinance.

Cornerstone Action	Project Consistency
CLM-1: City Integrated Pest Management Plan. Update the Integrated Pest Management Plan to eliminate the use of toxic and polluting herbicides, pesticides, and fertilizers on City-owned property.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from updating the Pest Management Plan for city properties.
CLM-2: Comprehensive Land Management Plan. Adopt a comprehensive Land Management Plan and maintenance procedures for City properties that prioritize regenerative practices.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from adopting a comprehensive Land Management Plan for city properties.
CLM-3: Natural systems policy. Develop a natural systems policy that prioritizes nature-based systems and natural systems in capital improvements, planning, and programs.	**Not Applicable.** This action does not apply to the proposed project because future development facilitated by the project would not preclude the City from developing a natural systems policy.

Source: City of Petaluma 2024

As shown above, the project would be generally consistent with the City's Blueprint through consistency with the Blueprint's Cornerstone Actions. However, the Blueprint, as of the drafting of this EIR, does not yet provide an enforcement mechanism to ensure that future development would implement these actions. Actions that could have the effect of reducing GHG emissions in accordance with Blueprint actions, such as all-electric development, solar, and CALGreen EV charger requirements, would not be implementable without an enforcement mechanism and at this time, are not fully implementable due to circumstances outside the City's control. For example, the City's ability to regulate all electric development has been affected by the recent Ninth Circuit decision in *California Restaurant Association v. City of Berkeley*, which found that cities cannot ban natural gas appliances. Although individual projects may incorporate all electric development as a project design feature, the City of Petaluma does not have the regulatory authority to mandate all electric construction as a regulation, condition of approval, or mitigation measure at this time.

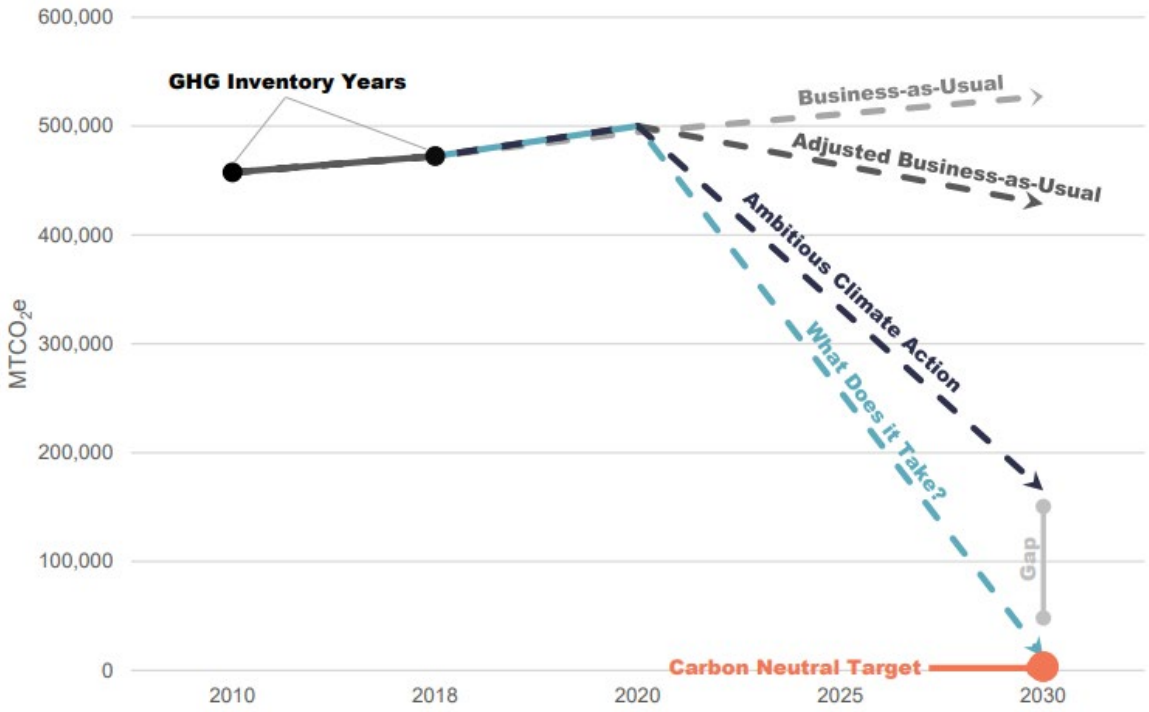
Given the aforementioned, project reductions in accordance with the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045 cannot be fully guaranteed as of publishing of this EIR. While the City has a pathway to achieve GHG reduction targets in accordance with the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045, because those actions are not yet fully enforceable or implementable, to be conservative from a CEQA perspective, the project would potentially conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and could generate substantial GHG emissions, and impacts would be potentially significant.

GHG Emissions for Informational Purposes

The City's Blueprint contained estimates of GHG reductions moving towards 2030 to achieve the City's carbon neutral target, which is shown below in Figure 4.7-1. The GHG reductions from the "What Does it Take?" scenario are expected to be 12,600 $MTCO_2e$, a 97 percent decrease compared to 1990 levels. The GHG reductions from the "Ambitious Climate Action" scenario are expected to be 256,720 $MTCO_2e$ in 2030, a 51 percent decrease compared to 1990 levels and a 60 percent reduction compared to forecasted emissions. According to the Blueprint, while the "What Does It Take?" scenario is almost able to meet the carbon neutral target, the "Ambitious Climate Action" scenario is more feasible given the City's existing staffing and resources. However, State climate policies and technology are changing rapidly and being implemented more quickly than imagined. The City is committed to working towards carbon neutrality and will leverage new opportunities to reach even deeper reductions. As noted above, in many instances, the Actions may not be fully

implementable at this time due to circumstances outside the City's control. Nevertheless, the Blueprint sets up the monitoring and reporting frameworks to make adjustments and take corrective actions to meet that target over the planning horizon of the Blueprint.

Figure 4.7-1 City of Petaluma CAP GHG Reduction Scenarios



Source: City of Petaluma 2024, Figure 15

Mitigation Measures

Pursuant to case law, *California Restaurant Association v. City of Berkeley*, the 9th Circuit Appellate Court found that a city cannot ban natural gas because they are preempted from doing so by federal law under the Energy Policy and Conservation Act. Thus, the City of Petaluma cannot mandate that projects adhere to all-electrification measures that could reduce GHG emissions in accordance with State GHG targets. The Blueprint provides various Actions that collectively if implemented would achieve GHG reduction targets that are consistent with the State's goals. However, because circumstances currently exist that are outside the City's control related to implementation and enforcement of those Actions, no other feasible mitigation exists to reduce the project's potentially significant GHG impacts.

Significance After Mitigation

Because there is no feasible mitigation to reduce potentially significant impacts resulting from GHG emissions of the project, this impact is significant and unavoidable.

4.7.4 Cumulative Impacts

"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). Most projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence on climate change. Therefore, climate change analysis for the project involved an analysis of whether the project's contribution toward an impact would be cumulatively considerable. In addition, the project is cumulative in nature as it represents growth throughout the City of Petaluma because of future development. Therefore, cumulative impacts with respect to GHG emissions represents emissions associated with buildout of the plan and thus cumulative emissions. Although emissions facilitated by the project would be consistent with the City's Blueprint, such emissions would remain inconsistent with State GHG reduction plans. Therefore, the project's contribution to cumulative impacts with respect to GHG emissions would be cumulatively considerable.

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4.8 Hazards and Hazardous Materials

This section addresses impacts associated with exposure to hazards and hazardous materials from implementation of the proposed project. Specifically, this analysis addresses impacts related to hazardous materials use and transportation, the accidental release of hazardous materials, new development or re-development on contaminated sites, air traffic hazards, and interference with emergency response and evacuation plans.

4.8.1 Setting

a. Definition of Hazardous Materials

For the purpose of this EIR, the term "hazardous materials" is used broadly to include both hazardous materials and hazardous waste. Within California Health and Safety Code Section 25501(n)(1), hazardous materials are legally defined as any material that is hazardous because its quantity, concentrations, or physical or chemical characteristics (toxicity, ignitability, corrosivity, reactivity) mean it poses a significant present or potential hazard to human health and safety or to the environment if released. Hazardous materials are generally categorized as follows:

- **Toxic Substances.** Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability, or even death. For example, such substances can cause disorientation, acute allergic reactions, asphyxiation, skin irritation, or other adverse health effects if human exposure exceeds certain levels (the level depends on the substances involved and is chemical-specific). Carcinogens, substances that can cause cancer, are a special class of toxic substances. Examples of toxic substances include benzene (a component of gasoline and suspected carcinogen) and methylene chloride (a common laboratory solvent and a suspected carcinogen).
- **Ignitable Substances.** Ignitable substances are hazardous because of their ability to burn. Gasoline, hexane, and natural gas are examples of ignitable substances.
- **Corrosive Materials.** Corrosive materials can cause severe burns. Corrosives include strong acids and bases such as sodium hydroxide (lye) or sulfuric acid (battery acid).
- **Reactive Materials.** Reactive materials may cause explosions or generate toxic gases. Explosives, pure sodium or potassium metals (which react violently with water), and cyanides are examples of reactive materials.

b. Existing Conditions

Hazardous materials conditions within the City of Petaluma include both site-specific releases identified in regulatory databases and material-based conditions associated with existing development. Information regarding hazardous materials sites is based on publicly available regulatory databases that identify locations where hazardous materials are used, stored, treated, and/or disposed of, as well as locations where releases have occurred or cleanup actions have been required. To the extent possible, the locations of these businesses and operations are recorded in the following database lists, which inform the potential to encounter hazardous materials in soil and groundwater due to permitted hazardous materials uses, environmental cases, and spill sites:

- DTSC EnviroStor database contains information on properties in California where hazardous substances have been released or where the potential for a release exists.

- SWRCB GeoTracker database contains information on properties in California for sites that require cleanup, such as leaking underground storage tank (LUST) sites, which may impact, or have potential impacts, to water quality, with emphasis on groundwater.

Permitted uses of hazardous materials include facilities that use hazardous materials or handle hazardous wastes in accordance with current regulations. The use and handling of hazardous materials from these sites is considered low risk, although there can be instances of unintentional chemical releases. In such cases, the site would be tracked in the environmental databases as an environmental case. Permitted sites without documented releases are, nevertheless, potential sources of hazardous materials in the soil and/or groundwater due to accidental spills, incidental leakage, or spillage that may have gone undetected. Some facilities are permitted for more than one hazardous material use and, therefore, could appear in more than one database. Many hazardous materials sites identified in regulatory databases are classified as "case closed." Case closure determinations in California are generally made under a uniform, risk-based framework commonly referred to as the Uniform Case Closure program. Under this framework, the regulatory agency overseeing remediation of the contaminated site evaluates whether site conditions have been adequately investigated and remediated to a level that no longer poses an unacceptable risk to human health, groundwater quality, or the environment. This determination is made within the context of the site's current and reasonably foreseeable future land uses.

A site classified as "case closed" may still contain residual contamination and may be subject to land use restrictions and engineering controls. Rather, it indicates that cleanup objectives have been achieved to the satisfaction of the overseeing agency. Future redevelopment of closed sites may still require additional site-specific investigation or compliance with existing land use restrictions.

Hazardous Materials in Existing Structures and Infrastructure

In addition to hazardous materials sites identified in regulatory databases, certain hazardous materials may be present in existing buildings and infrastructure throughout the City as a result of historic construction practices.

Asbestos-Containing Materials

Asbestos is a naturally occurring fibrous material that was widely used in structures built between 1945 and 1978 for its fireproofing and insulating properties. Asbestos-containing materials (ACM) were banned by USEPA between the early 1970s and 1991 under the authority of the Clean Air Act and the Toxic Substances Control Act due to their harmful health effects. Exposure to asbestos increases risk of developing lung disease, such as lung cancer, mesothelioma, or asbestosis (USEPA 2023). Common asbestos containing materials include vinyl flooring and associated mastic, wallboard and associate joint compound, plaster, stucco, acoustic ceiling spray, ceiling tiles, heating system components, and roofing materials. Pre-1973 structures are affected by asbestos regulations if damage occurs, or if remodeling, renovation, or demolition activities disturb ACMs.

Lead and Lead-Based Paint

Lead is a naturally occurring metallic element. Because of its toxic properties, lead is regulated as a hazardous material. Excessive exposure to lead can result in the accumulation of lead in the blood, soft tissues, and bones. Children are particularly susceptible to potential lead-related health problems because it is easily absorbed into developing systems and organs. Lead can affect almost every organ and system in the body. In children, lead can cause behavior and learning problems,

lower IQ and hyperactivity, hearing problems, and anemia. In adults, lead can cause cardiovascular effects, decreased kidney function, and reproductive problems. In addition, lead can result in serious effects to the developing fetus and infant for pregnant women (USEPA 2024a). Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and in soils surrounding buildings and structures that are painted with lead-based paint (LBP). LBP was primarily used during the same time period as ACMs. Pre-1978 structures are affected by LBP regulations if the paint is in a deteriorated condition or if remodeling, renovation, or demolition activities disturb LBP surfaces.

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) belong to a broad family of man-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until manufacturing was banned in 1979. They have a range of toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications such as within transformers, capacitors, fluorescent lights, and hydraulic equipment.

Land Use Patterns

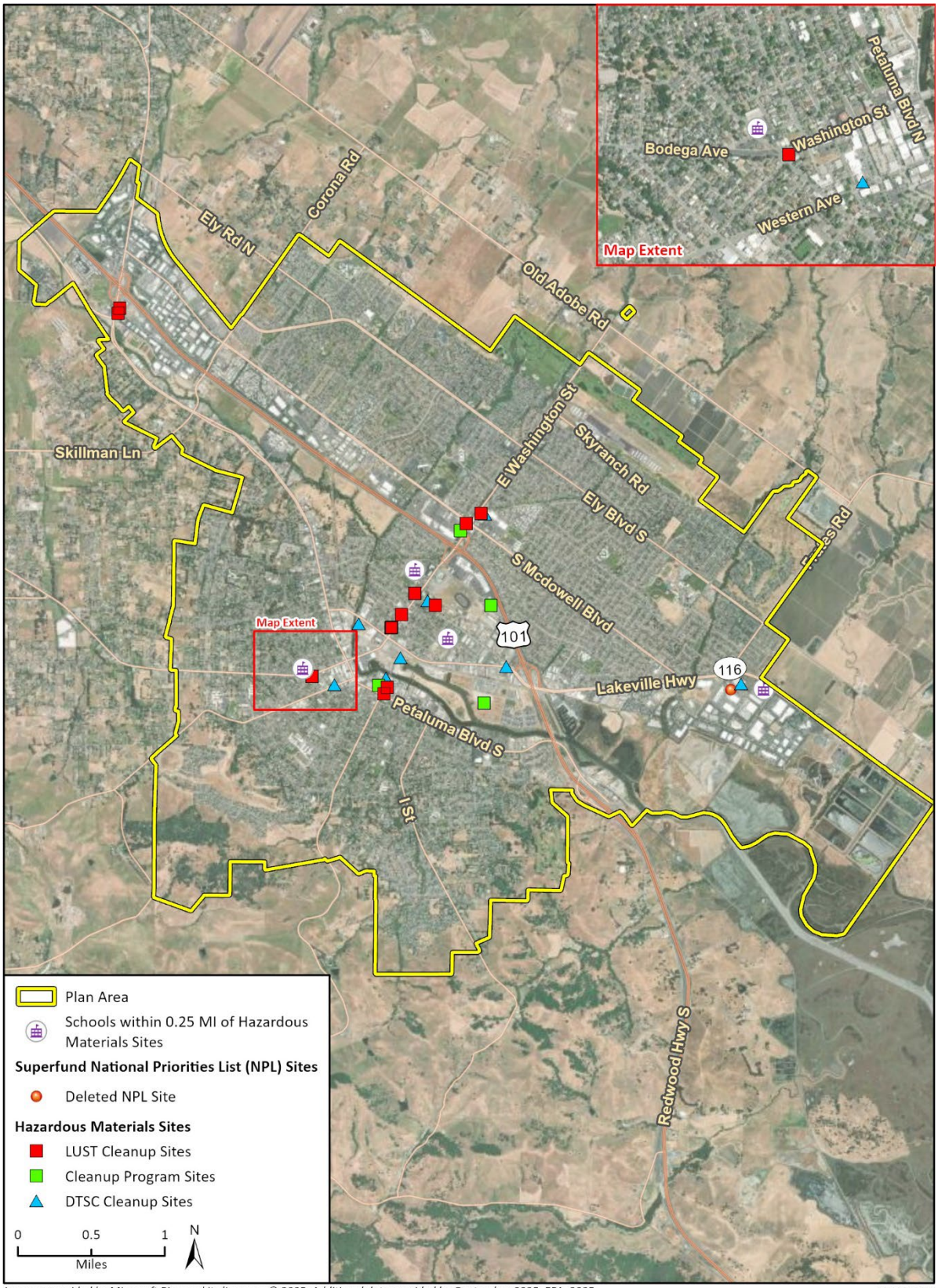
Past and present land use patterns are good predictors of the potential for past contamination by hazardous materials and the current use and storage of hazardous materials. Industrial sites and certain commercial land uses, such as dry cleaners, are more likely to use and store large quantities of hazardous materials than residential land uses. Land use patterns are also useful for identifying the location of sensitive receptors, such as schools, day-care facilities, assisted living facilities and other types of care homes. In Petaluma, industrial and commercial land uses are concentrated along major transportation corridors, including State Route (SR) 101, SR 116, and North McDowell Boulevard.

Existing Hazardous Materials Contamination

According to databases of hazardous material sites maintained by the DTSC (EnviroStor) and the SWRCB (GeoTracker), there are a total of 235 hazardous material sites within the City of Petaluma, 211 of which are “Completed-Case Closed,” or sites that have completed remedial or cleanup actions and a formal closure decision document has been issued for the site (DTSC 2025, SWRCB 2025). Additionally, the 35-acre Solar Optical USA, Inc. Superfund site located at 3600 Lakeview Highway (see Figure 4.8-1) was added to the Superfund program’s National Priorities List (NPL) in 1990 and removed in 2013 after completion of remediation efforts.

Locations of all known open hazardous materials sites and the one closed Superfund Site are shown in Figure 4.8-1, below. Within the Plan Area, there are 24 identified open or active hazardous materials sites, as identified in Table 4.8-1. The location, identification, and status of these open sites is provided in Figure 4.8-1. There are no solid waste disposal sites identified by the SWRCB with waste constituents above hazardous waste levels (California Environmental Protection Agency 2025).

Figure 4.8-1 Hazardous Materials Sites in Petaluma



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Fig 4.8-1 Hazardous Materials Sites in Petaluma

Table 4.8-1 Open Hazardous Materials Sites in Petaluma

	Hazardous Materials Site	Hazardous Materials Site Address	Hazardous Site Type/ Status	Concern
1	Bar Ale Inc	225 2nd Street	LUST Cleanup Site/ Open – Site Assessment	Gasoline contamination in groundwater and soil vapor
2	Chevron #9-4081	1440 Washington Street	LUST Cleanup Site / Open – Site Assessment	Gasoline and waste vehicle fluids (oil, hydraulic, lubricating) contamination
3	Former Arco Station #2150	101 McDowell Boulevard	LUST Cleanup Site/ Open – Remediation	Gasoline in aquifer used for drinking water supply
4	Former Silva Partnership	601 Washington Street	LUST Cleanup Site / Open – Verification Monitoring	Gasoline and waste vehicle fluids (oil, hydraulic, lubricating) in groundwater and soil
5	Joseph Ellwood Commercial Center (former)	301 Payran Street	LUST Cleanup Site / Open – Assessment & interim Remedial Action	Gasoline in groundwater
6	Petaluma Car Wash (former)	483 Washington Street	LUST Cleanup Site/ Open – Site Assessment	Gasoline in well used for drinking water supply
7	Shell Service Station	4990 Petaluma Boulevard	LUST Cleanup Site / Open – Verification Monitoring	Gasoline in aquifer used for drinking water supply
8	Shell Service Station	801 Washington Street	LUST Cleanup Site / Open – Verification Monitoring	Gasoline and waste vehicle fluids (oil, hydraulic, lubricating) in aquifer used for drinking water supply
9	Unocal #5406	4998 Petaluma Boulevard	LUST Cleanup Site / Open – Assessment & Interim Remedial Action	Gasoline in aquifer used for drinking water supply
10	Unocal #6152 (former)	201 Petaluma Boulevard	LUST Cleanup Site/ Open - Remediation	Gasoline in aquifer used for drinking water supply
11	Shell Service Station	421 Washington Street	LUST Cleanup Site/ Open – Eligible for Closure	Gasoline in well used for drinking water supply
12	500 Hopper	500 Hopper Street	Cleanup Program Site / Open – Site Assessment	Benzene, diesel, lead, vinyl chloride and naphthalene in aquifer used for drinking water supply, groundwater, soil and soil vapor. Contaminated surface and structure.
13	Basin Street Properties	111 C Street	Cleanup Program Site / Open – Long Term Management – Land Use Restrictions	Gasoline, diesel, and waste vehicle fluids (oil, hydraulic, lubricating) in groundwater, soil, and soil vapor

	Hazardous Materials Site	Hazardous Materials Site Address	Hazardous Site Type/ Status	Concern
14	Former City Maintenance Yard	991 Lindberg Lane	Cleanup Program Site / Open – Verification Monitoring	Gasoline and waste vehicle fluids (oil, hydraulic, lubricating) in groundwater and soil
15	JLT Ranch	601 Stage Gulch Road	Cleanup Program Site / Open – Inactive	Ammonia in soil
16	Plaza Cleaners	101-181 North McDowell Boulevard	Cleanup Program Site / Open – Verification Monitoring	TCE, PCE and vinyl chloride in groundwater, soil, and soil vapor
17	92 Lakeville Petaluma	92 Lakeview Street APN 007-071-003 & 007-071-011	Voluntary Agreement / Active[1]	TPH in soil
18	Former Quality Dry Cleaning	214 Western Avenue	Voluntary Agreement / Active	TCE, PCE, and vinyl chloride in groundwater, soil, soil vapor, and indoor air
19	London Pride Dry Cleaner	355 South McDowell Boulevard	Voluntary Agreement / Active	TCE, PCE, and vinyl chloride in groundwater, soil, soil vapor, and indoor air
20	McPhail's Inc	1006 Lakeville Street	Voluntary Agreement / Certified - Operation & Maintenance	TCE and PCE in groundwater, soil and soil vapor
21	PG&E – Petaluma #1	First Street & D Street	Refer RWQCB / State Response	Arsenic, lead, mercury contamination in groundwater and soil
22	Sola Optical USA, Inc	3600 Lakeview Highway	Federal Superfund / Refer: Local Agency	Volatile organic compounds in groundwater
23	Sonoma-Marin Fairgrounds	100 Gnoss Concourse	Voluntary Agreement	Gasoline in soil
24	Oyster Cove	310 East D Street	Voluntary Agreement / Inactive – Needs Evaluation	Semi-volatile organics and volatile organics in soil and soil vapor

1 Voluntary agreement sites are locations where a responsible party has entered into an agreement with a regulatory agency to investigate, and if necessary, remediate contamination under agency oversight, without formal enforcement action.

BTEX – Benzene, toluene, ethylbenzene, xylene
TCE - trichloroethylene

TPH – Total petroleum hydrocarbons

PCE – Tetrachloroethylene

Source: Department of Toxic Substances Control 2025, State Water Resources Control Board 2025

As discussed in Section 4.8.1(c), Land Use Patterns, hazardous materials sites are most commonly associated with historic and existing commercial and industrial activities. Consistent with those patterns and as shown in Figure 4.8-1, the majority of open and closed hazardous materials sites in the City are located within areas designated for commercial or industrial uses. A smaller number of sites occur within or adjacent to residentially designated areas, generally reflecting legacy uses such as former service stations or other activities that predate current land use policies. This general relationship between hazardous materials sites and land use designations is consistent with expected development patterns and does not indicate the presence of unanticipated hazardous materials conditions.

Hazardous Materials Use, Transport, Handling, and Abatement

Hazardous materials use, transport, and handling are typically associated with industrial activities such as manufacturing, plating, cleaning, refining, and finishing as these processes frequently involve chemicals that pose a hazard if released into the environment. Historic and existing agricultural uses may also involve the application or storage of fertilizers, herbicides, and pesticides that may be considered hazardous.

To a lesser extent, hazardous materials may also be used by various commercial uses such as dry cleaners (using hazardous cleaning agents), hardware stores (stocking paints, solvents, fertilizers, herbicides, and pesticides), swimming pool supply stores (stocking acids, algaecides, and caustic agents), and use of commonly available cleaning supplies that, when used in accordance with manufacturers' recommendations, are considered safe by the State of California, but when not handled properly can be considered hazardous. Additionally, private residences also use and store commonly available cleaning materials, paints, solvents, swimming pool and spa chemicals, as well as fertilizers, herbicides, and pesticides. If improperly handled, hazardous materials can result in public health hazards through human contact with contaminated soil or groundwater, or through airborne releases in vapors, fumes, or dust. To address the potential for accidental or unauthorized releases of hazardous materials that would pose a public health concern, the use, transport, and disposal of hazardous materials and wastes are required to occur in accordance with federal, state, and local regulations. Specifically, the transport of hazardous materials and waste must be conducted by trained and licensed transporters, and the transport of hazardous waste requires the use of a hazardous waste manifest, which includes forms, reports, and procedures designed to seamlessly track hazardous waste.

c. Schools

School locations require consideration because children are particularly sensitive to hazardous materials exposure. Additional protective regulations apply to projects that could use or disturb potentially hazardous products near or at schools. As shown in Figure 4.8-1, there are four existing schools located within 0.25-mile of open or active hazardous materials sites. Projects that would be located within 0.25 mile of a school and might reasonably be expected to emit or handle hazardous materials would be required to consult with the school district regarding potential hazards. As shown in Figure 4.8-1, Harvest Christian School, McKinley Elementary, St. Vincent de Paul Elementary School, Petaluma Accelerated Charter, and San Antonio High (Continuation) are within 0.25-mile of active hazardous sites.

d. Airports

Airports are considered a potential hazard due to risks associated with aircraft operations, including aircraft accidents, fuel storage and handling, and aircraft-related noise and emissions. The Petaluma Municipal Airport is located at the northeast edge of the Plan Area with residential development close to the airport along the southwest area, as shown in Figure 4.8-2 (Sonoma County Comprehensive Airport Land Use Plan 2012).

Airport safety planning areas associated with the Petaluma Municipal Airport extend into portions of the City, as shown in Figure 4.8-2. These areas include airport safety zones intended to address potential safety considerations associated with aircraft operations.

e. Fire Hazards

Fire hazard mapping prepared by the California Department of Forestry and Fire Protection (CAL FIRE) identifies areas of varying wildfire hazard severity. Within the City of Petaluma, mapped fire hazard severity is generally low, and no areas within the City are designated as Very High Fire Hazard Severity Zone.

The nearest mapped Very High Fire Hazard Severity Zone is located more than five miles northeast of the City limits. Areas surrounding the City include lands with higher mapped fire hazard severity, which provide regional context for wildfire conditions.

In addition to wildland fire hazards, localized fire risks in the City may also be associated with natural gas transmission and distribution pipelines that traverse portions of the Plan Area. In the event of rupture or accidental damage to these pipelines, high-pressure natural gas may escape and present a risk of fire or explosion.

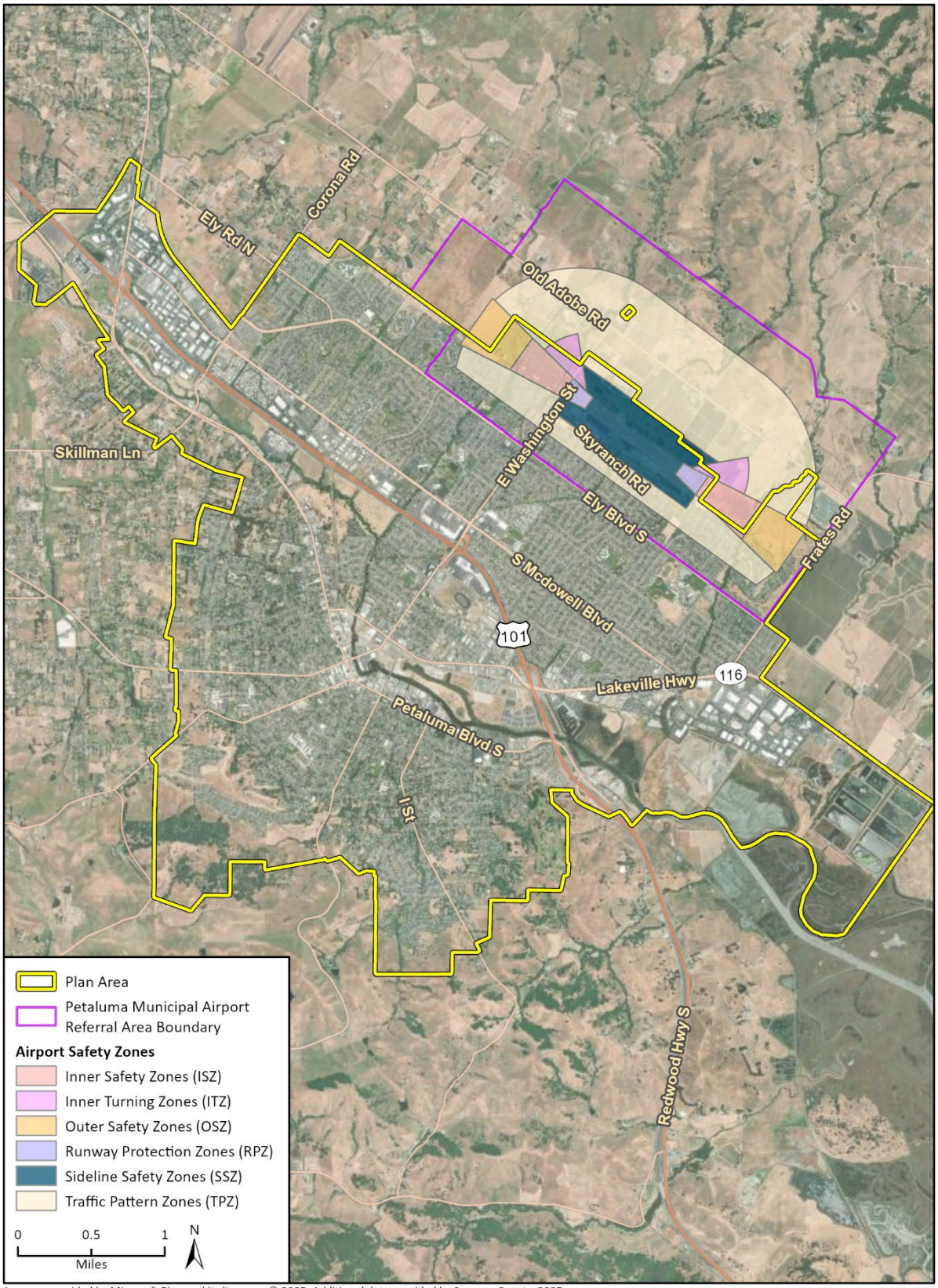
f. Emergency Response Plans

The following discussion summarizes the existing emergency response framework, mutual aid systems, and adopted emergency planning documents currently in effect within the City of Petaluma and the surrounding operational area. While these plans and systems are established pursuant to federal, state, and local regulatory requirements, they are described here to provide baseline context for evaluating whether development facilitated by the proposed project would impair or physically interfere with adopted emergency response or evacuation plans.

Presidential Directive HSPD 5 identifies steps for improved coordination in response to incidents and requires a National Response Plan (NRP) and a National Incident Management System (NIMS). NIMS is a comprehensive, national approach to incident management developed to improve the coordination of federal, State, and local emergency response nationwide. The State of California's NIMS Advisory Committee issued "California Implementation Guidelines for the National Incident Management System" to assist local governments and other entities to incorporate NIMS into already existing programs, plans, training and exercises.

The foundation of California's emergency planning and response is a statewide mutual aid system that is designed to ensure that adequate resources, facilities, and other support is provided to jurisdictions whenever their own resources prove to be inadequate to cope with a given situation.

Figure 4.8-2 Petaluma Municipal Airport Influence Area



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Fig 4.8-2 Petaluma Municipal Airport Influence Area

The California Disaster and Civil Defense Master Mutual Aid Agreement (California Government Code Sections 8555–8561) requires signatories to the agreement to prepare operational plans to use within their jurisdiction, and outside their area. These 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.

California Government Code Section 8568, the "California Emergency Services Act," states that "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, including war.

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 Government Code 8607(a) for managing emergencies involving multiple jurisdictions and agencies. The SEMS incorporates the functions and principles of the Incident Command System (ICS), the Master Mutual Aid Agreement (MMAA), existing mutual aid systems, the operational area concept, and multi-agency or inter-agency coordination (CalOES 2022). Local governments must use SEMS to be eligible for funding of their response-related personnel costs under state disaster assistance programs (CalOES n.d.). The SEMS consists of five organizational levels that are activated as necessary, including: field response, local government, operational area, regional, and state (CalOES 2022). The State of California Governor's Office of Emergency Services (CalOES) divides the state into six mutual aid regions. The City of Petaluma is located in Mutual Aid Region II, which includes Del Norte, Humboldt, Mendocino, Lake, Sonoma, Marin, Napa, Solano, Contra Costa, San Francisco, Alameda, San Mateo, Santa Clara, Santa Cruz, San Benito, and Monterey Counties (CalOES 2025).

In an emergency, governmental response is an extension of responsibility and action, coupled with normal day-to-day activity. Normal governmental duties will be maintained, with emergency operations carried out by those agencies assigned specific emergency functions.

The City of Petaluma Local Hazard Mitigation Plan (LHMP) provides information and resources for comprehending the potential hazards within the city, establishes mitigation priorities and goals, and establishes a basis for coordination and collaboration among community entities such as private and public agencies (City of Petaluma 2020). Additionally, the City's Department of Public Safety (DPS) Fire Services Division prepared an Emergency Management Plan (EMP) that establishes emergency management organization, establishes operational concepts associated with emergency management, and provides a flexible platform for planning and response to all hazards and emergencies likely to impact the City (City of Petaluma 2020).

The Sonoma County/Operational Area Emergency Operations Plan addresses the planned response to extraordinary emergency situations associated with large-scale disasters, identifies roles and responsibilities of departments within the county, and identifies hazards that might affect the Operational Area (County of Sonoma 2022)

4.8.2 Regulatory Setting

a. Federal Regulations

Primary federal agencies with responsibility for hazardous materials management include the U.S. EPA, U.S. Department of Labor's Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (USDOT). The major laws enforced by these agencies are described below.

United States Environmental Protection Agency

U.S. EPA is the agency primarily responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are contained in the Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the CFR, are listed in 49 CFR 172.101. The management of hazardous materials is governed by the following laws, which include specific requirements for facilities that generate, use, store, treat, and/or dispose of hazardous materials. U.S. EPA provides oversight and supervision for federal Superfund investigation/remediation projects, evaluates remediation technologies, and develops hazardous materials disposal restrictions and treatment standards.

Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act (1976), as amended by the Hazardous and Solid Waste Amendment of 1984

These acts established a program administered by U.S. EPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. The Resource Conservation and Recovery Act was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. Among other things, the use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Act.

Comprehensive Environmental Response, Compensation and Liability Act (1980), amended by the Superfund Amendments and Reauthorization Act (1986; Public Law 99-499)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) was enacted in 1980 and provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. Among other things, CERCLA established requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled revision of the National Contingency Plan, which provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The National Contingency Plan also established the National Priorities List. The National Priorities List contains known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The National Priorities List is intended primarily to guide the United States Environmental Protection Agency (USEPA) in determining which sites warrant further investigation. Sites are added to the National Priorities List following a hazard ranking system.

The Superfund Amendments and Reauthorization Act amended CERCLA to reflect lessons learned by U.S. EPA during the first six years administering the Superfund program. The Superfund Amendments and Reauthorization Act provided new enforcement authorities and settlement tools, increased the focus on human health problems posed by hazardous waste sites, and encouraged greater citizen participation in making decisions on how sites should be cleaned up. The law also increased state involvement in every phase of the Superfund program and required Superfund actions to consider the standards and requirements found in other state and federal environmental laws and regulations.

Lead-Based Paint Elimination Final Rule 24 Code of Federal Regulations

Governed by the U.S. Department of Housing and Urban Development (HUD), regulations for LBP are contained in the Lead-Based Paint Elimination Final Rule 24 Code of Federal Regulations (CFR) 33, which requires sellers and lessors to disclose known LBP and LBP hazards to perspective purchasers and lessees. Additionally, all LBP abatement activities must follow California and federal occupational safety and health administrations (California Occupational Safety and Health Administration [Cal/OSHA] and federal Occupational Safety and Health Administration [OSHA], respectively, and with the State of California Department of Health Services requirements. Only LBP trained and certified abatement personnel can perform abatement activities. All lead and LBP removed from structures must be hauled and disposed of by a transportation company licensed to transport this type of material at a landfill or receiving facility licensed to accept the waste.

U.S. Department of Transportation Regulations

USDOT prescribes strict regulations for the safe transportation of hazardous materials, including requirements for hazardous waste containers and licensed haulers that transport hazardous waste on public roads. The Secretary of the USDOT receives the authority to regulate the transportation of hazardous materials from the Hazardous Materials Transportation Act (HMTA), as amended and codified in in 49 U.S. Code (U.S.C.) Section 5101 et seq. The Secretary is authorized to issue regulations to implement the requirements of 49 U.S.C. The Pipeline and Hazardous Materials Safety Administration (PHMSA), formerly the Research and Special Provisions Administration, was delegated the responsibility to write the hazardous materials regulations, which are contained in Title 49 of the CFR Parts 100-180. The PHMSA establishes and oversees federal safety standards applicable to natural gas transmission pipelines under Title 49 of the CFR. These standards govern pipeline design, construction, operation, maintenance, inspection, and emergency response. Title 49 of the CFR, which also contains the regulations set forth by the HMTA, specifies requirements and regulations with respect to the transport of hazardous materials. It requires that every employee who transports hazardous materials receive training to recognize and identify hazardous materials and become familiar with hazardous materials requirements. Under the HMTA, the Secretary "may authorize any officer, employee, or agent to enter upon, inspect, and examine, at reasonable times and in a reasonable manner, the records and properties of persons to the extent such records and properties relate to: (1) the manufacture, fabrication, marking, maintenance, reconditioning, repair, testing, or distribution of packages or containers for use by any 'person' in the transportation of hazardous materials in commerce; or (2) the transportation or shipment by any 'person' of hazardous materials in commerce.

Occupational Safety and Health Act of 1970

The U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) was created to assure safe and healthful working conditions by setting and enforcing standards and by providing training, outreach, education, and assistance. OSHA provides standards for general industry and construction industry on hazardous waste operations and emergency response. The Occupational Safety and Health Act, which is implemented by OSHA, contains provisions with respect to hazardous materials handling. Federal Occupational Safety and Health Act requirements, as set forth in Title 29 of the CFR Section 1910, et. seq., are designed to promote worker safety, worker training, and a worker's right-to-know. OSHA has delegated the authority to administer OSHA regulations to the State of California.

Title 49 of the CFR, which contains the regulations set forth by the Hazardous Materials Transportation Act of 1975, specifies additional requirements and regulations with respect to the transport of hazardous materials. Title 49 of the CFR requires that every employee who transports hazardous materials receive training to recognize and identify hazardous materials and become familiar with hazardous materials requirements. Drivers are also required to be trained in function and commodity-specific requirements.

b. State Regulations

Hazardous materials management in California is administered through a coordinated regulatory framework led by the California Environmental Protection Agency (CalEPA) and implemented by several state agencies with distinct but complementary responsibilities. Key agencies include DTSC, which regulates hazardous waste and oversees cleanup of contaminated sites; the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards, which oversee water quality protection and underground storage tank programs; the California Division of Occupational Safety and Health (Cal/OSHA), which regulates worker safety related to hazardous materials; the California Public Utilities Commission (CPUC), which enforces federal pipeline safety standards adopted by the PHMSA and implements additional state requirements as applicable; and the California Office of Emergency Services (CalOES), which coordinates statewide emergency response and hazardous materials incident management. Additional state agencies, including Caltrans and the California Highway Patrol (CHP), regulate the transportation of hazardous materials on state highways, while fire safety responsibilities within State Responsibility Areas (SRA) are overseen by CAL FIRE. The primary state laws and regulatory programs governing hazardous materials management are summarized below.

Department of Toxic Substances Control

As a department of CalEPA, the DTSC is the primary agency in California that regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. The DTSC regulates hazardous waste in California primarily under the authority of the Resource Conservation and Recovery Act (RCRA) and the California HSC.

The DTSC also administers the California Hazardous Waste Control Law (HWCL) to regulate hazardous wastes. While the HWCL is generally more stringent than the RCRA, both State and federal laws apply in California. The HWCL lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment,

storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

California Government Code Section 65962.5

Government Code Section 65962.5 requires the DTSC, the State Department of Health Services, the State Water Resources Control Board, and the California Department of Resources Recycling and Recovery (CalRecycle) to compile and annually update lists of hazardous waste sites and land designated as hazardous waste sites throughout the State. The Secretary for Environmental Protection consolidates the information submitted by these agencies and distributes it to each city and county where sites on the lists are located. Before the lead agency accepts an application for any development project as complete, the applicant must consult these lists to determine if the site at issue is included.

If soil or groundwater contamination is encountered during development activities, additional investigation or remediation may be required, as determined by the regulatory agency with jurisdiction. Applicable hazardous waste identification, handling, and disposal requirements are governed by Title 22 of the California Code of Regulations, as described below.

California Health and Safety Code

Chapter 6.7 (Underground Storage of Hazardous Substances) of the California HSC regulates the underground storage of hazardous substances to protect public health and the environment. It mandates that owners and operators of USTs comply with strict requirements for the design, construction, installation, and maintenance of these tanks to prevent leaks and spills. The chapter includes provisions for obtaining permits, conducting regular inspections, and implementing spill containment measures. It also requires financial responsibility for cleanup costs in case of leaks and outlines penalties for non-compliance.

Section 19827.5 of the California HSC prohibits local agencies from issuing demolition or alteration permits for structures subject to asbestos notification requirements until the applicant has demonstrated compliance with applicable federal regulations governing hazardous air pollutants, including asbestos.

California Code of Regulations

Title 8, Hazardous Waste Operations and Emergency Response and Hazard Communication Standard

Title 8, Section 1529 of the CCR establishes requirements for the identification and control of asbestos exposure during construction, demolition, renovation, and maintenance activities, including exposure assessments, monitoring, worker training, protective equipment, hazard communication, and medical surveillance, to protect worker health and safety. Title 8, Section 5192 of the CCR governs hazardous waste operations and emergency response to ensure worker safety and environmental protection. It mandates comprehensive safety and health programs for hazardous waste site clean-ups, including training, protective equipment, and emergency procedures. Title 8, Section 5194, known as the Hazard Communication Standard, requires employers to inform and train employees about hazardous chemicals in the workplace through labels, safety data sheets, and a written hazard communication program. Both sections aim to mitigate risks associated with hazardous substances and ensure compliance with safety standards.

Title 22, Hazardous Waste Management

At the State level, under Title 22, Division 4.5 of the CCR, DTSC regulates hazardous waste in California primarily under the authority of the Federal RCRA and the California HSC. The HWCL, under CCR 22, Chapter 30, establishes regulations that are similar to RCRA but more stringent in their application and empowers the DTSC to administer the State's hazardous waste program and implement the federal program in California. The DTSC is responsible for permitting, inspecting, ensuring compliance, and imposing corrective action programs to ensure that entities that generate, store, transport, treat, or dispose of potentially hazardous materials and waste comply with federal and State laws. The DTSC defines hazardous waste as waste with a chemical composition or other properties that make it capable of causing illness, death, or some other harm to humans and other life forms when mismanaged or released into the environment. The DTSC shares responsibility for enforcement and implementation of hazardous waste control laws with the SWRCB and, at the local level, the San Francisco Bay RWQCB, and city and county governments.

Title 23, Chapter 15 Discharges of Hazardous Waste to Land Section 2511 (b)

CCR 23, Chapter 15 Discharges of Hazardous Waste to Land Section 2511(b) pertains to water quality aspects of waste discharge to land. The regulation establishes waste and site classifications as well as waste management requirements for waste treatment, storage, or disposal in landfills, surface impoundments, waste piles, and land treatment facilities. Requirements are minimum standards for proper management of each waste category, which allows regional water boards to impose more stringent requirements to accommodate regional and site-specific conditions. In addition, the requirements of CCR 23, Chapter 15 applies to cleanup and abatement actions for unregulated hazardous waste discharges to land (e.g., spills).

California Labor Code, Section 6300 et seq.

The California Occupational Safety and Health Act of 1973 is codified in the California Labor Code and addresses California employee working conditions, enables the enforcement of workplace standards, and provides for advancements in the field of occupational health and safety. The Act also created CalOSHA, the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. CalOSHA's standards are generally more stringent than federal regulations. Under the former, the employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure. The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings. At sites known or suspected to be contaminated by hazardous materials, workers must have training in hazardous materials operations and a Site Health and Safety Plan must be prepared, which establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

California Food and Agricultural Code

The California Food and Agricultural Code establishes the statewide framework for regulating pesticide use, permitting, storage, and worker safety requirements in agricultural settings. Under this authority, county agricultural commissioners serve as the local enforcement agencies responsible for issuing pesticide use permits, reviewing site-specific operational conditions, and ensuring compliance with state pesticide regulations. Commissioners oversee pesticide handler training, conduct routine field inspections, and verify proper application practices and recordkeeping. They also enforce pesticide use reporting requirements, which mandate that

agricultural operators submit detailed monthly reports documenting the type, quantity, and location of all pesticide applications. This regulatory structure ensures that pesticides are used in a controlled and transparent manner that protects workers, nearby receptors, and the environment.

California Department of Pesticide Regulation

The California Department of Pesticide Regulation administers statewide rules governing the safe storage, transportation, and handling of pesticides used in agricultural and non-agricultural settings. DPR regulations establish requirements for pesticide container labeling, secondary containment, segregated storage of incompatible chemicals, and secure facilities that prevent unauthorized access. For pesticide transport, DPR regulations mandate proper container closure, vehicle signage where required, spill-response equipment, and adherence to procedures that minimize the risk of releases during transit. DPR also sets training, reporting, and inspection requirements and works in coordination with county agricultural commissioners to enforce on-site compliance. These regulations ensure that pesticides are managed in a manner that minimizes risks to workers, the public, and environmental resources during routine storage and transport activities.

California Fire and Building Code

The 2019 Fire and Building Code establishes the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety, and general welfare for the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures and premises, fand to provide safety and assistance to firefighters and emergency responders during emergency operations. The provisions of this code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout the State of California.

Within SRAs—areas where the State of California has primary financial responsibility for wildland fire protection—fire prevention and enforcement responsibilities under the California Fire and Building Code are administered by the California Department of Forestry and Fire Protection (CAL FIRE), which coordinates with local fire agencies to reduce wildfire risk and ensure compliance with applicable fire safety standards.

Bay Area Air District

The Bay Area Air District (Air District) regulates asbestos emissions associated with demolition, renovation, and material handling activities under Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing). This rule implements the federal Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements and applies to projects involving the demolition or renovation of structures that may contain ACMs. Regulation 11, Rule 2 requires pre-demolition asbestos surveys, notification to the air district, implementation of emission control measures, and proper removal, handling, and disposal of ACMs to prevent asbestos emissions to the ambient air.

Proposition 65

Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted as a ballot initiative in November 1986. The proposition protects the State's drinking water sources from being contaminated with chemicals known to cause cancer, birth defects or other

reproductive harm, and requires businesses to inform Californians ("Proposition 65 Warning") about exposures to such chemicals. Proposition 65 requires the State to maintain and update a list of chemicals known to the State to cause cancer or reproductive toxicity.

Assembly Bill 747 and Senate Bill 99

Assembly Bill (AB) 747 and Senate Bill (SB) 99 amended California Government Code Section 65302 to require jurisdictions in fire-prone areas to identify evacuation routes, assess evacuation capacity constraints, and include policies to improve emergency evacuation and response in the Safety Element of their General Plans. These statutes require consideration of both vehicular and non-vehicular evacuation, identification of populations with access or mobility constraints, and coordination with emergency response agencies. Compliance with AB 747 and SB 99 is intended to improve emergency preparedness and reduce evacuation-related risks associated with future development.

c. Regional and Local Regulations

Hazardous materials management, emergency response, fire prevention, and land use compatibility within the City of Petaluma are regulated through a combination of local and regional agencies and adopted plans. These include the City of Petaluma Fire Prevention Bureau, which serves as the Certified Unified Program Agency (CUPA) for hazardous materials programs; regional planning and emergency management agencies; and county-level entities responsible for airport land use compatibility and hazard mitigation planning. In addition, the Petaluma Municipal Code establishes local requirements governing hazardous materials handling, building and fire safety, stormwater management, and development in hazard-prone areas. The primary local and regional regulatory agencies and plans applicable to hazardous materials and related hazards are summarized below.

Sonoma County Comprehensive Land Use Compatibility Plan

The Comprehensive Airport Land Use Plan (CALUP), adopted in January 2001, is the Airport Land Use Commission official land use policy within the airport influence areas for all six airports in Sonoma County. Among others, the CALUP establishes regulations related to permitted land uses, standards for open space retention, density, and lot coverage as well as the CALUP referral boundaries, airport influence area, air space protection standards, and noise counters. The Airport Land Use Commission makes decisions and recommendations on general plans, zoning or building ordinances and any other local projects within the airport influence areas and are based on the adopted policies of the CALUP.

City of Petaluma Fire Prevention Bureau

The City of Petaluma Fire Prevention Bureau is primarily responsible for overseeing programs, procedures, and projects aimed at preventing the outbreak of fires within the unincorporated areas of the county as well as conducting hazardous materials incident response, fire investigations, and emergency scene management support. As the Certified Unified Program Agency (CUPA) for the City of Petaluma, the Fire Prevention Bureau also regulates the storage, handling, and processing of hazardous materials through various programs including the Hazardous Materials Business Plan (HMBP), Hazardous Waste Generator, Underground Storage Tank, Above-ground Petroleum Storage Tanks, Accidental Release Prevention, and the portions of the California Fire Code that address hazardous materials. The goal of the Fire Prevention Bureau is to minimize the danger to persons and damage to property caused by fires.

City of Petaluma Local Hazard Mitigation Plan

The City's LHMP, adopted in November 2020, is in compliance with the Federal Emergency Management Agency's (FEMA) Stafford Act to receive funding through the Hazard Mitigation Grant Program. The City's LHMP is also in compliance with California Government Code Sections 8685.9 and 65302.6, which address requirements to have a LHMP. The mitigation goals and priorities of the City's LHMP are to eliminate long-term risk to people and property from hazards. The City of Petaluma developed the LHMP update to make the city and its residents less vulnerable and more resilient to future hazard events. This plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 so that Petaluma would be eligible for the FEMA Pre-Disaster Mitigation and Hazard Mitigation Grant programs. The City followed a planning process prescribed by FEMA, which began with the formation of a hazard mitigation planning committee comprised of key City representatives, and other regional stakeholders. The hazard mitigation planning committee conducted a risk assessment that identified and profiled hazards that pose a risk to the City of Petaluma, assessed the City's vulnerability to these hazards, and examined the capabilities in place to mitigate them. The city is vulnerable to several hazards that are identified, profiled, and analyzed in this plan. Floods, wildfires, severe weather, and earthquake hazards are among the hazards that can have a significant impact on the city.

Petaluma Municipal Code

Several sections of the Petaluma Municipal Code regulate hazardous materials and are intended to prevent, reduce, or eliminate potential hazards to public health and safety, including the following:

Title 15 (Water and Sewage)

Chapter 15.80 (Storm Water Management and Pollution Control) prohibits the discharge of pollutants or water containing pollutants into storm drains or natural watercourses and requires implementation of best management practices (BMPs) to control stormwater runoff during construction and operation.

Title 17 (Buildings and Construction)

Chapter 17.04, Section 17.04.010 adopts the California Building Standards Code, which includes requirements to ensure that construction projects are designed and implemented to protect life and property from geologic, seismic, and fire-related hazards.

Chapter 17.21 (Certified Unified Program Agency) which implements Health and Safety Code Section 25404 et. Seq. "Unified Waste and Hazardous Material Management Regulatory Program" which regulates hazardous material and hazardous waste.

Collectively, these titles, chapters, and sections of the Petaluma Municipal Code regulate exposure to natural and human-made hazards, and ensure that construction and operational activities do not create unacceptable risks to the public or the environment.

City of Petaluma 2025 General Plan

The City's current 2025 General Plan was originally adopted in May 2008 and revised in May 2021. The 2025 General Plan includes 11 Elements: Land Use, Growth Management, and the Built Environment; Community Design, Character, and Green Building; Historic Preservation; The Natural Environment; Mobility; Recreation, Music, Parks, and the Arts; Community Facilities, Services and Education; Water Resources; Economic Health and Sustainability; Health and Safety; and Housing

(City of Petaluma 2008). The 2025 General Plan guides how land in the city may be developed and used by designating each parcel of land for a particular use or combination of uses and by establishing broad development policies.

Chapter 10 Health and Safety of the 2025 General Plan contain the following goals and policies applicable to the project (City of Petaluma 2008):

Goal 10-P-4: Hazardous Materials. Minimize the risk to life and property from the production, use, storage, and transportation of hazardous materials and waste by complying with all applicable State and local regulations.

> **Policy B:** Prepare and maintain an inventory of environmentally contaminated sites to educate future landowners about contamination from previous uses. Work directly with landowners in the cleanup of these sites, particularly in areas with redevelopment potential
>
> **Policy C:** Establish special zoning designations and environmental review processes that limit the location of industry, research, and business facilities using hazardous materials. Require safe distances between these sites and residential areas, groundwater recharge areas (see Chapter 8: Water Resources), and waterways.

4.8.3 Impact Analysis

a. Methodology and Thresholds of Significance

Methodology

The following section describes the potential environmental impacts of the proposed project relevant to hazards and hazardous materials. The impact analysis is based on an assessment of baseline conditions, including locations of hazardous materials use and storage, existing contaminated sites, and emergency response and evacuation plan requirements. This analysis identifies potential impacts based on the predicted interaction between the affected environment and construction, operation, and maintenance activities related to the development that would be facilitated by the proposed project. However, the precise increase in hazardous materials transported within Petaluma as a result of buildout of the proposed project cannot be predicted because specific development projects are not identified in the proposed project at a level of detail allowing such analysis. This analysis focuses on the potential nature and magnitude of risks associated with the accidental release, storage, transportation, and use of hazardous materials during operations of typical residential, retail-commercial, industrial, and agricultural developments that would be facilitated by the project.

Significance Thresholds

Based on Appendix G of the *CEQA Guidelines* a project may be deemed to have a significant impact on hazards and hazardous materials if it would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
2. 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;

3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
4. 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;
5. 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;
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; and/or
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
Threshold 2:	Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Impact HAZ-1 **DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT MAY RESULT IN THE RELEASE OF HAZARDOUS MATERIALS IN PETALUMA AND COULD INCREMENTALLY INCREASE THE RISK OF HAZARDOUS MATERIALS RELEASES. WHILE COMPLIANCE WITH APPLICABLE REGULATIONS WOULD REDUCE RISKS ASSOCIATED WITH ROUTINE HAZARDOUS MATERIALS USE, TRANSPORT, AND DISPOSAL, THE POTENTIAL FOR FUTURE DISCRETIONARY DEVELOPMENT TO OCCUR ON OR ADJACENT TO CONTAMINATED SITES WITHOUT PRIOR SITE-SPECIFIC INVESTIGATION REPRESENTS A POTENTIALLY SIGNIFICANT IMPACT. HOWEVER, WITH IMPLEMENTATION OF MITIGATION MEASURE HAZ-1, IMPACTS WOULD BE REDUCED TO A LESS THAN SIGNIFICANT LEVEL.**

Construction and Demolition Hazardous Materials

Hazardous Materials Sites

As described in Section 4.8.1, *Setting*, there are 24 known active hazardous sites and one delisted Federal Superfund site. These active hazardous materials sites are primarily associated with former or existing dry cleaning activities, LUSTs related to gasoline service stations, and other commercial or light industrial operations, which have resulted in contamination of structures, soil, soil vapor, and/or groundwater. Demolition and excavation activities associated with future, site-specific development projects that may be facilitated by the proposed General Plan Update could result in the release of hazardous materials into the environment if such materials are present and are not properly handled, transported, and disposed of in accordance with applicable regulations. Additionally, future site-specific developments that may be facilitated by the project could involve construction activities within or adjacent to closed hazardous materials sites or demolition of existing structures, which could disturb residual contamination or result in the release of lead, asbestos, and/or PCBs where such materials are present.

Although existing regulations require remediation of known contaminated sites prior to development, the General Plan Update facilitates a broad range of future discretionary development projects, some of which may be proposed on sites with unknown or uncharacterized contamination. Without prior site-specific investigation, construction activities could inadvertently disturb contaminated soil, soil vapor, or groundwater, resulting in potentially significant impacts to human health or the environment. Compliance with applicable regulations alone does not ensure that contamination is identified prior to ground disturbance, particularly where contamination is not currently reflected in state regulatory databases.

Prior to development within known hazardous materials sites, contamination would be remediated through coordination with the appropriate regulatory agency, including DTSC, Regional Water Quality Control Board (Water Board), Cal/OSHA, the City of Petaluma Fire Department, or other applicable regulatory agencies. However, because the General Plan Update operates at a programmatic level and does not identify specific development sites or require project-level review at this stage, it is not possible to confirm that all future development sites are free of hazardous conditions prior to ground disturbance without a site-specific investigation requirement. Implementation of Mitigation Measure HAZ-1, which requires preparation of a Phase I Environmental Site Assessment (ESA) prior to approval of discretionary development projects, would ensure that potential contamination is identified and addressed before construction activities commence, reducing this impact to a less than significant level.

Potential Hazardous Materials in Existing Structures

Several existing contaminants, including asbestos, lead (in sources such as lead-based paint in buildings or in soil), and contaminated soil and groundwater, are present in Petaluma. Due to the age of some existing buildings in the Plan Area that may be redeveloped under the proposed project, asbestos may be present in those structures built prior to 1973 when asbestos was banned and could be mobilized during demolition activities. Similarly, lead may be present in paint that was sold prior to 1978 when it was banned or in soil that was contaminated by leaded gasoline or improperly discarded batteries. Existing soil contamination may also be present at potential redevelopment or housing opportunity sites due to contamination from household hazardous wastes. The United States Environmental Protection Agency (USEPA) describes household hazardous waste as leftover household products that can catch fire, react, explode under certain circumstances, or that are corrosive or toxic. Household hazardous wastes are similar to the operational project-related hazardous materials described above, and include products such as paints, cleaners, oils, batteries, and pesticides (USEPA 2025b). California Code of Regulations Section 1529 sets requirements for asbestos exposure assessments and monitoring, methods of complying with exposure requirements, safety wear, communication of hazards, and medical examination of workers. As described in Section 4.8.2 *Regulatory Setting,* the control of asbestos during demolition or renovation of buildings is regulated under the Clean Air Act. The Clean Air Act requires a thorough inspection for asbestos where demolition will occur and specifies work practices to control emissions, such as removing all ACMs, adequately wetting all regulated ACMs, sealing the material in leak tight containers and disposing of the asbestos-containing waste material as expediently as practicable (USEPA 2024b).

Friable ACMs are regulated as a hazardous air pollutant under the Clean Air Act. As a worker safety hazard, they are also regulated under the authority of Cal/OSHA and by the Air District. In structures built prior to the ban of ACMs that would be demolished under the project, any ACMs would be abated in accordance with federal, state, and local regulations prior to the start of demolition or renovation activities. Compliance with these regulations would ensure that asbestos removal would

not result in the release of hazardous materials to the environment that could impair human health. Additionally, Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos.

Hazardous Materials Involved in Construction Activities

Development facilitated by the project would include the use of construction machinery that would involve the transport, use, and disposal of hazardous materials such as paints, solvents, oils, grease, and caulking. Additionally, hazardous materials would be needed for fueling and servicing construction equipment. Beyond construction activities, development facilitated by the project could support or occur near existing or future industrial facilities, which commonly involve the use, storage, and transport of additional hazardous materials such as fuels, industrial solvents, coatings, metal-processing chemicals, and cleaning agents. These types of hazardous materials are not acutely hazardous,[1] and all storage, handling, use, and disposal of these materials are regulated by federal, state, and local regulations.

Development facilitated by the project would be required to comply with applicable regulations and standards discussed in Section 4.8.2, *Regulatory Setting*, including the Toxic Substances Control Act, CERCLA, and the California Fire and Building Codes. Compliance with these requirements would ensure that hazardous materials associated with the project and surrounding land uses are handled in a manner that minimizes potential hazards to the public and the environment.

In summary, development facilitated by the project would be required to comply with federal and state regulations, including but not limited to the Clean Air Act, CERCLA, the Toxic Substances Control Act, the California Health and Safety Code, the California Fire and Building Codes, and Air District Regulation 11, Rule 2, pertaining to the removal and disposal of ACMs. Compliance with applicable hazardous materials regulations, together with site-specific investigation and remediation requirements implemented during future discretionary development review, would minimize impacts related to hazardous materials during demolition and construction to a less than significant level.

Hazardous Materials Transport

Hazardous materials may be transported into and throughout Petaluma on Highway 101, and arterial roadways including E Washington Street and Lakeville Highway, as well as collector and local streets. Accidents on these roadways could result in the accidental release of hazardous materials. Hazardous materials are not currently transported via rail in the Plan Area. The U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, regulates the transportation of hazardous materials, as described in Title 49 of the CFR. Title 13 of the CCR additionally regulates the transportation of hazardous materials by designating appropriate hazard labels shipping preparation, vehicle loading, and hazardous materials registration, among other requirements. Documentation of compliance with hazardous materials regulations codified in Titles 8, 22, and 26 of the CCR is required for all hazardous materials and hazardous waste transport. In addition, individual contractors and property owners are required to comply with all applicable federal and State laws and regulations pertaining to the transport, use, disposal, handling, and storage of hazardous waste, including but not limited to, Title 49 of the CFR. Adherence to

[1] "Acutely hazardous" materials are materials that would cause death, disabling personal injury, or serious illness (DTSC 2024).

applicable regulations and laws would reduce the potential hazards associated with the transport of hazardous materials, including accidental release of hazardous materials during transport.

In addition to mandatory adherence to laws and regulations, the following goals, policies, and actions in the Safety Element of the General Plan Update would reduce potential hazards associated with the transport of material:

> **Policy SAF-10.2: Promote safe transport of hazardous material:** Minimize public exposure to hazardous materials by requiring appropriate routing, scheduling, and operational controls for the transport of hazardous materials associated with construction, remediation, or ongoing operations, particularly near sensitive receptors, consistent with applicable regulations and best management practices**.**
>
> > **Action SAF-10.2.1:** Assess the need for hazardous waste transportation routes in coordination with the Petaluma Fire Department and Sonoma County Waste Management Agency (SCWMA).
> >
> > **Action SAF-10.2.2:** Designate and maintain specific routes for the transportation of hazardous materials that avoid residential areas, health care centers, and schools to the greatest extent possible. Coordinate with the Petaluma Fire Department and Sonoma County Waste Management Agency (SCWMA) for route planning.

Hazardous Materials Use and Disposal

Development facilitated by the proposed project would result in the addition of 6,449 residential units and 1,414,741 square feet of non-residential land uses. Residential uses do not typically utilize substantial quantities of hazardous materials and thereby pose little risk of exposing the public to hazardous materials. In the event of a hazardous materials accident, the City of Petaluma Fire Department would respond. Although the overall quantity of hazardous materials used and requiring disposal in Petaluma could incrementally increase as a result of buildout of the proposed project, all new development that uses hazardous materials would be required to comply with the regulations, standards, and guidelines established by the USEPA, the State of California, and Petaluma related to storage, use, and disposal of hazardous materials.

Commercial uses often involve the use of hazardous materials in various operations; commercial development facilitated by the project would be required to comply with hazardous materials regulations established by the California Code of Regulations. These regulations include Title 8, Section 5192, which covers hazardous waste operations and emergency response protocols, and Title 8, Section 5194, which mandates hazard communication programs to inform employees about the hazardous chemicals they may encounter. Additionally, agencies such as Cal/OSHA and OSHA enforce these regulations to ensure that businesses implement safety measures and training programs to minimize hazardous materials risks to the public and employees.

Development facilitated by the project could introduce or support industrial land uses that involve the routine transport, storage, and use of hazardous materials during ongoing operations. Industrial facilities commonly use fuels, industrial solvents, lubricants, coating compounds, chemical reagents, and cleaning agents. Industrial facilities would be required to comply with federal, state, and local regulations governing hazardous materials use, including the Toxic Substances Control Act, CERCLA release reporting requirements, Hazardous Materials Business Plan requirements under the California Health & Safety Code, and the hazardous materials storage and emergency response provisions of the California Fire and Building Codes enforced by the local CUPA.

Similarly, agricultural operations may rely on fertilizers, pesticides, herbicides, fungicides, and petroleum-based products for equipment operation and crop management. The presence and use of these materials during day-to-day operations could pose risks of accidental releases, spills, or improper handling if not adequately controlled. These activities are regulated under a separate but robust regulatory framework that includes the California Food and Agricultural Code and oversight by county agricultural commissioners for pesticide permitting and use reporting, the California Department of Pesticide Regulation rules governing pesticide storage and transport, and relevant provisions of the California Fire and Building Codes for chemical and fuel storage.

Businesses that handle certain chemicals over threshold quantities are required to develop a Hazardous Materials Business Plan (HMBP) and submit the HMBP to the City of Petaluma Fire Department's Hazardous Materials Unit. The HMBP consists of general business information; basic information on the location, type, quantity and health risks of hazardous materials; and emergency response and training plans. Hazardous materials must be reported in a HMBP if they are handled in quantities equal or greater than 55 gallons of a liquid, 200 standard cubic feet of a compressed gas, or 500 pounds of a solid. Mandatory reporting in HMBPs would reduce the potential hazard to residents and the general public from reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

For those employees that would work with hazardous materials, the amounts of hazardous materials that are handled at any one time are generally small, reducing the potential consequences of an accident during handling. Business-specific practices would be required to comply with federal and State laws to eliminate or minimize the potential consequence of hazardous materials accidents. For example, employees who would work around hazardous materials are required to wear appropriate protective equipment, and safety equipment is routinely available in all areas where hazardous materials are used. California Building and Fire Code requirements detail standards for the safe management of materials that present a moderate explosion hazard, high fire or physical hazard, or health hazards. Compliance with all applicable federal, State and local requirements related to the storage of hazardous materials would maximize containment through safe handling and storage practices described above and provide for prompt and effective cleanup if an accidental release occurs.

In addition to mandatory adherence to laws and regulations, the following goals, policies, and actions in the Safety Element of the General Plan Update would reduce the potential for accidental exposure and hazards associated with the use and disposal of hazardous materials:

Goal SAF-10: Hazardous Materials Management. Exposure to existing, new, and potential future hazardous materials is minimized.

> **Policy SAF-10.1: Maintain Hazardous Materials Standards.** Maintain existing hazardous materials programs administered by the Petaluma Fire Department Fire Prevention Bureau acting as the Certified Unified Program Agency (CUPA).
>
> > **Action SAF-10.1.1:** Maintain the Hazardous Materials Business Plan (HMBP), the Hazardous Waste Generator, the Underground Storage Tank, the Above-ground Petroleum Storage Tanks, and the Accidental Release Prevention programs.
> >
> > **Action SAF-10.1.2:** Maintain the permitting requirements for the handling, storing, dispensing, or use of hazardous materials per the guidance in Section 17.21.010(C) of the City's municipal code.

Action SAF-10.1.3: Continue to enforce standards for storage and disposal of hazardous materials and waste, consistent with State and federal law.

Policy SAF-10.3: Update resources on household hazards. Update the City's website and other public information outlets with resources regarding the safe handling and disposal of household chemicals and hazardous wastes.

Moreover, the updated Land Use Map generally maintains existing land use patterns and previously anticipated development capacity and does not expand uses typically associated with hazardous materials handling (e.g., heavy industrial or similar). Therefore, the General Plan Update is not expected to substantially change hazards and hazardous materials impacts relative to the prior plan allowances. Compliance with existing applicable regulations and policies would minimize risks from routine use, transport, handling, storage, disposal, and release of hazardous materials during both construction and operation. Oversight by the appropriate federal, state, and local agencies and compliance with applicable regulations related to the handling and storage of hazardous materials would minimize the risk of the public's potential exposure to these substances. Therefore, impacts from a hazard to the public or the environment through routine transport, use or disposal of hazardous materials and reasonably foreseeable upset and/or accident conditions would be less than significant.

Mitigation Measures

HAZ-1 Phase I Environmental Site Assessment

Prior to approval of any discretionary development within the City of Petaluma, the project applicant shall retain a qualified environmental professional (as defined by ASTM Standard E1527-21 or its successor) to prepare a Phase I Environmental Site Assessment (ESA) for the project site in accordance with applicable ASTM standards. The Phase I ESA shall be submitted to the City for review prior to issuance of any grading or building permits. If the Phase I ESA identifies Recognized Environmental Conditions (RECs) that indicate a reasonable possibility of contamination, the applicant shall prepare a Phase II ESA, including soil, soil vapor, and/or groundwater sampling and analysis as warranted. If the Phase II ESA confirms the presence of contamination at levels that could pose a risk to human health or the environment, the applicant shall implement a site-specific remediation plan approved by the applicable regulatory agency (e.g., DTSC, Regional Water Quality Control Board) prior to, or concurrent with, project construction, and in accordance with all applicable regulatory requirements.

Significance After Mitigation

With implementation of Mitigation Measure HAZ-1, future development facilitated by the General Plan Update would be required to identify and address site-specific hazardous materials conditions prior to ground disturbance. In combination with compliance with applicable federal, state, and local regulations governing hazardous materials handling, storage, transport, and disposal, impacts related to the release of hazardous materials during construction and operation would be reduced to a less than significant level.

Threshold 3:	Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Impact HAZ-2 DEVELOPMENT FACILITATED BY THE PROJECT MAY RESULT IN THE RELEASE OF HAZARDOUS MATERIALS WITHIN 0.25 MILE OF A SCHOOL. HOWEVER, COMPLIANCE WITH REGIONAL AND FEDERAL REGULATIONS RELATED TO HAZARDOUS MATERIALS, TOGETHER WITH IMPLEMENTATION OF HAZ-1, WOULD MINIMIZE THE RISK OF RELEASES AND EXPOSURE TO THESE MATERIALS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

The proposed project would facilitate 6,449 housing units and 1,414,741 square feet of non-residential space in the Plan Area. Residential uses typically do not emit hazardous materials or substances. Since the proposed project does not include specific development projects, the quantity of hazardous materials proposed for use by future commercial and industrial developments within the Plan Area is currently unknown. However, the non-residential development facilitated by the proposed project could include uses that generate and emit hazardous materials, substances, or waste. Accidental release or combustion of hazardous materials at new non-residential developments could endanger residents or students in the surrounding community or adversely impact the environment.

As shown in Figure 4.8-1, four schools, Harvest Christian School, McKinley Elementary, St. Vincent de Paul Elementary School, Petaluma Accelerated Charter, and San Antonio High (Continuation) are within 0.25-mile of active hazardous sites. Across Petaluma, 235 locations are associated with hazardous materials sites, including 24 sites with active regulatory oversight and 211 sites that have received regulatory closure for their current land use. As with most urbanized areas, additional previously unknown or undocumented hazardous materials conditions could be identified during site-specific investigations associated with future development. Where redevelopment or construction is proposed on or near sites with known or potential contamination, site conditions would be evaluated and addressed through coordination with the appropriate regulatory agency, including DTSC, Cal/OSHA, the City of Petaluma Fire Prevention Bureau, or other applicable regulatory agencies, as described under Impact HAZ-1.

Furthermore, as discussed under Impact HAZ-1, there may be existing contamination on sites that have not been identified, including in proximity to schools. As required by MM HAZ-1 preparation of a Phase I ESA prior to approval of any discretionary development project would ensure that contamination at sites near sensitive receptors such as schools, is identified and addressed before construction activities begin. Compliance with existing applicable regulations and policies, together with implementation of Mitigation Measure HAZ-1, would minimize risks from the release of hazardous materials, substances, or waste during construction at or near school sites.

Oversight by the appropriate federal, state, and local agencies and compliance by new development with applicable regulations related to the handling and storage of hazardous materials would minimize the risk of nearby schools' potential exposure to these substances during operation. In addition, and as discussed under Impact HAZ-1, compliance with existing regulations applicable to the construction and operation of residential and commercial uses would prevent the release of hazardous materials to the extent feasible, and would reduce the potential for the emission of hazardous materials near schools.

Furthermore, the goals, policies, and actions of the General Plan Update Safety Element would promote safe transport and disposal of hazardous materials. Specifically, Goal SAF-10, Hazards Materials Management, and its associated policies and actions would guide minimization of

community exposure to hazardous materials through compliance with the hazardous materials programs administered by the CUPA and implementation of specific travel routes for the transport of hazardous materials and wastes. Accordingly, impacts related to emitting or handling hazardous materials within 0.25 mile of a school would be less than significant with mitigation.

Mitigation Measures

See Mitigation Measure HAZ-1.

Significance After Mitigation

With implementation of Mitigation Measure HAZ-1, impacts related to the release of hazardous materials within 0.25 mile of a school would be less than significant.

Threshold 4:	Would the project be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Impact HAZ-3 DEVELOPMENT FACILITATED BY THE PROJECT COULD RESULT IN DEVELOPMENT ON SITES LISTED PURSUANT TO GOVERNMENT CODE SECTION 65962.5. DEVELOPMENT FACILITATED BY THE PROJECT IN THESE AREAS COULD CREATE A HAZARD TO THE PUBLIC OR THE ENVIRONMENT. HOWEVER, REQUIRED REMEDIATION, COMPLIANCE WITH APPLICABLE REGULATIONS, AND IMPLEMENTATION OF MITIGATION MEASURE HAZ-1 WOULD REDUCE IMPACTS RELATED TO HAZARDOUS MATERIALS SITES LISTED PURSUANT TO GOVERNMENT CODE 65962.5. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

As shown in Figure 4.8-1, 24 sites are listed as active hazardous materials sites related to former or existing dry-cleaning activities, LUST cases or voluntary agreements. Ongoing remediation and coordination with a regulatory agency are ongoing for contamination of structures, soil, soil vapor, and/or groundwater. Inactive hazardous materials sites have completed required remediation and have no further action required for their present land use; however, regulatory closure determinations are land-use specific, and may require reevaluation if future development proposed a more sensitive land use.

Development facilitated by the project on or near these listed hazardous materials sites could create a hazard to the public or the environment through the release of hazardous materials. Hazardous materials within structures, soil, or groundwater could be released into the air or water by demolition and construction activities. However, prior to development within known hazardous materials sites, if remediation is not already complete, individual sites would be remediated through coordination with the appropriate regulatory agency, including DTSC, Water Board, Cal/OSHA, the City of Petaluma Fire Prevention Bureau or other applicable regulatory agencies. The regulatory agency with oversight on development within individual sites may require actions such as development of subsurface investigation workplans; completion of additional soil, soil vapor, and/or groundwater subsurface investigations; installation of soil vapor or groundwater monitoring wells; soil excavation and off-site disposal; completion of human health risk assessments; and/or completion of remediation reports or case closure documents.

Potential risks, if any, posed by sites with former USTs would be minimized by managing the site according to existing standards contained in California Health and Safety Code Division 20, Chapters 6.7 and 6.75 (UST Program), as enforced and monitored by DTSC or the Water Board, as applicable. The extent to which groundwater may be affected by an UST or other potential contamination source depends on the type of contaminant, the amount released, the duration of the release,

distance from source, and depth to groundwater. If contamination exceeds regulatory action levels, future developers would be required to undertake remediation procedures prior to grading and development under the supervision of DTSC, the Water Board, or a qualified Local Oversight Program agency, depending on the nature of any identified contamination and oversight agreement between the agencies.

In addition, the General Plan Update Safety Element contains the following goals and policies which would reduce the potential risk from contaminated sites:

> **Policy SAF-10.5: Ensure site assessment and remediation.** Ensure that development and redevelopment occur on safe and suitable sites by requiring appropriate environmental site assessment and, where necessary, remediation in compliance with applicable federal, state, and local regulations prior to site disturbance or occupancy, consistent with the proposed land use**.**
>
> > **Action SAF-10.5.1:** Engage the community in overseeing remediation and redevelopment of former brownfield, leaking underground storage tanks (LUST), and EnviroStor Clean Up Sites as part of the redevelopment process.
> >
> > **Action SAF-10.5.2:** Develop a response plan to remediate existing contaminated sites in the city that may be redeveloped in the future, in coordination with the appropriate regional and state agencies.
> >
> > **Action SAF-10.5.3:** Promote the use of the latest technologies available for conducting remediation in order to expedite the remediation process and do the least harm to the environment.
> >
> > **Action SAF-10.5.4:** Apply for funding to clean up contaminated sites through the EPA Targeted Brownfields Assessment program for abandoned and City-owned sites with contamination and the EPA Brownfields Clean Up Grants and Revolving Loan Fund.

Compliance with existing applicable regulations and policies, as well as implementation of the General Plan Update policies, would minimize risks from the release of hazardous materials, substances, or waste, and oversight by the appropriate federal, state, and local agencies and compliance by new development with applicable regulations related to the handling and storage of hazardous materials would minimize the risk of release and exposure of hazardous materials. Furthermore, as required by Mitigation Measure HAZ-1, preparation of a Phase I ESA prior to the approval of any discretionary development project would ensure that contamination at sites listed pursuant to Government Code Section 65962.5, or at sites with uncharacterized contamination, is identified and addressed before construction activities commence. Accordingly, impacts related to hazardous materials sites listed pursuant to Government Code Section 65962.5 would be less than significant with mitigation.

Mitigation Measures

See Mitigation Measure HAZ-1.

Significance After Mitigation

With implementation of Mitigation Measure HAZ-1, impacts related to development on or adjacent to sites listed pursuant to Government Code Section 65962.5 would be less than significant.

Threshold 5:	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Impact HAZ-4 DEVELOPMENT FACILITATED BY THE PROJECT WOULD NOT RESULT IN A SAFETY HAZARD OR EXCESSIVE NOISE FROM THE NEAREST AIRPORT FOR PEOPLE RESIDING OR WORKING IN THE PROJECT AREA. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The Petaluma Municipal Airport is located at the northeastern edge of Petaluma with agricultural and open space north and east and residential on the southwestern side. The Petaluma Municipal Airport Safety map defines the referral area boundary as follows: to the southwest, Mountain Parkway South; to the southeast, Frates Road and an adjacent parcel boundary; and to the northeast, a series of parcel lines located 3,300 feet from Adobe Road. On the northwest side, the boundary is formed by Sonoma Mountain Road and Old Adobe Road. As shown in Figure 4.8-2, the traffic pattern zones and outer safety zones overlap with residential properties located southwest of the airport. However, the mapped flight airspace does overlap with residential portions of the Plan Area, at elevations higher than 500 feet; which is not anticipated to result in height conflicts with existing or proposed future development in the project area, due to the limited building heights facilitated by the project.

The project area is outside the noise contours and the traffic overflight zone designated in the Sonoma County CALUP, indicating that future project buildout would not be substantially affected by aircraft noise and overflight hazards. In addition, development facilitated by the project would be required to comply with the Sonoma County CALUP, and applicable regional and local regulations, which establish maximum development heights in various overflight zones and compatible land uses in the AIA. Impacts related to safety hazards and excessive noise from an airport 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 6:	Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Impact HAZ-5 DEVELOPMENT FACILITATED BY THE PROJECT WOULD NOT RESULT IN ANY PHYSICAL CHANGES THAT COULD INTERFERE WITH OR IMPAIR EMERGENCY RESPONSE OR EVACUATION, AND THE PROJECT WOULD NOT RESULT IN INTERFERENCE WITH THESE TYPES OF ADOPTED PLANS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The proposed project outlines a framework for land use designations that guide future development across residential, mixed-use, commercial, industrial, and public sectors through the year 2050. There are no proposed physical changes under the project, such as reconstruction or alteration of existing roadways, that would interfere or impair emergency response or evacuation. Development facilitated by the proposed project would accommodate future population growth and would increase vehicle miles travelled in the Plan Area. This could lead to increased congestion during

emergency evacuations. However, as part of the proposed project, the Safety Element is being updated pursuant to the requirements of AB 747 and SB 99, which have mandated the inclusion of additional assessments and measures associated with emergency evacuation, including identification of emergency evacuation routes and capacity. The updated Safety Element includes the identification of evacuation routes and capacity pursuant to AB 747 and SB 99 as well as updated and revised policies related to emergency response and preparedness. The following goals, policies, and actions of the updated Safety Element would enhance emergency response and emergency evacuation procedures in the city:

> **Policy SAF-1.1: Update emergency operation plans.** Maintain updated emergency operations guidance, standards, and plans per the Local Hazard Mitigation Plan (LHMP) and ensure its compliance with the Stafford Disaster Relief and Emergency Act and the Disaster Mitigation Act to remain eligible for federal grants.
>
> > **Action SAF-1.1.1:** Maintain and update an Emergency Operations Plan that conforms to the California Emergency Services Act and Standardized Emergency Management System in coordination with operational area partners such as Sonoma County.
> >
> > **Action SAF-1.1.2**: Action SAF-1.1.2: Coordinate with Sonoma Operational Area partners to develop and maintain an Evacuation Map with established zones that accounts for all types of emergencies, to be updated a minimum of every eight years during or immediately following Safety Element updates.
>
> **Policy SAF-4.1: Prepare single-access neighborhoods.** Alleviate evacuation constraints associated with single-access neighborhoods
>
> > **Action SAF-4.1.2:** Identify opportunities to create secondary access for identified single-access neighborhoods where possible and in a manner consistent with the Circulation Element.
> >
> > **Action SAF-4.1.3:** Designate safety zones as places of refuge for single-access communities in case evacuation routes are blocked.
>
> **Policy SAF-4.2: Provide emergency evacuation resources.** Address emergency evacuation constraints, particularly among low-income and minority populations.
>
> > **Action SAF-4.2.1**: Designate and publicize evacuation routes, including existing pedestrian pathways.
> >
> > **Action SAF-4.2.5:** Maintain emergency roadways and improve them as necessary and appropriate to ensure they stay in operation during hazardous events

The City has an adopted LHMP that was last updated in November 2020 and is discussed in Section 4.8.2, *Regulatory Setting*. The LHMP contains mitigation actions related to flooding, hazardous materials, seismic and geologic hazards, drought, dam inundation, landslides, cyber threats, sea level rise and earthquake faulting, and wildland-urban interface fire (City of Petaluma 2020). In accordance with Goal SAF-1 of the updated Safety Element, the City would continue to maintain and update emergency planning guidance and mitigation measures identified in the LHMP, providing emergency responders and community members with the tools necessary to prepare for and respond to hazardous events. Consistent with Policy SAF-1.1, emergency operations guidance and evacuation planning would be maintained and updated in coordination with agency partners, including Sonoma County, and would be reviewed and updated at least every eight years in

conjunction with Safety Element updates. The Safety Element policies, together with continued implementation and periodic updates of the LHMP, would support ongoing emergency planning and evacuation preparedness over the planning horizon.

Implementation of the General Plan Update policies and implementation programs associated with emergency planning and response, in addition to local programs such as the Petaluma LHMP, would ensure that implementation of the proposed project would not impair implementation of or physically interfere with evacuation or emergency response plans. The impact related to emergency response and evacuation plans 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 7:	Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Impact HAZ-6 THE PLAN AREA IS LOCATED ADJACENT TO A FIRE HAZARD SEVERITY ZONE. HOWEVER, COMPLIANCE WITH STATE AND FEDERAL REGULATIONS AND CITY POLICIES WOULD REDUCE THE RISK OF LOSS, INJURY, OR DEATH INVOLVING WILDLAND FIRES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The California Department of Forestry and Fire Protection (CAL FIRE) maps fire hazards based on zones, referred to as Fire Hazard Severity Zones (FHSZs). There are three levels of severity: Moderate; High; and Very High. As of January 2022, California State Law requires CAL FIRE to map the Moderate and High FHSZ in addition to the Very High FHSZ. Updates to the CAL FIRE State Responsibility Area FHSZ maps were made in 2023 and became effective in 2024, and CAL FIRE released updated Local Responsibility Area FHSZ recommendations in March 2025.

A full discussion of potential wildfire impacts is included in Section 4.17, *Wildfire.* As discussed therein, compliance with state and federal regulations and Petaluma Fire Department project-specific review would minimize the potential of the proposed project to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. There are no VHFHSZ's located in or near Petaluma, and the entirety of the Plan Area is designated as an LRA by CAL FIRE; the nearest VHFHSZ within an SRA is located more than five miles northeast of City limits, near the community of El Verano (CAL FIRE 2025). However, the Plan Area is surrounded by SRA lands.

The General Plan Update Safety Element contains the following goals and policies which would reduce the potential risk from wildland fires:

Goal SAF-8: Wildfire Risk Management. Wildfire risk is managed through local and regional strategies and interdisciplinary approaches.

> **Policy SAF-8.1: Maintain fire response coordination.** Maintain cooperative working relationships with local and regional fire response agencies and organizations.
>
> **Policy SAF-8.2: Implement fire protection programs.** Continue to implement the strategies put forth by the Sonoma County Community Wildfire Protection Plan, including fuel and vegetation reduction and community engagement.

Policy SAF-8.3: Create a fuel management plan. Coordinate with the Petaluma Fire Department and Sonoma County to prepare a long-term fuel reduction and management plan

Policy SAF-8.4: Minimize wildland-urban interface risk. Develop a WUI Pre-Fire Plan and evaluate the WUI Zone within the city

Policy SAF-8.5: Promote fire safe development. Ensure fire-safe design in future developments and during post-disaster recovery and minimize new residential development in areas with medium wildfire hazard risk.

Future development would be required to comply with Safety Element policies, which would reduce the risk of significant loss, injury, or death related to wildland fires. Compliance with existing applicable regulations and policies, as well as implementation of the General Plan Update policies, would minimize risks from wildland fire. Impacts related to wildland fires would be less than significant.

Mitigation Measures

No mitigation measures would be required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.8.4 Cumulative Impacts

The geographic scope for cumulative hazards and hazardous materials impacts is limited to projects within 0.25 mile of the project area. This geographic scope is appropriate because risks associated with hazards and hazardous materials occur largely in a site-specific and localized context, as adverse impacts from a hazardous materials release or spill diminish in magnitude with distance. Wildfire risks, which are regional in nature, are addressed using a broader geographic context consistent with Section 4.17, *Wildfire*. Cumulative buildout in this region, including projects listed in Table 3-1, would have the potential to adversely impact hazards and hazardous materials.

Cumulative development in the Plan Area and surrounding areas would gradually increase the population exposed to the use and transport of hazardous materials or a potential release of hazardous materials. However, compliance with existing laws and regulations applicable to the use and transport of hazardous materials, as outlined in Section 4.8.2, *Regulatory Setting,* would avoid and minimize the potential for the routine transport, use, or disposal of hazardous materials to create a significant hazard to the public or environment. Additionally, compliance with existing laws and regulations, including any potential remedial action on contaminated sites and emergency response and evacuation plans, would avoid potential hazard impacts. As required by Mitigation Measure HAZ-1, preparation of a Phase I ESA prior to approval of any discretionary development project would ensure that site-specific contamination is identified and addressed before construction activities commence, preventing the project's incremental contribution from becoming cumulatively considerable. Cumulative impacts related to the routine transport, use, or disposal of hazardous materials or the release of hazardous materials into the environment (Impact HAZ-1) would be less than significant with mitigation.

Cumulative development would gradually increase the potential for the emission of hazardous materials within 0.25 mile of a school. However, development sites within the Plan Area that have

pre-existing contamination would be remediated through coordination with the appropriate regulatory agency, including DTSC, SWRCB, Cal/OSHA, the City of Petaluma Fire Department, or other applicable regulatory agencies. Compliance with existing applicable regulations and policies, together with implementation of Mitigation Measure HAZ-1, would minimize risks from the release of hazardous materials, substances, or waste within 0.25 mile of a school, and cumulative impacts related to emitting or handling hazardous materials within 0.25 mile of a school (Impact HAZ-2) would be less than significant with mitigation.

Cumulative development would have the potential to occur on hazardous materials sites included on a list pursuant to Government Code Section 65962.5 and could create a significant hazard to the public or environment. However, hazards and hazardous materials impacts associated with individual developments are site-specific in nature and must be addressed on a case-by-case basis. Additionally, compliance with existing laws and regulations, including any potential remedial action on contaminated sites, together with implementation of Mitigation Measure HAZ-1 as discussed above, would prevent the project's incremental contribution to impacts at listed hazardous materials sites from becoming cumulatively considerable. Cumulative impacts related to hazardous materials sites listed pursuant to Government Code Section 65962.5 (Impact HAZ-3) would be less than significant with mitigation.

Because some surrounding areas of the Plan Area are within the AIA of the Petaluma Municipal Airport, cumulative development would have the potential to result in a safety hazard or excessive noise for people residing or working in the project area. However, areas falling within the AIA are largely built out and any new development within the AIA would be required to comply with the Sonoma County CALUP, and applicable regional and local regulations related to safety hazards and noise exposure. Compliance with the Sonoma County CALUP would minimize cumulative impacts related to safety hazards and excessive noise from airports (Impact HAZ-4) to a less than significant level.

Cumulative development could result in physical changes that could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. However, impacts to emergency response and evacuation of cumulative development would be evaluated on a case-by-case basis, and the jurisdiction in which cumulative development is located in (Petaluma or County of Sonoma) would review and approve individual cumulative development projects to ensure that emergency access meets applicable local standards. This review would reduce cumulative impacts to emergency response or evacuation (Impact HAZ-5) to a less than significant level.

Cumulative development in the Plan Area and surrounding areas would gradually increase the population exposed to potential wildfire risks. Wildfire risks have generally increased over time due to environmental factors, such as drought, winds, and increased storm events associated with climate change. As discussed under Impact HAZ-6 and in Section 4.17, *Wildfire,* the Plan Area is not located within a Very High Fire Hazard Severity Zone, therefore, compliance with state and federal regulations, Petaluma Fire Department project-specific review, and the goals and policies outlined in the City's Safety Element would minimize the potential of the proposed project to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. The proposed project does not expand development into high wildfire hazard areas and would not alter the regional factors driving wildfire risk. Although cumulative wildfire impacts would be significant, the project would not result in a considerable contribution to this cumulative impact.

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4.9 Hydrology and Water Quality

This section evaluates the potential environmental effects related to hydrology and water quality associated with implementation of the General Plan Update. It discusses the regional and local watershed characteristics, including water quality, drainage and infiltration patterns, and flood hazards. The analysis includes a review of surface water, groundwater, flooding, storm water, and water quality. Water supply and wastewater conveyance are discussed in Section 4.16, *Utilities and Service Systems.* Impacts related to wetlands and waters of the U.S. are discussed in Section 4.3, *Biological Resources*.

4.9.1 Setting

The Plan Area is located in the greater North Bay region of the San Francisco Bay Area, in Sonoma County. The Plan Area is located approximately 39 miles north of San Francisco, approximately 10.5 miles south of the City of Rohnert Park, and approximately 17 miles east of the Pacific Ocean.

The Plan Area is characterized by a typical Mediterranean climate, generally dry in the summer with mild, wet winters. Average summer temperatures in degrees Fahrenheit are in the high 70s to low 80s and average winter temperatures are in the mid-50s. The warmest month of the year is July with an average maximum temperature of 83, while the coldest month is January, with an average minimum temperature of 39 (Weather Spark 2025). Most rainfall occurs between October and April, with an average rainfall of 5.1 inches during February, the wettest month (Weather Spark 2025).

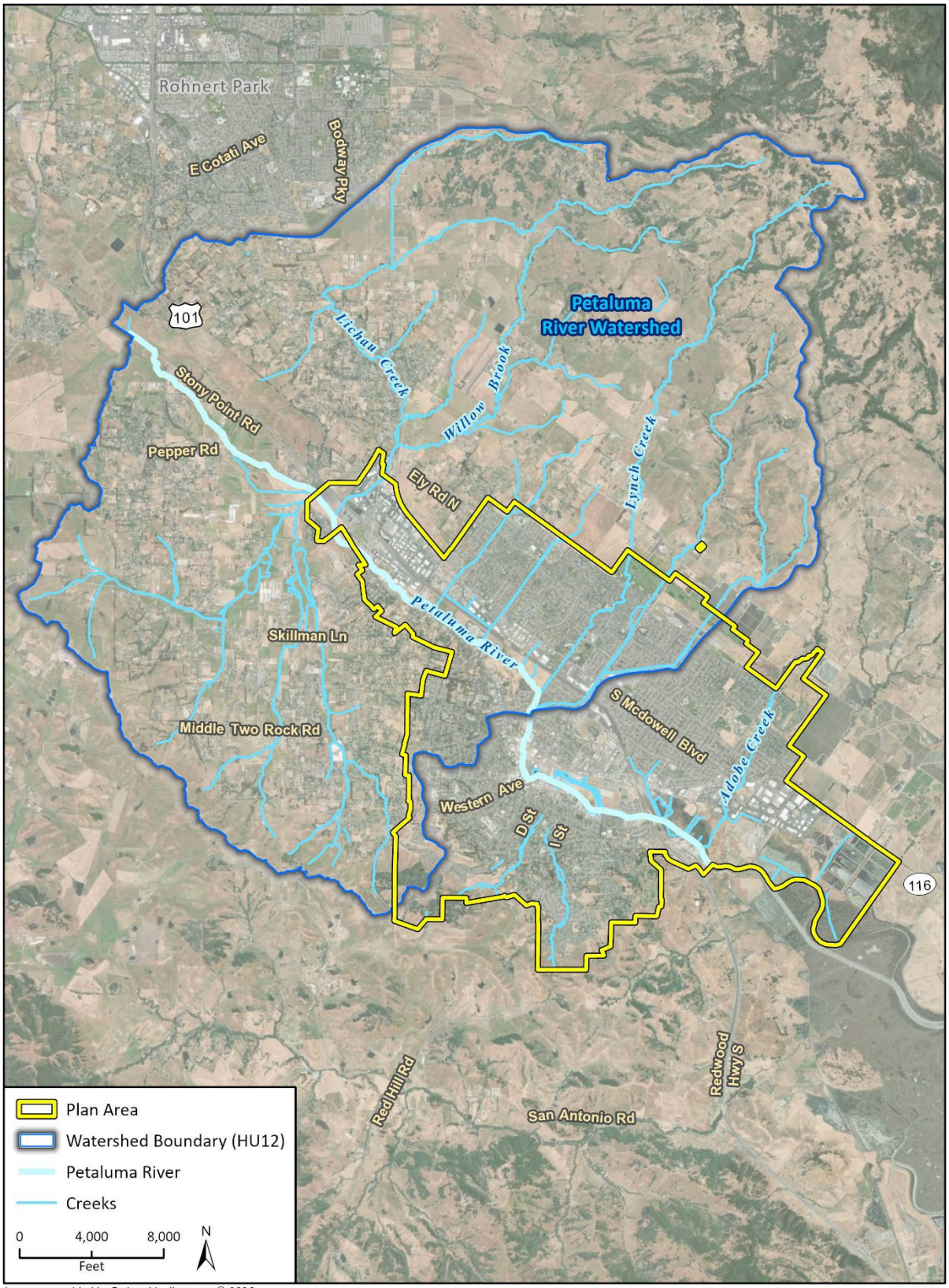
a. Surface Water

The California Department of Water Resources (DWR) divides surface watersheds in California into 10 hydrologic regions, which are further divided into hydrologic units. Petaluma lies within the San Francisco Bay Hydrologic Region, which covers approximately 2.88 million acres, or 4,500 square miles, and includes all of San Francisco and portions of Marin, Sonoma, Napa, Solano, San Mateo, Santa Clara, Contra Costa, and Alameda counties (DWR 2003).

The Petaluma River watershed is in southern Sonoma and northern Marin Counties, as shown in Figure 4.9-1. Tributaries to the Petaluma River include Petaluma Creek, Willow Brook Creek, Lichau Creek, Liberty Creek, Marin Creek, Wiggins Creek, Wilson Creek, Corona Creek, Capri Creek, Lynch Creek, Washington Creek, East Washington Creek, Thompson Creek, Kelly Creek, and Adobe Creek. The lower 11 miles of the Petaluma River flow through the Petaluma Marsh. The river ultimately empties into the northwest portion of San Pablo Bay and the Plan Area also sits within the San Pablo Bay Watershed. Surface water runoff in the Plan Area is managed by a piped storm drain system. All stormwater runoff from the Plan Area drains to the Petaluma River which then flows to San Pablo Bay.

The Petaluma River runs directly through the city's historic downtown and serves as a cultural, ecological, and economic asset to the city. Originally, the River was a tidal marsh that was fully influenced by the ebb and flow of tides. The historical hydrological function of the Petaluma River watershed has been degraded by channelization, reduced meanders, urban growth, and extensive losses of wetland and floodplain connectivity in the watershed. For a description of jurisdictional features in Petaluma, including wetlands, see Section 4.3, *Biological Resources*.

Figure 4.9-1 Petaluma River Watershed and Waterways within Petaluma



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Additional data provided by NHD 2024, Open Data Petaluma 2021.

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b. Groundwater

The Petaluma Valley groundwater basin (the basin) underlies a majority of the Plan Area as shown in Figure 4.9-2.

The basin has a surface area of approximately 46,000 acres or 72 square miles (Petaluma Valley Groundwater Sustainability Agency 2025). The basin extends from San Pablo Bay northward to a series of low hills near the town of Penngrove. It is bounded on the west by the North Coast Range and on the east by the Sonoma Mountains (). Groundwater in this basin occurs primarily in the Younger Alluvium, Older Alluvium, and the Merced Formation (Petaluma Valley Groundwater Sustainability Agency [GSA] 2022)).

Groundwater in the basin is primarily recharged through streambed recharge along the Petaluma River and its tributaries and through direct filtration of precipitation. The greatest areal recharge occurs in agricultural areas and the greatest total recharge occurs in areas receiving stream recharge to groundwater (Petaluma Valley GSA 2022).

Groundwater levels near Petaluma began to drop in the 1950s until the 1960s when seawater intrusion occurred along the Petaluma River due to increased groundwater pumping. In 1962, the city began importing water from the Russian River to restore groundwater levels. At this time the Russian River system became the City's primary source of water via Sonoma Water. Since then, groundwater has remained steady with seasonal fluctuations of approximately 10 feet. Long-term hydrological monitoring and planning is conducted by the Petaluma Valley GSA. In 2022, the Groundwater Sustainability Plan for the Petaluma Valley Basin was drafted and in 2023 is was approved by the California Department of Water Resources (DWR). .

c. Water Supply

The City of Petaluma's potable water supply is provided by the Sonoma Water primarily from Russian River system and from ten groundwater wells in the city. Groundwater from these wells are only used for peak water demand needs and emergency purposes. As of 2020, less than one percent of the City's annual water supply was from groundwater. The City's potable water supply is supplemented with recycled water supply used primarily for irrigation.

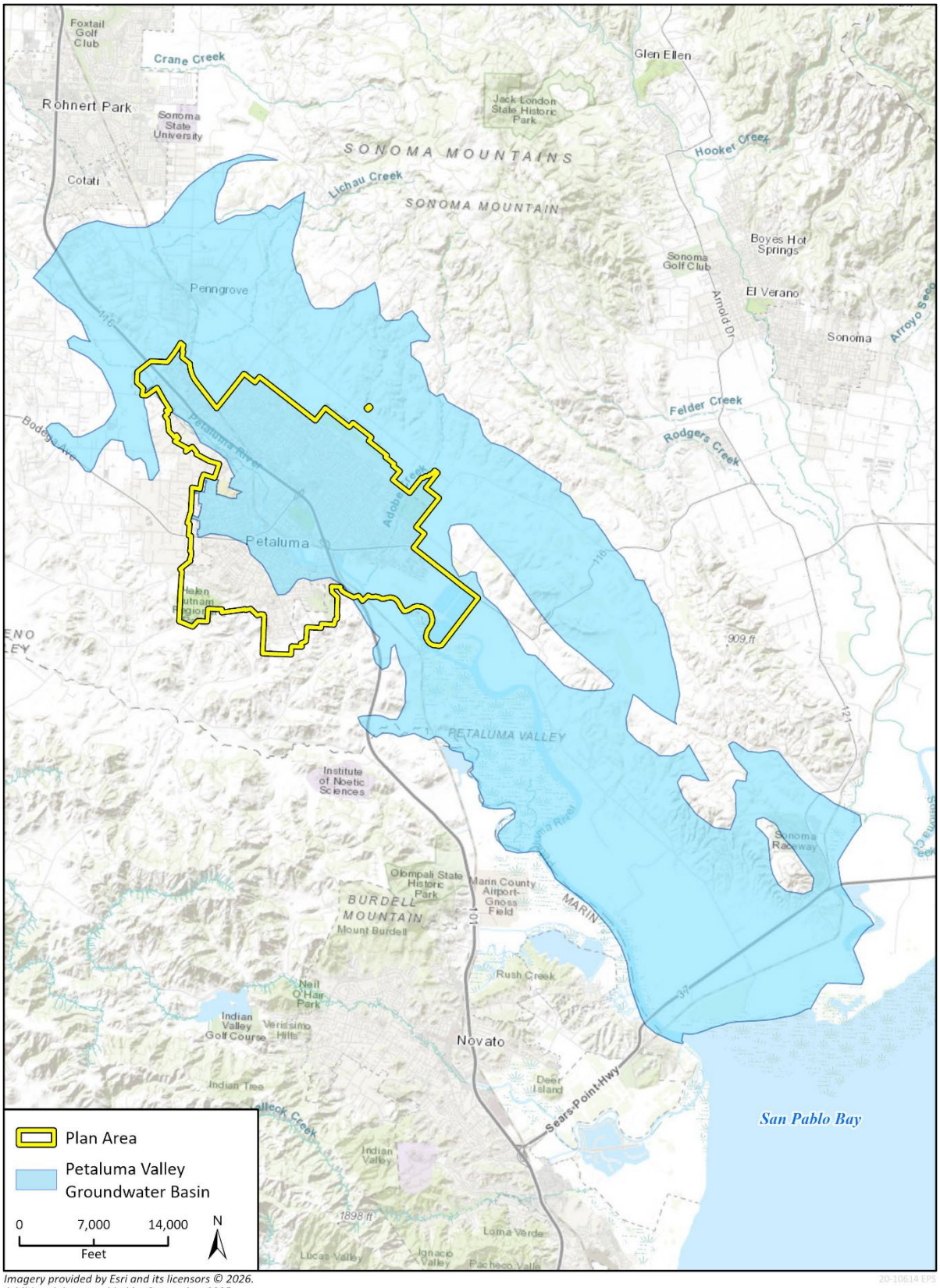
See Section 4.16, *Utilities and Service Systems*, for additional details about water supply and demand for Petaluma.

d. Water Quality

Stormwater and Urban Runoff

Water quality in the city is governed by the San Francisco Bay Regional Water Quality Control Board (RWQCB), which sets water quality standards in the Water Quality Control Plan for the San Francisco Bay Region (Basin Plan). The Basin Plan identifies surface waterbodies and groundwater basins within the region that have beneficial uses. It also establishes water quality objectives and standards to maintain those beneficial uses, such as maximum contaminant levels.

Figure 4.9-2 Petaluma Valley Groundwater Basin



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Additional data provided by Geotracker, 2025.

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The Clean Water Act (CWA) 303(d) list is a register of impaired and threatened waters which states submit for United States Environmental Protection Agency (USEPA) approval. The list identifies all waters where pollution control measures have so far been unsuccessful in reaching or maintaining water quality standards. Waters that are listed are known as "impaired." The entire 24.27 miles of the Petaluma River main stem is listed by the EPA as an impaired waterbody. The impairment designation is due to elevated fecal indicator bacteria (FIB) levels and excessive algae growth from high nutrient levels. San Antonio Creek and other tributaries to the Petaluma River are also impaired due to elevated bacteria. Impaired segments include San Antonio Creek, Lichau Creek, Willow Brook, Lynch Creek, Adobe Creek, Ellis Creek, as well as other named and unnamed tributaries (City of Petaluma 2022a). The Total Maximum Daily Loads (TMDLs) for FIB in the Petaluma River are:

- Enterococcus: 110 (cfu/100 mL)
- E. Coli: 320 (cfu/100 mL)

TMDLs are implemented in part by the National Pollutant Discharge Elimination System (NPDES) stormwater permitting system. The federal Clean Water Act requires municipalities to obtain NPDES permits for discharges of municipal runoff from their Municipal Separate Storm Sewer Systems (MS4s) into United States waterbodies. The permit includes a limit on what pollutants can be discharged, acceptable levels of pollutants, and monitoring and reporting requirements. For the City of Petaluma, MS4 requirements have been adopted in the Phase II General Permit for Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) (NPDES Permit No. CAS000004) Under this permit, the City is responsible for adopting and implementing control measures or best management practices (BMPs) to prevent or reduce pollutants in stormwater. The City must notify the Water Board promptly if discharges are causing or contributing to an exceedance of an applicable water quality standard.

Groundwater quality is generally adequate to support existing uses within most areas of the basin and contributing watershed. Localized areas of poor groundwater quality are primarily related to the following potential sources of impairment: brackish waters of San Pablo Bay and associated tidal marshland areas; deep connate waters associated with ancient seawater entrapped during deposition of Tertiary Era sedimentary units; and anthropogenic inputs associated with certain land-use activities (e.g., industrial, agricultural, or urban land uses), including an area of historical nitrate contamination in the northwestern portions of the basin, following the path of Lakeville Highway and Stony Point Road (City of Petaluma 2022a).

Drinking Water Quality

As described under Section 4.9.1(c), *Water Supply*, Petaluma sources its potable drinking water primarily from Lake Mendocino and Lake Sonoma which are fed by the Russian River water through an agreement with Sonoma Water. Additional water is sourced from local groundwater wells in times of peak water demand needs and emergency purposes. The quality of the City's and Sonoma Water's water deliveries are regulated by the State Water Resources Control Board (SWRCB) Division of Drinking Water, which requires regular collection and testing of water samples to ensure that the quality meets regulatory standards and does not exceed Maximum Contaminant Levels. Both Sonoma Water and Petaluma perform water quality testing, which has consistently yielded results within acceptable regulatory limits (City of Petaluma 2024).

Recycled Water Quality

As described under Section 4.9.1(c), *Water Supply*, Petaluma supplements its potable water supply with tertiary treated recycled water treated at the Ellis Creek Water Recycling Facility. The quality of the City's recycled water deliveries is regulated by the State Water Resources Control Board (SWRCB) Division of Drinking Water, which requires regular collection and testing of water samples to ensure that the quality meets regulatory standards.

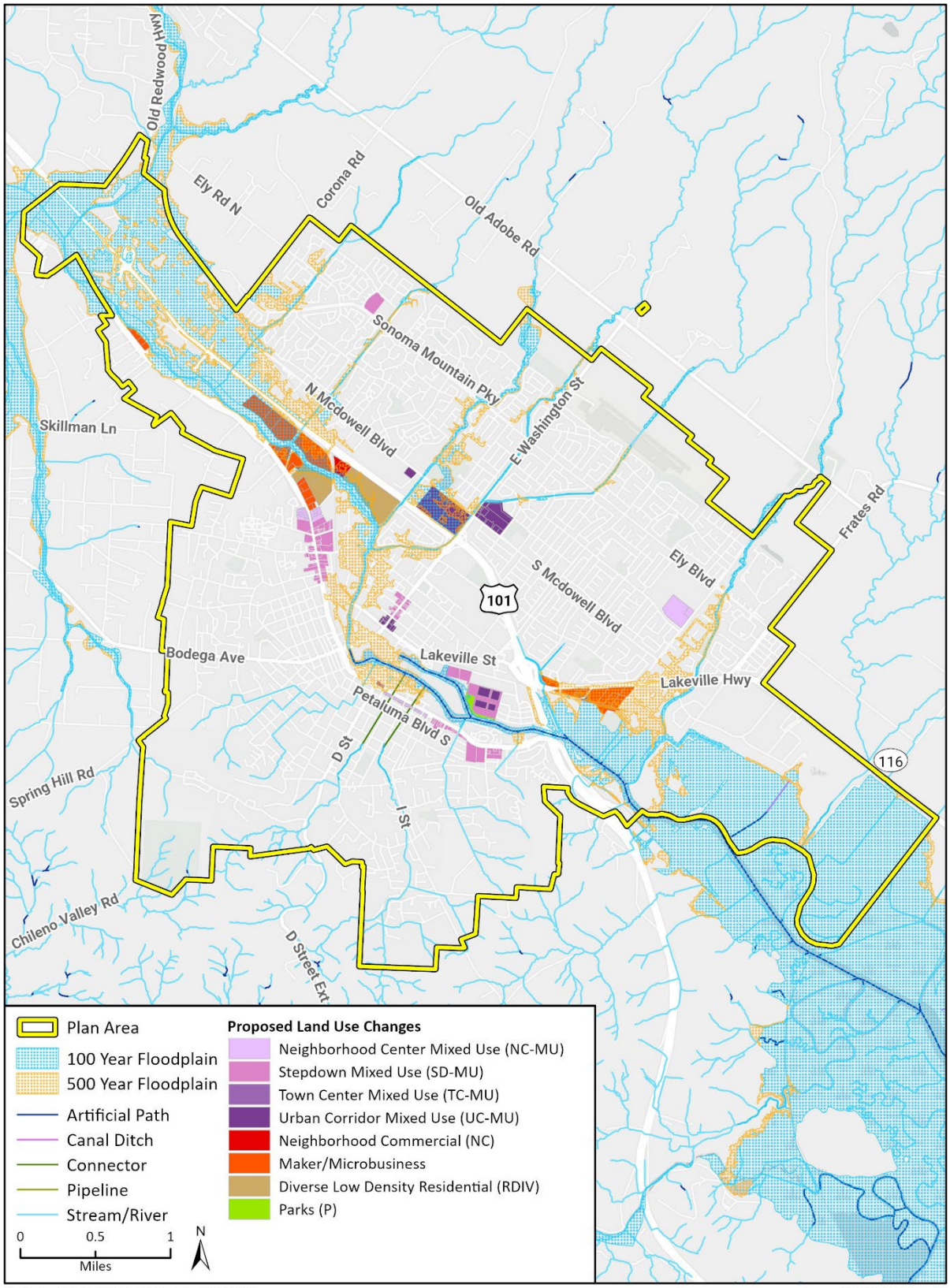
e. Flood Hazards and Sea Level Rise

Flood hazards can occur when the amount of rainfall exceeds the infiltration capacity of the surrounding landscape or the conveyance capacity of the storm water drainage system. Flood risk is defined as an annual percent-chance of flooding, or the probability that flooding would occur in any given year. Although a 100-year flood will, on average, occur once every 100 years, the probability of a 100-year flood is one percent for any particular year. Two 100-year floods could occur in the same year or even in the same month, but the likelihood that two 100-year flood events would occur consecutively is very small. The Plan Area is within the Petaluma River watershed, as described above. Flooding caused by heavy rainfall, primarily associated with seasonal storms, can occur in the region during winter and spring months. In the more urbanized areas of Petaluma, localized flooding intensifies because of impervious surfaces such as roads, paved structures, and clay soils that prevent the natural absorption of rainfall and runoff. According to the latest FEMA National Flood Hazard data, the 100- and 500- year flood plains are located on the south-southeast and north-northwest of the city and along the Petaluma River, as seen in Figure 4.9-3. Additionally, as part of the General Plan Update, the City of Petaluma conducted additional flood hazard and sea level rise modeling that project mid-century and end of century flooding and sea level rise scenarios. These models show that mid-century (around 2050) flood hazard conditions will be similar to existing conditions (City of Petaluma 2025).

The most frequent flooding occurs along the Petaluma River, and the City has created the Local Hazard Mitigation Plan to address the issues of reoccurring flooding during heavy rains. Other smaller areas susceptible to flooding occur along Lakeville Highway and Casa Grande Road, where Adobe Creek and the Petaluma River meet, as well as east of Washington Street and McDowell Boulevard, where Lynch Creek converges with nearby tributaries associated with the Petaluma River. This includes the corridor from Corona Road to the northern city limits, where upstream segments of Lynch Creek and surrounding drainage channels are prone to overtopping during major storm events. The more upstream portions of Lynch Creek, near the north-northeast of the city, are also affected by flooding, towards Adobe Road north of Sonoma Mountain Parkway. The City has established a floodway district to zone areas within the city that are prone to flooding. The additional regulations that are applicable in the floodway district are discussed in Section 4.9.2, *Regulatory Setting*.

Additionally, because the Petaluma River is tidally influenced, sea level rise caused by global climate change and storm surges may also have an effect on flooding, especially near the Petaluma River downstream of the Washington Street bridge. Sea level rise modeling is used to inform the Petaluma Local Hazard Mitigation Plan which is discussed further in Section 4.9.2 Regulatory Setting.

Figure 4.9-3 FEMA Flood Zones in Petaluma



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Additional data provided by FEMA, 2025 and USGS, 2025.

The Payran neighborhood and adjacent areas are the most severely impacted by historic flooding. Previous significant floods include those of 1982 and 2005, which resulted in millions of dollars in damage and losses, and more recent flooding has occurred caused by heavy rains falling in a short period of time.

The City of Petaluma owns, operates, and maintains two floodwalls within the Plan Area. The two structures are located west of Washington Street along the Petaluma River, in the center-west portion of the city. The Payran neighborhood previously suffered from frequent flooding related to the Petaluma River. The neighborhood was once considered in the 100-year flood plain under FEMA. The completion of the Payran Flood Control Project by the Army Corps of Engineers has resolved the majority of the flood concerns for the Payran neighborhood area. The risk of inundation from the river is now very low and the neighborhood is no longer within the flood plain.

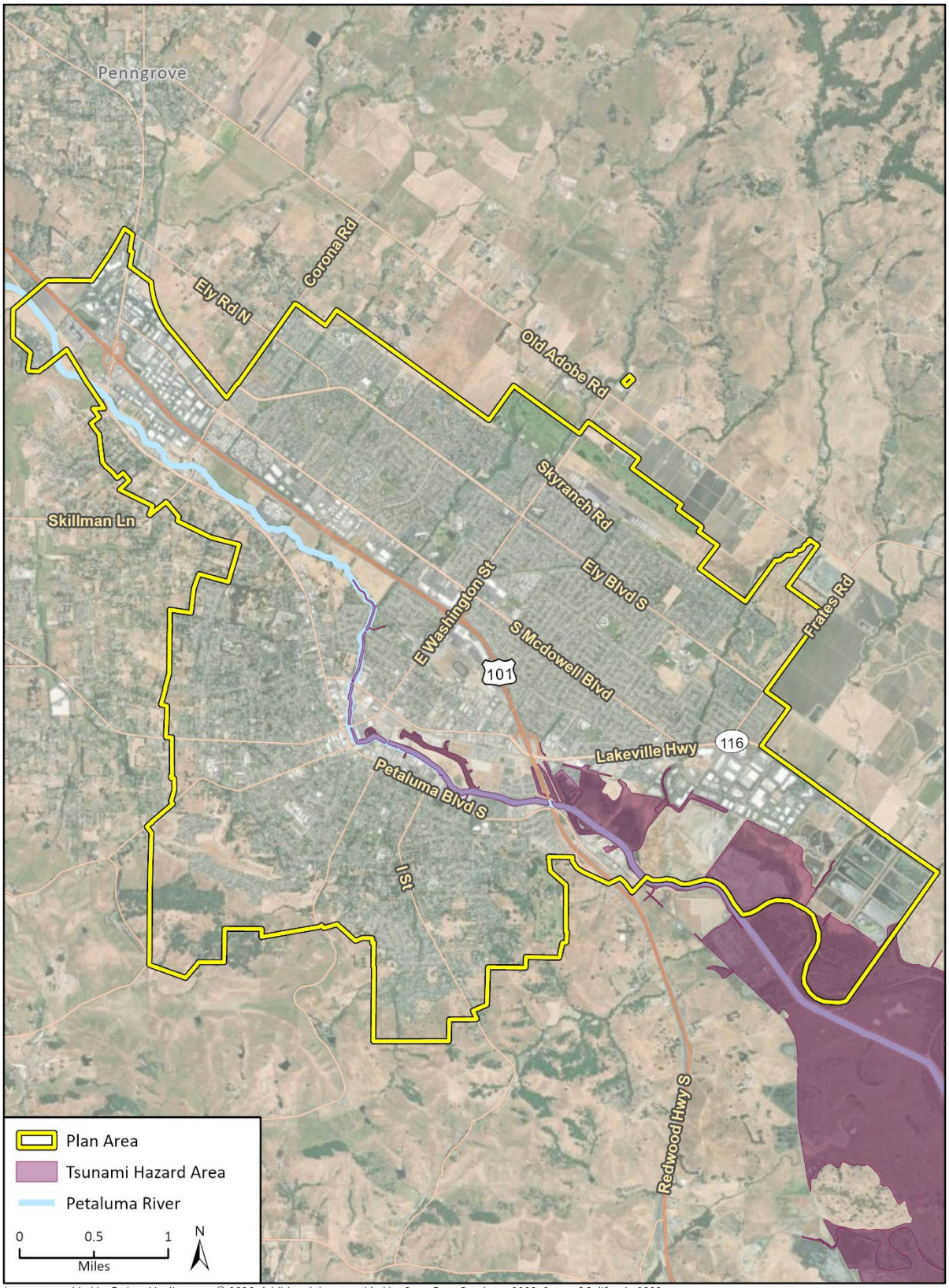
Dam and Levee Inundation

There are several dams that regulate the flow of water from the lakes in the region to the and Russian River which provides drinking water for the Plan Area. Two privately owned dams near the southeastern corner of the City are at risk of failure according to Army Corps of Engineers: the Pinheiro Reservoir and the La Crema Winery Reservoir. However, the Petaluma Local Hazard Mitigation Plan analyzes the risk of inundation from dam failure and finds that the risk of inundation is very low as the area of concern is minimal. Should a dam or levee breach occur, flooding is possible but is not anticipated to have significant impacts on City improvements. A third dam is the City-owned Lawler Reservoir, located east of the City, is no longer utilized. All diversion structures have been removed and water contained within the reservoir is limited to rainfall from a small watershed. A dam failure inundation study is underway, which will include alternatives to further minimize or eliminate downstream flood risks.

Tsunami

Areas immediately along the Petaluma River and along the southern edge of the Plan Area are mapped within a Tsunami zone; however, majority of the Plan Area falls outside these areas. The areas that are within a tsunami hazard zone are shown in Figure 4.9-4.

Figure 4.9-4 Tsunami Hazard Zones within Petaluma



Imagery provided by Esri and its licensors © 2026. Additional data provided by Open Data Petaluma 2023; State of California 2023, Tsunami Hazard Area Map, Sonoma County, by California Geologic Survey and California Governer's Office of Emergency Services.

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4.9.2 Regulatory Setting

a. Federal Regulations

Clean Water Act

The Federal Water Pollution Prevention and Control Act of 1948 was the first major law to address water pollution in the United States. In 1972, the Federal Water Pollution Control Act was amended and became known as the Clean Water Act. The Clean Water Act established the basic structure for regulating discharges of pollutants into the waters of the United States. The Clean Water Act gave the USEPA the authority to implement federal pollution control programs, such as setting water quality standards for contaminants in surface water, establishing wastewater and effluent discharge limits for various industry contaminants in surface water, establishing wastewater and effluent discharge limits for various industry categories, and imposing requirements for controlling nonpoint-source pollution. At the federal level, the Clean Water Act is administered by the USEPA and United States Army Corps of Engineers (USACE).

The federal Clean Water Act places the primary responsibility for the control of water pollution and for the planning of development and use of water resources with the states, although it does establish certain guidelines for the states to follow in developing their programs. At the state and regional levels in California, the Clean Water Act is enforced by the State Water Resources Control Board (SWRCB) and the nine RWQCBs.

Section 303(d): Impaired Waters and Total Maximum Daily Loads (TMDL)

Section 303(d) of the Clean Water Act requires states to identify water bodies that do not meet water quality objectives and are not supporting beneficial uses. Each state must submit an updated biennial list, called the 303(d) list, to the USEPA. In addition to identifying the water bodies that are not supporting beneficial uses, the list also identifies the pollutant or stressor causing the impairment. Once a water body has been deemed impaired, a Total Maximum Daily Load (TMDL) must be developed for each pollutant causing an impairment. A TMDL is an estimate of the total load of pollutants from point, nonpoint, and natural sources that a water body may receive without exceeding applicable water quality standards (often with a "factor of safety" included, which limits the total load of pollutants to a level well below that which could cause the standard to be exceeded). Once established, the TMDL is allocated among current and future dischargers into the water body.

Section 401: Water Quality Certification

Section 401 of the Clean Water Act regulates discharges of fill and dredged material to waters of the United States. Under Section 401, the SWRCB and RWQCBs have regulatory authority over actions in waters of the United States through the issuance of water quality certifications, which are issued in conjunction with any federal permit (e.g., permits issued by the USACE under Section 404 of the Clean Water Act, described below). Section 401 provides the SWRCB and the RWQCBs with the regulatory authority to waive, certify, or deny any proposed activity that could result in a discharge to surface waters of the State. To waive or certify an activity, these agencies must find the proposed discharge would comply with State water quality standards, including those protecting beneficial uses and water quality. If these agencies deny the proposed activity, the federal permit cannot be issued.

Section 402: National Pollutant Discharge Elimination System (NPDES)

Section 402 of the Clean Water Act establishes the NPDES regulations for stormwater and other pollutant discharges. Section 402 prohibits discharge of pollutants to waters of the United States unless they are regulated by an NPDES permit. Stormwater discharges are regulated under a variety of NPDES permits, including municipal, agricultural, industrial, construction, and low-threat discharge permits.

In 1987, Congress amended the Clean Water Act to require the implementation of a two-phased program to address stormwater discharges. Phase I of the NPDES program, promulgated by the USEPA in November 1990, requires NPDES permits for stormwater discharges from municipal separate storm sewer systems (MS4s)[1] serving populations of 100,000 or greater, construction sites disturbing greater than five acres of land, and 10 categories of industrial activities.

The USEPA recognized that smaller construction projects (disturbing less than five acres) and small MS4s (serving populations smaller than 100,000) were also contributing substantially to pollutant discharges nationwide. Therefore, in order to further improve stormwater quality, the USEPA promulgated the NPDES Phase II program in January 2000, which requires NPDES permits for stormwater discharges from regulated small MS4s and for construction sites disturbing between one and five acres of land.

In California, the NPDES program is administered by SWRCB through the nine RWQCBs.

Section 404: Discharge of Dredge or Fill

Section 404 of the Clean Water Act requires a permit be issued by USACE before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from Section 404 regulations (e.g. farming activities, maintenance activities, construction of temporary sedimentation basins, construction and maintenance of forest roads or temporary mining roads). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands (with the exception of isolated wetlands).

When an application for a Section 404 permit is made, the Applicant must show it has:

- Taken steps to avoid impacts to wetlands or waters of the U.S. where practicable;
- Minimized unavoidable impacts on waters of the U.S. and wetlands; and
- Provided mitigation for unavoidable impacts.

National Flood Insurance Act/Flood Disaster Protection Act

The National Flood Insurance Act of 1968 made flood insurance available for the first time. The Flood Disaster Protection Act of 1973 made the purchase of flood insurance mandatory for the protection of property located in Special Flood Hazard Areas. These laws are relevant because they led to mapping of regulatory floodplains and to local management of floodplain areas according to guidelines that include prohibiting or restricting development in flood hazard zones.

FEMA maintains and updates flood data through flood maps and risk assessments. The FEMA maps show both 100-year flood zones, also known as Special Flood Hazard Areas, and 500-year flood zones. 100-year flood zones have a one percent annual chance of being flooded whereas 500-year

[1] An MS4 is a conveyance or system of conveyances designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches) that are owned by a state, city, town, or other public entity.

flood zones have a 0.2 percent annual chance of flooding. Areas within each of these types of flood zones within the Plan Area are shown in Figure 4.9-3.

b. State Regulations

California Porter Cologne Water Quality Control Act

The Porter Cologne Water Quality Control Act of 1967 requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect State waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The criteria for State waters in the city are contained in the Water Quality Control Plan for the North Coast Region (NCRWQCB 2018). The Water Quality Control Plan, or Basin Plan, protects designated beneficial uses of State waters through the issuance of WDRs and through the development of TMDLs. Anyone proposing to discharge waste that could affect the quality of the waters of the State must make a report of the waste discharge to the RWQCB or SWRCB as appropriate, in compliance with Porter-Cologne. The City's recycled water is also regulated under the Porter Cologne Water Quality Control Act.

Sustainable Groundwater Management Act

In September 2014, the governor signed legislation requiring that California's critical groundwater resources be sustainably managed by local agencies. The Sustainable Groundwater Management Act (SGMA) gives local agencies the power to sustainably manage groundwater and requires groundwater sustainability plans to be developed for medium- and high-priority groundwater basins, as defined by the DWR.

The Petaluma Valley Groundwater Basin is a medium priority basin. As a result, in 2017, the City and other eligible water suppliers in groundwater basin joined together to form the Petaluma Valley Groundwater Sustainability Agency (GSA) and develop a groundwater sustainability plan. The Petaluma Valley GSA is further described under Section 4.9.2(c), *Local Regulations*, below.

California Streambed Alteration Agreement

Sections 1600–1616 of the California Fish and Game Code requires any entity that proposes an activity that would substantially divert or obstruct the natural flow of any river, stream or lake; substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or, deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, must notify the California Department of Fish and Wildlife. The California Department of Fish and Wildlife would require a Lake or Streambed Alteration Agreement if the Department determines that the alteration may adversely affect fish and wildlife resources. The Agreement includes conditions necessary to protect those resources. The Agreement applies to any stream, including ephemeral streams and desert washes.

Assembly Bill 70

Assembly Bill 70 (2007) requires cities and counties that have "unreasonably approved" development in an area with known flood risks to share liability for flood control damage with State entities.

Assembly Bill 162

Assembly Bill 162 (2007) requires cities and counties to address flood-related matters in the land use, conservation, safety, and housing elements of their General Plans. The General Plan must contain a statement of development policies and shall include a diagram or diagrams and text setting forth objectives, principles, standards, and plan proposals. The land use element shall identify and annually review those areas covered by the plan that are subject to flooding identified by flood plain mapping prepared by FEMA or DWR. The conservation element shall identify rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for the purposes of groundwater recharge and stormwater management.

MS4 Requirements

For the City of Petaluma, MS4 requirements have been adopted in the Phase II General Permit for Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) (NPDES Permit No. CAS000004). To comply with MS4 requirements, certain individual projects must create a Stormwater Pollution Prevention Plan (SWPPP). The San Francisco Bay Regional Water Quality Control Board oversees implementation of these requirements within the Plan Area.

c. Local Regulations

City of Petaluma General Plan

The Water Element of the City of Petaluma General Plan contains goals and policies related to hydrology and water quality. The following policies are relevant to the project (City of Petaluma 2008).

Goal 8-G-6. Preserve and maintain the City's groundwater resources.

> **Policy 8-P-19.** Ensure adequate water supply during emergency situations by developing potential groundwater resources and aquifer storage capacity, combined with management of surface water, to meet overall emergency water supply objectives. The City's groundwater resources shall be preserved to meet emergency needs and to offset peak demands.
>
> **Policy 8-P-20.** Manage groundwater as a valuable and limited shared resource by protecting potential groundwater recharge areas and stream sides from urban encroachment within the Petaluma watershed.
>
> **Policy 8-P-21.** Protect groundwater quality from surface contamination by requiring 100 foot sanitary seals on all new municipal water supply wells.

Goal 8-G-8. Provide surface drainage and flood protection facilities to meet the community's needs of reducing flood hazards and potential property damage.

> **Policy 8-P-28.** The area upstream of the Corps weir, and below the confluence of Willow Brook Creek with the Petaluma River, located within the 1989 FEMA floodplain (and any amendments thereto) and adjacent to the Petaluma River, shall include a Petaluma River Corridor (PRC) set aside for the design and construction of a flood terrace system to allow the River to accommodate a 100-year storm event within a modified River channel, to the extent feasible given existing physical and natural constraints.

Policy 8-P-30. Within a 200' setback from centerline of the Petaluma River, within the UGB, no additional development shall be permitted on lands within that 400' wide corridor, given natural and physical constraints, unless the proposed development fully complies with the interim development standards as defined in 8-P-29 B, until such time as the study referred to in Policy 8-P-29-B is concluded and approved by the SCWA and City of Petaluma. Thereafter all lands affected shall set aside the necessary river and/ or creek corridor areas and, as development occurs, shall undertake the identified surface water containment enhancement improvements.

Policy 8-P-31. In accordance with the studies undertaken for the Corps Flood Protection Project, existing areas subject to periodic surface water inundation and containment, within the Corona and Denman Reaches (Lynch Creek confluence with the Petaluma River upstream to the Old Redwood Highway over-crossing of Willow Brook Creek), shall be preserved and enhanced where feasible to reduce localized flooding.

Policy 8-P-32. Areas within the Petaluma watershed, outside of the City of Petaluma, which are subject to periodic surface water inundation and containment, should not be modified in any manner to reduce the historic storage characteristics and capacity.

Policy 8-P-34. Utilizing XP-SWMM, the City shall diligently pursue the remapping and updating of the regulatory Floodway and Floodplain, through the Corps of Engineers.

Goal 8-G-9. Preserve the design conveyance capacity of the surface water drainage system.

Policy 8-P-25. Protect private and public properties and capital investments including those designed to minimize flooding potential.

Policy 8-P-36. Require development on sites greater than 1/4 acre in size to demonstrate no net increase in peak day stormwater runoff, to the extent deemed practical and feasible

Policy 8-P-37. No new inhabited structure or development shall be permitted within that portion of properties containing areas of water depths exceeding one foot as illustrated in Figure 8-2, unless mitigation and/or on-site or off-site improvements are constructed to reduce the 100-year flood depth to less than one foot.

Goal 8-G-10. Reduce pollutant load in surface water runoff, thereby improving water quality within the Petaluma River and its tributaries.

Policy 8-P-38. All development activities shall be constructed and maintained in accordance with Phase 2 National Pollutant Discharge Elimination System (NPDES) permit requirements.

Petaluma River Bacteria TMDL

Petaluma River is listed on the Clean Water Act 303(d) list of impaired water bodies due to elevated fecal indicator bacteria levels (e.g., E. coli). The State Water Board established the Petaluma River Bacteria and Nutrients TMDL in 2020 to address the impairment of wildlife of recreational use of the river due to elevated E.coli bacteria in the river. The TMDL identifies sources of contamination and includes actions to reduce bacteria levels in the river.

Petaluma Stormwater Permits

Development in the city of Petaluma is subject to the City's stormwater permits including the industrial general permit, special discharge permit, and LID compliance for development.

Compliance with these is regulated by the San Francisco Bay Regional Water Quality Control Board and the State Water Resources Control Board.

Bay Area Stormwater Management Agencies Association (BASMAA) Post Construction Manual

The BASMAA Post Construction Manual includes guidance for low impact development to implement the Phase II Small MS4 General Permit. It includes best management practices (BMPs) to avoid stormwater pollution.

Sonoma County Water Agency Draft Flood Design Manual

All of Sonoma County, including Petaluma is under the jurisdiction of Sonoma County Water Agency (Sonoma Water), which is responsible for managing streams and flooding problems in the County. Sonoma Water published a Draft Flood Management Design Manual (2020), which provides flood management guidelines and design guidelines for conveyance systems.

Sonoma Water Supply Strategic Action Plan

This plan outlines the development of new water supply projects, plans, and strategies to meet the reasonable expected future water demands. The 2010 Action Plan emphasizes a regional approach to protect the water supply and make it more resilient to a changing climate. The Action Plan was updated in 2011 and 2013 and again in 2018.

Petaluma Local Hazard Mitigation Plan (LHMP)

The Petaluma LHMP assesses the risk of natural hazards, including flooding, to occur within the City and sets out goals and policies to mitigate these hazards. This plan works in conjunction with the Sonoma County Multi-jurisdictional Hazard Plan, to coordinate a region wide assessment and response to natural hazards.

Petaluma Valley Groundwater Sustainability Agency (GSA)

The Petaluma Valley GSA is a joint powers authority formed in 2017 by the County of Sonoma; North Bay Water District; and The City of Petaluma. The purpose of this organization is to support compliance with the SGMA in the Petaluma Valley Basin.

In 2022, in accordance with SGMA, the Petaluma Valley GSA adopted its Groundwater Sustainability Plan (GSP), which was approved by DWR in early 2023. The GSP evaluates the historic and current condition of the groundwater basin and establishes a standard for sustainability of groundwater management and use. The GSP evaluates basin performance over a range of future climate scenarios and outlines management criteria and actions to ensure long-term sustainable performance through 2072.

Petaluma Municipal Code

Title 15 of the Petaluma Municipal code includes regulations for the water and sewer system within the City. Specifically, Chapter 15.17 includes water conservation measures including water efficiency development standards which apply to all new commercial, industrial, institutional, agricultural, single-family and multifamily residential construction. Additionally, chapters 15.36 and 15.80 set requirements for surface drainage and stormwater facilities, including compliance with the NPDES permit.

Chapter 17.31 includes grading and erosion control regulations including the requirement for new development to prepare an erosion and sediment control plan. Additionally, Section 6.070 of the Petaluma Implementing Zoning Ordinance includes requirements for all areas within Special Flood Hazard zones within the city. These requirements include the elevation of base floor levels for residential and non-residential development. Additionally, this section of the zoning code requires implementation of a zero net fill policy for areas along the Petaluma River west of the freeway, upstream of Payran Street bridge and including the area east of the freeway and west of Old Redwood Highway. This policy requires base floors to be elevated at least two feet for any proposed development.

Additionally, Chapter 6 of the Petaluma Implementing Zoning Ordinance (IZO) establishes land use regulations for properties situated in the floodway and the flood plain. This chapter defines the Petaluma River Basin Flood Plain and Floodway as areas of Special Flood Hazard identified by the Federal Insurance Administration through a scientific and engineering report entitled "Flood Insurance Study for the City of Petaluma", dated August 1979, with accompanying Flood Boundary and Floodway Map; and accompanying Flood Insurance Rate Maps. According to this chapter, new residential development in the floodplain combining zones shall have base floors that are elevated at least 12 inches above the level of the base flood elevation or depth number specified on the FIRM (flood insurance rate map), whichever applies to the area. Non residential construction would also be subject to this requirement unless the development is:

- floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water;
- has structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and
- is certified by a registered professional engineer or architect that the standards of this subsection are satisfied. Such certifications shall be provided to the Floodplain Administrator.

River Access and Enhancement Plan

Adopted in May of 1996, the overriding purpose of the Petaluma River Access and Enhancement Plan (RAEP) is to describe the community's vision for the Petaluma River, including its riverfront uses, activities, and developments. The RAEP includes goals, objectives, policies, and programs that include various means of enhancing the river, encouraging compatible developments along the river frontage, creating and maintaining a system of river-related public trails and direct riverfront access. The RAEP also includes specific buffers, or river-specific setbacks for development adjacent to rivers and creeks in Petaluma.

4.9.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

This section describes the potential environmental impacts of the proposed project relevant to hydrology and water quality. The impact analysis is based on an assessment of baseline conditions for the Plan Area, including climate, topography, watersheds and surface waters, groundwater, and floodplains, as described above under Section 4.9.1, *Setting*. This analysis identifies potential impacts based on the predicated interaction between the affected environment and construction, operation, and maintenance activities related to the development that would occur under the

proposed project, and recommends mitigation measures, when necessary, to avoid or minimize impacts.

Significance Thresholds

Based on Appendix G of the *CEQA Guidelines* a project may be deemed to have a significant impact on hydrology and water quality if it would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
3. 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 which would:
   i. Result in a substantial erosion or siltation on- or off-site;
   ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
   iii. 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
   iv. impede or redirect flood flows;
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; and/or
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Impact HYD-1 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD RESULT IN CONSTRUCTION AND OPERATIONAL ACTIVITIES WHICH MAY CONTRIBUTE TO SOIL EROSION AND DEGRADED WATER QUALITY. DEVELOPMENT FACILITATED BY THE PLAN WOULD BE REQUIRED TO ADHERE TO STATE AND LOCAL WATER QUALITY REGULATIONS AND PERMIT REQUIREMENTS FOR BOTH CONSTRUCTION AND OPERATION. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

As described in Section 2, *Project Description*, the proposed project would facilitate construction of 6,449 housing units and 1,414,741 square feet of non-residential space throughout the Plan Area by changing the land use designations on certain parcels within the Plan Area in addition to allowing for redevelopment, infrastructure improvements, and ongoing maintenance.. Construction activities associated with development under the proposed project could result in soil erosion during earth-moving activities, including excavation, grading, soil compaction and moving, and soil stockpiling. Specific development facilitated by the proposed project would be required to comply with State and local water quality regulations designed to control erosion and protect water quality during construction. This includes compliance with the requirements of SWRCB's NPDES Construction

General Permit, which requires preparation and implementation of a SWPPP for projects that disturb one acre or more of land. The SWPPP must include erosion and sediment control BMPs that would meet or exceed measures required by the NPDES Construction General Permit. BMPs may include measures such as the installation of silt fences to trap sediments, slope stabilization, and regular sweeping of construction sites to control dust. Additionally, Chapter 17.31 of the Petaluma Municipal Code requires an erosion control plan to be prepared to reduce the discharge of sediment and other particulate matter into the City's surface and groundwater system, and would be required of projects that disturb more than one acre as part of the General Plan Update buildout. New construction would also be assessed individually under CEQA. Implementation of the SWPPP and an erosion control plan would reduce the potential for eroded soil and any contaminants attached to that soil to contaminate a waterbody following a storm event. Therefore, construction activities associated with new development, infrastructure, and ongoing maintenance under the General Plan Update would result in less than significant impact to water quality.

Operation of future development facilitated by the plan would be required to comply with the provisions of California's Phase II MS4 Permit. The City of Petaluma is a permittee under the WDRs for the MS4 issued by the San Francisco Bay RWQCB (Order No. 2013-0001-DWQ), which also serves as a NPDES permit under the Federal Clean Water Act (NPDES No. CAS000004) and addresses the WDRs under State law. Compliance with these permits would ensure that the amount of polluted stormwater runoff released from development facilitated by the plan would be minimized. This would reduce water quality impacts associated with future development. Additionally, specific development projects would be required to adhere to the requirements of Petaluma Municipal Code Chapter 17.31 which sets regulations for erosion control and restricts surface water discharge. Furthermore, projects would be required to comply with the BASMAA Post-Construction Manual which includes guidance for low impact development and best management practices to reduce impacts to stormwater.

Together, these requirements ensure that implementation of the General Plan Update does not substantially increase the volume of stormwater runoff, that stormwater is able to recharge groundwater, and that stormwater is treated in order to minimize the discharge of pollutants into groundwater and surface water.

The following General Plan Update goal and policies would apply to construction and operational stormwater management and are proposed to reduce potential hydrological impacts:

Goal NAT-3: Water resources are managed proactively and in an integrated way.

> **Policy NAT-3.1: Minimize erosion and runoff.** Minimize soil erosion and discharge of sediments into surface runoff, drainage systems, and water bodies.
>
> **Policy NAT-3.2: Protect the River and creeks.** Preserve the wildlife and recreational benefits associated with the Petaluma River and tributary creeks by protecting the river from pollution and contamination in coordination with local key partners and river-focused non-profit organizations.
>
> **Policy NAT-3.3: Prevent development pollutant discharge.** Continue to require that all development activities are constructed and maintained in accordance with Phase 2 National Pollutant Discharge Elimination System (NPDES) permit requirements.
>
> **Policy NAT-4.2: Advance Low Impact Development.** Promote sustainable urban development through the adoption and implementation of LID strategies and Best

Management Practices (BMPs) for new construction projects, aimed at safeguarding and enhancing water quality in local creeks and the Petaluma River.

Goal NAT-3 and the related policies would ensure protection of the City's waterways through prohibiting dumping near waterways and storm drains and requiring new construction apply best management practices to ensure erosion control and prevention of sediment in waterways. Additionally, it would require low impact development (LID) strategies and BMPs for new construction projects which would preserve water quality throughout the city. This would ensure that the proposed General Plan and future projects implemented under the General Plan would be in compliance with BASMAA's Post Construction Manual to reduce impacts to water quality within the plan Area. With adherence to the provision of the NPDES Construction General Permit, Petaluma Municipal Code, and the proposed General Plan Update goal and policies concerning waterway protection, impacts to surface water and groundwater quality would be less than significant.

Mitigation Measure

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2:	Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Impact HYD-2 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD NOT SUBSTANTIALLY DECREASE GROUNDWATER SUPPLIES OR INTERFERE SUBSTANTIALLY WITH GROUNDWATER RECHARGE SUCH THAT SUSTAINABLE GROUNDWATER MANAGEMENT OF THE BASIN WOULD BE IMPEDED. PROPOSED PROJECT DEVELOPMENT WOULD ADHERE TO GENERAL PLAN UPDATE GOALS AND POLICIES AND COMPLY WITH NPDES REQUIREMENTS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the proposed project would not decrease groundwater supplies. As described in Section 4.9.1c, above, groundwater is only used as a water supply source for peak water demand needs and emergency purposes, and as of 2020, accounts for less than one percent of the City's annual water supply.

While development facilitated by the proposed project does not have the potential to increase groundwater pumping and decrease groundwater supply, it does have the potential to increase the amount of total impervious surface throughout the Plan Area, which could potentially interfere with groundwater recharge. Development under the Plan would incrementally increase the amount of impervious surface area overlying the basin within Petaluma which could reduce the potential for groundwater recharge from surface water infiltration.

Development facilitated by the proposed project would be required to adhere to erosion control regulations, including the NPDES permit described under Impact HYD-1 and Petaluma Municipal Code Chapter 17.31 which would reduce the impact of future development on groundwater recharge by ensuring there is adequate impervious surfaces for groundwater percolation, erosion control measures, and stormwater drainage on each development site. The General Plan Update goal and policies discussed under Impact HYD-1 would reduce the potential of future development

to interfere with groundwater recharge. Furthermore, future development would be required to be designed in compliance with low impact development requirements included in the BASMAA Post Construction Manual and included in Policy NAT-4 of the proposed General Plan. These requirements include the conservation of existing soils, maximizing permeability on a project site, and managing stormwater using features such as biofilters or permeable paving.

In addition, the following goal and policies included in the General Plan Update would be applicable to development under the proposed project and would reduce potential impact to groundwater:

Goal IU-4: Groundwater Sustainability. The City is a member agency of the Petaluma Valley Groundwater Sustainability Agency (GSA) and other regional agencies to improve the long-term resilience and natural function of groundwater resources.

> **Policy IU-4.1: Manage groundwater resources.** Manage groundwater as a valuable and limited shared resource by protecting groundwater recharge areas and stream sides from urban encroachment, enacting stormwater standards to reduce runoff inside the City, and enacting watershed restoration efforts within the greater Petaluma watershed.
>
> **Policy IU-4.2: Preserve groundwater resources for emergencies and drought.** Preserve groundwater resources to meet emergency needs and multi-year drought supply reductions.

Additionally, the Petaluma Valley GSP, which was adopted in 2022, regulates groundwater usage and ensures it is managed sustainably within the city. Future development facilitated by the proposed project would be required to comply with this Plan, including the implementation of BMPs to increase water efficiency for rural, residential, agricultural, and commercial/industrial groundwater users, and would therefore not substantially decrease groundwater supplies.

With adherence to the Petaluma Municipal Code, Sonoma Water's Water Smart Development Guidebook, Petaluma Valley GSP, BASMAA Post Construction Manual, and General Plan Update policies, projects implemented under the General Plan Update would not substantially decrease groundwater supply or interfere with groundwater recharge such that the project would impede sustainable groundwater management of the basin. Impacts would be less than significant.

Mitigation Measure

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 3:	Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) Result in a substantial erosion or siltation on- or off-site; ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii) 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

Impact HYD-3 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT MAY ALTER DRAINAGE PATTERNS ON INDIVIDUAL DEVELOPMENT SITES AND INCREMENTALLY INCREASE OVERALL RUNOFF VOLUMES IN THE PLAN AREA, BUT WOULD NOT RESULT IN SUBSTANTIAL EROSION OR SILTATION, RESULT IN INCREASED FLOODING, EXCEED THE CAPACITY OF EXISTING OR PLANNED STORMWATER DRAINAGE SYSTEMS, OR RESULT IN SUBSTANTIAL ADDITIONAL POLLUTED RUNOFF. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The proposed project would allow for development and redevelopment, infrastructure improvements, and ongoing maintenance throughout the Plan Area. Specifically, the proposed project includes updates to land use designations and development standards that would generally allow higher residential and mixed-use densities in most parts of the Plan Area, with the exception of Rural and Low-Density Residential designations. While the Maker/Microbusiness designation introduces a lower-intensity development option in certain limited areas, the overall land use framework would expand where higher-density development is permitted compared to existing conditions and would enable additional housing and mixed-use development opportunities throughout the Plan Area. As development and redevelopment facilitated by the proposed project would occur, construction activities including grading, excavation, stockpiling, trenching, paving, and other earth-disturbing work could temporarily alter on-site drainage patterns and increase the potential for erosion, sediment transport, and stormwater runoff. With implementation of the General Plan Update, buildout under the proposed plan could introduce new impervious surfaces, modify site topography, relocate or replace drainage features, and change infiltration characteristics on individual parcels. These permanent physical changes have the potential to alter localized drainage patterns, increase the volume or rate of stormwater runoff, and incrementally affect downstream drainage facilities or receiving waters.

As described in Impact HYD-1, development facilitated by the proposed project would be required to comply with State and local water quality regulations designed to control erosion and protect water quality during construction. This includes compliance with the requirements of SWRCB's NPDES Construction General Permit, which requires preparation and implementation of a SWPPP for projects that disturb one acre or more of land. The SWPPP must include erosion and sediment control BMPs that would meet or exceed measures required by the NPDES Construction General Permit. Compliance with these regulations would ensure that the existing drainage on a project site would not substantially be changed during construction.

Additionally, as described in Impact HYD-2, future development would be required to be designed in compliance with Petaluma's low impact development requirements included in the BASMAA Post Construction Manual. These requirements include the conservation of top soils, maximizing permeability on a project site, and managing stormwater using features such as biofilters or permeable paving. Implementation of these LID standards and BMPs would ensure that existing

drainage on the project site is not substantially altered and that excess stormwater is not released from a given project site. Furthermore, General Plan Update goals and policies described in Impact HYD-1 and HYD-2 would reduce erosion and protect water quality and groundwater recharge. These goals and policies would also reduce impacts to drainage patterns by minimizing erosion and protecting waterways within the Plan Area.

Through compliance with existing regulations and the proposed goals and policies, impacts from the General Plan Update would be less than significant.

Mitigation Measure

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 3:	Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: iv) impede or redirect flood flows.
Threshold 4:	In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

Impact HYD-4 REASONABLY FORESEEABLE DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT COULD OCCUR IN FLOOD HAZARD ZONES AND IMPEDE OR REDIRECT FLOOD FLOWS, BUT WOULD BE SUBJECT TO LOCAL, STATE, AND FEDERAL REGULATIONS THAT GOVERN THEIR LOCATION AND CONSTRUCTION. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

As stated in Section 4.9.1, *Setting*, the Petaluma River runs directly through the city's historic downtown. The natural hydrological function of the Petaluma River watershed has been degraded by channelization, reduced meanders, urban growth, and extensive losses of wetland and floodplain connectivity in the watershed. Petaluma's location is at the convergence of multiple creeks in the region and most low-lying parts of the city are designated by Federal Emergency Management Agency (FEMA) as within a 100-year flood zone or a 500-year flood zone. The Petaluma River is known to flood into low-lying areas during periods of heavy precipitation, and there are many residential, commercial, and industrial lands at risk from flooding.

Additionally, two dams in the area are at risk of failure according to Army Corps of Engineers: the Pinheiro Dam and the La Crema Winery Dam. The LHMP indicates that five critical utility facilities (two electrical substations and three water facilities) are at risk of flooding. The LHMP includes strategies to address the challenges of recurring flooding during heavy rains. It should be noted that at the time of this report, the LHMP is undergoing an update as part of a regional LHMP (Petaluma 2025). However, this update is still in progress and not available for public review. The most recent Petaluma LHMP analyzes the risk of inundation from dam failure and finds that the risk of inundation is very low as the area of concern is minimal (City of Petaluma 2020). Therefore, impacts associated with dam failure are not discussed further in this section.

While there are portions of the Plan Area within FEMA 500 year and 100 year flood zones, as shown in Figure 4.9-3, extensive modeling done by the City of Petaluma shows that mid-century flood risk

would be similar to existing conditions (City of Petaluma 2025). Development within the Plan Area would lead to an overall increase in impervious surfaces; however, this would not lead to a greater flood risk within the Plan Area because flood risk in the Plan Area is largely influenced by the Petaluma River and naturally occurring impervious clay soils which would not be altered or affected by the addition of impervious surfaces within the Plan Area. The proposed project would not substantially alter existing site or regional drainage patterns, would not modify the course of the Petaluma River or other watercourses, and would not introduce impervious surfaces in a manner that would impede or redirect flood flows. All future development would be required to demonstrate no net increase in flood elevations and no adverse upstream or downstream hydraulic impacts through project-level design and permitting.

The proposed project includes new land use designations for several parcels along the Petaluma River that are within flood and tsunami hazard zones. Specifically, the proposed project would change the land use designations on some river-adjacent parcels from Mixed Use to Maker/Microbusiness and some parcels from Medium Density to Diverse Low Density Residential. Additionally, a portion of one parcel that is currently designated as River Dependent Industrial would be designated as a park. Where feasible, residential development potential has been reduced on sites due to their flood risk. Accordingly, the General Plan Update has decreased the allowable land use intensity for some parcels adjacent to the River.

Future development in the FEMA 100 year floodplain, floodway, or zero net fill zone, would continue to be guided by the City's existing flood resilience strategies, including the enforcement of heightened regulations designed to minimize flood risk for development as defined in the General Plan Update. Specifically, these regulations include the requirement that all new or expanded development in the floodplain must be elevated at least two feet above the FEMA base flood elevation. An extensive list of all flood regulations and standards proposed by the General Plan Update are included in the Flood Resilience Element. The Flood Resilience Element is dedicated to reducing the risk of flooding in Petaluma through seven flood specific goals, 19 supporting policies, and more than 50 implementing actions.

Section 4.9.1, *Setting*, also explains that there are areas of Petaluma within a floodway, the regulated 100 year floodplain, the 500 year floodplain, and small areas in the southeastern corner and along the Petaluma River which are within a Tsunami Hazard Zone. The proposed project includes new land use designations for several parcels along the Petaluma River that are within flood and tsunami hazard zones. Specifically, the proposed project would change the land use designations on these parcels from River Dependent Industrial to Stepdown Mixed Use and from Mixed Use to Maker/Microbusiness. Additionally, one parcel that is currently designated as River Dependent Industrial would be designated as a park.

Future development on these parcels facilitated by the proposed project would be subject to flood resilience policies in the General Plan Update and assessed during the permitting process for their location within the determined 100 year flood plain, and development on the flood plain would be required to comply with Section 6.070 of the Petaluma Municipal Code. No development is allowed on parcels within the Floodway overlay zone. This Municipal Code ordinance sets forth design requirements in flood-prone areas such as elevating all residential and non-residential structures at least two feet above the base flood elevation. Development facilitated by the proposed project would be required to comply with all regulations and requirements set forth by FEMA, that prohibit or restrict development in flood hazard zones. Furthermore, development facilitated by the proposed project within flood and tsunami hazard zones would be required to practice proper handling and storage of potentially hazardous materials which is essential to preventing the

accidental release of materials due to inundation, as described in further detail in Section 4.8, *Hazards and Hazardous Materials*. The General Plan Update includes several goals and policies that the city would undertake to reduce flood impacts across the Plan Area such as tracking, modeling climate change, assessing future flood risk, and developing a flood adaptation master plan. The following General Plan Update goal and policies would be applicable to future development and redevelopment under the General Plan Update to reduce impacts associated with flooding:

Goal FR-1 Safe from the current flood: The City uses the most up-to-date understanding of flood hazards to protect life and property based on the updated rainfall, King Tide, and storm surge data, thereby exceeding regulatory standards as appropriate.

Policy FR-1.2: Exceed FEMA Standards. Require uses within the Current 100-Year or Current 500-Year Flood Hazard Maps to adhere to regulatory standards higher than required by FEMA.

Action FR-1.2.1: Require new development within the Special Flood Hazard Area to provide a finished floor elevation (FFE) of at least two feet above the BFE indicated on the Flood Insurance Rate Map (FIRM).

Action FR-1.2.2: Require new development within the Current 100-Year Flood Hazard Map to provide a FFE of at least two feet above the Design Flood Elevation (100DFE) indicated on the Current 100-Year Flood Hazard Map.

Action FR-1.2.3: Require new development within the Current 500-Year Flood Hazard Map to provide a FFE of at least one foot above the Design Flood Elevation (500DFE) indicated on the Current 500-Year Flood Hazard Map.

Action FR-1.2.4: Where multiple FFE requirements exist, the highest will be applied

Action FR-1.2.5: Prohibit new buildings within the Special Flood Hazard Area or the Current 100 year flood hazard map where the base floor elevation or 100 DFE is greater than two feet above the existing grade

Policy FR-1.3 Reduce Current Risk: Reduce the risk posed by current flood conditions to existing structures.

Action FR-1.3.1: Where additional habitable space is to be added to an existing structure within the flood insurance rate map, Current 100-Year Flood Hazard Map or Current 500-Year Flood Hazard Map, the FFE of the additional habitable space must meet the standards of Policy FR-1.2

Action FR-1.3.2: When an existing structure within the Current 100-Year or Current 500-Year Flood Hazard Maps sustains more than 50 percent flood damage, and the BFE or 100DFE is greater than two feet above existing grade at the building footprint, prohibit reconstruction and replacement and require the removal of damaged portions of the structure, to the extent consistent with applicable takings law.

Action FR-1.3.5: Prior to approval of annexation, planning entitlements, or building permit approval, require the evaluation and remediation of the impacts of unpermitted fill and/or construction in the floodway.

Policy FR-1.4 Prevent repetitive flood losses: Do not allow reconstruction of flood-destroyed properties in areas of expected deep flooding (over two feet).

Goal FR-5 Future Looking Plans and Regulations: Land use planning and regulatory standards reduce vulnerability from climate-induced flooding, particularly for Equity Priority Areas (EPAs)

Policy FR-5.1 Update building codes to provide future flood resilience: Integrate adaptation pathways into planning and building code standards so that new developments and significant remodels are required to reduce individual and collective risk from flooding while still providing for a vibrant city. Include regulatory standards that will prevent increased risk from flooding unless those areas are otherwise protected by completed and maintained flood protection systems.

Action FR-5.1.6: As currently described in the Municipal Code, prohibit any development within the regulatory floodway that removes habitat, restricts, or reduces the carrying capacity of the floodway, adds impervious area, or stores potentially harmful waste, chemicals, or other materials that could pollute waterways.

Action FR-5.1.7: Require submission and approval by the City of an elevation "Construction Certificate," on a FEMA-approved form, prior to the completion of a final building inspection and issuance of a Certificate of Occupancy for any structure required to have a specified FFE.

Goal FR-6 Safe against rising floods: The City implements avoidance, protection, accommodation, and land use realignment projects that reduce the risk from future flood scenarios, emphasizing nature-based solutions and a watershed restoration strategy.

Policy FR-6.1: Build for long term flood resilience. Design all City capital improvements (buildings, infrastructure, roads, parks, etc.) for resilience against the flood scenario appropriate to its risk tolerance and project lifespan. Projects should be protected from, be able to accommodate, or otherwise not be vulnerable to the flood impacts from the respective Future Flood Hazard Maps.

Action FR-6.1.1: Require certain new critical City infrastructure to be resilient to the flood elevations expected in the "worst case" Extreme SLR Scenario, as described by OPC 2018 (or as amended). The infrastructure required to be resilient includes those defined as Flood Design Class 4 by ASCE 24-14, or other uses meeting all of the following criteria per OPC 2018:

- Considerable public health, public safety, or environmental impacts;
- Design life beyond 2050;
- Little to no adaptive capacity; and
- Deemed excessive in cost or difficulty to relocate or quickly repair.

Policy FR-6.2 Develop Flood Mitigation Efforts: Develop the next generation of flood protection strategies and projects that prioritize multi-benefit nature-based solutions and prevent a disproportionate impact on EPAs.

Action FR-6.2.2: Identify and seek opportunities to preserve vacant parcels adjacent to creeks and the Petaluma River, within and outside the city, and preserve them for flood protection and floodplain management. Evaluate their flood control opportunities based on future flood conditions and "re-wilding" the River.

Policy FR-6.3 Require flood mitigation in riparian development: Require development to implement adopted Plan improvements for riverfront and creekfront properties, as amended or deemed appropriate and necessary through the development entitlement process, including flood reduction mitigation measures to ensure no net increase in BFE or adverse impacts either upstream or downstream of the project.

Action FR-6.4.1: Where warranted, charge proposed development applications a model update fee to cover costs associated with the evaluation of their projects and their impact on the regional storm drainage system.

Policy FR-7.3 Ensure Proactive Adaptation: Encourage new and existing development to proactively adopt adaptation measures.

Action FR-7.3.4: Require development to ensure the maintenance and continued health of restored floodplains and natural channels, in perpetuity, as a condition of development entitlement.

Adherence with the Petaluma Municipal Code that governs development in flood hazard areas and implementation of the General Plan Update goals, policies, and actions would limit the potential for inundation of exiting and new development by flooding. Compliance with federal and State regulations would ensure that impacts to flood flows and the release of pollutants in flood-prone areas would be reduced and impacts would be less than significant.

Mitigation Measure

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 5:	Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Impact HYD-5 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD NOT INTERFERE SUBSTANTIALLY WITH A WATER QUALITY CONTROL PLAN OR SUSTAINABLE GROUNDWATER MANAGEMENT PLAN. FUTURE DEVELOPMENT WOULD ADHERE TO GENERAL PLAN UPDATE GOALS AND POLICIES AND COMPLY WITH NPDES REQUIREMENTS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As discussed above under Section 4.9.1b, the Plan Area is located within the Petaluma Valley Basin. The Petaluma Valley GSA manages the Petaluma Valley Basin to protect and maintain the sustainability of the Basin. The Petaluma Valley GSA adopted a GSP in 2022, in accordance with the Sustainable Groundwater Management Act (SGMA,) which is a 20-year plan that establishes a standard for sustainability of groundwater management and provides a plan for managing groundwater. As described under Impact HYD-2, the General Plan Update would be consistent with the GSP as it would require implementation of low impact development and BMPs to protect water quality and promote water efficiency. This is consistent with the GSP's goal to increase outdoor and indoor water efficiency for rural, residential, agricultural, and commercial/industrial groundwater. Additionally, the General Plan Update includes actions such as Action FR-7.2.9 which requires the City to maximize groundwater benefits from flood management strategies and participate in the Petaluma Valley GSA. This is consistent with the GSP's overall sustainability goal which is to

adaptively and sustainably manage, protect, and enhance groundwater resources while allowing for reasonable and managed growth through:

- Careful monitoring of groundwater conditions
- Close coordination and collaboration with other entities and regulatory agencies that have a stake or role in groundwater management in the Basin
- A diverse portfolio of projects and management actions that ensure clean and plentiful groundwater for future uses and users in an environmentally sound and equitable manner

Furthermore, Petaluma is under the jurisdiction of the San Francisco Bay RWQCB, which is responsible for preparing the Basin Plan. The Basin Plan designates beneficial uses of water in the region, establishes narrative and numerical water quality objectives, and includes implementation programs to achieve water quality objectives. As a result, construction of future development would be required to implement State and local regulatory requirements, including the provisions of the Construction General Permit, and the Petaluma Municipal Code. As discussed above under Impact HYD-2, the proposed project would not include installation of new groundwater wells, substantially decrease groundwater supply, or interfere with groundwater recharge such that the project would impede sustainable groundwater management of the Basin. Operations of future development would be required to comply with the MS4 Permit, the Industrial General Permit, and the Petaluma Municipal Code requirements for post-construction stormwater control. These regulatory requirements support the goal of the Basin Plan to minimize adverse impacts to water quality. In addition, future development would be required to comply with the General Plan Update goals and policies included under Impact HYD-2 to preserve groundwater quality and resources within the Plan Area.

Therefore, with adherence to State and local regulations and the General Plan Update goals and policies discussed in this section, development under the proposed project would not interfere with the objectives and goals of the Basin Plan. Therefore, impacts would be less than significant.

Mitigation Measure

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.9.4 Cumulative Impacts

The geographic scope of the cumulative hydrology and water quality impacts is the surface drainage management areas and groundwater basins that contain the Plan Area including the Petaluma Valley Groundwater Basin and the Petaluma River Watershed. Cumulative development within these areas are included in Table 3-1 and generally consists of commercial and residential projects.

Potential impacts associated with surface water and drainage would generally be confined to the stormwater drainage area, surface watershed, and groundwater basin in which a site is located.

Cumulative development would generally increase impermeable surface area in the applicable watersheds, which would potentially increase peak flood flows, alter drainage patterns, reduce groundwater recharge, and increase pollutants in the regional stormwater which could reduce overall water quality as described under Impacts HYD-1, HYD-2, and HYD-3. Development facilitated

by cumulative plans and projects would be required to adhere to all applicable State and local regulations designed to control erosion and protect water quality, including the applicable City or County Code, NPDES Construction General Permit, MS4 General Permits, and applicable General Plan Update policies. All construction sites larger than one acre in size would be required to prepare implement project-specific SWPPPs (as required by the Clean Water Act) with BMPs to minimize or avoid water quality degradation from construction and other ground-disturbing activities. Cumulative plans and projects would also be subject to requirements of the Clean Water Act and the policies of the applicable planning document. Through the implementation of state and regional regulations, cumulative impacts would be less than significant, and the project would not have a considerable contribution to cumulative impacts related to increasing peak flood flows, increasing impermeable surface area, reducing groundwater recharge, or reducing water quality.

Flood and tsunami risk for cumulative development would be site specific as described under Impact HYD-4. Cumulative development projects would be required to adhere to the applicable municipal code and general plan requirements depending on the flood risk on the specific project site. Through the implementation of existing local regulations, cumulative impacts would be less than significant and the project would not have a considerable contribution to cumulative impacts related to project inundation.

Cumulative development would be subject to the proposed General Plan policies and applicable state regulations that are consistent with the Petaluma Valley GSA as discussed under Impact HYD-5. This includes the implementation of low impact development practices and BMPs which are consistent with the goals and implementation plan included in the Petaluma Valley GSP. Implementation of these policies would ensure that cumulative development would be consistent with the Petaluma Valley GSP. Cumulative impacts resulting from conflicts with the Petaluma Valley GSP would be less than significant and the proposed project would not have a considerable contribution to this cumulative impact.

4.10 Land Use and Planning

This section summarizes the City's land use characteristics, including the overall land use pattern as well as a more detailed analysis by major land use type. This section also summarizes existing plans and focus areas with development potential in order to determine the potential environmental effects of the proposed project related to land use and planning.

4.10.1 Setting

a. Current Land Use Pattern

The City of Petaluma can be characterized as a primarily residential community with residential land uses occupying approximately 43.4 percent of the area (City of Petaluma 2022). The existing General Plan includes seven residential land use classifications for development of a full range of housing types:

1. **Rural Residential** includes single-family residential development located primarily at the western perimeter of the city along the Urban Growth Boundary (UGB);
2. **Very Low Density Residential** includes single-family residential development primarily in the southern hills;
3. **Low Density Residential** includes single-family residential development and represents the majority of the existing stock of detached single-family dwellings;
4. **Diverse Low Density Residential** includes a diversity of housing types and densities in older neighborhoods surrounding downtown Petaluma;
5. **Medium Density Residential** includes a variety of dwelling types such as single-family and multi-family housing;
6. **High Density Residential** includes a full range of housing types but is intended for multi-family housing in specific areas where higher density is considered appropriate; and
7. **Mobile/Manufactured Homes** include residential developments of eight or more manufactured home units.

Commercial uses, **Mixed-Uses**, and **Business Park** uses account for 10 percent of land in Petaluma. The city's major commercial areas include Downtown and four corridors: Petaluma Boulevard, Lakeville Highway, East Washington Street, and North McDowell Boulevard (City of Petaluma 2022). The **Neighborhood Commercial** land use allows for shopping centers with off-street parking or clusters of street-front stores that serve the surrounding neighborhood, while the **Community Commercial** land use allows for shopping centers and commercial districts, including regionally-oriented centers. Both ends of North MacDowell Boulevard feature a notable concentration of both small and large commercial uses as well as accommodation/lodging. Most offices and business parks are sited along the Old Redwood Highway and Lakeville Highway corridors, and to a lesser extent along the Highway 101 corridor (City of Petaluma 2022).

Industrial land uses make up just over five percent of land in Petaluma and include a mix of warehouse, wholesale, and light manufacturing operations. The **Industrial** land use provides and protects industrial lands for the full range of manufacturing, industrial and/or food processing/preparation, general service, warehousing, storage and distribution operations; **Agriculture Support Industrial** permits food processing, feed mills and related industrial uses which

provide direct support to agricultural uses located in the Petaluma area; and **River-Dependent Industrial** allows for heavy industrial manufacturing, raw material processing, and related uses that require river access as an integral part of daily operations for the purpose of regularly shipping or receiving raw materials and finished products by water transport.

Green space, including parks and recreational facilities, undeveloped open spaces, agricultural land, and golf courses, occupies 22 percent of land in Petaluma (City of Petaluma 2022). **City Parks** are City-owned lands with a primary purpose of recreation; **Open Space** includes unimproved sites devoted to the preservation of natural and cultural resources, outdoor recreation, or public health and safety; **Urban Separator** includes open space lands within and/or directly adjacent to the UGB that are intended to serve as the outer boundary of urban development, as designated by the City of Petaluma; **Floodway** delineates the channel of the Petaluma River or other watercourse and the adjacent land areas that must be reserved in order to discharge the "base flood" without cumulatively increasing the water surface elevation more than one foot; and **Agriculture** allows for grazing or the production or sale of food and fiber.

Public and Institutional land uses make up 20 percent of land in the city and include broad range of community-serving uses, including schools, hospitals, and healthcare facilities, civic buildings, religious centers, parking and transportation facilities, utilities, and airports, among others. **Public/Semi-Public** includes proposed gateways, public utility facilities, government offices, and community service uses; and **Education** contains lands owned and operated by the elementary, secondary, or community college districts, as well as private and/or parochial schools.

Lastly, **vacant land** comprises 5.6 percent of the city's land use and are mostly located along or near either Highway 101 or the railroad tracks, though many smaller sites are also found across the southern half of the city (City of Petaluma 2022).

Table 4.10-1 outlines the existing uses and their respective acreages within the city.

Table 4.10-1 Existing Uses Within Petaluma Summary

Land Use	Acres	Percentage
Residential Land	**3,360.6**	**43.4%**
Single Family Detached	3,073.9	39.7%
Single Family Attached	81.5	1.1%
Multifamily	205.2	2.6%
Commercial/Mixed-Use Land	**754.3**	**9.6%**
Commercial Centers	366.3	4.7%
Office	187.1	2.4%
Accommodation	15.5	0.2%
Commercial Recreation	169.6	2.2%
Mixed Use Commercial	1.1	0.0%
Mixed Use Residential	5.7	0.1%
Industrial Land	**431.2**	**5.6%**
Heavy Industrial	13.8	0.2%
Light Industrial	258.3	3.3%
Wholesale/Warehousing	159.1	2.1%
Public and Educational	**1,540.1**	**19.9%**

Land Use	Acres	Percentage
Higher Education	40.1	0.5%
Primary/Secondary Education	196.7	2.5%
Hospitals	23.3	0.3%
Special Use	69.0	0.9%
Cemeteries	1.0	0.0%
Civic Facilities	101.3	1.3%
Transportation	262.5	3.4%
Utilities/Communications	411.5	5.3%
Vacant	430.7	5.6%
Water	4.0	0.1%
Green Space		
Parks/Recreation	836.2	10.8%
Open Space	399.7	5.2%
Golf Courses	213.9	2.8%
Agriculture	217.8	2.8%
Total	**7,744.6**	**100%**

Source: City of Petaluma 2022

b. Planning Subareas

The following sections discuss locations and land uses in the City's 14 planning subareas. The 14 planning subareas are shown on Figure 4.10-1.

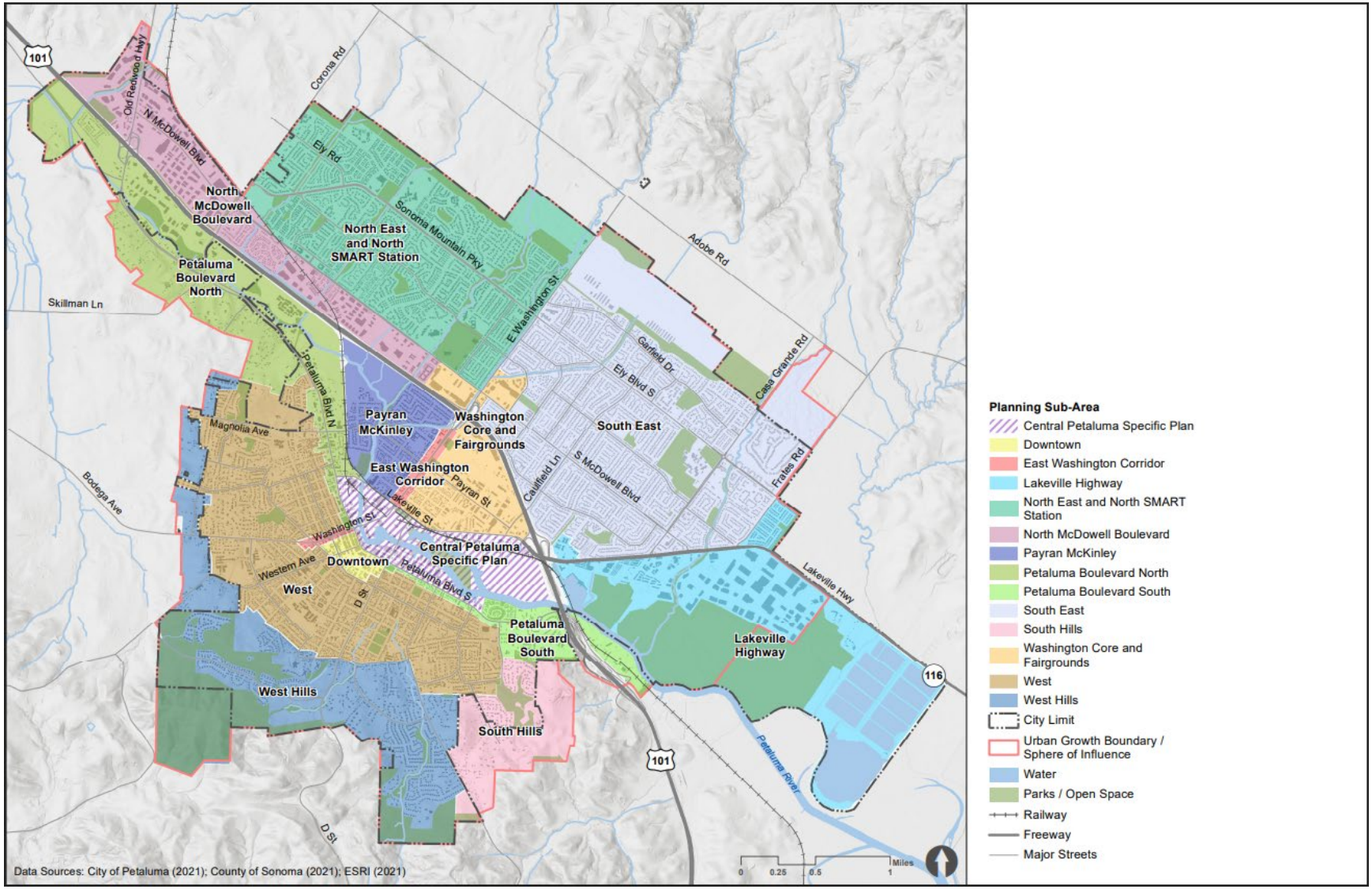
Central Petaluma Specific Plan

The Central Petaluma Specific Plan (CPSP) subarea encompasses 272.1 acres within the heart of the city surrounding the Petaluma River, and is bounded by Petaluma Boulevard, Lakeville Street, and Highway 101. This mixed-use subarea includes warehouses and light industrial uses, office and commercial uses, retail uses, and low-rise multifamily residential uses (City of Petaluma 2022). Land Use designations in the CPSP include Agricultural and Support Industrial, Mixed-Use, Public Park, and River Dependent Industrial (City of Petaluma 2003). Unlike other areas of the city regulated by the Implementing Zoning Ordinance (IZO), the CPSP is implemented through the SmartCode. Although a significant portion of the CPSP is designated Mixed Use in the General Plan, the area is exempt from the General Plan's 30 dwelling units per acre density requirement. There is no maximum residential density for the CPSP area. Instead, the SmartCode is a form based code that regulates building size, massing, and design. The CPSP includes the following districts:

North River Area

The area to the north of East Washington Street contains agricultural industrial uses that are dependent on both rail and truck access, and which form landmarks within the city along the river. There are auto-oriented retail uses along East Washington Street, and restaurants, antique, and service-oriented retail uses occur along Petaluma Boulevard North (City of Petaluma 2003).

Figure 4.10-1 Planning Subareas



Turning Basin East

This area lies at the geographic heart of the city, bounded by East Washington Street, Lakeville Street, D Street, and the Petaluma River. This area has significant vacant or underutilized parcels located in proximity to the Petaluma River, Downtown, and the Petaluma Train Depot (City of Petaluma 2003).

Turning Basin West

This area is a transitional area between Downtown and the Riverfront Warehouse District. This area is bounded by East Washington Street, Petaluma Boulevard, D Street and the Petaluma River, and includes a portion of Downtown and the area between B and D streets (City of Petaluma 2003).

Riverfront Warehouse District

The Riverfront Warehouse District includes a mix of warehouses and industrial uses and a small colony of bungalows and homes (City of Petaluma 2003).

Lower Reach Area

The Lower Reach area includes the area on the east side of the river from D Street south to Highway 101. The majority of this area accommodates three large industrial operations associated with the construction industry: Jerico Products, Shamrock Materials, and Pomeroy Corporation (City of Petaluma 2003).

Downtown

The Downtown subarea encompasses 29.4 acres and is bounded by Petaluma Boulevard, D Street, Washington Street, and 6th Street. Downtown is a commercial mixed-use area combining residential, retail, and other institutional uses. The Downtown subarea served as Petaluma's historic center and contains the city's highest concentration of historic buildings. Historic single-family homes define the southern and eastern edges of Downtown (City of Petaluma 2022). The Downtown Housing and Economic Opportunity Overlay district is focused on a small two-block area along Petaluma Boulevard South, which encourages taller and denser development while providing community benefits (City of Petaluma 2025).

Washington Street Corridor

The Washington Street Corridor encompasses 85 acres and extends from Post Street, located adjacent to Downtown, up to the intersection with Highway 101. Washington Street Corridor is the principal east/west connector and one of the primary gateways into the city, connecting the rural landscape with Petaluma's urban center. The corridor is a low-intensity, horizontally mixed-use arterial with mostly commercial uses such as retail, small offices, gas stations, and fast-food restaurants (City of Petaluma 2022).

Lakeville Highway

The Lakeville Highway subarea encompasses 1,333.2 acres and is bounded by Lakeville Highway, the Petaluma River and estuary, Frates Road, Petaluma's UGB, and Highway 101. The subarea's main thoroughfare, Lakeville Highway, is a gateway to Petaluma both from its Highway 101 interchange, its approach from the county areas on the southeast edge of town, and from communities to the east and south via Highways 116 and 37 (City of Petaluma 2008). This district features many large,

low buildings spread out in a typical suburban office/warehouse configuration, adjacent to a large open space. A handful of recent residential projects have filled formerly vacant parcels along Lakeville Highway (City of Petaluma 2022).

Payran-Mckinley

The Payran-Mckinley subarea encompasses 254.2 acres and is bordered by Highway 101, the railroad tracks, Lakeville Street, and East Washington Street. The subarea is predominantly a residential community, supported by some agricultural processing and light industrial uses approaching the Petaluma River (City of Petaluma 2022).

Petaluma Boulevard South

The Petaluma Boulevard South subarea encompasses 134.7 acres and stretches from the southeast outskirts of the city, near Highway 101, up to D Street in Central Petaluma. Petaluma Boulevard South is the city's southernmost gateway, linking light industrial sites on the periphery to the urban core near Downtown and Central Petaluma. Petaluma Boulevard South includes a variety of uses including legacy industrial uses along the river and a horizontal mixture of low-density residential and commercial uses (City of Petaluma 2022).

Petaluma Boulevard North

The Petaluma Boulevard North subarea encompasses 722.4 acres and is defined by Highway 101, the western edge of the UGB, Washington Street, and the railroad tracks. The subarea is a horizontally mixed-use corridor with rural residential, retail, and some industrial uses. Very few uses support active or attractive frontages. (City of Petaluma 2022).

West Hills

The West Hills subarea is primarily defined by Petaluma's UGB to the west and south. This area contains more vacant land than any other subarea. However, much of it is constrained by steep slopes. West Hills is characterized by grassy slopes, large oaks, natural streams, and low housing density, and serves as a transition area from urban densities to rural residential uses, agricultural activities, and grazing land beyond the UGB (City of Petaluma 2008).

South Hills

The South Hills subarea encompasses 320.2 acres and is located on the southern periphery of town, framed by Petaluma's UGB and I Street/Mountain View Avenue. The majority of this subarea is unincorporated but within the City's Sphere of Influence (SOI)[1] and characterized by steep hills with mature oak woodlands. South Hills includes a mix of low-density rural residential uses, open space, and private recreation (City of Petaluma 2022).

Washington Core

The Washington Core subarea is bounded by Highway 101, the railroad, Lakeville Street, and East Washington Street. This subarea contains a diverse mix of uses, including shopping centers, low-

[1] "Sphere of influence" defines the boundary for the probable physical boundaries and service area of a local agency, as determined by the commission. (Govt. Code Section 56076). Petaluma's Sphere of Influence is contained within the City's Urban Growth Boundary.

density housing types, and some public/institutional uses, including the Petaluma Fairgrounds (City of Petaluma 2022).

North McDowell Boulevard

The North McDowell subarea encompasses 518.7 acres and lies between Highway 101, the Plaza and Plaza North Shopping centers, North McDowell Boulevard, the railroad tracks, and Petaluma's UGB at the northeast corner of the community. North McDowell Boulevard is a primary north-south connector for the eastern portion of Petaluma with heavy traffic volumes, and provides two gateways into Petaluma through Old Redwood Highway and Highway 101. The North McDowell Boulevard subarea contains a wide variety of commercial and industrial uses, including hotels, restaurants, retail, and auto services shops, and business parks (City of Petaluma 2022). Portions of the North McDowell subarea are within the Petaluma North SMART Station Priority Development Area (PDA) (City of Petaluma 2026a). The Metropolitan Transportation Commission designated the Petaluma North (Corona Road) SMART Station as a PDA to support regional housing and employment growth by integrating rail, bike/pedestrian paths, and electric vehicle infrastructure in North Sonoma County.

North East

The North East subarea encompasses 1,137.6 acres and is bounded by East Washington Street, North McDowell Boulevard, Corona Road, and Petaluma's UGB. The North East subarea is a residential community mostly defined by single-family housing supported by retail, parks and open spaces, and several schools and churches (City of Petaluma 2022).

South East

The South East subarea encompasses 1,624.3 acres and is defined by East Washington Street, Highway 101, Lakeville Highway, Frates Road, and Petaluma's UGB. The South East subarea is similar in scale and character to the North East, and consists primarily of single-family housing built around a relatively well-connected street grid, as well as undeveloped open space and public lands (City of Petaluma 2022).

West

The West subarea encompasses 1,104.3 acres and is centrally located just west of Downtown and Central Petaluma. The West subarea is a partially mixed-use subarea primarily defined by residential neighborhoods, schools, parks, churches, some commercial uses, and other religious facilities and open space. Housing types are highly mixed, ranging from large and small single-family, to duplex and townhouse, to three/fourplex, and to three-story multi-family (City of Petaluma 2022).

4.10.2 Regulatory Setting

a. State Regulations

California Government Code

California Government Code Section 65300 regulates the substantive and topical requirements of general plans. State law requires each city and county to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning." The California Supreme Court has called the general plan the "constitution for future

development." (*Lesher Communications, Inc. v. City of Walnut Creek* (1990) 52 Cal.3d 531, 540) The general plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private.

California Government Code Section 65301 requires a general plan to address the geographic territory of the local jurisdiction and any other territory outside its boundaries that bears relation to the planning of the jurisdiction. The jurisdiction may exercise their own judgment in determining what areas outside of its boundaries to include in the Planning Area. The State of California General Plan Guidelines state that the Planning Area for a city should include (at minimum) all land within the city limits and all land within the city's SOI. For this General Plan update, the plan area includes all land within City limits, the City's UGB, the Urban Service Area, and SOI.

Government Code Section 65860 requires counties and cities' zoning ordinances be consistent with the general plan. A zoning ordinance is consistent with an adopted general plan only if the various land uses authorized by the zoning ordinance "are compatible with the objectives, policies, general land uses, and programs specified in such a plan" (Government Code Section 65860[a]). State law also provides that in the event a zoning ordinance becomes inconsistent with a general plan by reason of amendment to such a plan, the zoning ordinance must be amended within a reasonable time so that it is consistent with the general plan as amended (Government Code Section 65860[a]). Petaluma is, therefore, required to have zoning consistency with its General Plan.

Cortese Knox Hertzberg Local Government Reorganization Act of 2000

The Cortese Knox Hertzberg Local Government Reorganization Act (CKH Act) is the most significant reform to local government reorganization law since the 1963 statute that created a Local Agency Formation Commission (LAFCO) in each county. The law established procedures for local government changes of organization, including city incorporation, annexation to a city or special district, and consolidation of cities or special districts (California Government Code Section 56000, et seq.). LAFCOs have numerous powers under the CKH Act, but those of prime concern are the power to act on local agency boundary changes and to adopt SOIfor local agencies. The law also states that in order to update a SOI, LAFCOs are required to first conduct a review of the municipal services provided in the county.

While LAFCO does not have any direct land use authority, the CKH Act assigns LAFCOs a significant role in planning issues by requiring them to consider a wide range of land use and growth factors when they consider proposals. California Government Code Section 56001 specifically states that "the logical formation and determination of local agency boundaries is an important factor in promoting orderly development and in balancing that development with sometimes competing State interests of discouraging urban sprawl, preserving open space and prime agricultural lands, [and] efficiently extending government services."

The CKH Act also requires LAFCOs to update spheres of influence (SOI) for every city and special district every five years. Every SOI update must be accompanied by an update of the municipal services review. Pursuant to Government Code Section 56430, Sonoma LAFCO conducts municipal service reviews (MSRs) for each agency under LAFCO jurisdiction. The MSRs provide an in-depth look at provider service needs, use of resources, and possibilities for partnership with other agencies; and contain determinations that serve as guidelines to inform and support the Commission's decisions about Spheres of Influence. Petaluma's SOI is not being updated as a part of the 2050 General Plan and is shown in Figure 4.10-1.

State Aeronautics Act

The State Aeronautics Act requires each county with an airport to establish an Airport Land Use Commission (ALUC) to regulate land use around airports to protect public safety and ensure that land uses near airports do not interfere with aviation operations. The Sonoma County Comprehensive Airport Land Use Plan (CALUP) regulates land use around the Petaluma Municipal Airport, as well as five other public use airports in the County, by requiring compliance with the policies of the plan. In certain circumstances, local governments may override the decisions of the CALUP.

Sustainable Communities and Climate Protection Act (SB 375)

The Sustainable Communities and Climate Protection Act (SB 375) supports the State's climate goals by helping reduce greenhouse gas emissions through coordinated transportation, housing, and land use planning. Under SB 375, the California Air Resources Board (CARB) set targets for 2020 and 2035 for each of the 18 metropolitan planning organization regions in 2010 and updated them in 2018. Each of the regions must prepare a Sustainable Communities Strategy, as an integral part of its regional transportation plan, that contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet CARB's targets. SB 375 establishes some incentives to encourage implementation of the development patterns and strategies included in a Sustainable Communities Strategy.

b. Regional Regulations

Plan Bay Area 2050

Plan Bay Area 2050, adopted in October 2021 by Association of Bay Area Governments and the Metropolitan Transportation Commission (ABAG/MTC), integrated transportation and land-use plan for the nine-county San Francisco Bay Area, including Sonoma County. Plan Bay Area 2050 meets all state and federal requirements for a Regional Transportation Plan and Sustainable Communities Strategy (the Plan). The Plan describes where and how the region can accommodate almost 1.4 million new households and 1.4 million new jobs projected in the Bay Area by 2050 and details the regional transportation investment strategy over this period. The Plan identifies 35 strategies focused on improving housing, the economy, transportation, and the environment across the Bay Area over a 30-year period. The Plan identifies four geographic areas to guide where future growth in housing and jobs would be focused over the next 30 years: Priority Development Areas (PDA), Priority Production Areas (PPA), Transit-Rich Areas (TRA), and High-Resource Areas (HRA). ABAG/MTC developed land use and transportation scenarios in Plan Bay Area 2050 that distributes the total amount of anticipated growth across the region and measures how well each scenario measures against the Plan goals. Based upon performance, the preferred scenario provides a regional pattern of household and employment growth and a corresponding transportation investment strategy (ABAG/MTC 2021).

Bay Area 2017 Clean Air Plan

The Bay Area Air District adopted the *Bay Area Clean Air Plan: Spare the Air, Cool the Climate (Bay Area Clean Air Plan)* on April 19, 2017 as an update to the 2010 Clean Air Plan. The Air District prepared the 2017 Clean Air Plan in cooperation with MTC and ABAG. The goals of the 2017 Clean Air Plan are to reduce regional air pollutants and climate pollutants to improve the health of Bay Area residents for the next decades. The 2017 Clean Air Plan aims to lead the region into a post-

carbon economy, continue progress toward attaining all State and federal air quality standards, and eliminate health risk disparities from air pollution exposure in Bay Area communities. The 2017 Clean Air Plan includes 85 distinct feasible control measures categorized by the economic sector framework and including stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water (Bay Area Air District 2017).

c. Local Regulations

City of Petaluma 2025 General Plan

The City's current General Plan 2025 was originally adopted in May 2008. The 2025 General Plan includes 11 Elements: Land Use, Growth Management, and the Built Environment; Community Design, Character, and Green Building; Historic Preservation; The Natural Environment; Mobility; Recreation, Music, Parks, and the Arts; Community Facilities, Services and Education; Water Resources; Economic Health and Sustainability; Health and Safety; and Housing (City of Petaluma 2008). The Housing Element was amended in March 2023. The General Plan 2025 guides how land in the city may be developed and used by designating each parcel of land for a particular use or combination of uses and by establishing broad development policies. Land use designations identify both the types of development, such as residential, commercial, and industrial, that are permitted, and the density or intensity of allowed development, such as the minimum or maximum density of housing units permitted on an acre of land, or the maximum floor area ratio allowed.

Chapter 3, Land Use, Growth Management, and the Built Environment of the 2025 General Plan contains the following goals and policies applicable to the project (City of Petaluma 2008):

Goal 1-G-1: Land Use. Maintain a balanced land use program that meets the long-term residential, employment, retail, institutional, education, recreation, and open space needs of the community.

> **Policy 1-P-1:** Promote a range of land uses at densities and intensities to serve the community needs within the Urban Growth Boundary (UGB).
>
> **Policy 1-P-2:** Use land efficiently by promoting infill development, at equal or higher density and intensity than surrounding uses.
>
> **Policy 1-P-6:** Encourage mixed-use development, which include opportunities for increased transit access.
>
> **Policy 1-P-8:** Maintain Business Park uses by monitoring availability of industrial land area for possible expansion of high employment businesses.
>
> **Policy 1-P-9:** Support continued development and intensification of employment centers
>
> **Policy 1-P-10:** Develop and maintain the following areas as neighborhood centers. These centers will serve to focus commercial activity close to residential uses, providing convenient retail and services for all Petaluma residents:
>
> - Lakeville Highway at Casa Grande Road
> - Caulfield Lane at Lakeville Street
> - Along Petaluma Boulevard, near McNear Avenue, at Shasta Avenue/Sycamore Lane, and at Corona Road
> - Sonoma Mountain Parkway, at Riesling Road

- McDowell Boulevard South at Casa Grande Road
- McDowell Boulevard North at Old Redwood Highway

Policy 1-P-11: Allow land use intensification at strategic locations along the arterial corridors leading to Downtown and Central Petaluma, including aging commercial and industrial sites.

Policy 1-P-12: Encourage reuse of under-utilized sites along East Washington Street and Petaluma Boulevard as multi-use residential/commercial corridors, allowing ground-floor retail and residential and/or commercial/office uses on upper floors.

Goal 1-G-2: Hillsides/Ridgelines. Preserve the essential scenic and natural resources of the open ridgelines and hillsides that help define the unique character of Petaluma.

Policy 1-P-16: Allow development in hillside areas that preserve ridgelines and are site sensitive.

Policy 1-P-17: Retain ridgelines and prominent hillsides as open space through appropriate clustering and/or transfer of density to other parts of a development site (applies to Rural and Very Low Residential areas within the West Hills, South Hills and Petaluma Boulevard North subareas only).

Goal 1-G-3: Land Use. Maintain a well-defined boundary at the edge of urban development.

Policy 1-P-18: Maintain a permanent open space around the city by the continuation of the Urban Separator and the use of an Urban Separator Pathway, as designated.

Goal 1-G-4: Urban Growth Boundary. Maintain a parcel-specific Urban Growth Boundary.

Policy 1-P-29: It is the policy of the City to build within the agreed upon Urban Growth Boundary. No urban development shall be permitted beyond the Urban Growth Boundary. "Urban development" shall mean development requiring one or more basic municipal services including, but not limited to, water service, sewer, improved storm drainage facilities, fire hydrants and other physical public facilities and services; but shall not mean providing municipal or public services to open space uses, public or quasi-public uses such as schools or public safety facilities. Said municipal or public services or facilities can be developed beyond the UGB to provide services within the UGB

Policy 1-P-32: The Urban Growth Boundary designated on the Petaluma General Plan Land Use Map may be amended only by a vote of the people or pursuant to the procedures set forth below:

Exception I - Affordable Housing: To comply with state law regarding the provision of housing for all economic segments of the community, the City Council may amend the Urban Growth Boundary in order to include within the Urban Growth Boundary lands to be designated for residential uses, provided that no more than 5 acres of land may be brought within the Urban Growth Boundary for this purpose in any calendar year. If in any year, fewer than five acres are brought within the UGB pursuant to this policy, then the unused increment may be brought within the UGB in subsequent years, provided that, no more than 50 acres may be brought within the UGB before December 31, 2025. (Thus, for example in 2008 the City Council could, upon making the findings below, bring up to 50 acres within the UGB under this exception, provided none had previously been brought

within the UGB under this exception.) Such amendment may be adopted only if the City Council makes each of the following findings based on substantial evidence in the record:

- The land is immediately adjacent to existing comparably developed areas and the applicant for the redesignation has provided sufficient evidence that the Fire Department, Police Department, Department of Public Works, the Community Development Department, Parks and Recreation Department, the School District(s) and other relevant City departments and public agencies have adequate capacity to accommodate the proposed development and provide it with adequate public services; and
- The proposed development will consist of at least 25 percent moderate income housing and at least 25 percent low and very low income housing; and
- That there is no existing residentially designated land available within the Urban Growth Boundary to accommodate the proposed development; and
- That it is not reasonably feasible to accommodate the proposed development by redesignating lands within the Urban Growth Boundary for low and very low income housing; and
- The proposed development is necessary to comply with state law requirements for provision of low and very low income housing; and
- The proposed development meets the intent of General Plan policies relative to density feathering.

Exception II - Takings: The City Council may amend the Urban Growth Boundary if it finds, by at least a six-sevenths vote and based on substantial evidence in the record, that:

- The application of the Urban Growth Boundary policies would constitute an unconstitutional taking of a landowner's property; and
- The amendment and associated land use designation will allow additional land uses only to the minimum extent necessary to avoid said unconstitutional taking of the landowner's property.

Exception III - Transit-Oriented or Industrial Development: The City Council may amend the Urban Growth Boundary if it finds, by at least a six-sevenths vote and based on substantial evidence in the record, that:

- The lands to be included within the UGB will be used for transit oriented residential and local-serving commercial development within 1500 feet of a rail transit station; and the Fire Department, Police Department, Department of Public Works, the Community Development Department, Parks and Recreation Department, the School District(s), and other relevant City departments and public agencies have adequate capacity to accommodate the proposed development and provide it with adequate public services. No more than 100 acres of land may be brought within the UGB for this purpose before December 31, 2025; or
- The lands to be included within the UGB will be used for office or light industrial uses to improve local employment. No land may be brought within the UGB for this purpose before January 1, 2006. No more than 100 acres of land may be brought within the UGB for this purpose before December 31, 2025. Such amendments may be adopted only if the City Council makes all of the following findings:

- That there is no existing office or light industrial designated land available within the UGB that could accommodate the proposed development and it is not reasonably feasible to accommodate the proposed development by redesignating lands within the UGB for office and light industrial uses; and
  - That the Fire Department, Police Department, Department of Public Works, the Planning Department, Parks and Recreation Department, the School District(s), and other relevant City departments and public agencies have adequate capacity to accommodate the proposed development and provide it with adequate public services; and
  - That the land to be included (1) is immediately adjacent to the existing UGB, and (2) serviceable water and sewer connections can be provided; and
  - That the land to be included meets the intent of the General Plan pertaining to the preservation of open space or urban separator areas at the edge of the proposed UGB expansion area.

- The following areas have been preliminarily identified as appropriate for potential future expansion of the UGB, subject to the Council making the findings set forth in the first two sections of Exception III above. The list is not intended to be exclusive.
  - East of Lakeville Highway in the vicinity South of Frates Road; or – West of Old Redwood Highway near Denman Road/Orchard Lane; or
  - The Haystack Landing area along Petaluma Boulevard South; or
  - Northeast corner of Corona Road and railroad tracks, north of Sonoma Mountain Parkway intersection.

Exception IV - Agriculture, Agriculture Support or Related Development: The City Council may amend the Urban Growth Boundary if it finds, by at least a six-sevenths vote and based on substantial evidence in the record, that the lands to be included within the UGB will be used for an agricultural or agricultural support use. Agricultural Support Use shall mean an industrial, manufacturing or mixed use project which is determined by the City to support the regional agricultural community and economy and is dependent on municipal services to exist. Such agricultural or agricultural support use amendments may be adopted only if the City Council makes all of the following findings: That there is no existing agricultural or compatible light industrial designated land available within the UGB to accommodate the proposed development and it is not reasonably feasible to accommodate the proposed development by designating lands within the UGB for agricultural or agricultural support uses; and

- That the Fire Department, Police Department, Department of Public Works, the Planning Department, Parks and Recreation Department, the School District(s), and other relevant City departments and public agencies have adequate capacity to accommodate the proposed development and provide it with adequate public services; and
- That the land to be included (a) is immediately adjacent to the existing UGB, and (b) (serviceable water and sewer connections can be provided; and
- That the land to be included meets the intent of the General Plan pertaining to the preservation of open space or urban separator areas at the edge of the proposed UGB expansion area.

Prior to adopting any General Plan amendment pursuant to Exceptions I, II, III, or IV of this Policy 1-P-32, the City Council shall hold at least one noticed public hearing for the purpose of receiving testimony and sufficient evidence from the applicant and the public on the proposed amendment and any findings proposed in connection with such amendment. This hearing shall be in addition to any other public hearings regularly required for a General Plan amendment.

Policy 1-P-35: Growth shall be contained within the boundaries of the Urban Growth Boundary. The necessary infrastructure for growth will be provided within the Urban Growth Boundary.

Policy 1-P-36: For properties adjoining the Urban Growth Boundary, it is the intent of the City that projects developed in the City or requesting City services shall be of limited density (as shown on the General Plan Land Use Map), unless greater density is required to satisfy the requirements of state housing laws, and shall be designed to preserve the visual and physical openness and preserve the aesthetic and natural features of that portion of the property proximate to the rural areas outside of the designated Urban Growth Boundary

Goal 1-G-5: Petaluma River. Develop land uses in proximity to the Petaluma River that insure the restoration of the natural River corridor, provide for adequate storm flow capacities, and enable public access and stewardship.

Policy 1-P-43: Development shall incorporate the River as a major design focal point, orienting buildings and activities toward the River and providing water access, to the extent deemed feasible.

Policy 1-P-45: Development along the River shall include the creation and maintenance, in perpetuity, of public access sites. Amenities provided may include ramps, steps, docks or other means of access to the water.

Goal 1-G-6: Growth Management. Maintain a residential growth management system to ensure public infrastructure keeps pace with growth.

Policy 1-P-47: Ensure that the pace of growth does not create spikes that unduly strain City services.

Policy 1-P-48: Ensure all new development provides necessary public facilities to support the development

Chapter 2, Community Design, Character, and Green Building of the 2025 General Plan contains the following goals and policies applicable to the planning subareas (City of Petaluma 2008):

GOAL 2-G-3: Downtown. Advance Downtown Petaluma as a focus of civic and cultural activity in the community, retain a strong pedestrian orientation and scale, preserve and enhance buildings of historic and architectural importance.

GOAL 2-G-4: Washington Corridor. Encourage the evolution of land uses to create a corridor of mixed-use development.

GOAL 2-G-5: Lakeville Highway. Enhance the connectivity across and between all land uses along the Lakeville Highway to minimize the barrier it creates by presence, design and vehicular speed.

GOAL 2-G-6: Payran-McKinley. Maintain and develop the area with a diverse range of residential densities appropriate to the character of this central urban neighborhood while enhancing the creek corridors.

GOAL 2-G-7: Petaluma Boulevard South. Create a strong sense of entry into the community and provide a transition from the highway to the Central Petaluma Specific Plan area.

GOAL 2-G-8: North of Cinnabar Avenue. Maintain the rural character of the entry roadway with large median trees and significant building setbacks along Petaluma Boulevard North.

GOAL 2-G-9: South of Cinnabar Avenue. Create a transition from the northern rural gateway to Downtown.

GOAL 2-G-11: West Hills. Reinforce the existing rural character and densities of the hillside neighborhoods.

GOAL 2-G-12: South Hills. Reinforce the existing natural character of the hillside neighborhoods, preserving topography and ridgelines.

GOAL 2-G-13: Washington Core: Strengthen the connection between Downtown and the Washington Core sub-area.

GOAL 2-G-14: North McDowell Boulevard. Recognize the complex demands upon the Boulevard and enhance the function and aesthetic value it could provide to the community.

GOAL 2-G-15: North East. Maintain the rich mix of residential densities, commercial opportunities, educational facilities, and natural and public amenities.

GOAL 2-G-16: South East. Encourage the enhancement of older neighborhoods through development of improved streetscapes, trail connections, and introduction of new neighborhood compatible uses.

GOAL 2-G-17: West. Preserve the density, scale, architectural quality and character of existing neighborhoods while allowing intensification of Downtown's unique mix of uses.

River Access and Enhancement Plan

The Petaluma River Access and Enhancement Plan (River Plan) was adopted in May 1996 and describes the City's vision for the Petaluma River, including its riverfront uses, activities, and developments. The River Plan area includes the Petaluma River, its banks, and all properties that either directly abut the river or are near enough to be affected by provisions of the River Plan (City of Petaluma 1996).

SmartCode

The SmartCode is the implementing regulation for the CPSP which envisions Central Petaluma as a pedestrian-friendly urban area with streets, plazas, squares, and riverfront walks surrounding the Petaluma River. The SmartCode allows multi-story mixed-use buildings in most areas, in which residential uses are allowed on upper floors of most buildings, and a wide range of commercial enterprises are allowed on the ground floors of most buildings. The SmartCode includes guidelines for building function standards; urban standards; thoroughfare standards; parking standards and procedures; and historic resource conservation and preservation (City of Petaluma 2026b). As noted above, the current General Plan excepts areas in the CPSP from the maximum density of 30 dwelling

unit per acre, and there is no maximum density in the SmartCode. Instead, density is managed through restrictions on building height, form, and massing.

Petaluma SMART Rail Station Areas: TOD Master Plan

The City adopted the Petaluma SMART Rail Station Areas: TOD Master Plan on June 17, 2013. The Station Area Master Plan aims to increase public transit ridership by maximizing the potential for transit-oriented development around the Downtown Petaluma Station and the Petaluma North (Corona Road) Station (City of Petaluma 2013).

Petaluma North SMART Station Specific Plan

The City is currently preparing the Petaluma North SMART Station Specific Plan aimed at enhancing connectivity, sustainability, and community living around the Petaluma North SMART Station and throughout the North McDowell Boulevard corridor (City of Petaluma 2026a).

Petaluma Blueprint for Climate Action

The Petaluma Blueprint for Climate Action was adopted by the Petaluma City Council on November 4, 2024 as the City's near-term, implementation-focused roadmap for reducing greenhouse gas emissions and advancing toward its carbon neutrality goal. The Blueprint establishes 33 cornerstone actions and seven topical action plans which cover clean energy, buildings, transportation and land use, resource consumption, water, sequestration, and municipal operations. The Blueprint could achieve an estimated 61 percent reduction in communitywide emissions over approximately 5–10 years and was adopted following extensive technical analysis, community engagement, and review by both the Climate Action Commission and Planning Commission.

The City determined that adoption of the Blueprint was categorically exempt from CEQA under Class 7 (Protection of Natural Resources) and Class 8 (Protection of the Environment) because its policies and programs advance environmental protection and greenhouse gas reduction objectives. However, while the Blueprint serves as a critical policy document and climate action strategy, it does not currently meet the criteria for a "qualified" Climate Action Plan under *CEQA Guidelines* Section 15183.5, and therefore cannot yet be used to streamline or tier environmental review for future projects. The Blueprint is expected to evolve into a fully qualified ("certified") Climate Action Plan that can be used for CEQA tiering and GHG analysis in the future. See Section 4.7, *Greenhouse Gas Emissions*, for more information.

Implementing Zoning Ordinance

The Implementing Zoning Ordinance (IZO) is the primary tool used to implement a City's general plan. A major difference between a general plan and the IZO is that the General Plan provides general guidance on the location, type, and density of new growth and development over the long term within the Urban Growth Boundary and the City limits, while the IZO is a regulatory document incorporated into the City's Municipal Code which regulates development and land use for each parcel of land in the City limits and implements the policies and standards set forth in the General Plan through enforceable requirements. The IZO divides the community into 19 zoning districts, two flexible designations, and six overlay zones and combining districts and specifies the uses that are permitted, conditionally permitted, and in some instances, which uses are specifically prohibited within each district.

The IZO consists of the text ordinance and a zoning map delineating zoning districts which can be categorized into residential, commercial, industrial, public facilities, and open space. The IZO establishes special regulations for historic preservation, floodplains, floodway, hillside development, objective design and development standards for qualifying residential development, and other specific concerns. For each of the zoning districts, the IZO includes an explanation of the purpose of the zoning district; a list of principals permitted and conditionally permitted uses; and standards for minimum lot size, height, lot coverage, setbacks, and parking. The IZO includes specific land use standards for specific types of discretionary uses. The IZO regulates the procedures for processing permit applications, appeals, and public noticing for planning entitlements.

Petaluma Zoning Districts

The IZO includes 19 zoning districts, two flexible designations, and six overlay zones and combining districts . Each zoning district has developed standards that are designed to protect and promote the health, safety, and general welfare of the community and to implement the policies of the General Plan 2025.

The 19 zoning districts, two flexible designations, and six overlay zones and combining districts established by the Petaluma Implementing Zoning Ordinance and their corresponding General Plan 2025 land use designations are:

- **Residential Zones**
  - RR - Rural Residential
  - R1 – Residential 1 (Very Low Density Residential)
  - R2 – Residential 2 (Low Density Residential)
  - R3 – Residential 3 (Diverse Low Density Residential)
  - R4 – Residential 4 (Medium Density Residential)
  - R5 – Residential 5 (High Density Residential)
  - MH – Mobile Home (Mobile Home)
- **Agriculture, Open Space, and Natural Areas**
  - OSP – Open Space and Parks (Open Space and Parks)
  - AG – Agriculture (Agriculture)
  - Floodway
- **Mixed Use Zones and Commercial Districts**
  - C1 – Commercial 1 (Neighborhood Commercial)
  - C2 – Commercial 2 (Community Commercial)
  - MU1A – Mixed Use 1A (Mixed Use)
  - MU1B – Mixed Use 1B (Mixed Use)
  - MU1C – Mixed Use 1C (Mixed Use)
  - MU2 – Mixed Use 2 (Mixed Use)
- **Business, Industrial and Other Special Districts**
  - BP – Business Park District (Business Park)
  - I – Industrial District (Industrial)

- **Civic**
  - CF – Civic Facility (Public/Semi-Public)
- **Flexible Designations**
  - PUD – Planned Unit District[2]
  - PCD – Planned Community District[3]
- **Overlay Zones & Combining Districts**
  - -FP – Floodplain (Floodplain)
  - -H – Historic
  - -T – Theater District
  - Senior Mobile Home Park
  - Downtown Housing and Economic Opportunity
  - Fairgrounds

Petaluma Municipal Code

Title 17 of the PMC outlines requirements for building and construction and adoption of California Codes pursuant to Section 50022.2 of the California Government Code.

Title 20 of the PMC outlines requirements for subdivisions. Section 20.04.030 states that the General Plan for the city shall guide the use of all land within the corporate boundaries of the city, and that all subdivisions shall conform to the land uses shown and the standards established in the general plan, the zoning ordinance; and any precise plans designed for the area.

4.10.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

The analysis in this section focuses on the compatibility of land uses identified in the General Plan with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating environmental impacts. This section also analyzes whether development facilitated by the proposed project, or its policies would physically divide communities.

[2] The PUD is regulated by Chapter 19 of the IZO. The PUD is designed to allow a mixture of uses, or unusual density, building intensity, or design characteristics which would not normally be permitted in a single use district, and to govern the development of residential projects subject to the Residential Development Control System, Chapter 17.26 of the Petaluma Municipal Code. Development in this zone is allowable only after the approval by the City Council of a complete Unit Development Plan showing the internal design of the District, the interrelationship of uses, and their relation to the surrounding area.

[3] The PCD is regulated by Chapter 19 of the IZO. The PCD was originally designed to allow non-residential development with a mixture of uses, or unusual building density or layout, or with design characteristics which would not normally be permitted in a single commercial or industrial zoning district and which would achieve unique and innovative community design superior to that which would otherwise be allowed by applicable standards, as well as to provide long range planning for large tracts of land at the developing fringe of the City's urban area. Development was allowed in accordance with adopted regulations applicable to each individual PCD. The creation of new PCDs is no longer adopted regulations applicable to each individual PCD. The creation of new PCDs is no longer permitted but the historic use and continued growth and evolution of PCDs, existing as of May 19, 2008, is supported by these regulations.

Significance Thresholds

Based on Appendix G of the *CEQA Guidelines* a project may be deemed to have a significant impact on land use and planning if it would:

1. Physically divide an established community; or
2. 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.

b. Impacts and Mitigation Measures

Threshold 1:	Would the project physically divide an established community?

Impact LUP-1 IMPLEMENTATION OF THE PROPOSED PROJECT WOULD NOT PHYSICALLY DIVIDE AN ESTABLISHED COMMUNITY. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Most of the land in the plan area is currently developed. Under buildout of the proposed project, an estimated 6,449 new housing units would be added to the City of Petaluma through 2050, leading to an increase of approximately 16,445 new residents in the city. Development proposed under the proposed project would intensify some of the existing employment-generating land uses and add approximately 1,414,741 new square feet of non-residential uses.

Short-term construction impacts would be constrained within the sites themselves; however, off-site improvements for utilities or transportation infrastructure would likely be required (refer to Section 4.13, *Transportation*, and Section 4.14, *Utilities and Service Systems*) for future development under the General Plan Update. Potential off-site improvements would be constructed within roadway rights-of-way and would not block access between existing communities. Therefore, existing roadways would not be blocked, and construction would not limit access to a community or restrict movement within a community.

Petaluma is characterized by its neighborhood-oriented design and proximity to open space. The General Plan Update reinforces this character by establishing land use designations that define the type and intensity of allowable uses throughout the plan area. Each designation includes specific density and intensity standards to guide development and ensure compatibility with surrounding uses. The proposed project also directs growth within the City's UGB and SOI, helping preserve surrounding open space and natural resources. Furthermore, the proposed project contains goals and policies which relate to the physical structure, management, and appearance of the built environment.

The Land Use Element of the proposed 2050 General Plan contains the following policies which would promote orderly development, protect community character, and prevent physical division of established neighborhoods:

> **Policy LU-1.1: Only build within the Urban Growth Boundary**. It is the policy of the City to build within the agreed upon Urban Growth Boundary. No urban development shall be permitted beyond the Urban Growth Boundary. "Urban development" shall mean development requiring one or more basic municipal services including, but not limited to, water service, sewer, improved storm drainage facilities, fire hydrants and other physical public facilities and services; but shall not mean providing municipal or public services to open space uses, public or quasi-public uses such as schools or public safety facilities. Said

municipal or public services or facilities can be developed beyond the UGB to provide services within the UGB.

Policy LU-1.6: Show the Urban Growth Boundary on the Land Use Map. The Urban Growth Boundary shall coincide with the line shown on the official General Plan Land Use Map through December 31, 2050.

Policy LU-1.8: Develop properties adjoining the Urban Growth Boundary consistent with the Land Use Map. For properties adjoining the Urban Growth Boundary, it is the intent of the City that projects developed in the City or requesting City services shall be of appropriate density (as shown on the General Plan Land Use Map), unless greater density is required to satisfy the requirements of state housing laws, and shall be designed to preserve the visual and physical openness and preserve the aesthetic and natural features of that portion of the property proximate to the rural areas outside of the designated Urban Growth Boundary.

Policy LU-3.1: Facilitate infill development. Facilitate infill urban development at densities and intensities depicted on the Land Use Map (see Policies 1.3 and 2.4 in the adopted Housing Element).

These policies would maintain existing communities in the City of Petaluma and would ensure that established communities would not be divided. Policy LU-1.1 concentrates development within the UGB in order to encourage a cohesive pattern of urbanization and promote efficient and orderly growth patterns; Policy LU-1.6 reinforces the UGB by coinciding it with the General Plan Land Use Map; Policy LU-1.8 ensures properties adjoining the UGB are developed consistent with the General Plan Land Use Map and the density and/or intensity of allowed uses; and Policy LU-3.1 facilitates infill development consistent with the General Plan Land Use Map and the density and/or intensity of allowed uses.

Additionally, the Transportation Element of the proposed 2050 General Plan contains the following policies which would promote infill and higher density development within transit corridors and increase connectivity:

Policy TP-1.1: Develop a reliable and connected transportation network that fulfills the City's Vision. Develop a reliable and connected transportation network with a hierarchy of modal priorities for roadways so that moving around Petaluma can simply become more enjoyable, efficient, safer, and fun

Policy TP-1.2: Leverage Opportunities Along the Petaluma River. Preserve and expand transportation and community development initiatives that leverage the Petaluma River as a unique transportation corridor for commercial, public safety, and recreational use.

Policy TP-3.2: Establish Seamless Multimodal Connections. Establish seamless connections between modal networks so users have access to abundant low carbon travel options that meet their unique needs.

Policy TP-3.3: Connect East and West Petaluma. Physically and psychologically integrate and connect East and West Petaluma through frequent, safe, and comfortable connections across U.S. 101, SMART, and the Petaluma River for all travelers.

Policy TP-3.4: Create a Low-Stress Walking and Bicycling Network. Create and maintain a safe, low stress, comprehensive, and integrated bicycle and pedestrian system throughout Petaluma that encourages bicycling and walking and is accessible to all

Policy TP-5.1: Integrate Development and Transportation Policies. Ensure land use and transportation policies work in concert with one another to incentivize compact, accessible, livable, and sustainable development that supports a high quality of life and vibrant economy.

Policy TP-5.2: Align Land Use and Building Codes with Modal Priorities. Revise land use and building codes, and related planning, permitting, application, and project processing steps, to orient building and privately owned public space design to reflect the City's modal priorities and safe, equitable, inclusive mobility framework, and Complete Streets design standards.

These policies would increase connectivity and transit-oriented development in the City of Petaluma and would further ensure that established communities would not be divided. Policy TP-1.1 supports the development of a reliable and well-connected transportation network; Policy TP-1.2 envisions the expansion of Petaluma as a regional transportation corridor; Policy TP-3.2 advances seamless multimodal connections; Policy TP-3.3 seeks to better connect East and West Petaluma; Policy TP-5.1 promotes integration of land use and transportation planning; and Policy TP-5.2 revises land use codes and standards to better align with the City's modal priorities.

Overall, the proposed project would promote connectivity in future development in the plan area and the UGB boundary by encouraging growth in designated focused areas and providing guidelines for each land use designation. New residential units facilitated by the proposed project would be located within the plan area and the UGB and would not physically divide an existing community. Additionally, the proposed project does not include circulation changes, such as major roads or other facilities that would physically divide an established community. Therefore, the proposed project would not physically divide the City of Petaluma. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2:	Would the project 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?

Impact LUP-2 IMPLEMENTATION OF THE PROPOSED PROJECT WOULD BE CONSISTENT WITH APPLICABLE LAND USE PLANS, POLICIES, OR REGULATIONS ADOPTED TO AVOID OR MITIGATE ENVIRONMENTAL EFFECTS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Several regionally and locally adopted land use plans, policies, and regulations apply to the proposed project. These include Plan Bay Area 2050 (ABAG/MTC 2021) and the Bay Area Air District's 2017 Clean Air Plan (Bay Area Air District 2017). The proposed 2050 General Plan was not analyzed for consistency with the current 2025 General Plan, with the exception of the Housing Element, as the proposed project would update the 2025 General Plan. Consistency of the proposed project with the 2017 Clean Air Plan are discussed under Impact AQ-1 of Section 4.2, *Air Quality*. Impact GHG-2 of Section 4.7, *Greenhouse Gas Emissions*, addresses the proposed projects

consistency with goals in the Plan Bay Area 2050, including some goals related to land use. Additionally, land use goals not included in Section 4.7, *Greenhouse Gas Emissions*, are addressed below in Table 4.10-2.

Table 4.10-2 Project Consistency with Plan Bay Area 2050 Goals

Plan Bay Area Goals	Project Consistency
Housing Strategies	
H7. Provide targeted mortgage, rental and small business assistance to Equity Priority Communities. Provide assistance to low-income communities and communities of color to address the legacy of exclusion and predatory lending, while helping to grow locally owned businesses.	**Consistent.** Petaluma includes eight Equity Priority Areas, mainly located within the northeastern, central, and northwestern portions of the city. The Health, Equity, and Environmental Justice Element of the General Plan Update includes provisions for providing assistance to low-income communities. Goal HEEJ-1 and associated policies aim to improve public health for residents of Equity Priority Areas; Goal HEEJ-4 and associated policies intend to equitably provide public services and facilities throughout the city; Goal HEEJ-5 and associated policies aim to reduce food insecurity among low-income residents and older adults; and Goal HEEJ-6 aim to provide safe and sanitary housing and shelter to low-income residents. Therefore, the proposed project would be consistent with this goal.
H8. Accelerate reuse of public and community-owned land for mixed-income housing and essential services. Help public agencies, community land trusts and other non-profit landowners accelerate the development of mixed-income affordable housing.	**Consistent.** Future development under the General Plan Update would be required to comply with Goal 1 of the City's 2023-2031 Housing Element and associated policies, which encourages a variety of housing types including mixed-use and affordable housing and the development of ADUs and JADUs as affordable housing resources; and Goal 3 of the City's 2023-2031 Housing Element and associated policies, which promotes the development and preservation of affordable housing. Therefore, the proposed project would be consistent with this goal.
Economic Strategies	
EC5. Provide incentives to employers to shift jobs to housing-rich areas well served by transit. Provide subsidies to encourage employers to relocate offices to housing-rich areas near regional rail stations.	**Consistent.** The Economic Development Element of the proposed project includes Policy ED-5.1, which aims to concentrate development near SMART stations to encourage job access, business attraction, and business retention; Policy ED-5.2. which intends to enhance multimodal transportation connections between employment centers and SMART stations or major bus stops and between residential communities and employment and business destinations; and Policy ED-5.3, which continues to encourage the development and intensification of industrial sites near Highway 101. Additionally, the Transportation Element of the proposed project includes Policy TP-5.1, which prioritizes new and infill development along existing transit corridors; and Policy TP-5.3, which aims to implement TDM strategies to encourage and create incentives for the use of alternative transportation. These policies would encourage employers to shift jobs to existing housing-rich areas in Petaluma, consistent with this strategy.
Transportation Strategies	
T2. Support community-led transportation enhancements in Equity Priority Communities. Provide direct funding to historically marginalized communities for locally identified transportation needs.	**Consistent.** Goal TP-3 of the Transportation Element of the proposed project aims to provide equitable access to transportation for all residents. Specifically, Policy TP-3.1 intends to adopt an inclusive mobility framework to ensure all residents have access to safe, affordable, and reliable transportation; Policy TP-3.3 aims to connect east and west Petaluma through connections across US 101, SMART, and the Petaluma River; Policy TP-3.4 prioritizes an integrated bicycle and pedestrian system throughout the city that encourages biking and walking and is accessible to all; and Policy TP-3.5 aims to expand fixed-route transit networks and provide equitable mobility options for all residents. Therefore, the proposed project would be consistent with this goal.

Source: ABAG/MTC 2021

While not subject to the County's General Plan, the proposed project supports policies in the Sonoma County General Plan 2020, as shown in Table 4.10-3.

Table 4.10-3 Project Support of the Sonoma County General Plan 2020

Sonoma County General Plan Policies	Project Support
Land Use (LU) Element	
LU-1h. Evaluate Land Use Plan amendments subject to: 1) constraints of environmental suitability, 2) protection of agriculture, 3) availability of public services, 4) the County projected population and employment levels, 5) the need for workforce housing, and 6) other plan goals, objectives, and policies.	**Supportive.** The proposed project includes goals and policies that discourage city-sponsored growth beyond the UGB and support the County's ability to implement its General Plan Policy LU-1h. These include: Policy 1.1 of the Housing Element, which promotes residential development within the UGB; Policy FAC-1.1 of the Public Facilities Element of the General Plan Update, which updates, expands, relocates, or replaces public facilities to efficiently meet the future needs of the community; and Policy TP-5.1 of the Transportation Element of the General Plan Update, which prioritizes new and infill development within the UGB along existing transit corridors.
LU-2b. Evaluate all public or private projects within the cities and contiguous counties that could affect the unincorporated area for consistency with General Plan 2020. Inform the Board of any project that may be inconsistent with General Plan 2020. Work with the applicable city to resolve any inconsistencies in a manner that is consistent with General Plan 2020.	**Supportive.** Policy 1.1 of the Housing Element promotes residential development within the UGB and the General Plan Update does not envision projects that could affect the unincorporated area for consistency with the Sonoma County General Plan 2020.
LU-5e. Avoid amendment to increase residential density in Community Separators, since these densities were established based upon the policies set forth in other elements of this plan as well as the open space, separation and visual considerations of this section. The integrity of Community Separators cannot be maintained at densities in excess of one unit per ten acres. However, under no circumstances shall this policy by used to justify an increase in density from that designated on the Land Use Map	**Not Applicable.** The proposed project does not propose any land use changes in the Community Separators, which are outside of the City's UGB.
Agricultural Resource (AR) Element	
AR-2b. Prepare a written report to the Local Agency Formation Commission (LAFCO) regarding the consistency with the General Plan of any proposed changes in the SOI or other urban boundaries for governmental entities that provide water or sewer services.	**Not Applicable.** The proposed project does not propose to change the City's SOI or urban boundary.
AR-2c. Encourage LAFCO to consider the impacts of annexations on nearby agricultural lands, and to avoid expansion of spheres of influence or annexations onto agricultural lands outside of the designated Urban Service Areas.	**Not Applicable.** The proposed project does not propose annexations of agricultural land outside of the City's SOI or UGB.

Source: Sonoma County 2008

Table 4.10-4 Project Consistency with the Petaluma Blueprint for Climate Action

Blueprint Policies	Project Consistency
Transportation and Land Use Coordination Strategy	
TLUC-1: General Plan Update. By 2027, adopt the updated General Plan that defines transit- oriented communities, complete 15-minute neighborhoods, and incremental infill within the City's existing residential neighborhoods.	**Consistent.** The proposed project is consistent with Policy TLUC-1 because the project itself is the General Plan Update that establishes the framework for transit-oriented communities, complete 15-minute neighborhoods, and incremental infill throughout Petaluma. The Land Use Element includes numerous goals and policies that define and advance these concepts, including Goal LU-3, which focuses future development within the City's boundaries and prioritizes infill development; Goal LU-4, which prioritizes development near transit consistent with transit-oriented community principles; and Chapter 2: 15-Minute City, including Goal LU-6, which calls for all residents to live within a 15-minute walk of activity centers and provides detailed policies for creating and enhancing these centers. Together, these policies and supporting actions explicitly define and promote 15-minute neighborhoods, transit-oriented development patterns around existing and future SMART stations, and infill housing opportunities consistent with TLUC-1. Therefore, the proposed project would be consistent with this goal.
TLUC-3: Development streamlining. By 2027, streamline development consistent with City's vision for carbon neutrality through zoning, permitting, and approval processes.	**Consistent.** The City's General Plan establishes a strong policy foundation that encourages infill development and supports the creation of 15-minute neighborhoods, where residents can access daily needs within a short walk, bike ride, or transit trip. Building on this policy direction, the City may consider a range of implementation actions to further these objectives, such as establishing Housing Sustainability Districts to streamline housing production on infill sites near high-quality transit; creating additional zoning-code incentives to facilitate affordable housing in transit-oriented communities; and establishing new approval and permitting streamlining processes for housing that exceeds inclusionary and sustainability requirements. Therefore, the proposed project would be consistent with this goal.
TLUC-4: General Plan implementation. By 2026, begin program implementation for the General Plan.	**Consistent.** The proposed project would allow for the implementation of General Plan policies in 2026 that encourage 15-minute neighborhoods, supporting the development of ADUs, and undertake mobility assessments to refine MTC recommendation with the General Plan Land Use Map and Mobility Framework. Therefore, the proposed project would be consistent with this goal.

The Land Use Element of the 2050 General Plan contains the following goals and policies, which would ensure new development is consistent with the City's Housing Element, City's Blueprint for Climate Action, CPSP, and Petaluma SMART Rail Station Areas TOD Master Plan:

> **Policy LU-1.1: Only build within the Urban Growth Boundary.** It is the policy of the City to build within the agreed upon Urban Growth Boundary. No urban development shall be permitted beyond the Urban Growth Boundary. "Urban development" shall mean development requiring one or more basic municipal services including, but not limited to, water service, sewer, improved storm drainage facilities, fire hydrants and other physical public facilities and services; but shall not mean providing municipal or public services to open space uses, public or quasi-public uses such as schools or public safety facilities. Said municipal or public services or facilities can be developed beyond the UGB to provide services within the UGB.
>
> **Policy LU-1.2: Only provide City services within the Urban Growth Boundary.** No urban development beyond the Urban Growth Boundary shall be served by City services except for (1) extensions to residential dwellings in existence or approved for construction on parcels created on or before December 5, 1983; (2) extensions required pursuant to the terms of a

service contract in effect as of July 20, 1998; (3) extensions to remedy a clear health hazard to residential dwellings in existence or approved for construction on parcels created on or before July 20, 1998 where there is no reasonable alternative means to remedy that health hazard; (4) extensions to open space and park uses; (5) expansion of service to public and quasi- public uses existing as of July 20, 1998; and (6) extraordinary circumstances pursuant to applicable General Plan policies. Extraordinary circumstances justifying extension of City services outside of the UGB shall be deemed to exist only if the City Council makes each of the following findings based on substantial evidence in the record:

- That the land use to which the City service would be extended is consistent with all applicable policies of the City's General Plan; and
- That the land use to which the City service would be extended is compatible with open space uses as defined in Government Code section 65560 as of July 1, 1998, does not interfere with accepted agricultural practices, and does not adversely affect the stability of land use patterns in the area; and
- That the property to which the City service would be extended is immediately adjacent to land already served by the service(s)to be extended; and
- Those specific circumstances, unique to the property to which the City service would be extended, would otherwise deprive the property of privileges enjoyed by other comparable property outside the UGB and in the vicinity of the property to be served; and
- That substantial evidence demonstrates that the proposed City service extension will not cause the Levels of Service specified in adopted City policies to be exceeded with respect to water, wastewater, parks, fire services, police services, storm drainage, schools, traffic and other public facilities and services.

Policy LU-1.7: Provide infrastructure for growth within the Urban Growth Boundary. Growth shall be contained within the boundaries of the Urban Growth Boundary. The necessary infrastructure for growth will be provided within the Urban Growth Boundary.

Policy LU-1.8: Develop properties adjoining the Urban Growth Boundary consistent with the Land Use Map. For properties adjoining the Urban Growth Boundary, it is the intent of the City that projects developed in the City or requesting City services shall be of appropriate density (as shown on the General Plan Land Use Map), unless greater density is required to satisfy the requirements of state housing laws, and shall be designed to preserve the visual and physical openness and preserve the aesthetic and natural features of that portion of the property proximate to the rural areas outside of the designated Urban Growth Boundary.

Policy LU-3.1: Facilitate infill development. Facilitate infill urban development at densities and intensities depicted on the Land Use Map (see Policies 1.3 and 2.4 in the adopted Housing Element).

Policy LU-3.2: Facilitate higher density housing development. Encourage the efficient use of higher density residential and mixed-use land by facilitating development at the upper end of the density range (see Policy 1.5 in the Housing Element).

Policy LU-3.3: Facilitate mixed-use development. Facilitate mixed-use development as depicted on the Land Use Map, with a focus on creating strong, financially sustainable business districts, 15-minute activity centers (see Chapter 2: 15-Minute City), and walkable neighborhoods (see Policies 1.7 and 2.1 in the adopted Housing Element).

Policy LU-3.4: Allow flexibility in building form and use. To allow for innovation and the ability to adapt buildings over time, allow flexibility in building form and uses in mixed-use areas as depicted on the Land Use Map (see Policy 1.4 and Program 5 in the adopted Housing Element).

Policy LU-4.1: Update Specific Plans. Develop and periodically update Specific Plans around SMART stations.

Policy LU-6.2: Create or enhance Town and Neighborhood Centers. Create new or enhance existing Town and Neighborhood-serving Centers as convenient locations where community and/or economic activity is focused.

Policy LU-6.3: Facilitate the redevelopment of regional shopping centers into Town Centers. Facilitate the redevelopment of existing regional shopping centers into Town Centers. (see Program 9 in the adopted Housing Element)

Policy LU-6.4: Facilitate the redevelopment of neighborhood shopping centers. Facilitate the redevelopment of existing neighborhood shopping centers into Neighborhood Centers. (see Program 9 in the adopted Housing Element)

Policy LU-6.6: Activate community parks and mini-centers. Activate community parks and mini-centers. (see related strategies in AC-3.1.4 of the Public Draft Arts, Culture, and Creativity Policy Framework)

Policy LU-7.1: Expedite ADU construction. Continue to expedite the construction of accessory dwelling units (ADUs) on residential lots. (see Program 3 in the adopted Housing Element)

Policy LU-7.2: Facilitate the integration of duplexes, triplexes, and fourplexes into single-family residential zones. Facilitate small lot subdivisions and the development of duplexes, triplexes, and fourplexes in single-family residential zones.

Policy LU-7.3: Facilitate infill residential development. Facilitate new infill residential in predominantly single-family neighborhoods. (see Policies 1.7 and 6.4 in the adopted Housing Element)

Policy LU-8.1: Integrate commercial uses into neighborhoods. Integrate more neighborhood-scale commercial into residential neighborhoods.

As shown above, the General Plan Update includes goals and policies that guide new development to remain consistent with existing land use plans and the recently adopted Housing Element. It also supports the preservation of essential resources, including water, agricultural lands, and mineral deposits, as well as recreational and cultural assets such as parks, trails, historic sites, scenic areas, and designated scenic highways. These objectives are achieved through new policies outlined in the General Plan Update and encouraging infill development on underutilized parcels within urban areas. The proposed project would also include updates to the City's IZO to ensure alignment with the General Plan Update, which would ensure that the proposed project would not conflict with the Petaluma Zoning Ordinance. Therefore, this impact would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.10.4 Cumulative Impacts

The geographic scope of the cumulative land use and planning analysis is the County of Sonoma. This geographic scope is appropriate because the county limits represent the planning area for incorporated cities, including Petaluma and adjacent cities, and unincorporated county lands. The cumulative analysis considers the nearby past, present, and reasonably foreseeable future projects listed in Table 3-1 (refer to Section 3, *Environmental Setting*).

Development facilitated by the proposed plan in conjunction with the cumulative plans and projects listed in Table 3-1 would result in the development of residential and non-residential uses. The cumulative plans and projects do not propose the type of large or linear construction that could reduce mobility within an existing community and the surrounding area and would occur in an urban environment. Therefore, the cumulative impact related to potential to divide an existing community would not be considerable and the project would not result in a considerable contribution to this cumulative impact.

Land use decisions for both the proposed plan and for the other cumulative plans and projects listed in Table 3-1 are made by the appropriate jurisdiction. Each jurisdiction would ensure that cumulative development is consistent with the applicable General Plan and Municipal Code, which ensures logical and orderly land use development and require discretionary review to ensure that projects do not result in land use environmental impacts due to inconsistency with the applicable General Plan and other regulations. As discussed under Impact LU-2, the General Plan Update would be consistent with applicable land use plans, policies, or regulations, including Plan Bay Area 2050, the Sonoma County General Plan, and the 2017 Clean Air Plan. Future development facilitated by the proposed project would be required to comply with the City's Municipal Code, IZO, and goals and policies in the General Plan Update. The General Plan Update would also support the City in meeting its Regional Housing Needs Allocation by facilitating the development of additional housing. For this reason, cumulative impacts would be less than significant and the project would not result in a considerable contribution to this cumulative impact.

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4.11 Noise

This section addresses impacts associated with exposure to noise related to development facilitated by the proposed project including noise from construction and General Plan buildout operations.

4.11.1 Setting

a. Overview of Noise and Vibration

Noise

Sound is a vibration that transmits through a medium (such as a gas, liquid, or solid) 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 (Hz) and less sensitive to frequencies around and below 100 Hz (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 the doubling of vehicle traffic volumes, results in a noise level increase of 3 dB, whereas dividing the energy in half results in a 3 dB decrease (Crocker 2007).

Human perception of noise has no simple correlation with sound energy (i.e., the perception of sound is not linear in terms of dBA or in terms of sound energy). Two sources, each containing the same sound energy, do not "sound twice as loud" as one source. It is widely accepted that the average healthy human ear can detect changes (either increases or decreases) of 3 dBA, which is recognized as being barely perceptible to most people. Similarly, a change of 5 dBA is readily perceptible and a change of 10 dBA sounds twice (or half) as loud (Crocker 2007).

The level and frequency content of sound change as it travels from the source to a receiver. The most obvious change is the decrease in level as the distance from the source increases. The manner by which sound is reduced with distance depends on factors, such as the type of source (e.g., a point or line source), the path the sound travels, site conditions, and the presence of intervening structures or other obstacles. Noise from a point source (e.g., construction equipment, industrial machinery, ventilation units) typically is reduced at a rate of 6 dBA per each doubling of distance away from the source. Noise from a line source (e.g., roadway, pipeline, railroad) typically is reduced at a rate of 3 dBA per each doubling of distance away from the source (Caltrans 2013). The propagation of noise is also affected by the absorption characteristics of the ground: a hard site, such as a parking lot or smooth body of water, provides no absorption/attenuation and the changes in noise levels with distance result simply from the geometric spreading of the source (i.e., 3 or 6 dBA reduction per doubling of distance for a point source or line source, respectively). Conversely, a soft site, such as soft dirt, grass, or scattered bushes and trees, may provide additional absorption/attenuation, potentially reducing noise levels an additional 1.5 dBA per doubling of distance away from the source (Caltrans 2013). Noise levels may also be reduced by intervening

structures. The amount of reduction provided by the "shielding" of these features depends on the size of the structure/s, the location of the structure/s relative to the noise source and receivers, and the frequency content 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 between a noise source and receiver will provide at least a 5 dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2011). The presence of building structures can substantially reduce noise levels from the exterior to the interior as well. The FHWA's guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows.

Descriptors

The impact of noise is not a function of loudness alone. The time of day at which noise occurs and the duration of the noise are also important factors when considering potential noise impacts. Most noise that lasts for more than a few seconds is variable in its amplitude (i.e., the noise level continuously fluctuates over time). Consequently, a variety of noise descriptors have been developed. One of the most frequently used noise metrics is the equivalent continuous sound level (L_{eq}), which considers both duration and the sound power level of the source. 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. The extent of sound level fluctuations over a period of time is characterized by the minimum (L_{min}) and maximum (L_{max}) sound pressure levels, which represent the lowest and highest sound pressure levels measured during a given period, respectively.

The sound level that is exceeded "n" percent of time during a given sample period in the percentile noise level is represented as L_n. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum), and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

Noise that occurs at night tends to be more disturbing than noise that occurs during the day. Community noise is usually measured using the Day-Night Average Level (L_{dn}), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.). It is also measured using the Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a +5 dBA penalty for noise occurring during evening hours (7:00 p.m. to 10:00 p.m.) and a +10 dBA penalty for noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.) (Caltrans 2013). Noise levels described by the L_{dn} and CNEL usually differ by about 1 dBA. The relationship between the peak-hour L_{eq} value and the L_{dn}/CNEL depends on the distribution of traffic during the day, evening, and night.

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. The normal frequency range of most groundborne vibration that can be felt by the human body ranges between less than 1 Hz to 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as that from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz), or when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (Federal Transit Administration [FTA] 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concerns of vibration are that it can cause architectural damage to building structures (especially fragile/historic structures) and that it can be intrusive and annoying to building occupants.

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

b. Sensitive Receptors

Noise exposure goals for various land use types reflect the varying noise sensitivities associated with each use. The proposed General Plan identifies residential uses, schools, community buildings, parks/open space, and hospitals as noise-sensitive land uses within the City (City of Petaluma 2025).

c. Existing Noise Environment

Existing sources of noise in the Plan Area include roadway noise, stationary noise (such as industrial operations, mechanical equipment, loading docks, on-site truck movements, the Petaluma Fairgrounds Speedway, concerts, special events, and construction), railway noise, and airport noise. Railway noise is generated primarily by the Sonoma-Marin Area Rail Transit (SMART) line, which provides both passenger and freight service. There are two SMART stations located in the City of Petaluma: the Petaluma North Station (situated near the northwestern portion of the Plan Area and approximately 450 feet northeast of the intersection of Corona Road and North McDowell Boulevard) and the Petaluma Downtown Station (situated near the center of the Plan Area and approximately 230 feet northwest of the intersection of East D Street and Lakeville Street). Both stations operate approximately between 5:00 a.m. and 10:00 p.m. on weekdays and between 8:00 a.m. and 9:00 p.m. on weekdays and holidays. According to the Final Environmental Impact Report (FEIR) prepared for the SMART project (Sonoma-Marin Area Rail Transit District 2006), operational noise impacts evaluated for the entire rail corridor determined that noise impacts from train passbys would not extend beyond 100 feet from the tracks. Furthermore, the rail route within the City of Petaluma is designated as a Quiet Zones, which prohibits the use of horns at railroad crossings and further reduces noise generated by the SMART rail. Airport noise is generated by the Petaluma Municipal Airport, which is located at the northeastern extent of the City. Flight operations in and out of the airport generate noise in the immediate vicinity of the airport, but do not meaningfully contribute to noise generated throughout the City. The Petaluma Municipal Airport is a public-use airport used for general aviation operations, averaging between 60 and 140 daily arrivals and departures (FlightAware 2026). Noise contours associated with the Petaluma Municipal Airport are presented in Figure 4.11-1. Figure 4.11-2 shows the referral area boundary for

the airport, which is the area where safety restrictions apply, or where noise, safety, and airspace issues may affect land use compatibility.

While all of these sources contribute to the existing ambient noise environment, roadway noise is the main source of noise in the City. To characterize existing roadway noise levels throughout the City, traffic noise levels were calculated using a version of the FHWA traffic noise prediction model (FHWA-RD-77-108), which takes into account annual average daily traffic (AADT) volumes, roadway speeds, automobile and truck percentages, and time of day splits (daytime, evening, and nighttime). Existing traffic data provided by Fehr & Peers (F&P) was used in the traffic noise calculations (F&P 2025).

Following the above methodology, traffic noise contours were developed for each study area roadway segment. Existing traffic noise contours throughout the City are presented in Figure 4.11-3. Detailed traffic noise calculations, which include specific distances from roadway centerlines to various noise contours, are included as Appendix D.

Figure 4.11-1 Petaluma Municipal Airport Noise Contours

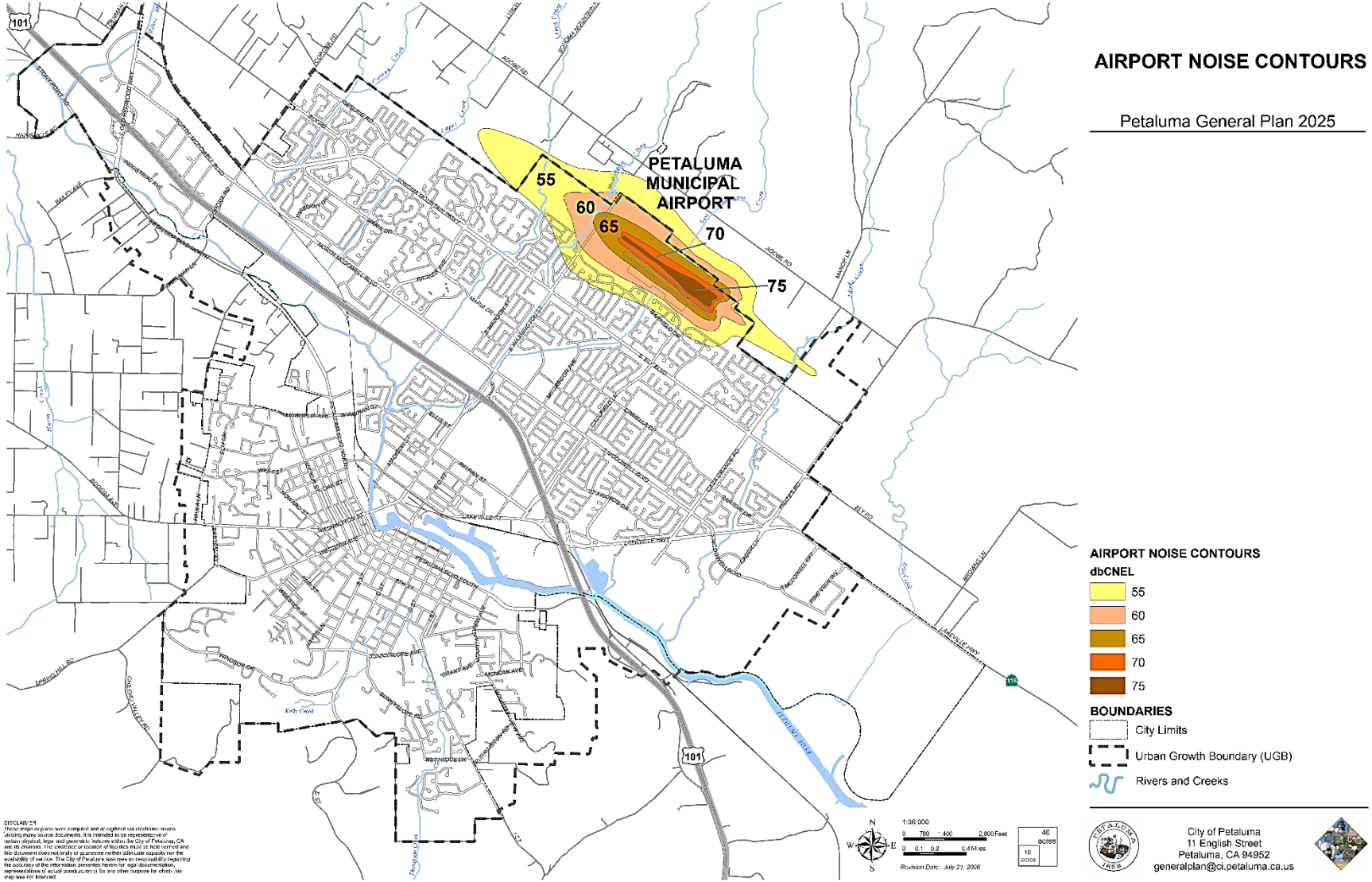
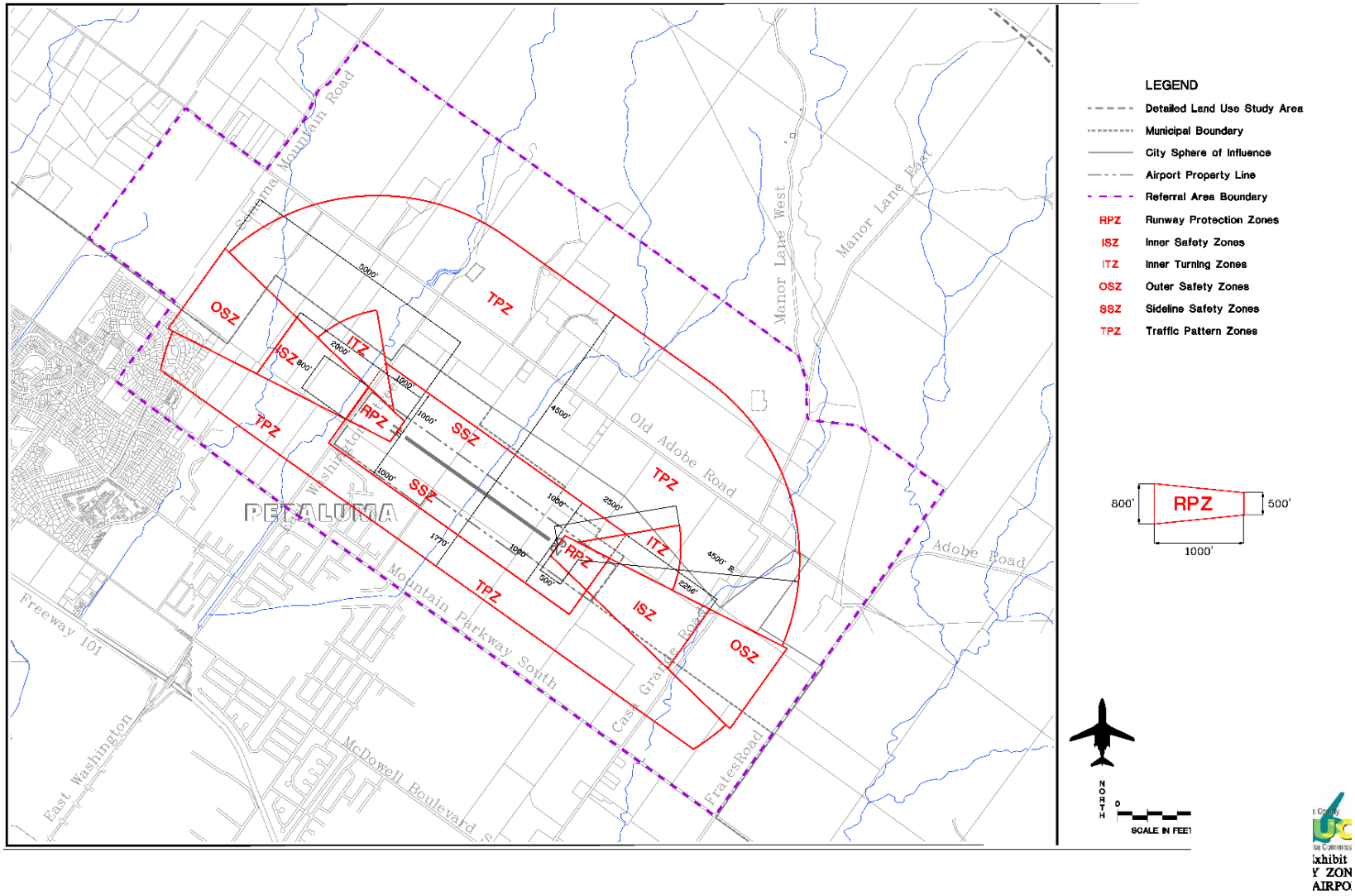
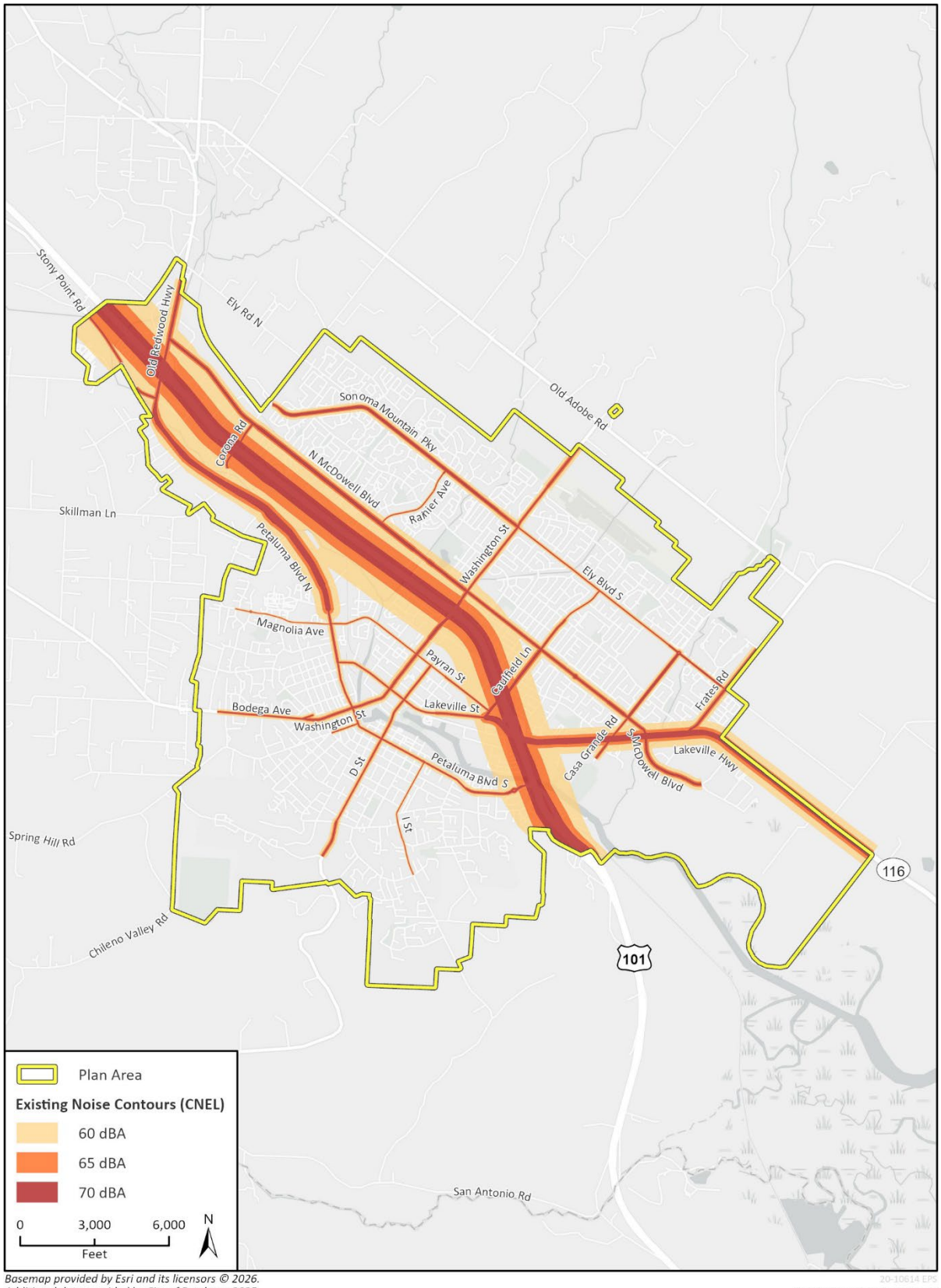


Figure 4.11-2 Petaluma Municipal Airport Safety Zones



Sonoma County Comprehensive Airport Land Use Compatibility Plan (County of Sonoma n.d.).

Figure 4.11-3 Existing Traffic Noise Contours



Basemap provided by Esri and its licensors © 2026.
Additional data provided by City of Petaluma 2025.

4.11.2 Regulatory Setting

The following sections describe federal, state, and local noise regulations applicable to the proposed project.

a. Federal Regulations

United States Department of Housing and Urban Development

The United States Department of Housing and Urban Development (HUD) has set exterior and interior noise goals in Title 24 of the Code of Federal Regulations, Part 51 (24 CFR Part 51). HUD specifies desirable maximum exterior and interior noise standards of 65 and 45 dBA DNL, respectively, for residential units developed under HUD funding. (These levels are also generally accepted by the State of California.). It is assumed that standard construction of residential dwellings typically provides a minimum exterior-to-interior noise reduction of 20 dBA with the windows closed.

b. State Regulations

California General Plan Guidelines

State law requires general plans to include a Noise Element under Government Code Section 65302(f). The California General Plan Guidelines, published by the Governor's Office of Planning and Research, indicate acceptable, specific land use types in areas with specific noise exposure. The guidelines also offer adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. These guidelines are advisory, and local jurisdictions have the authority to set specific noise standards based on local conditions.

California Building Code

The California Building Code is Title 24 of the California Code of Regulations. The 2025 California Building Code Part 2, Volume 1, Chapter 12, Section 1206.4, *Allowable interior noise levels*, requires that interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric is evaluated as either the L_{dn} or the CNEL, consistent with the noise element of the local general plan. The City adopts the California Building Code standards in Title 17 of the Petaluma Municipal Code.

California Building Code: California Green Building Standards Code

The State of California's noise insulation standards for nonresidential uses are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 11, California Green Building Standards Code. The California Green Building Standards Code noise standards are applied to new or renovation construction projects in California to control interior noise levels resulting from exterior noise sources. Proposed projects may use either the prescriptive method (Section 5.507.4.1) or the performance method (Section 5.507.4.2) to show compliance. Under the prescriptive method, a project must demonstrate transmission loss ratings for the wall and roof-ceiling assemblies and exterior windows when located within a noise environment of 65 dBA CNEL

or higher. Under the performance method, a project must demonstrate that interior noise levels do not exceed 50 dBA L_{eq}(1-hour).

California Vehicle Code

Division 12, Chapter 5, Article 2 of the California Vehicle Code contains regulations regarding mufflers and exhaust systems to reduce excessive and unusual noise generated by motor vehicles. According to the requirements of Article 2, every motor vehicle equipped with an internal combustion engine shall, at all times, be equipped with a properly maintained muffler in constant operation and prohibits the use of cutouts, bypasses, or similar devices.

Furthermore, Division 12, Chapter 5, Article 2.5 establishes specific noise limits for various types of motor vehicles depending on the gross vehicle weight and date of manufacture, with prescribed noise limits ranging between 80 and 88 dBA as measured at 50 feet from the longitudinal centerline of the vehicle when the engine is accelerated from idle.

California Assembly Bill 1307

California Assembly Bill 1307 (AB 1307), signed into law in September 2023, established that the noise generated by residents and their guests in residential projects is not a significant effect on the environment under CEQA.

c. Local Regulations

City of Petaluma General Plan

The Health and Safety Element of the City of Petaluma General Plan contains a policy relating to noise. The following policy is relevant to the project (City of Petaluma 2008).

> **Policy 10-P-3.** Protect public health and welfare by eliminating or minimizing the effects of existing noise problems, and by minimizing the increase of noise levels in the future.
>
> A. Continue efforts to incorporate noise considerations into land use planning decisions, and guide the location and design of transportation facilities to minimize the effects of noise on adjacent land uses.
> B. Discourage location of new noise-sensitive uses, primarily homes, in areas with projected noise levels greater than 65 dB CNEL. Where such uses are permitted, require incorporation of mitigation measures to ensure that interior noise levels do not exceed 45 dB CNEL
> C. Discourage location of new noise-sensitive uses, primarily homes, in areas with projected noise levels greater than 65 dB CNEL. Where such uses are permitted, require incorporation of mitigation measures to ensure that interior noise levels do not exceed 45 dB CNEL
>
> - Require that applicants for new noise sensitive development in areas subject to noise levels greater than 65 dB CNEL obtain the services of a professional acoustical engineer to provide a technical analysis and design of mitigation measures.
> - Require placement of fixed equipment, such as air conditioning units and condensers, inside or in the walls of new buildings or on roof-tops of central units in order to reduce noise impacts on any nearby sensitive receptors.

- Establish appropriate noise-emission standards to be used in connection with the purchase, use, and maintenance of City vehicles.

D. Continue to require control of noise or mitigation measures for any noise-emitting construction equipment or activity.

E. As part of development review, use Figure 10-2: Land Use Compatibility Standards to determine acceptable uses and installation requirements in noise-impacted areas.

F. Discourage the use of sound walls anywhere except along Highway 101 and/or along the NWPRA corridor, without findings that such walls will not be detrimental to community character. When sound walls are deemed necessary, integrate them into the streetscape.

G. In making a determination of impact under the California Environmental Quality Act (CEQA), consider an increase of four or more dBA to be "significant" if the resulting noise level would exceed that described as normally acceptable for the affected land use in Figure 10-2: Land Use Compatibility Standards.

Sonoma County Comprehensive Airport Land Use Plan

The Sonoma County Comprehensive Airport Land Use Plan is the Airport Land Use Commission official land use policy within the airport influence areas for all airports in the County. The Airport Land Use Commission makes decisions and recommendations on general plans, zoning or building ordinances and any other local projects within the airport influence areas that are referred to the Commission based on the adopted policies of the Comprehensive Airport Land Use Plan. The plan itself includes descriptions of the referral area boundaries, noise compatibility standards, safety compatibility standards, airspace protection standards, and other land use policies for the six public use airports in the county.

City of Petaluma Zoning Code

Chapter 21 of the Petaluma Zoning Code contains noise regulations to protect properties and the general health, safety, and welfare of people within the City from excessive and annoying noise disturbances. Section 21.040(A) establishes maximum levels of exterior noise exposure that are not to be exceeded at the property line of a receiving property. These limits are shown in Table 4.11-1.

Table 4.11-1 City of Petaluma Maximum Exterior Noise Exposure Standards

	Maximum Noise Exposure (dBA L_{eq})	
	10:00 p.m. to 7:00 a.m. (Mondays through Fridays) and 10:00 p.m. to 8:00 a.m. (Saturdays, Sundays, and Holidays)	7:00 a.m. to 10:00 p.m. (Mondays through Fridays) and 8:00 a.m. to 10:00 p.m. (Saturdays, Sundays, and Holidays)
General Plan Ambient	60	60
Cumulative period of 15 minutes or more in one hour	65	70
Cumulative period of 5 minutes or more in one hour	70	75
Cumulative period of 1 minute or more in one hour	75	80

[1] If the measured ambient level is greater than 60 dBA, the Maximum Noise Exposure standard shall be adjusted in 5 dBA increments for each time period as appropriate to encompass or reflect the measured ambient noise level. In no case shall the maximum allowed threshold exceed 75 dBA after adjustments are made

[2] In the event the measured ambient noise level is 70 dBA or greater, the maximum allowable noise level shall be increased to reflect the maximum ambient noise level. In this case, adjustments for loudness and time as contained in Table 4.11-1I shall not be permitted.

Source: City of Petaluma Municipal Code, Section 21.040(A)(4), Table 21.1.

Section 21.040(A)(3) also states that the following acts are declared to be public nuisances and are therefore prohibited:

- The operation or use of any of the following before 7:00 a.m. or after 10:00 p.m. daily (except Saturday, Sunday and State, Federal or Local Holidays, when the prohibited time shall be before 9:00 a.m. and after 10:00 p.m.):
  - A hammer or any other device or implement used to repeatedly pound or strike an object.
  - An impact wrench, or other tool or equipment powered by compressed air.
  - Any tool or piece of equipment powered by an internal-combustion engine such as, but not limited to, chain saw, backpack blower, and lawn mower. Except as specifically included in this Ordinance, motor vehicles, powered by an internal-combustion engine and subject to the State of California vehicle code, are excluded from this prohibition.
  - Any electrically or battery powered tool or piece of equipment used for cutting, drilling, or shaping wood, plastic, metal, or other materials or objects, such as but not limited to a saw, drill, lathe or router.
  - Any of the following: the operation and/or loading or unloading of heavy equipment (such as but not limited to bulldozer, road grader, back hoe), ground drilling and boring equipment, hydraulic crane and boom equipment, portable power generator or pump, pavement equipment (such as but not limited to pneumatic hammer, pavement breaker, tamper, compacting equipment), pile-driving equipment, vibrating roller, sand blaster, gunite machine, trencher, concrete truck, and hot kettle pump and the like.
  - Construction, demolition, excavation, erection, alteration or repair activity.

4.11.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

The following sections describe the methodology used to evaluate the significance of potential noise and vibration impacts during construction and operation of the project.

Construction Noise

Construction of development facilitated by implementation of the proposed project would generate temporary levels of increased noise at sensitive receptors located near construction sites. Construction equipment can be considered to operate in two modes: stationary and mobile. Stationary equipment operates in a single location for one or more days at a time, with either fixed-power operation (e.g., pumps, generators, and compressors) or variable-power operation (e.g., pile drivers, rock drills, and pavement breakers). Mobile equipment moves around a construction site with power applied in cyclic fashion, such as bulldozers, graders, and loaders. Each phase of construction has its own noise characteristics due to specific equipment mixes; some will have higher continuous noise levels while others may have intermittent, higher instantaneous noise levels. Therefore, construction noise levels may fluctuate depending on the type of equipment being used, construction phase, and/or equipment location. Typically, grading activities generate the highest noise levels because grading involves the largest equipment and covers the greatest area.

Variation in power imposes difficulty in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise level at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FHWA 2006). It is very common for a programmatic analysis such as this to utilize a conservative standard reference distance of 50 feet. Conversely, project-specific noise analyses typically use more specific distances based on more detailed project information. Note that it is typically uncommon for multiple pieces of heavy equipment to be operating together so close to a nearby property line for extended periods of time.

Construction of development facilitated by the project is assumed to include typical heavy-duty equipment such as bulldozers, excavators, front-end loaders, dump trucks, graders, etc. It is assumed that diesel engines would power all construction equipment. Construction equipment would not all operate at the same time or location due to the different tasks performed by each piece of equipment and mobile nature of construction equipment throughout the course of a workday. In addition, construction equipment would not be in constant use during the 8-hour operating day. Construction noise levels were estimated generally using the FHWA Roadway Construction Noise Model (RCNM) (FHWA 2006). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas.

Impact devices such as pile drivers may be used to drive foundation piles into the ground and may be used during construction of development facilitated by the project. Although use of pile drivers is uncommon during construction for the type of development facilitated by the project, this analysis considers the potential for use of this equipment as a conservative analysis as some ground types or subterranean parking facilities may require their use. These devices would typically operate separately from other equipment. Maximum noise levels associated with the types of heavy

equipment most likely to be utilized during development associated with the project are shown in Table 4.11-2 below.

Table 4.11-2 Maximum Noise Levels Produced by Typical Construction Equipment

	Estimated Maximum Noise Levels at Nearest Sensitive Receptors (dBA L_{max})	
Equipment	**50 feet**	**100 feet**
Air Compressor	80	74
Backhoe	80	74
Concrete Mixer	85	79
Concrete Saw	90	84
Dozer	85	79
Dump Truck	84	78
Excavator	85	79
Grader	85	79
Jackhammer	85	79
Loader	80	74
Paver	85	79
Pickup Truck	55	49
Pile-driver (Impact)	95	89
Pile-driver (Sonic)	95	89
Roller	85	79
Scarifier	85	79
Scraper	85	79

Source: FHWA 2006.

Operational Noise

OPERATIONAL STATIONARY NOISE

The primary on-site noise sources associated with operation of development facilitated by the project, and those discussed in this analysis, would include those associated with standard operation of new residential, commercial, and industrial land uses. These sources could include, but are not limited to, landscape and building maintenance activities, stationary mechanical equipment (e.g., pumps, heating, ventilation, and air conditioning [HVAC] units, emergency generators, and other mechanical equipment), garbage collection activities, sound amplification equipment, and processes/heavy-duty equipment associated with new industrial land uses..

OPERATIONAL TRAFFIC NOISE

In addition to on-site operational noise, development accommodated under the proposed project would generate off-site noise in the form of additional vehicle trips, thereby increasing noise levels on roadways within the Plan Area. Noise increases associated with traffic volume increases were calculated based on traffic data provided by F&P (F&P 2025) using a version of the FHWA traffic noise prediction model (FHWA-RD-77-108), which takes into account average daily traffic (ADT) volumes, speeds, automobile and truck percentages, and time of day splits (daytime, evening, and nighttime).

Groundborne Vibration

The proposed project would primarily introduce additional sources of vibration during construction of individual development projects due to operation of various types of equipment (e.g., pile drivers, soil compaction equipment, and offroad earthmoving equipment). The potential for adverse construction vibration impacts would be greatest at development sites located adjacent to or in close proximity of nearby structures,, especially if nearby structures are of fragile building construction and/or historic-aged resources. The proposed project would also introduce additional sources of vibration during operation, especially for new commercial and industrial uses. The greatest operational source of vibration associated with the proposed project would include new heavy-duty truck trips on nearby roadways.

Because groundborne vibration could cause architectural damage to structures and is measured in an instantaneous period, vibration impacts are typically modeled based on the closest distance between a vibration-generating source and a sensitive receptor. Reference vibration levels associated with various equipment types, published by the FTA, are shown Table 4.11-3.

Table 4.11-3 Typical Vibration Levels Produced by Various Equipment

Equipment	Vibration Level at 25 Feet (in/sec PPV)
Impact Pile Driver	1.514 (upper range)
	0.644 (typical)
Sonic Pile Driver	0.734 (upper range)
	0.170 (typical)
Vibratory Roller	0.210
Hoe Ram	0.089
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Truck	0.076
Jackhammer	0.035
Small Bulldozer	0.003

Source: FTA 2018

Significance Thresholds

Thresholds of significance are based on Appendix G of the CEQA Guidelines, which state that noise impacts of the project would be significant if the project would:

a) 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.

b) Generate excessive groundborne vibration or groundborne noise levels.

c) For a project located within the vicinity of a private airstrip or an airport or public use airport, expose people residing or working in the project area to excessive noise levels.

Construction Noise

The City does not specify a quantitative noise level threshold for assessing construction noise impacts, therefore noise limits established by the FTA in the *Transit Noise and Vibration Assessment Manual* were used to determine whether construction associated with buildout of the proposed General Plan would result in significant construction noise impacts. These noise limits represent thresholds at which adverse community reaction is expected to occur. Significant construction noise impacts would occur if daytime construction noise levels were to exceed 80 dBA L_{eq} (8-hour) at residential land uses. Significant construction noise impacts would also occur if construction were to take place outside of the City's allowable hours described in Section 21.040(A)(3) of the City's Zoning Code, which are between 7:00 a.m. and 10:00 p.m. on Mondays through Fridays and between 9:00 a.m. and 10:00 p.m. on weekends and holidays.

Operational Noise

OPERATIONAL STATIONARY NOISE

The City has adopted noise standards in the Zoning Code that regulate operational stationary noise sources in the City. Development facilitated by the proposed General Plan would result in a significant impact if it would introduce new stationary noise sources that would generate noise levels exceeding the limits shown in Table 4.11-1 above.

TRAFFIC NOISE

According to Policy NOI-1.4 of the City's Noise Element (City of Petaluma 2025), traffic noise impacts would be significant if development facilitated under the proposed project would cause the following noise increases:

- Greater than 1.5 dBA increase for ambient noise environments of 65 dBA CNEL and higher.
- Greater than 3 dBA increase for ambient noise environments of 60 to 64 dBA CNEL.
- Greater than 5 dBA increase for ambient noise environments of less than 60 dBA CNEL.

Land Use Compatibility

According to the City's land use compatibility standards shown in Table 4.11-4, an ambient noise environment up to 60 dBA CNEL is "Normally Acceptable" for single-family residential uses, whereas an ambient noise environment up to 65 dBA CNEL is "Normally Acceptable" for multi-family residential uses. In addition, an ambient noise environment up to 70 dBA CNEL is "Conditionally Acceptable" for all residential uses.

Agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. In *California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal. 4th 369*, the California Supreme Court explained that an agency is only required to analyze the potential impacts to future residents if the project would exacerbate those existing environmental hazards or conditions. CEQA analysis is therefore concerned with a project's impact on the environment, rather than with the environment's impact on a project and its users or residents. Therefore, bringing a population into an area where noise currently exists is not a significant environmental impact under CEQA unless doing so would exacerbate noise conditions. Nonetheless, the following analysis of potential exposure to excessive noise is provided for informational purposes.

Implementation of the proposed project would expose future development to ambient noise levels predominantly associated with vehicular traffic sources. According to the existing traffic noise contour map shown in Figure 4.11-3, land uses along major arterial roadways are exposed to noise levels of up to 70 dBA CNEL. Based on the noise land use compatibility standards per land use type shown in Table 4.11-1 exterior ambient noise levels up to 60 dBA CNEL are normally acceptable for low-density single-family residential, duplex, triplex, and similar uses, ambient noise levels up to 65 dBA CNEL are normally acceptable for multi-family residential and transient lodging (i.e., motels and hotels) uses, and ambient noise levels up to 70 dBA CNEL are normally acceptable for schools, libraries, churches, hospitals, nursing homes, playgrounds, and neighborhood parks. Therefore, new development facilitated by the proposed project could be exposed to noise levels above the normally acceptable range for those uses depending on the proximity of new development to roadways.

State building code standards prescribe an interior noise standard of 45 dBA CNEL for proposed residential uses. Generally, any large structure blocking the line of sight between a noise source and receiver (e.g., a concrete block wall on a property's boundary) will provide at least a 5-dBA reduction in source noise levels at the receiver (FHWA 2011). Building materials can also substantially reduce occupants' exposure to noise. The FHWA's guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows (FHWA 2011). Modern residential buildings in California are typically constructed with storm windows, single- or double-glazed, that achieve the required energy savings on heating and cooling, which also provide an exterior-to-interior noise level reduction of at least 20 dBA. Based on a noise exposure level of 70 dBA CNEL and a noise attenuation of at least 20 dBA, it is possible that interior noise levels within new housing development could be over 45 dBA CNEL. Nonetheless, the following draft policies and actions from the proposed General Plan would collectively govern excessive noise exposure to new land uses:

> **Policy NOI-1.4: Require Acoustical Studies for Applicable Projects.** Require discretionary projects to conduct an acoustical study if there is potential that proposed uses will exceed the Normally Acceptable category in [Table 4.11-4], create a significant increase in periodic or operational noise, or expose sensitive receptors to excessive noise.
>
> > **Action NOI-1.4.1:** Require applicants of new mixed-use projects to submit an acoustical analysis demonstrating compliance with City noise standards prior to the issuance of a building permit.
>
> **Policy NOI-1.5: Reduce Noise Through Development Review.** Where ambient noise levels exceed the Normally Acceptable category, design features such as additional noise insulation may be required for new projects. Consider requiring noise reduction strategies to reduce noise impacts of new development on nearby sensitive receptors, and to guide the design of new noise-sensitive uses through appropriate means including, but not limited to, the following:
>
> - Orient buildings to shield noise-sensitive outdoor spaces from noise sources.
> - Screen and control noise sources such as parking lots, mechanical equipment including HVAC equipment, and outdoor recreational activities.
> - Increase setbacks to serve as a buffer between noise sources and adjacent sensitive receptors.

- Construct noise barriers when other methods to reduce noise are not practical and when noise barriers will not shift similar noise impacts to another adjacent property. If fences, barriers, or walls are included, consider design, safety, and other secondary impacts.
- Use soundproofing materials, noise reduction construction techniques, and/or acoustically-rated windows and doors to reduce interior noise.

Table 4.11-4 Community Noise and Land Use Compatibility Standards

	Exterior Noise Level (dBA CNEL/L_{dn})			
Land Use Category	**Normally Acceptable[1]**	**Conditionally Acceptable[2]**	**Normally Unacceptable[3]**	**Clearly Unacceptable[4]**
Residential – Low-density Single-family, Duplex, Triplex, and Similar	≤60	55–70	70–75	75+
Residential – Multi Family	≤65	60–70	70–75	75+
Transient Lodging – Motels, Hotels	≤65	60–70	70–80	80+
Schools, Libraries, Churches, Hospitals, Nursing Homes	≤70	60–70	70–80	80+
Auditoriums, Concert Halls, Amphitheaters	≤70	N/A	N/A	65+
Sports Arenas, Outdoor Spectator Sports	≤75	N/A	N/A	70+
Playgrounds, Neighborhood Parks	≤70	N/A	67.5–75	72.5+
Golf Courses, Riding Stables, Water Recreation, Cemeteries	≤75	N/A	70–80	80+
Office Buildings, Business Commercial and Professional	≤70	67.5–77.5	75+	N/A
Industrial, Manufacturing, Utilities, Agriculture	≤75	70–80	75+	N/A

dBA = A-weighted decibels; CNEL = Community Noise Equivalent Level; L_{dn} = Day-Night Average Level; N/A = not applicable

[1] **Normally Acceptable:** Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

[2] **Conditionally Acceptable:** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

[3] **Normally Unacceptable:** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made an needed noise insulation features included in the design.

[4] **Clearly Unacceptable:** New construction or development should generally not be undertaken.

Source: City of Petaluma General Plan Noise Element, Table 2 (City of Petaluma 2025).

Groundborne Vibration

The City does not specify quantitative construction vibration thresholds, however draft Action NOI-4.1.1 of the City's Noise Element proposes architectural damage thresholds of 0.12 in/sec PPV for historic buildings, 0.2 in/sec PPV for residential buildings, and 0.3 in/sec PPV for engineered buildings.

Based on thresholds under draft Action 4.1.1, a significant impact would be identified if construction of development facilitated by the proposed project would generate vibration levels exceeding 0.12

in/sec PPV at fragile/historic structures, 0.2 in/sec PPV at residential structures, or 0.3 in/sec PPV at modern industrial/commercial structures.

Airport Noise

Exposure to airport noise would be considered significant if new development facilitated by the proposed project would be located within the noise contours of the Petaluma Municipal Airport identified in City's General Plan, shown in Figure 4.11-1 (City of Petaluma 2025).

b. Impact Analysis

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 DEVELOPMENT FACILITATED BY THE PROJECT WOULD TEMPORARILY PRODUCE HIGH NOISE LEVELS, POTENTIALLY AFFECTING NEARBY NOISE-SENSITIVE LAND USES AND MITIGATION MEASURES NOI-1(A) AND NOI-1(B) WOULD BE REQUIRED. HOWEVER, EVEN WITH IMPLEMENTATION OF MITIGATION, CONSTRUCTION IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

Though the project would not directly result in new construction in and of itself, future construction activity associated with development under the proposed General Plan would require the use of a variety of noise-generating equipment that would result in temporary increases in ambient noise levels on an intermittent basis. Noise levels generated by construction would vary depending on the construction phase and types of equipment used, the durations of use, distance between the noise source and surrounding receptors, and presence or absence of noise-attenuation barriers. Typical noise levels at 50 and 100 feet from various equipment types that may be used during construction are shown in Table 4.11-2. The loudest noise levels are typically generated by impact devices (e.g., pile drivers) and heavy-duty equipment (e.g., cranes, scrapers, dozers, and graders). Construction noise would occur intermittently throughout the course of a day and, in some cases, multiple pieces of equipment may operate simultaneously, thus generating combined noise levels that are incrementally higher than those shown in Table 4.11-2.

Sensitive receptors are located throughout the Plan Area and could be exposed to noise associated with construction activities from reasonably foreseeable development under implementation of the proposed General Plan. As discussed in Section 4.11.1, sensitive receptors in the Plan Area include residences, schools, churches, and hospitals. Because specific development projects have not yet been determined at individual sites, this analysis assumes that construction activities would likely occur within 50 feet of sensitive receptors throughout the course of a typical construction day. As shown in Table 4.11-2, sensitive receptors located within 50 feet of the listed typical construction equipment may be exposed to maximum noise levels ranging between 76 and 88 dBA L_{max} and may be exposed to maximum noise levels up to 101 dBA L_{max} if pile drivers are used. Note that these noise levels represent the operation of individual pieces of equipment, however a typical construction day would likely consist of multiple pieces of equipment, potentially operating simultaneously. Therefore, for the purposes of this analysis, a conservative scenario consisting of three pieces of equipment (excavator, dozer, and jackhammer) operating simultaneously over the course of an eight-hour workday was evaluated. This scenario was based on equipment typically

used during the loudest phases of construction: demolition and grading. The combined noise level at 50 feet generated by simultaneous operation of these three pieces of equipment are shown in Table 4.11-5.

Table 4.11-5 Individual and Combined Construction Noise Levels at 50 Feet Away

Equipment	Individual Noise Level at 50 Feet Away (dBA L_{eq} [8-hour])	Combined Noise Level at 50 Feet Away (dBA L_{eq} [8-hour])
Excavator	76.7	84.2
Dozer	77.7	
Jackhammer	81.9	

dBA = A-weighted decibels; L_{eq} = equivalent continuous sound level

See Appendix E for RCNM outputs.

As stated previously, construction noise levels would vary depending on the types of equipment used, the durations of use, and the distance from construction activity to nearby receptors. Engine noise reduction technology, including silencers, continues to improve, but heavy construction equipment still generates noise exceeding ambient levels that could cause intermittent annoyance to nearby receptor properties. Therefore, noise associated with construction of development within the Plan Area under the proposed project could exceed the 80 dBA L_{eq} (8-hour) daytime significance thresholds at residential land uses.

Compliance with Section 21.040(3) of the City's Zoning Code would restrict the timing of construction activities to the hours of 7:00 a.m. to 10:00 p.m. Mondays through Fridays and 9:00 a.m. and 10:00 p.m. on weekends and holidays. In addition, implementation of and adherence to the following proposed policies and actions from the proposed General Plan would reduce construction noise levels to the extent feasible:

> **Policy NOI-2.1: Protect Residents from Temporary Noise.** Continue to protect residents from temporary construction and event noise through up-to-date noise regulations.
>
> > **Action NOI-2.1.1:** Update the nuisance and land use regulations in the Municipal Code and Implementing Zoning Ordinance to protect residents from harmful noise.
> >
> > - Update regulations as appropriate to reflect General Plan policies.
> > - Consider input from local residents, developers, and business owners on noise concerns, priorities, and limitations.
> > - Identify and address gaps or outdated provisions in the regulations.
> > - Update regulations as needed to ensure appropriate noise thresholds, measurement practices, and mitigation practices, including but not limited to:
> >   - Requiring the use of 100% reusable construction phase sound barriers.
> >   - Including sound barriers in the construction waste management plan and enforcing CALGreen standards for waste reduction.
> >   - Requiring additional construction noise reduction strategies (e.g., specific criteria for when to require the use of temporary noise barriers).
> >   - Requiring future development in or adjacent to residential and open space areas to implement noise reduction strategies for construction that will minimize impacts to wildlife and surrounding uses.

Implementation of the above proposed policies and actions would reduce potential construction noise impacts associated with future discretionary projects carried out under the proposed project. However, project-level details are not currently available for future projects that would be facilitated by development under the proposed project, therefore, it is not possible to determine exact noise levels, locations, or time periods for construction of such projects or construction noise impacts at adjacent properties. Construction noise levels associated with future development under the proposed project may exceed the FTA's daytime and nighttime construction noise limits; therefore, temporary noise impacts associated with construction of development under the proposed project would be potentially significant and Mitigation Measures NOI-1(a) and NOI-1(b) would be required.

Mitigation Measures

The following mitigation measures are required to reduce construction-related noise impacts to sensitive receivers near subsequent development projects.

NOI-1(a) Project-Specific Construction Noise Study

A Construction Noise Study, prepared by a qualified noise expert to meet the requirements herein, shall be required for development projects located within 500 feet of noise-sensitive land uses identified in the City's General Plan Noise Element (i.e., residential uses, schools, community buildings, parks/open space, and hospitals), and that have one or more of the following characteristics:

- Construction durations of 18 months or more (excluding interior finishing);
- Use of large, heavy-duty equipment rated at 300 horsepower (hp) or greater;
- The potential for pile driving; or
- Located within 1,000 feet of other construction projects with overlapping construction schedules.

The Construction Noise Study shall characterize sources of construction noise, quantify noise levels at noise-sensitive uses (e.g., residential uses, schools, community buildings, parks/open space, and hospitals) and identify measures to reduce noise exposure during the construction period. The Construction Noise Study shall identify reasonably available noise reduction devices or techniques to reduce noise levels to acceptable levels and/or durations including through reliance on any relevant Federal, State, or local standards or guidelines or accepted industry practices. Noise reduction devices or techniques may include but not be limited to silencers, enclosures, sound barriers, and/or placement of restrictions on equipment or construction techniques (e.g., alternative installation methods to pile driving such as cast-in-place systems or pile cushioning). Each measure in the Construction Noise Study shall identify anticipated noise reductions at noise-sensitive land uses.

NOI-1(b) Measures to Reduce Construction Noise

If the results of the Project-Specific Construction Noise Study described in Mitigation Measure NOI-1(a) show that noise levels associated with an individual project are expected to exceed applicable thresholds, the City of Petaluma shall require construction contractors to implement as many of the following measures as feasible prior to issuance of a demolition, grading, and/or building permit:

- **Shielding and Silencing.** Power construction equipment (including combustion engines), fixed or mobile, shall be equipped with noise shielding and silencing devices consistent with manufacturer's standards or the Best Available Control Technology. Equipment shall be properly maintained, and the project applicant or owner shall require any construction contractor to keep documentation on-site during any earthwork or construction activities demonstrating that the equipment has been maintained in accordance with manufacturer's specifications.
- **Enclosures and Screening.** All outdoor fixed mechanical equipment shall be enclosed or screened from off-site noise-sensitive uses. The equipment enclosure or screen shall be impermeable (e.g., solid material with minimum weight of 2 pounds per square foot) and break the line-of-sight from the equipment and off-site noise-sensitive uses.
- **Construction Staging Areas.** Construction staging areas shall be located as far from noise-sensitive uses as reasonably possible and feasible in consideration of site boundaries, topography, intervening roads and uses, and operational constraints.
- **Smart Back-Up Alarms.** Mobile construction equipment shall have smart back-up alarms that automatically adjust the sound level of the alarm in response to ambient noise levels. Alternatively, back-up alarms shall be disabled and replaced with human spotters to ensure safety when mobile construction equipment is moving in the reverse direction.
- **Equipment Idling.** Construction vehicles and equipment shall not be left idling for longer than five minutes when not in use.
- **Workers' Radios.** All noise from workers' radios, including any on-site music, shall be controlled such that they are not audible at off-site noise-sensitive uses.
- **Use of Driven Pile Systems.** Driven (impact), sonic, or vibratory pile drivers shall not be used, except in locations where the underlying geology renders alternative methods infeasible, as determined by a soils or geotechnical engineer and documented in a soils report.
- **Temporary Noise Barriers.** Temporary sound barriers, such as walls or sound blankets, shall be positioned between construction activities and noise-sensitive uses when modeled noise levels from construction equipment exceed applicable standards and have a direct line of sight with noise sensitive receivers. Placement, orientation, size, and density of acoustical barriers shall be specified by a qualified acoustical consultant.
- **Noise Complaint Response.** Project applicants shall designate an on-site construction project manager who shall be responsible for responding to any complaints about construction noise. This person shall be responsible for responding to concerns of neighboring properties about construction noise disturbance and shall be available for responding to any construction noise complaints during the hours that construction is to take place. They shall also be responsible for determining the cause of the noise complaint (e.g., bad silencer) and shall require that reasonable measures be implemented to correct the problem. A toll-free telephone number and email address shall be posted in a highly visible manner on the construction site at all times and provided in all notices (mailed, online website, and construction site postings) for receiving questions or complaints during construction and shall also include procedures requiring that the on-site construction manager respond to callers and email messages. The on-site construction project manager shall be required to track complaints pertaining to construction noise, ongoing throughout demolition, grading, and/or construction and shall notify the City's Community Development Director of each complaint occurrence.

Project applicants shall be required to comply with all requirements of Mitigation Measures NOI-1(a) and NOI-1(b) in addition to any additional requirements identified and recommended by the

Construction Noise Study and shall maintain proof that notice of, as well as compliance with, the identified measures have been included in contractor agreements.

Significance After Mitigation

Implementation of Mitigation Measures NOI-1(a) and NOI-1(b), as well as implementation of proposed goals, policies, and actions from the City's General Plan, would reduce potential noise impacts during construction activities. However, as exact details of future project-specific construction activities are unknown at this time, construction noise could still exceed applicable significance thresholds or potentially need to occur during the more sensitive nighttime hours, resulting in noise impacts during nighttime hours. Although implementation of Mitigation Measures NOI-1(a) and NOI-1(b) would reduce construction noise impacts, it cannot be guaranteed that construction noise impacts would be reduced to below the applicable construction noise threshold of 80 dBA L_{eq} (8-hour) at noise-sensitive receptors in all cases or that nighttime construction work may not be needed at times. Therefore, construction noise impacts associated with development facilitated under the proposed project would remain significant and unavoidable.

IMPACT NOI-2 OPERATION OF DEVELOPMENT FACILITATED BY THE PROJECT WOULD INTRODUCE NOISE FROM NEW STATIONARY AND TRANSPORTATION NOISE SOURCES; HOWEVER, NOISE LEVELS WOULD NOT EXCEED APPLICABLE NOISE STANDARDS AND STATIONARY OPERATIONAL NOISE AND TRANSPORTATION NOISE IMPACTS WOULD BE LESS THAN SIGNIFICANT. OPERATION OF DEVELOPMENT FACILITATED BY THE PROJECT WOULD ALSO INCREASE TRANSPORTATION NOISE BUT IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Stationary and Other Operational Noise

Stationary and other sources of noise in Petaluma include those associated with the standard operation of land uses. These sources could include, but are not limited to, landscape and building maintenance activities, stationary mechanical equipment (e.g., pumps, HVAC units), garbage collection activities, and other stationary and area sources such as people's voices and amplified music. Noise generated by residential uses are generally short-term and intermittent in nature. Furthermore, Division 13, Chapter 2.6, Section 21085 of the 2025 California Public Resources Code states that, for residential projects, noise generated by project occupants and their guests on human beings is not a significant effect on the environment. The project would provide for an increase in residential development throughout the Plan Area. Residential development tends to have lower noise levels associated than other uses, such as industrial or commercial uses.

The primary sources of stationary operational noise associated with development facilitated by the proposed project are expected to be HVAC and/or other mechanical equipment. A typical residential HVAC system (the Carrier 24ABA4030) produces a sound pressure level of 68 dBA at a distance of 3.28 feet away. Depending on the placement of HVAC units relative to nearby receptors, noise generated by HVAC equipment may exceed the City's noise standards shown in Table 4.11-1, which vary depending on the existing ambient noise level at specific receptors. Individual projects would be required to locate HVAC equipment (and/or other mechanical equipment) far enough from sensitive receptors and/or shield equipment such that noise levels do not exceed the City's noise standards.

Additionally, the following proposed policies and actions from the proposed General Plan would minimize potential adverse noise-related impacts from stationary operational noise sources:

> **Policy NOI-1.1: Protect Residents from Land Use Noise.** Continue to protect residents from harmful land use-generated noise through up-to-date noise regulations.

Action NOI-1.1.1: Update the nuisance and land use regulations in the Municipal Code and Implementing Zoning Ordinance to protect residents from harmful noise.

- Update regulations as appropriate to reflect General Plan policies.
- Update regulations as needed to ensure appropriate noise thresholds, measurement practices, and buffers and/or mitigation practices, including but not limited to:
  - Requiring all maintenance noise sources (e.g., leaf blowers, mowers, and generators) to appropriately muffle equipment.
  - Locating stationary noise-generating equipment such as generators as far as practical from existing nearby residences and other noise-sensitive land uses.
  - Locating noise-generating components of mixed-use and commercial development, such as loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other similar facilities, away from residential uses where possible.

Action NOI-1.1.2: Consider developing guidelines for developers that summarize noise mitigation and design options, including, but not limited to, the techniques listed in Policy NOI-1.5. Include performance and technical specifications to provide developers a menu of options to reduce and control noise impacts.

Policy NOI-1.5: Reduce Noise Through Development Review. Where ambient noise levels exceed the Normally Acceptable category, design features such as additional noise insulation may be required for new projects. Consider requiring noise reduction strategies to reduce noise impacts of new development on nearby sensitive receptors, and to guide the design of new noise-sensitive uses through appropriate means including, but not limited to, the following:

- Orient buildings to shield noise-sensitive outdoor spaces from noise sources.
- Screen and control noise sources such as parking lots, mechanical equipment including HVAC equipment, and outdoor recreational activities.
- Increase setbacks to serve as a buffer between noise sources and adjacent sensitive receptors.
- Construct noise barriers when other methods to reduce noise are not practical and when noise barriers will not shift similar noise impacts to another adjacent property. If fences, barriers, or walls are included, consider design, safety, and other secondary impacts.
- Use soundproofing materials, noise reduction construction techniques, and/or acoustically-rated windows and doors to reduce interior noise.
- Include auxiliary power sources at loading docks to minimize truck engine idling.
- Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.

Policy NOI-1.7: Reduce Property Maintenance Noise. Minimize property maintenance noise sources.

Action NOI-1.7.1: Encourage local landscapers and maintenance businesses to adopt the use of electrically powered tools.

Implementation of these proposed policies and actions would ensure that stationary operational noise from future development projects is analyzed and mitigated to acceptable levels prior to project approval. Therefore, stationary operational noise impacts associated with development facilitated by the project would be less than significant.

Mobile Operational Noise (Traffic)

Implementation of the project would result in additional buildout, which would generate new vehicle trips that could incrementally increase operational traffic noise throughout the city. Figure 4.11-4 shows future roadway noise contours projected for the year 2050. As shown in Figure 4.11-4, the 60, 65, and 70 dBA CNEL noise contours are presented for each study roadway segment in the Plan Area. Existing and future annual average daily traffic (AADT) volumes, as well as other traffic data used in the analysis, for each study area roadway segment are included in Appendix D. Table 4.11-6 presents existing (year 2019) and future (year 2050) noise levels at 50 feet from each roadway segment and estimated traffic noise increases on each study area roadway segment.

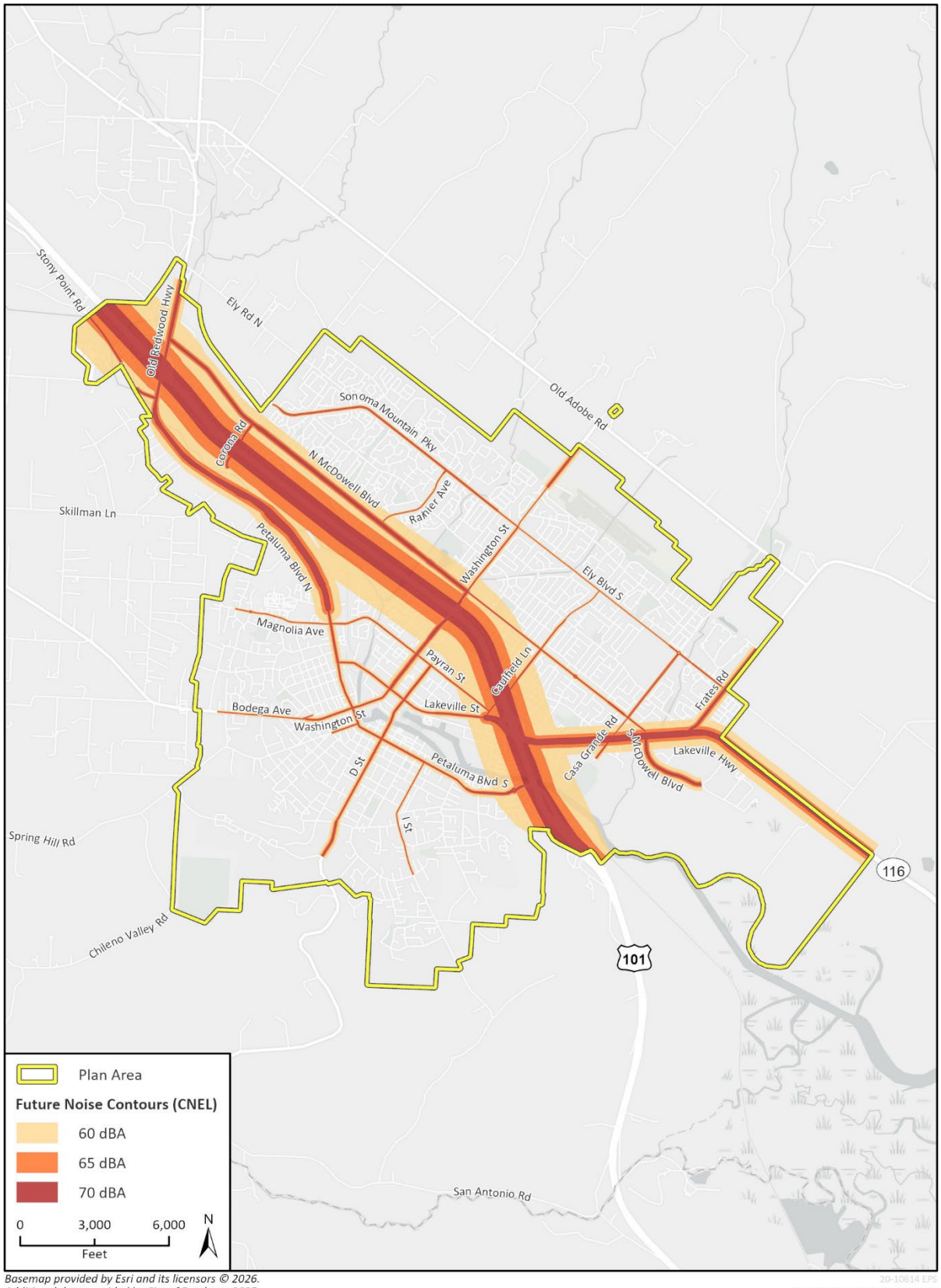
As shown in Table 4.11-6, future roadway traffic noise increases on all roadway segments within the study area would not exceed the respective noise increase threshold based on the ambient noise environment.

The proposed General Pan would encourage infill development, which could reduce VMT and traffic noise. In addition, the following goal and associated policies and actions from the proposed General Plan would further reduce roadway vehicle noise:

Goal NOI-3: Transportation Noise Management. Exposure to transportation noise is limited through design and traffic noise management techniques.

> **Policy NOI-3.1: Reduce Transportation Noise Impacts Through Land Use Planning.** Reduce the impacts of transportation noise on sensitive receptors through land use planning and noise attenuation strategies.
>
> **Policy NOI-3.2: Reduce Development Traffic Noise.** Require development project applicants to mitigate noise impacts from increased traffic to less than significant levels per Policy NOI-1.4.
>
> **Policy NOI-3.5: Protect Residents from Transportation Noise.** Continue to protect residents from transportation noise through up-to-date noise regulations.
>
> > **Action NOI-3.5.1:** Update the nuisance and land use regulations in the Municipal Code and Implementing Zoning Ordinance to protect residents from harmful noise.
> >
> > - Update regulations as appropriate to reflect General Plan policies.
> > - Consider input from local residents, developers, and business owners on noise concerns, priorities, and limitations.
> > - Identify and address gaps or outdated provisions in the regulations.
> > - Update regulations as needed to ensure appropriate noise thresholds, measurement practices, and buffers and/or mitigation practices, including but not limited to:
> >   - Consider limitations on local truck traffic, including loading and unloading, specific routes, times, and speeds appropriate to each zoning district.
> >   - Require residential development along corridors within the 60 dBA CNEL noise contours or higher to incorporate noise reduction strategies to reduce both interior and exterior noise.

Figure 4.11-4 Future (Year 2050) Traffic Noise Contours



Basemap provided by Esri and its licensors © 2026.
Additional data provided by City of Petaluma 2025.

Table 4.11-6 Traffic Noise Increases Along Study Area Roadway Segments

Roadway	Segment	Noise Level 50 Feet from Roadway Centerline (dBA CNEL)		Applicable Noise Increase Threshold (dBA CNEL)	Noise Increase (dBA CNEL)	Significant Increase (Yes/No)?
		Existing (2019)	Future (2050)			
Bodega Ave	Howard St & Holly Heights/City Limit	65.6	61.6	1.5	-4.0	No
Casa Grande Rd	Lakeville Hwy & Technology Lane	67.5	65.4	1.5	-2.1	No
Casa Grande Rd	Ely Blvd & Lakeville Hwy	66.2	61.3	1.5	-4.8	No
Caulfield Ln	McDowell Blvd & Lakeville St	70.5	65.1	1.5	-5.3	No
Caulfield Ln	Ely Blvd & McDowell Blvd	63.3	59.9	3.0	-3.4	No
Caulfield Ln	Crinella Dr & S McDowell Blvd	67.2	63.3	1.5	-3.9	No
Corona Rd	Industrial Ave & McDowell Blvd	67.5	68.0	1.5	0.5	No
D St	Sunnyslope Ave/El Rose Dr & Pinnacle Dr	68.0	68.3	1.5	0.3	No
D St	6th St & Sunnyslope Ave/El Rose Dr	65.3	65.8	1.5	0.5	No
D St	Payran St & 6th St	66.3	66.9	1.5	0.6	No
Ely Blvd	Washington St & Frates Rd	63.7	60.0	3.0	-3.7	No
Frates Rd	Ely Blvd & Lakeville Hwy	69.4	70.4	1.5	1.0	No
Frates Rd	Clubhouse Dr/City Limits & Ely Blvd	68.6	69.6	1.5	1.0	No
I St	Petaluma Blvd & Sunnyslope Rd	60.9	61.2	3.0	0.3	No
Lakeville St / Hwy	Wilson St & Caulfield Ln	67.4	66.8	1.5	-0.6	No
Lakeville St / Hwy	Petaluma Blvd & Wilson St	65.3	65.3	1.5	0.0	No
Lakeville Hwy	Petaluma, Jct. Rte. 101	74.9	75.5	1.5	0.6	No
Magnolia Ave	Petaluma Blvd & Birch Dr	60.4	61.3	3.0	1.0	No
McDowell Blvd	Lynch Creek Way & Washington St	70.1	70.8	1.5	0.7	No
McDowell Blvd	Old Redwood Hwy & Lynch Creek Way	70.3	70.9	1.5	0.6	No
McDowell Blvd	Washington St & Lakeville Hwy	68.9	63.9	1.5	-4.9	No
Old Redwood Hwy	McDowell Blvd & City Limits	70.6	71.9	1.5	1.3	No
Payran St	Petaluma Blvd & Jefferson St	62.6	63.3	3.0	0.7	No

Roadway	Segment	Noise Level 50 Feet from Roadway Centerline (dBA CNEL)		Applicable Noise Increase Threshold (dBA CNEL)	Noise Increase (dBA CNEL)	Significant Increase (Yes/No)?
		Existing (2019)	Future (2050)			
Payran St	Jefferson St & Caulfield Ln	64.8	64.1	3.0	-0.7	No
Petaluma Blvd	Gossage Ave & Sycamore Ln/ Shasta Ave	74.9	75.5	1.5	0.6	No
Petaluma Blvd	Sycamore Ln/ Shasta Ave & Lakeville St	67.4	67.9	1.5	0.6	No
Petaluma Blvd	McDowell Blvd & Bailey Ave/City Limits	69.9	70.6	1.5	0.7	No
Petaluma Blvd	Lakeville St & D St	65.5	65.9	1.5	0.4	No
Petaluma Blvd	D St & I St	65.5	66.3	1.5	0.8	No
Petaluma Blvd	McNear Cir & City Limits	67.4	68.3	1.5	0.9	No
Rainier Ave	Sonoma Mountain Pkwy & McDowell Blvd	62.1	61.3	3.0	-0.8	No
Redwood Hwy (US 101)	Petaluma, South Jct. Rte 116 East	81.6	82.6	1.5	1.0	No
Redwood Hwy (US 101)	Petaluma, East Washington St	81.9	82.9	1.5	1.0	No
Redwood Hwy (US 101)	Petaluma, Old Redwood Hwy	82.4	83.4	1.5	1.0	No
Sonoma Mountain Pkwy	Madison St & Washington St	69.2	61.9	3.0	-7.3	No
Sonoma Mountain Pkwy	Sonoma Mountain Pkwy Bet. Corona Rd & Madison St	67.8	61.8	3.0	-6.0	No
Stony Point Rd	Petaluma Blvd & Rainsville Rd/City Limits	68.3	68.5	1.5	0.2	No
Stony Point Rd	Rainsville Rd/City Limits & Orchard Ln/City Limit	67.7	67.9	1.5	0.2	No
Washington Street	McDowell Blvd & Lakeville St	69.0	69.4	1.5	0.4	No
Washington Street	Lakeville St & Howard St	68.1	65.7	1.5	-2.4	No
Washington Street	Ely Blvd & McDowell Blvd	66.8	64.4	3.0	-2.5	No
Washington Street	Executive Dr & Ely Blvd	67.1	61.0	3.0	-6.1	No
Washington Street	Washington St Bet. City Limits & Executive Dr	68.8	68.0	1.5	-0.8	No
Western Ave	Petaluma Blvd & Howard St	63.1	63.5	3.0	0.4	No

AADT = annual average daily traffic; dBA = A-weighted decibels; CNEL = Community Noise Equivalent Level

Source: Fehr & Peers 2025; Caltrans 2019.

Traffic noise increases along all roadway segments within the study area would not exceed respective noise thresholds based on the associated existing noise environments. Traffic noise impacts associated with the proposed project 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:	Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

IMPACT NOI-3 CONSTRUCTION OF INDIVIDUAL DEVELOPMENT PROJECTS FACILITATED BY THE PROPOSED PROJECT COULD TEMPORARILY GENERATE LEVELS OF GROUNDBORNE VIBRATION THAT EXCEED CITY VIBRATION THRESHOLDS AT NEARBY STRUCTURES AND MITIGATION MEASURE NOI-2 WOULD BE REQUIRED. CONSTRUCTION VIBRATION IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

Construction of development projects facilitated by the proposed project could intermittently generate groundborne vibration at nearby structures, potentially resulting in architectural (or at high levels, structural) damage depending on the equipment types expected to be used and the distances between equipment and nearby structures. Table 4.11-7 lists groundborne vibration levels associated with typical construction equipment types at various distances to present how vibration levels vary with distance from the source.

Table 4.11-7 Vibration Levels Associated with Typical Construction Equipment at Various Distances

		Approximate Vibration Level (in/sec PPV)			
Equipment		**25 feet from Source**	**50 feet from Source**	**100 feet from Source**	**200 feet from Source**
Pile Driver (impact)	Upper range	1.518	0.537	0.190	0.067
	Typical	0.644	0.228	0.081	0.028
Pile Driver (sonic)	Upper range	0.734	0.260	0.092	0.032
	Typical	0.17	0.060	0.021	0.008
Vibratory Roller		0.21	0.074	0.026	0.009
Hoe Ram		0.089	0.031	0.011	0.004
Large[1] Bulldozer		0.089	0.031	0.011	0.004
Caisson Drilling		0.089	0.031	0.011	0.004
Loaded Trucks		0.076	0.027	0.010	0.003
Jackhammer		0.035	0.012	0.004	0.002
Small[2] Bulldozer		0.003	0.001	<0.001	<0.001

in/sec = inches per second PPV = peak particle velocity

[1] "Large" in this context refers to equipment rated at 100 horsepower (hp) or greater.

[2] "Small" in this context refers to equipment rated less than 100 hp.

Source: FTA 2018

As shown in Table 4.11-7, the greatest vibration impacts would result from the use of pile drivers and vibratory rollers The General Plan would prioritize high-density infill development, especially in the downtown area, which may require the use of pile driving equipment for construction of foundations for mid- and high-rise building, thus creating the potential for adverse vibration impacts to existing structures in the vicinity of development sites. Depending on the type of pile driver used, vibration levels from pile drivers could range between 0.17 and 1.518 in/sec PPV at a distance of 25 feet from the source and between 0.021 and 0.190 in/sec PPV at a distance of 100 feet from the source. Additionally, planned large-scale infrastructure projects under the General Plan, such as the Caulfield Bridge Crosstown Connector Project, Lakeville Corridor Improvements Project, and Howard Street Improvement Project, may require the use of rollers, or other compaction equipment, for roadway paving and resurfacing, potentially resulting in adverse vibration impacts. Vibration levels from use of a vibratory roller could range between 0.21 and 0.026 in/sec PPV at a distance of 25 feet and 100 feet from the source, respectively. According to GPU draft Action NOI-4.1.1, the applicable vibration threshold for historic structures is 0.12 in/sec PPV, the threshold for residential structures is 0.2 in/sec PPV, and the threshold for engineered (i.e., commercial and industrial) structures is 0.3 in/sec PPV.

Vibration levels from typical equipment, such as bulldozers, loaded trucks, and jackhammers, would not exceed the City's vibration thresholds at historic structures, residential structures, or engineered structures located 25 feet or greater from the equipment. However, vibration levels from pile driving equipment and vibratory rollers may exceed City vibration thresholds at this same distance depending on the equipment used and type of structure affected.

At this stage of planning, project-level details are not available for individual development projects that would be carried out under the proposed project; therefore, it is not possible to determine exact vibration impacts at specific structures at this time. However, based on the scope of development carried out under the proposed project, construction of new uses in high-density areas (especially in and near the downtown area) and near historical resources identified in Section 4.5, *Cultural Resources* would represent the greatest potential for adverse vibration impacts due to the close proximity between new development sites and existing surrounding structures. Depending on the distance between construction equipment and affected structures as presented in Table 4.11-7, vibration levels generated during construction of individual projects may exceed the City's vibration thresholds at nearby structures, resulting in potentially significant vibration impacts.

Mitigation Measures

Mitigation Measure NOI-1(b), described under Impact NOI-1, would be required. In addition, the following mitigation measure is required to reduce potential impacts from increased construction noise to the extent feasible.

NOI-2 Construction Vibration Control Plan

Prior to issuance of a building permit for an individual project involving the use of the following construction equipment within the specified distances of nearby building structures, the project applicant shall prepare a groundborne vibration analysis to assess and mitigate potential vibration impacts associated with construction activities:

- Use of a pile driver within:
  - 135 feet of fragile/historic structures
  - 100 feet of non-engineered timber and masonry buildings (e.g., most residential buildings)

- 75 feet of engineered concrete and masonry (no plaster)

- Use of a vibratory roller within:
  - 40 feet of fragile/historic structures
  - 25 feet of any other structure (residential, commercial, or industrial)

- Use of a dozer or other large earthmoving equipment within:
  - 20 feet of fragile/historic structures
  - 15 feet of any other structure (residential, commercial, or industrial)

The vibration analysis shall be conducted by a qualified and experienced acoustical consultant or engineer. The vibration levels generated by construction equipment shall not exceed City vibration thresholds for architectural damage (i.e., 0.12 in/sec PPV at fragile/historic structures, 0.2 in/sec PPV at non-engineered timber and masonry buildings, and 0.3 in/sec PPV for engineered concrete and masonry structures). If vibration levels would exceed these thresholds, alternative methods and equipment, such as drilling piles as opposed to pile driving, use of static rollers as opposed to vibratory rollers, and use of lower horsepower equipment as applicable, shall be employed. If necessary, such as when high-vibration equipment may be used within close proximity to a fragile/historic structure, construction vibration monitoring shall be conducted to ensure the City's vibration thresholds are not exceeded at nearby structures.

Significance After Mitigation

Implementation of Mitigation Measure NOI-2 would require a vibration analysis for construction activities conducted within specified distances of various types of structures. The vibration analysis would determine alternative methods of construction or types of equipment necessary to reduce vibration levels generated at nearby structures. In addition, Mitigation Measure NOI-2 would require vibration monitoring to ensure that vibration levels do not exceed City thresholds. Implementation of Mitigation Measure NOI-2 would reduce construction vibration impacts to less-than-significant levels.

Impact NOI-4 OPERATION OF DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT MAY INCLUDE NEW SOURCES OF VIBRATION; HOWEVER, VIBRATION LEVELS GENERATED WOULD NOT BE EXPECTED TO EXCEED APPLICABLE VIBRATION THRESHOLDS. OPERATIONAL IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Development facilitated by the proposed project would include new commercial and light industrial uses, which may generate vibration during operation. The primary source of operational vibration generated by new commercial and industrial uses is expected to be heavy truck/vehicle trips on the surrounding roadway network. Caltrans notes that "heavy trucks, and quite frequently buses, generate the highest earthborne vibrations of normal traffic" (Caltrans 2020). Additionally, Caltrans has studied the effects of vehicle vibration propagation on sensitive land uses and finds that "vibrations measured on freeway shoulders (five meters from the centerline of the nearest lane) have never exceeded 2.0 mm/s,[1] with the worst combinations of heavy trucks. This level coincides with the maximum recommended safe level for ruins and ancient monuments (and historic buildings)" (Caltrans 2020). Therefore, operational vibration levels associated with the development of new commercial and industrial uses are not expected to exceed applicable vibration thresholds of 0.12 in/sec PPV, 0.2 in/sec PPV, or 0.3 in/sec PPV for fragile/historic structures, residential

[1] Note that this corresponds to a vibration level of 0.08 in/sec.

structures, and engineered commercial/industrial structures, respectively. Therefore, operational vibration impacts introduced by the project would be less than significant.

Another source of operational vibration in the City is the SMART rail, which has two stations in the City of Petaluma. The SMART rail generates vibration levels of 0.1 in/sec at a distance of 20 feet from the tracks (Sonoma-Marin Area Rail Transit District 2006). According to the Sonoma County Comprehensive Transportation Plan, transit ridership would increase from 16,170 (in 2015) to 20,883 (in 2050) (Sonoma County Transit Authority [SCTA] 2021); however, this increase in ridership would not directly increase vibration levels. While unlikely, if development facilitated by the proposed project were to occur in close proximity to the rail line, operation of the rail line (i.e., train passbys) may generate excessive vibration levels. However, under CEQA, the impact analysis focuses on whether the proposed project would cause significant effects on the environment, rather than whether existing environmental conditions (such as train vibration) would affect future development that could occur under the project. Furthermore, the following draft actions from the GPU would further reduce operational sources of vibration to the extent feasible:

> **Action NOI-4.1.1:** Update the nuisance and land use regulations in the Municipal Code and Implementing Zoning Ordinance to protect residents and buildings from harmful vibration.
>
> - Include performance standards for vibration impacts on sensitive receptors during construction.
> - When evaluating projects with new vibration-sensitive uses near the SMART rail line, requiring that a vibration assessment be prepared for new vibration-sensitive uses within 200 feet of the SMART rail line. The ground-borne vibration and noise assessment shall be consistent with Federal Transit Administration-recommended methodology and criteria.
>
> **Action NOI-4.2.1:** Evaluate opportunities to repave truck haul routes to minimize potential vibration impacts to adjacent vibration-sensitive uses.
>
> **Action NOI-4.2.2:** Consider vibratory impacts in the ongoing maintenance, speeds, and upgrades to roads.

With implementation of the above actions, operational vibration impacts associated with the proposed project 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 3:	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?

Impact NOI-5 THE PROJECT WOULD NOT EXPOSE PEOPLE RESIDING OR WORKING IN THE PLAN AREA TO EXCESSIVE AIRPORT-RELATED NOISE LEVELS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The Petaluma Municipal Airport is located along the eastern edge of the City boundary. As shown in Figure 4.11-1 above, the 65 dBA CNEL noise contour associated with the airport does not extend past the airport property and the 60 dBA CNEL noise contour only slightly extends past the northern and southern edges of the airport property. Airport noise levels at the nearest land uses to the south are approximately 60 dBA CNEL and below, with the 55 dBA CNEL noise contour extending as far south as the intersection of Garfield Drive and Sultana Drive.

The nearest uses in the vicinity of the airport include residential uses to the south and park/recreational uses to the north, east, and west. However, it should be noted that most of the land to the west and northwest of the airport has already been developed, and land to the east is outside of the UGB. While new residential uses are not expected to be located in the immediate vicinity of the airport, new development facilitated by the proposed project near the airport may be exposed to some level of airport noise; however, airport noise levels at nearby land uses are expected to be 60 dBA CNEL and below, which is the "Normally Acceptable" threshold for single-family residential land uses according to the City's land use compatibility guidelines (Table 4.11-1). The "Normally Acceptable" threshold continues to increase (ranging between 65 and 75 dBA CNEL) for all other land use types. Furthermore, proposed new development located within the referral area of the Petaluma Municipal Airport (as shown in Figure 4.11-2), would be required to demonstrate consistency with the airport's Comprehensive Airport Land Use Plan (CALUP) to ensure that adverse noise exposure is minimized/avoided. Therefore, development facilitated by the proposed project would not expose people residing or working in the Plan Area to excessive airport-related noise levels. Airport-related noise 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.

4.11.4 Cumulative Impacts

Cumulative Construction Impacts

Noise

The geographic scope for cumulative construction noise impacts is the Plan Area, plus a 0.25-mile radius around the Plan Area. This geographic scope is appropriate because construction of development facilitated by the project, in addition to cumulative development in the Plan Area and surrounding areas, could temporarily increase ambient noise levels across the Plan Area if constructed at the same time. A 0.25-mile radius is appropriate as noise attenuates quickly with

distance and this represents a conservative geographic extent within which construction noise impacts may occur.

Cumulative projects that may be constructed simultaneously with buildout facilitated by the project could, without mitigation, substantially increase noise levels in the vicinity of future projects. While unlikely, if construction of multiple, proximate cumulative projects were to occur simultaneously, noise from individual construction projects could combine to create significant cumulative impacts at sensitive receptors located near these construction sites. Although this scenario is unlikely due to how quickly noise attenuates with distance, there is potential for cumulative construction noise impacts to be significant. As discussed in Impact NOI-1, Mitigation Measures NOI-1(a) and NOI-1(b), as well as goals and policies from the City's General Plan Noise Element, would reduce noise generated by construction associated with future individual development facilitated by the proposed project. While mitigation measures would be implemented to the extent feasible, construction of development facilitated by the project may result in a considerable contribution to cumulative impacts related to a substantial temporary or permanent increase in ambient noise levels, and construction noise impacts would be cumulatively considerable.

Vibration

The geographic scope for cumulative construction vibration impacts is the Plan Area plus a 100-foot radius. This geographic scope is appropriate because construction of development facilitated by the project, in addition to cumulative development in Petaluma and immediate adjacent areas, could temporarily generate vibration in areas surrounding active construction sites if constructed at the same time. A 100-foot radius is appropriate as vibration attenuates quickly with distance and vibration that exceeds acceptable thresholds would occur within 100 feet of an active construction site.

Cumulative projects would produce temporary vibration impacts that would be localized to an individual project site and sensitive receptors in the immediate vicinity. Therefore, only sensitive receptors located in close proximity to each construction site would be potentially affected by each individual development. For the combined vibration impact from simultaneous construction projects to reach cumulatively significant levels, intense construction from these projects would have to occur simultaneously in close proximity to a sensitive receptor. This would most commonly occur when development projects using equipment that generates high vibration levels (e.g., pile driving) are proposed next to a historic building constructed of fragile building materials, which would be more sensitive to vibration damage than structures that were built based on modern building codes. As this is a possibility, construction vibration associated with cumulative projects would be significant.

As discussed in Impact NOI-3, Mitigation Measure NOI-2 would reduce vibration impacts associated with construction facilitated by the project to less than significant levels. It is anticipated that Mitigation Measure NOI-2 would substantially reduce/control construction vibration on a case-by-case basis such that vibration levels would not exceed the FTA vibration criteria for building damage. Therefore, vibration impacts from construction activities related to the project would not result in a considerable contribution to cumulative vibration impacts (Threshold 2).

Cumulative Operational Impacts

Stationary Noise

The geographic scope for cumulative operational stationary noise impacts is the city of Petaluma plus a 0.25-mile radius around the city. This geographic scope is appropriate because operation of development facilitated by the project, in addition to cumulative development in Petaluma and immediate adjacent areas, could permanently increase ambient noise levels if operated at the same time. A 0.25-mile radius is appropriate as noise attenuates quickly with distance.

Cumulative operational noise would consist of the combined operational noise of development projects facilitated by the proposed project in conjunction with existing and future development in the vicinity of these sites, which would result in potential increases in noise associated with operational sources such as mechanical equipment (e.g., heating, ventilation, and air conditioning equipment), landscaping equipment, maintenance activities, recreational activities, parking, and social gatherings. However, operational noise generated by existing and future land uses would be subject to the restrictions of Chapter 21 of the Petaluma Zoning Code, and future development projects would also be subject to the noise-related policies of the City's General Plan Noise Element as well as specific project level mitigations. Compliance with the policies of the City's General Plan Noise Element and the noise regulations of the Petaluma Zoning Code would minimize the permanent increase in ambient noise levels generated by operational activities associated with cumulative development under the proposed project. Therefore, cumulative operational noise impacts would not be cumulatively considerable.

Traffic Noise

The geographic scope for cumulative traffic noise impacts is the city of Petaluma plus a 0.25-mile radius around the city. This geographic scope is appropriate because vehicle use associated with development facilitated by the project, in addition to cumulative development in Petaluma and immediate adjacent areas, would increase traffic noise levels on roadways that provide access to Petaluma. A 0.25-mile radius is appropriate as noise attenuates quickly with distance.

Noise generated along roadways within the city would generate a cumulative increase in noise levels due to increased vehicle volumes associated with individual development projects facilitated by the proposed project. As discussed in Impact NOI-1 and shown in Table 4.11-6, the project's contribution to traffic noise increases along each roadway segment within the Plan Area would be 1.3 dBA CNEL or less, which would not exceed any of the City's significance thresholds for traffic noise impacts. Therefore, cumulative traffic noise impacts associated with the proposed project would not be cumulatively considerable.

Vibration

The geographic scope for operational vibration impacts is the city of Petaluma. This geographic scope is appropriate because vibration attenuates quickly, and would be perceptible to receptors immediately nearby land uses that generate vibration.

As discussed under Impact NOI-4, the primary source of operational vibration introduced by the project would be new heavy vehicle trips on roadways throughout the city. While multiple cumulative projects may introduce new heavy vehicle trips during operation, even multiple heavy vehicles traveling close together do not substantially increase vibration peaks. "In general, more trucks will show up as more peaks, not necessarily higher peaks. Wavefronts emanating from

several trucks closely together may either cancel or partially cancel (destructive interference), or reinforce or partially reinforce (constructive interference) each other, depending on their phases and frequencies. Since traffic vibrations can be considered random, the probabilities of total destructive or constructive interference are extremely small. Coupled with the fact that two trucks cannot occupy the same space, and the rapid drop-off rates, it is understandable that two or more trucks normally do not contribute significantly to each other's peaks (Caltrans 2020). Therefore, operational vibration impacts associated with cumulative projects would not combine to create higher cumulative vibration levels. Additionally, compliance with the policies of the City's General Plan Noise Element and the noise regulations of the Petaluma Zoning Code. Therefore, cumulative impacts related to operational vibration would be less than significant.

Airport Noise

The geographic scope for airport noise is the Petaluma Municipal Airport's noise contours. This geographic scope is appropriate because the Petaluma Municipal Airport is the nearest airport to the Plan Area, and cumulative development within the noise contours would result in exposing residents or workers to excessive aircraft noise levels.

As discussed under Impact NOI-5, airport noise levels at nearby land uses are expected to be 60 dBA CNEL and below, which is the "Normally Acceptable" threshold for single-family residential land uses according to the City's land use compatibility guidelines. Cumulative development located near the Petaluma Municipal Airport would also be subject to the Sonoma County Comprehensive Airport Land Use Plan which regulates the airport influence areas for all airports in the county. Accordingly, development facilitated by the proposed project would not expose people residing or working in the Plan Area to excessive airport-related noise levels. Therefore, cumulative impacts related to airport noise would be less than significant.

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4.12 Population and Housing

This section addresses potential population growth and displacement impacts associated with implementation of the proposed project.

4.12.1 Setting

a. Population

As in many parts of the country, Petaluma experienced significant growth via suburbanization in the years following World War II. Government programs helped facilitate the acquisition and development of farmland east of town into new suburban neighborhoods, commercial buildings, and business parks. This process, coupled with the construction of Highway 101, resulted in a population boom that ultimately strained the City's infrastructure. The early 2000s saw a brief but explosive growth in the telecommunications industry in the area, with millions of square feet of office and industrial space built during the first tech boom.

As discussed within Chapter 2, *Project Description*, 2020 is utilized as the project baseline year for population estimates to align with the Sonoma County Transportation Authority traffic model projections baseline. Accordingly, Table 4.12-1 provides estimates from the California Department of Finance (DOF) for population and housing in Petaluma and Sonoma County in 2020. Petaluma had an estimated 2020 baseline population of 59,828 and 24,067 housing units. As shown in Table 4.12-1, the average household size in Petaluma was an estimated 2.55 persons under baseline 2020 conditions (DOF 2025).

Table 4.12-1 2020 Population and Housing Stock for Petaluma

	City of Petaluma[1]	Sonoma County[1]
Population (# of people)	59,828	488,863
Average Household Size (persons/household)	2.55	2.56
Total Housing Units (# of units)	24,067	204,742
Vacant Housing Units	877 (3.6%)	17,041 (8.3%)

[1] Based on 2020 baseline.

Source: DOF 2025

b. Households and Dwelling Units

A household is defined by the DOF and the US Census as a group of people who occupy a housing unit. A household differs from a dwelling unit because the number of dwelling units includes both occupied and vacant dwelling units. Not all of the population lives in households. A portion lives in group quarters, such as board and care facilities; others are homeless.

Small households, consisting of one to two persons per household, traditionally reside in units with zero to two bedrooms; family households of three to four persons per household normally reside in units with three to four bedrooms. Large households of five or more persons per household typically reside in units with four or more bedrooms. However, the number of units in relation to the household size may also reflect preference and economics. Many small households obtain larger units and some large households live in small units for economic reasons.

Single-family homes comprise the predominant housing type and span virtually all parts of Petaluma, while a mix of both low- and higher-density housing (e.g., multiplexes and apartments) is generally clustered in the downtown area, organized on a walkable street grid. A smattering of larger master planned apartment communities is also found east of Highway 101, and some middle-density buildings (e.g., duplexes, triplexes, quadplexes) are found on the north end of the city near Sonoma Mountain Parkway. 5.6 percent of the city's housing units are vacant and are mostly located along or near either Highway 101 or the railroad tracks, though many smaller sites are also found across the southern half of the city (City of Petaluma 2022). As shown in Table 4.12-1, there are an estimated 24,067 dwelling units in Petaluma as of 2020. These consist of 18,846 single family units and 5,221 multifamily units (DOF 2025).

c. Projections

Table 4.12-2 shows the most recent regional long-range plan and regional growth forecast for the Bay Area provided by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) in Plan Bay Area 2050 (ABAG and MTC 2021). Though it does not include projections by city, it does include employment and housing projections for growth geographies, including South Sonoma County which includes Petaluma, Cotati, Sonoma, and Petaluma.

Table 4.12-2 2050 Plan Bay Area Housing and Employment Projections for South Sonoma County

	2015	2050 (projected)	Projected Growth (Percent Change)
Housing (# of units)	64,000	83,000	+19,000 (30%)
Employment (# of jobs)	72,000	80,000	+8,000 (11%)

Source: ABAG and MTC 2021

New dwelling units are expected to increase 30 percent between 2015 and 2050, for a total of 19,000 new units. Using housing unit projections, an estimated 48,450 new residents[1] will be added to the city by 2050. Employment is projected to increase approximately 11 percent from 2015 levels, for a total of approximately 8,000 new jobs by 2050. This would reduce the City's jobs-housing ratio[2] by 0.2.

4.12.2 Regulatory Setting

There are no federal regulations applicable to population and housing in Petaluma. State, regional, and local regulations are discussed below.

a. State Regulations

State Housing Element Law

State housing element statutes (Government Code Sections 65580-65589.9) mandate that local governments adequately plan to meet the existing and projected housing needs of all economic

[1] 19,000 housing units * 2.55 persons per household = 48,450 new residents

[2] Jobs to housing ratio compares the number of jobs available in a city to the number of housing units. A high ratio indicates more jobs than housing where people commute into the city for work, while a low ratio indicates more housing than jobs where residents commute out of the city for employment.

segments of the community. The law recognizes that in order for the private market to adequately address housing needs and demand, local governments must adopt land use plans and regulatory systems that provide opportunities for, and do not unduly constrain, housing development. As a result, State housing policy rests largely upon the effective implementation of local general plans and in particular, housing elements.

Section 65583 of the California Government Code requires cities and counties to prepare a housing element, as one of the state-mandated elements of the General Plan, with specific direction on its content. Pursuant to Section 65583(c)(7), the Housing Element must develop a plan that incentivizes and promotes the creation of accessory dwelling units that can be offered at affordable rent, as defined in Section 50053 of the Health and Safety Code, for very low, low-, or moderate-income households.

Pursuant to California Government Code Section 65583.2(g)(3), the Housing Element is required to include a program to impose housing replacement requirements on certain sites identified in the inventory of sites. Under these requirements, the replacement of units affordable to the same or lower income level, consistent with those requirements set forth in State Density Bonus Law (Government Code Section 65915(c)(3)), would be required.

AB 1763

AB 1763, effective January 1, 2020, amends the State Density Bonus Law (Section 65915) to allow for taller and denser 100 percent affordable housing developments, especially those near transit, through the creation of an enhanced affordable housing density bonus.

California Housing Affordability Act

This State law, originally enacted in 1982 and last amended in 2017, prevents localities from disapproving proposed developments that comply with "all applicable, objective general plan, zoning, and subdivision standards and criteria," unless they find that the development would have an unavoidable impact on public health or safety that can only be mitigated by rejecting the project or reducing its size. Compliance with objective standards and criteria is defined as "substantial evidence that would allow a reasonable person to conclude" that a project complies. The Housing Affordability Act also prevents localities from disapproving or reducing the size of developments that have a minimum amount of affordable housing (either 20 percent of units for lower-income households or 100 percent of units for moderate-income households), except under specific circumstances. Mixed-use developments with at least two-thirds of their square footage devoted to residential use also qualify for this protection.

Senate Bill 35

In 2017, California enacted Senate Bill (SB) 35 to streamline the approval of affordable housing projects. This law applies in localities that are not meeting their RHNA goals for construction of above-moderate income housing units or units for households below 80 percent of the area median income (AMI) (California Legislative Information 2017). Applicable localities are required to streamline the approval of eligible housing projects by providing a ministerial approval process. To qualify for streamlining, a project must meet all of a range of criteria related to affordability, including but not limited to the number of units, residential zoning, floor area dedicated to residential uses, environmental constraints, demolition of residential units, historic buildings, and consistency with objective zoning standards. CEQA review is not required for eligible projects because they are subject to a ministerial approval process.

Senate Bill 330

The Housing Crisis Act of 2019 (SB 330) seeks to speed up housing production in the next half decade by eliminating some of the most common entitlement impediments to the creation of new housing, including delays in the local permitting process and cities enacting new requirements after an application is complete and undergoing local review—both of which can exacerbate the cost and uncertainty that sponsors of housing projects face. In addition to speeding up the timeline to obtain building permits, the bill prohibits local governments from reducing the number of homes that can be built through down-planning or down-zoning or the introduction of new discretionary design guidelines. The bill is in effect as of January 1, 2020 and expires on January 1, 2030.

SB 330 also regulates demolition of existing housing. It prohibits urbanized jurisdictions from approving a housing development that requires demolition of residential units unless the project creates at least as many units as would be demolished. Local jurisdictions also are prohibited from approving a project that would demolish occupied or vacant "protected units," unless the project meets several criteria (e.g., replacing all protected units, providing relocation benefits, and giving a right of first refusal to displaced residents for comparable units in the new development). Protected units are defined as subject to a covenant, ordinance, or law that restricts rent to levels affordable to persons and families of low or very low income; subject to rent control; or occupied by low or very low income households; among other factors. These requirements for demolition do not supersede local demolition controls that are more protective of lower income households.

AB 130

AB 130 was adopted in 2025 and creates a statutory CEQA exemption for qualifying infill housing projects, including 100 percent residential or mixed-use developments where housing makes up at least two-thirds of the floor area. To qualify, projects must meet criteria such as being located on previously developed urban sites, adhering to local zoning and density standards, and avoiding sensitive areas like farmland or wetlands. The law also requires tribal consultation and environmental assessments while imposing labor standards for certain projects. By streamlining CEQA review, AB 130 aims to accelerate housing production and support population growth in alignment with regional planning goals.

SB 131

SB 131, adopted in 2025, expands and streamlines CEQA exemptions by introducing a "near-miss" provision that applies to any statutory exemption. SB 131 creates nine new statutory exemptions for community-serving infrastructure, including farmworker housing and broadband, and for housing projects disqualified due to a single criterion, limits environmental review to only the impacts caused by that disqualifying factor, exempting analysis of alternatives, cumulative effects, or growth-inducing impacts. The bill also exempts rezoning actions tied directly to an approved Housing Element.

Accessory Dwelling Units

California has enacted a number of ADU laws including AB 68, AB 881, and SB 13 which introduced ministerial "by-right" approval, eliminated lot size, owner-occupancy, and setbacks requirements, and waived fees for smaller units. SB 1211, which went into effect on January 1, 2025, expands detached ADU allowances on multifamily lots from a maximum of two permitted units to eight units (capped by the number of existing dwelling units) and requires ministerial approval if objective

standards are met. SB 1211 also prohibits local requirements to replace surface parking when converting it to ADUs as well as imposition of design or development standards beyond those already set by State law. AB 2533, also effective in 2025, establishes an amnesty pathway to legalize pre-2020 unpermitted ADUs (including junior ADUs) without local penalties or impact fees, using health-and-safety-based inspections only.

SB 9

Senate Bill (SB) 9 (Chapter 162, Statutes of 2021) requires ministerial approval of a housing development with no more than two primary units in a single-family zone, the subdivision of a parcel in a single-family zone into two parcels, or both. SB 9 facilitates the creation of up to four housing units in the lot area typically used for one single-family home. SB 9 contains eligibility criteria addressing environmental site constraints (e.g., wetlands, wildfire risk, etc.), anti-displacement measures for renters and low-income households, and the protection of historic structures and districts.

b. Regional Regulations

Regional Housing Needs Assessment

Pursuant to California Government Code Section 65584(a)(1), the California Department of Housing and Community Development (HCD) is responsible for determining the regional housing needs assessment (segmented by income levels) for each region's planning body known as a "council of governments" (COG), the Association of Bay Area Governments (ABAG) being the COG serving the greater Bay Area region. HCD prepares an initial housing needs assessment and then coordinates with each COG to arrive at the final regional housing needs assessment. To date, there have been five previous housing element update "cycles." California is now in its sixth "housing-element update cycle." Government Code Section 65588 dictates that housing elements must be updated at least once every five years.

The ABAG is tasked with distributing the State-projected housing growth need for their region among their city and county jurisdictions by income category. This fair share allocation is referred to as the Regional Housing Needs Assessment (RHNA) process. The RHNA represents the minimum number of housing units each community is required to plan for through a combination of: 1) zoning "adequate sites" at suitable densities to provide affordability; and 2) housing programs to support production of below-market rate units. Table 4.12-3 shows Petaluma's allocation from the 2023-2031 RHNA distributed among the five income categories.

Table 4.12-3 Regional Housing Needs Assessment 2023-2031

Income Group	RHNA Allocation (units)
Extremely Low/Very Low[1]	499
Low	288
Moderate	313
Above Moderate	810
Total	**1,910**

[1.] The RHNA does not include the extremely low category. It is estimated to be half of the very low income need, per Government Code Section 665583.a.1. The total very low income RHNA is 499 units.

Source: City of Petaluma 2023

Association of Bay Area Governments

As discussed in Section 4.10, *Land Use and Planning*, Petaluma is located within the ABAG planning area. ABAG functions as the Metropolitan Planning Organization (MPO) for Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

Plan Bay Area 2050

Plan Bay Area 2050 was adopted on October 21, 2021. Plan Bay Area 2050 is a limited and focused update of the region's previous integrated RTP/SCS, Plan Bay Area, adopted in 2013. Plan Bay Area 2050 builds upon the growth pattern and strategies developed in the original Plan Bay Area but with updated planning assumptions that incorporate key economic, demographic and financial trends from the last four years (ABAG and MTC 2021).

In 2008, MTC and ABAG initiated a regional effort (FOCUS) to link local planned development with regional land use and transportation planning objectives. Through this initiative, local governments identified Priority Development Areas (PDAs). The PDAs form the implementing framework for Plan Bay Area. The PDAs are areas along transportation corridors which are served by public transit that allow for opportunities for development of transit-oriented development, infill development within existing communities that are expected to take in most of the future development. Overall, over two-thirds of all regional growth by 2040 is allocated within PDAs. The PDAs throughout the Bay Area are expected to accommodate 78 percent (or over 509,000 units) of new housing and 62 percent (or 690,000) of new jobs.

Sonoma County Transportation Authority

The Sonoma County Transportation Authority (SCTA) serves as the coordinating and advocacy agency for transportation funding for Sonoma County. The SCTA acts as the countywide planning and programming agency for transportation related issues. The SCTA plays a leading role in transportation by securing funds, providing project oversight, and initiating long term planning.

Moving Forward 2040

To comply with the Metropolitan Transportation Commission (MTC) requirement that local transportation agencies establish transportation plans that can feed into the larger RTP, SCTA prepared Moving Forward 2040 — the Comprehensive Transportation Plan in September 2016. The Comprehensive Transportation Plan uses ABAG and MTC as well as well as DOF and California Economic Development Department (EDD) data to forecast future population, housing, and employment in Sonoma County and the cities therein through 2040.

c. Local Regulations

Petaluma Housing Element

The Housing Element is one of the 11 elements of the General Plan. The purpose of the Housing Element is to identify and analyze existing and projected housing needs in order to preserve, improve, and develop housing for all economic segments of the community, consistent with the RHNA regulations described above. The City adopted its current Housing Element in 2023 as part of the 2023-2031 planning cycle. This Housing Element was submitted to the HCD for review and comment, and the City received certification of the Housing Element from HCD in 2023. As discussed in the Housing Element, the City's opportunity sites offer capacity for 1,353 units with 338

units on vacant sites, 242 units on parking lots of shopping centers, and 773 units on underutilized sites. The Housing Element also identified a total of 1,888 units on likely sites, which include ADUs and pipeline projects (City of Petaluma 2023a) through 2031.

Petaluma Shelter Crisis Ordinance

Petaluma City Council adopted the Shelter Crisis Ordinance on October 18, 2023 consistent with AB 2553 which requires the development of homeless shelters and permanent supportive housing, and expedites the construction of shelters by establishing a CEQA exemption (City of Petaluma 2023b).

Petaluma Inclusionary Housing Ordinance

Petaluma City Council adopted the Inclusionary Housing Ordinance on October 18, 2018 which requires new residential developments with five or more units to provide at least 15 percent of total units as affordable housing for low to moderate income households (City of Petaluma 2018).

Petaluma Density Bonus Ordinance

The City's Density Bonus Ordinance provides incentives for the production of affordable housing by allowing increase in the number of units allowed on a site above typical density standards, reduction in onsite parking requirements, and/or flexibility from development standards for applicable housing projects meeting specified income thresholds. The purpose of the City's Density Bonus Ordinance is to comply with the requirements of California State Density Bonus Law (City of Petaluma 2026).

City of Petaluma General Plan

The Land Use, Growth, & the Built Environment Element and Economic Health & Sustainability Element of the City of Petaluma General Plan contains goals and policies related to population and housing. The following policies are relevant to the project (City of Petaluma 2008).

Goal 1-P-1. Maintain a balanced land use program that meets the long-term residential, employment, retail, institutional, education, recreation, and open space needs of the community.

> **Policy 1-P-1.** Promote a range of land uses at densities and intensities to serve the community needs within the Urban Growth Boundary (UGB).
>
> **Policy 1-P-2.** Use land efficiently by promoting infill development, at equal or higher density and intensity than surrounding uses.
>
> **Policy 1-P-6**. Encourage mixed-use development, which include opportunities for increased transit access.
>
> **Policy 1-P-10**. Develop and maintain the following areas as neighborhood centers. These centers will serve to focus commercial activity close to residential uses, providing convenient retail and services for all Petaluma residents:
>
> - Lakeville Highway at Casa Grande Road
> - Caulfield Lane at Lakeville Street
> - Along Petaluma Boulevard, near McNear Avenue, at Shasta Avenue/Sycamore Lane, and at Corona Road
> - Sonoma Mountain Parkway, at Riesling Road

- McDowell Boulevard South at Casa Grande Road
- McDowell Boulevard North at Old Redwood Highway

Policy 1-P-11. Allow land use intensification at strategic locations along the arterial corridors leading to Downtown and Central Petaluma, including aging commercial and industrial sites.

Policy 1-P-12. Encourage reuse of under-utilized sites along East Washington Street and Petaluma Boulevard as multi-use residential/commercial corridors, allowing ground-floor retail and residential and/or commercial/office uses on upper floors.

Goal 1-G-4. Maintain a parcel-specific Urban Growth Boundary.

Policy 1-P-29. It is the policy of the City to build within the agreed upon Urban Growth Boundary. No urban development shall be permitted beyond the Urban Growth Boundary. "Urban development" shall mean development requiring one or more basic municipal services including, but not limited to, water service, sewer, improved storm drainage facilities, fire hydrants and other physical public facilities and services; but shall not mean providing municipal or public services to open space uses, public or quasi-public uses such as schools or public safety facilities. Said municipal or public services or facilities can be developed beyond the UGB to provide services within the UGB.

Policy 1-P-38. Require all development outside of city limits and within the UGB to annex to the city as a condition of extension of City services. Annexation requires the extension of both potable water and sewer services in compliance with adopted Master Plans, in conjunction with other public improvements as deemed appropriate by the City.

Goal 1-G-6. Maintain a residential growth management system to ensure public infrastructure keeps pace with growth.

Policy 1-P-47. Ensure that the pace of growth does not create spikes that unduly strain City services.

Policy 1-P-48. Ensure all new development provides necessary public facilities to support the development.

Goal 9-G-1. Establish a diverse and sustainable local economy that meets the needs of the community's residents and employers.

Policy 9-P-3. Provide an array of employment opportunities to existing and future residents by assuring diversity in Petaluma's industry and enterprise mix.

Policy 9-P-7. Plan jointly for economic development, housing, and transportation to assure that the collective effect of change in each area will support movement toward enhanced sustainability over the planning horizon.

4.12.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

Population and housing trends in the Plan Area were evaluated by reviewing the most current data available from the DOF, ABAG, and the certified 2023-2031 Housing Element. Impacts related to population are generally social or economic in nature. Under CEQA, a social or economic change generally is not considered a significant effect on the environment unless the changes are directly linked to a physical change.

Significance Thresholds

Based on Appendix G of the *CEQA Guidelines* a project may be deemed to have a significant impact on population and housing if it would:

1. Induce substantial unplanned population growth in an area either directly or indirectly; or
2. Displace substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere.

For purposes of this analysis, substantial population growth is defined as growth exceeding ABAG or Sonoma County Transportation Authority (SCTA) population forecasts for Petaluma. Substantial displacement would occur if implementation of the proposed project would displace more residences than would be accommodated through growth accommodated by the proposed project.

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the proposed project induce substantial unplanned population growth in an area either directly or indirectly?

Impact POP-1 IMPLEMENTATION OF THE PROPOSED PROJECT WOULD NOT DIRECTLY OR INDIRECTLY INDUCE SUBSTANTIAL UNPLANNED POPULATION GROWTH. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Development of the proposed project is projected to result in approximately 6,449 residential units in the Plan Area by the year 2050 (see Section 2, *Project Description*). This additional housing, when combined with planned development from the existing 2025 General Plan, would lead to an increase of approximately 16,445 residents[3] in the Plan Area from 2020 to 2050. In the unlikely event that all potential buildout of the proposed project occurs, the total population of the Plan Area in 2050 would be 76,273[4], or a population increase of approximately 27 percent. The proposed addition of 6,449 net new residential units would represent approximately 34 percent of the total growth projected for South Sonoma County by 2050, aligning with the buildout assumptions outlined in Plan Bay Area 2050.

Growth anticipated under the General Plan Update is intended in part to meet regional housing needs over the long term, as it includes state mandated housing goals. The proposed project would be consistent with State requirements for the RHNA and would be within the growth forecasts for South Sonoma County in Plan Bay Area 2050, which projects a 30 percent increase in population for

[3] 16,445 residents = (2,437 units under proposed project + 4,012 units under the existing 2025 General Plan) * 2.55 persons per household (DOF 2025)
[4] 59,828 (2020 baseline population) + 16,445 = 76,273 residents (DOF 2025)

South Sonoma County, as well as the SCTA Moving Forward 2050 which uses the same growth forecasts as ABAG. Given that the State is currently in an ongoing housing crisis due to an insufficient housing supply, the additional units under the proposed project would further assist in addressing the existing crisis and meeting the housing needs of the City's communities. According to the City's Sixth Cycle Housing Element, 1,910 new residential units must be constructed by 2031 to satisfy the State-mandated RHNA. The General Plan Update would support development that helps the city move toward achieving this target.

The proposed project would also include 1,414,741 square feet of non-residential land uses, which would create new employment opportunities and in turn encourage people to move to Petaluma for work and increase the city's population. However, this potential increase in population would not represent substantial or unplanned growth. Furthermore, as shown in Table 2-2 of Chapter 2, *Project Description*, the 2025 General Plan projected that buildout under existing General Plan standards would result in approximately 4,012 additional housing units. In reality, the City's actual development levels did not come close to meeting these previously anticipated buildout numbers. One of the primary objectives of the General Plan Update is to proactively plan for future development, including anticipated increases in population and employment. The General Plan Update establishes a framework for accommodating growth in a manner that aligns with the City's long-term vision, infrastructure capacity, and community goals. As such, any population increase resulting from the proposed project would be consistent with the planned growth assumptions evaluated in the General Plan Update and would not result in significant impacts related to unplanned population growth.

The proposed project aims to direct future development in such a way as to minimize the impacts of growth by emphasizing the intensification and reuse of already developed areas, thus minimizing pressure to develop on open spaces and directing growth and redevelopment to infill areas. As a planning document, the General Plan Update would be a key tool to help the City plan and conduct growth. Specifically, the Land Use Element of the General Plan Update includes the following policies aimed at facilitating infill development and promoting orderly growth:

> **Policy LU-3.1: Facilitate infill development.** Facilitate infill urban development at densities and intensities depicted on the Land Use Map (see Policies 1.3 and 2.4 in the adopted Housing Element).
>
> **Policy LU-3.2: Facilitate higher density housing development.** Encourage the efficient use of higher density residential and mixed-use land by facilitating development at the upper end of the density range (see Policy 1.5 in the Housing Element).
>
> **Policy LU-3.3: Facilitate mixed-use development.** Facilitate mixed-use development as depicted on the Land Use Map, with a focus on creating strong, financially sustainable business districts, 15-minute activity centers (see Chapter 2: 15-Minute City), and walkable neighborhoods (see Policies 1.7 and 2.1 in the adopted Housing Element).
>
> **Policy LU-6.2: Create or enhance Town and Neighborhood Centers**. Create new or enhance existing Town and Neighborhood-serving Centers as convenient locations where community and/or economic activity is focused.
>
> **Policy LU-6.3: Facilitate the redevelopment of regional shopping centers into Town Centers.** Facilitate the redevelopment of existing regional shopping centers into Town Centers. (see Program 9 in the adopted Housing Element)

Policy LU-6.4: Facilitate the redevelopment of neighborhood shopping centers. Facilitate the redevelopment of existing neighborhood shopping centers into Neighborhood Centers. (see Program 9 in the adopted Housing Element)

Policy LU-7.3: Facilitate infill residential development. Facilitate new infill residential in predominantly single-family neighborhoods. (see Policies 1.7 and 6.4 in the adopted Housing Element)

In addition, the project would not involve the extension of roads or other infrastructure that could indirectly lead to population growth. As discussed in Section 4.13, *Public Services and Recreation*, and Section 4.16, *Utilities and Service Systems*, the Plan Area is mostly developed and is supported by existing public services and infrastructure which are sufficient to serve the additional housing units and non-residential development. Therefore, because the proposed project is designed for planned and orderly growth, as mandated by the State, development in accordance with the proposed project would not indirectly induce unplanned growth in the Plan Area. Impacts would be less than significant.

Mitigation Measures

No mitigation required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2:	Would the proposed project displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?

Impact POP-2 Implementation of proposed project would not result in the displacement of substantial numbers of housing or people. This impact would be less than significant.

"Substantial" displacement would occur if allowed land uses would displace more residences than would be accommodated through growth facilitated by the project. The project would accommodate new residential development in the Plan Area mainly in the central, southern, and southwestern portions of the city, as well as along Petaluma Boulevard, Hopper Street, and Casa Grande Road with the addition of the Stepdown Mixed Use land use designation. At full buildout the proposed project would result in 6,449 new housing units developed by 2050. The types of housing units anticipated under the proposed project would generally fall into the following categories of development projects: single-family residential, multi-family residential, accessory dwelling units, and/or mixed-use development on vacant sites, and redevelopment of existing non-vacant sites that would allow residential use. Focusing development in the specific focus areas and housing opportunity sites over the life of the proposed project would not result in the displacement of existing residences in order to accommodate the planned increase in development intensity.

In addition, consistent with policies from the Land Use Element of the General Plan Update outlined above within Impact POP-1, the proposed project would direct new growth and new urban development on infill sites within the Plan Area that are underutilized. Therefore, the proposed residential units would provide additional housing opportunities for residents if any are displaced during buildout of the proposed project. In addition, future development facilitated by the proposed project would be required to comply with Policy 6.1 of the City's 2023-2031 Housing Element, which requires compliance with Fair Housing and anti-discrimination laws and affirmatively further fair

housing for all; and Policy 6.3, which protects tenants from discriminatory housing practices and displacement (City of Petaluma 2023). Therefore, the proposed project is not anticipated to result in the net loss or displacement of housing, necessitating the construction of replacement housing elsewhere. Impacts would be less than significant.

Mitigation Measures

No mitigation required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.12.4 Cumulative Impacts

The geographic scope of the cumulative population and housing analysis is the City of Petaluma and adjacent jurisdictions. This geographic scope is appropriate because projections at this level are used to estimate the need for public services and other government facilities and programs. The cumulative analysis considers the nearby past, present, and reasonably foreseeable future plans and projects listed in Table 3-1 (refer to Section 3, *Environmental Setting*) located outside the Plan Area, in addition to the proposed plan.

Cumulative development surrounding the Plan Area in combination with development proposed under the General Plan Update may result in increased population, job, and housing projections. Implementation of the proposed project would increase density and intensity of existing land uses potentially resulting in increased growth and displacement of existing housing. However, cumulative development would be subject to applicable plans, specifically the Sonoma County General Plan, city General Plans, and local Specific Plans or Area Plans. In addition, the cumulative growth is consistent with the RHNA established for all jurisdictions in the region. Because the proposed plan and applicable cumulative plans are designed for planned and orderly growth and residential development would be completed in accordance with State law, cumulative development would not directly or indirectly induce substantial unplanned growth. As such, while other cumulative plans and projects would result in direct population growth, cumulative projects would result in a less than significant cumulative impact associated with direct population growth, and the project would not result in a considerable contribution to this cumulative impact.

Cumulative plans and projects would add residential units in excess of any removal of existing housing on cumulative project sites. This cumulative impact would be less than significant. Development facilitated by the proposed plan would add approximately 6,449 housing units to the City of Petaluma housing stock, and would not require the removal of any residences or the displacement of people. As such, the General Plan Update would not result in significant cumulative impacts related to displacement of people or housing. Cumulative impacts would be less than significant.

4.13 Public Services and Recreation

This section describes existing public services and recreational facilities in the project area and assesses the potential impacts to public services, including fire protection, police, schools, parks, and public facilities, resulting from implementation of the proposed project.

4.13.1 Setting

a. Fire Protection Services

The City of Petaluma Fire Department (Petaluma Fire Department) provides fire prevention, fire suppression, rescue and emergency medical services within the city limits of Petaluma, and is the primary ambulance provider for Southern Sonoma County and a portion of Marin County; covering 184 square miles and approximately 70,000 persons. Petaluma firefighters iare available 24 hours per day, 7 days per week to respond to fire and medical emergencies. The City of Petaluma Fire Prevention Bureau performs project and site inspections, provides safety and emergency preparedness education, performs permit review, facilitates the weed abatement and hazardous vegetation program, and performs development review as part of the City of Petaluma's Development Review Committee (City of Petaluma 2025a).

The City of Petaluma has automatic aid agreements with CAL FIRE, and other neighboring jurisdictions and is part of the state-wide master mutual aid program. Sonoma County and the City of Petaluma are located within Region II of California's Mutual Aid System (City of Petaluma 2022a).

Staffing, Facilities, and Equipment

The Petaluma Fire Department has a total of 71 full-time personnel working in prevention, operations, and support services. Its 57 firefighters are divided among 3 platoons that work 24-hour rotating shifts at the City's fire stations (City of Petaluma 2020).The Fire Department maintains three fire stations within City limits:

- Station 1: 198 D Street
- Station 2: 1001 North McDowell Boulevard
- Station 3: 831 South McDowell Boulevard

Each station is equipped with a paramedic advanced life support ambulance and a fire engine, with Station 2 also housing a cross-staffed aerial ladder truck. In addition, the Petaluma Fairgrounds

The Petaluma Fairgrounds property was identified in the 2023 Public Safety Facility Master Plan as the location for a new public safety facility at the corner of Kenilworth Drive and Johnson Drive. This location was subsequently approved by City Council along with a Major Site Plan & Architectural Review and Conditional Use Permit in 2025. The site offers a strategic, centrally located civic space capable of supporting consolidated public safety functions that will integrate with a more comprehensive Fairgrounds Master Plan expected to start in earnest in early 2026.

Response Times

The Fire Department tracks total response times, which include the time required for a 911 dispatcher to process the call, the crew's reaction time, and travel time to the emergency. The

National Fire Protection Association (NFPA) establishes national response-time standards based on the demographics and characteristics of the service area.

In 2022, the Fire Department conducted a comprehensive operational and administrative analysis through the Center for Public Safety Management, LLC. The City and Fire Department are actively working to implement its recommendations, most notably the addition of a centrally located fourth fire station, aimed in part at improving response times.

The Fire Department tracks total response times, which include the time required for a 911 dispatcher to process the call, the crew's reaction

b. Police Services

The Petaluma Police Department operates as a dedicated police department and provides police services 24 hours per day, 7 days per week. The officers respond to calls for service and provide general law enforcement activities, including traffic investigation, reports of criminal activity, crime scene investigation, and apprehension of criminals. The Police Department consists of 103 full time staff members fulfilling several roles, including but not limited to police officers, public safety dispatchers, professional staff, detectives, traffic enforcement, parking enforcement, and leadership such as sergeants, a civilian technical services manager, lieutenants, and a deputy chief (City of Petaluma 2025b). The Police Department is one of three agencies in Sonoma County to operate a Critical Response Team comprising of both SWAT members, Crisis negotiators, and tactical dispatchers. Additionally, the Police Department oversees and manages the mobile crisis intervention team operating in Petaluma known as Specialized Assistance For Everyone or SAFE. The Police Department maintains one main station located at 969 Petaluma Boulevard North.

The Police Department participates in the California Law Enforcement Mutual Aid System, which establishes a statewide framework for requesting and providing law enforcement assistance during emergencies, disasters, or incidents that exceed local resources. At the regional level, the Department maintains countywide protocol policies and memoranda of understanding (MOUs) with Sonoma County law enforcement agencies, and coordinates with the California Highway Patrol for traffic enforcement, roadway incidents, major events, and emergency response on state highways and connecting transportation corridors. These agreements and coordination protocols define operational responsibilities, command and control, communications, and resource-sharing arrangements, supporting both routine operations and coordinated response to large-scale or multi-jurisdictional incidents.

c. Schools

The -Plan Area is served by seven elementary school districts and one high school district, as shown in Table 4.13-1, below. Elementary school districts serving the Plan Area include Cinnabar, Old Adobe Union, Petaluma City, Waugh, Wilmar Union, Liberty, and Laguna Joint School Districts. The Petaluma Joint High School District includes all the city's secondary schools, which serve populations both within and outside of city limits. The Petaluma City Elementary School District and the Petaluma Joint Union High School District together form Petaluma City Schools, a unified administration district. Both districts are governed by the same school board and operated by the same administration (Petaluma City Schools 2025).

Table 4.13-1 School District Enrollment and Planned Improvements

School District	Enrollment (2021-2022)	Planned Improvements
Cinnabar School District	230	None
Old Adobe Union School District	1,897	Addition of 4 modular classrooms at Loma Vista Immersion Academy; major re-roofing for Old Adobe and Sonoma Mountain Charter Schools
Petaluma City Elementary School District	2,424[1]	Limited upgrades and additions
Waugh School District	790	Construction of outdoor shade structures at Meadow and Corona Creek Elementary Schools
Wilmar Union School District	217	None
Liberty School District	211	One additional classroom to accommodate newly added TK grade level
Laguna Joint School District	26	None
Petaluma Joint Union High School District	5,233[2]	Limited upgrades and additions

Source: City of Petaluma 2022

[1.] 2020-2021 school year enrollment

[2.] 2020-2021 school year enrollment

As summarized in Table 4.13-1, above, there are planned improvements at facilities within each of the school districts with the exceptions of Cinnabar School District and Laguna Joint School District. Under California Education Code Section 17620 and Government Code 65995, school districts are authorized to levy fees on new residential and commercial development to fund the construction or modernization of educational facilities, as discussed in Section 4.13.2, *Regulatory Setting*, below. Fee amounts are determined based on the square footage of new construction or additions. Fees are collected prior to building permit issuance, and the City of Petaluma coordinates with its school districts to ensure proof of payment before permits are issued.

Within the Plan Area, all school districts collect standard developer fees under California Education Code Section 17620. In addition to standard developer fees, Petaluma City Schools benefits from an $89 per year, voter-approved parcel tax that supports the operations of the district (Petaluma City Schools 2025).

d. Parks

The City of Petaluma maintains a goal of providing 5 acres of parkland for every 1,000 residents. Petaluma provides its 59,828 residents[1] with a variety of parks and recreational facilities spanning a total of 265.8 acres and 51 parks (City of Petaluma 2022b). This includes 100.1 acres of neighborhood parks and 162.6 acres of community parks. Within city limits, there are about 216 acres of creek and riverfront recreation areas, many of which feature trails offering opportunities for active transportation (City of Petaluma 2022b). In addition, outside of city limits but within the Urban Growth Boundary, Sonoma County Regional Parks maintains the Helen Putnam Regional Park, a 216-acre natural open space located southwest of Petaluma. Sonoma County Regional Parks also owns and operates the 3,400-acre Tolay Lake Regional Park, which is approximately eight miles southeast of downtown Petaluma. In addition, just east of the Plan Area, California State Parks

[1] Population reflects the 2020 baseline as described in Chapter 2, *Project Description*.

maintains the 28-acre Petaluma Adobe State Park which includes a National Historic Landmark, the Petaluma Adobe, and 5 acres of surrounding land (Sonoma Petaluma Parks 2026).

Recreation opportunities are expanding in Petaluma, as the City has plans to develop additional parks and expand existing parks, as described in Table 4.13-2, below.

Table 4.13-2 Planned Parks

Park Name	Park Type	Approximate Acreage
Corona (Future UGB Expansion)	Community	TBD
Town and Country (Lucky's)	Neighborhood	TBD
Denman Flats/Johnson Property	Community	7
Cedar Grove (Holmberg)	Neighborhood	2
Fairgrounds	Community	Per proposed master plan
Crinella & Caulfield	Pocket	0.5
Adobe Creek	Neighborhood	10
Riverfront Active Park	Community	3.5
River Walk – Phase 2	Community	TBD
C Street	Pocket	TBD
Petaluma Boulevard South	Pocket	0.25
Total		**Approximately 23.25**

Source: City of Petaluma 2022b, Petaluma River Park Foundation 2024

The City offers a wide range of recreation programs for all age groups, including aquatics, fitness classes, youth and senior programs and seasonal events. The City operates several facilities that house such programs, including the Petaluma Swim Center, Cavanaugh Recreation Center, Petaluma Community Center, Petaluma Senior Center, and Kenilworth Teen Center. The City also maintains partnerships for use of facilities such as the Petaluma Arts Center and the Petaluma Historical Center (City of Petaluma 2022b).

e. Libraries

The Sonoma County Library operates the Petaluma Regional Library in a City-owned building located on Fairgrounds Drive in Petaluma. The 25,000-square foot building maintains 666,513 volumes and circulates 3.4 million items per year (City Library 2022). The facility includes a community room, a conference room, and a Friends of the Library bookstore, as well as computer and printing services. While the library is operated by the Sonoma County Library system, the City appoints members to the Petaluma Regional Library Advisory Board (Sonoma County Library 2025). The Petaluma Regional Library recently underwent renovations which included a new entryway, a new teen area, a renovated children's area, new carpet, furniture, shelving, paint, as well as updated restrooms, heating and cooling systems, and a fire suppression system.

4.13.2 Regulatory Setting

a. Federal Regulations

There are no federal regulations pertaining to public services that are applicable to this analysis. Applicable State and local regulations are described below.

b. State Regulations

California Fire and Building Code

The State of California provides minimum standards for building design through the California Building Code (CBC), which is located in Part 2 of Title 24, California Building Standards Code, of the California Code of Regulations (CCR). The CBC is based on the International Building Code but has been amended for California conditions. It is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local building officials for compliance with the CBC and by local fire marshals for compliance with the fire code. Typical fire safety requirements of the CBC include: the installation of sprinklers in all new buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

California Code of Regulations

The California Code of Regulations, Title 5 Education Code, governs all aspects of education within the State. California State Assembly Bill 2926 (AB 2926) – School Facilities Act of 1986 – was enacted by the State of California in 1986 and added to the California Government Code (Section 65995). It authorizes school districts to collect development fees, based on demonstrated need, and generate revenue for school districts for capital acquisitions and improvements. It also established that the maximum fees which may be collected under this and any other school fee authorization are $1.50 per square foot ($1.50/ft^2) for residential development and $0.25/ft^2 for commercial and industrial development. AB 2926 was expanded and revised in 1987 through the passage of AB 1600, which added Section 66000 et seq. of the Government code. Under this statute, payment of statutory fees by developers serves as total mitigation under CEQA to satisfy the impact of development on school facilities. The current maximum level 1 developer fees are $4.79 per residential square foot and $0.78 per commercial square foot. These fees were approved on February 23, 2022, and are adjusted bi-annually.

California Senate Bill 50

As part of the further refinement of the legislation enacted under AB 2926, the passage of SB 50 in 1998 defined the Needs Analysis process in government Code Sections 65995.5-65998. Under the provisions of SB 50, school districts may collect fees to offset the costs associated with increasing school capacity as a result of development. SB 50 generally provides for a 50/50 State and local school facilities match. SB 50 also provides for three levels of statutory impact fees. The application level depends on whether State funding is available; whether the school district is eligible for State funding; and whether the school district meets certain additional criteria involving bonding capacity, year-round schools, and the percentage of moveable classrooms in use.

California Government Code sections 65995-65998 sets forth provisions to implement SB 50. Specifically, in accordance with section 65995(h), the payment of statutory fees is “deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization…on the provision of adequate school facilities.” The school district is responsible for implementing the specific methods for mitigating school impacts under the Government Code.

Pursuant to Government Code section 65995(i), "A State or local agency may not deny or refuse to approve a legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization as defined in section 56021 or 56073 on the basis of a person's refusal to provide school facilities mitigation that exceeds the amounts authorized pursuant to this section or pursuant to section 65995.5 or 65995.7, as applicable."

California Education Code section 17620(a)(1) states that the governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement against any construction within the boundaries of the district, for the purpose of funding the construction or reconstruction of school facilities.

State Public Park Preservation Act (California Public Resource Code Section 5400 – 5409)

The State Public Park Preservation Act is the primary instrument for protecting and preserving parkland in California. Under the Act, cities and counties may not acquire any real property that is in use as a public park for any non-park use unless compensation or land, or both, are provided to replace the parkland acquired. This ensures a no-net-loss of parkland and facilities.

Quimby Act (California Government Code Section 66477)

The Quimby Act allows cities and counties to adopt park dedication standards/ordinances requiring developers to set aside land, donate conservation easements, or pay fees towards parkland when property is subdivided.

Capital Improvement Programs (California Government Code Section 65403)

California Government Code Section 65403 establishes that certain public agencies or special districts responsible for constructing or maintaining public facilities may prepare a five-year capital improvement program that shall indicate the location, size, time of availability, means of financing, operational costs, and maintenance schedules. Capital improvement programs prepared pursuant to California Government Code Section 65403 must be submitted to affected agencies for a review of its consistency with applicable local plans, and programs must be adopted and reviewed annually by the agency's governing body, with each annual update extending the program by one year. The statute specifically covers seven types of public facilities, including public buildings, schools and related facilities, and parks and recreation facilities, excluding special districts that construct or maintain parks and recreation facilities with an annual operating district budget of less than one hundred thousand dollars ($100,000).

c. Local Regulations

City of Petaluma General Plan

The Mobility Element; Recreation, Music, Parks, & the Arts Element; and Community Facilities, Services, and Education Element of the City of Petaluma General Plan contains goals and policies related to public services and recreation. The following policies are relevant to the project (City of Petaluma 2008).

Goal 5-G-2. Promote the safe movement of people and goods through Petaluma's streets

Policy 5-P-9. Ensure safety improvements are undertaken in response to the changing travel environment.

Goal 5-G-5. Create and maintain a safe, comprehensive, and integrated bicycle and pedestrian system throughout Petaluma that encourages bicycling and walking and is accessible to all

Policy 5-P-25. Establish a network of multi-use trails to facilitate safe and direct off-street bicycle and pedestrian travel. At the minimum, Class I standards shall be applied unless otherwise specified.

Policy 5-P-28. Allow bicyclists and pedestrians use of all emergency access routes required of existing and new developments.

Goal 6-G-1. Retain and expand city-wide park and recreation assets and programs to maintain the quality of life they provide to the community.

Policy 6-P-1. Develop additional parkland and recreational facilities in the city, particularly in areas lacking these facilities and where new growth is proposed, to meet the standards of required park acreage.

Policy 6-P-2. Provide a comprehensive and integrated network of parks and open space and improve access to existing facilities where feasible.

Policy 6-P-4. Proposed parks, and proposed expansion of existing parks, as designated on the General Plan Land Use Map, are parcel specific, and shall be dedicated as a condition of development entitlements, consistent with federal, state and local law. Dedication requirements for development subject to the Quimby Act (Government Code Sec. 66477) shall be consistent with the requirements of that Act

Policy 6-P-5. New parkland or recreation facilities, beyond those identified in the General Plan, may be required as part of a specific project's development review process.

Policy 6-P-6. Achieve and maintain a park standard of 5 acres per 1,000 residents (community park land at 3 acres per 1,000 population and neighborhood park land at 2 acres per 1,000 population) and an open space/urban separator standard of 10 acres per 1,000 population, in order to enhance the physical environment of the city and to meet the recreation needs of the community.

Policy 6-P-12. Locate recreation uses (e.g., trails, athletic fields, picnic areas, etc.) in the urban separator on the east and west sides of the city, taking into account terrain, accessibility, links to other parts of the city and related factors in determining whether or not a particular use is appropriate.

Policy 6-P-16. Should expansion beyond the 1998 Urban Growth Boundary occur, priority shall be given to identification and development of adequate park lands to meet identified standards and community needs.

Goal 6-G-2. Ensure park and recreational assets are maintained to allow safe access and use.

Policy 6-P-17. Recognizing that the maintenance of City assets is a matter of civic pride, priority and safety, the City shall work with citizens, businesses, schools, organizations, and public agencies to fund an acceptable level of maintenance for all city-owned park and recreational facilities.

Goal 7-G-1. Ensure adequate public facilities and services exist and are maintained to meet the needs of the community for an array of high quality services and programs.

Policy 7-P-1. Coordinate with other agencies, such as the Sonoma County Library, to ensure that facilities plans are implemented in concert with City plans to best meet the facilities needs of the community.

Policy 7-P-5. Upgrade and expand public facilities such as the Fire and Police stations, the satellite corporation yards and Animal Shelter to effectively and efficiently meet future needs of the community residents and the animals

Goal 7-G-4. Schools, Education and Childcare Support efforts to provide superior educational opportunities for children and all members of the community.

Policy 7-P-17. Achieve and maintain a minimum ratio of one fire suppression personnel per 1,000 population served or a similar level of response service to meet increased call volumes.

Policy 7-P-18. Ensure facilities, equipment and personnel are adequate to maintain quality of service demands of the community, including but not limited to: fire suppression, Advanced Life Support (ALS), rescue, fire prevention, education, CUPA, and disaster preparedness and management.

Policy 7-P-19. Maintain a four minute travel time for a total of 6-minute response time for emergencies within the City.

Policy 7-P-21. Maintain and expand the Ambulance Enterprise System to meet continued needs in the District.

Policy 7-P-22. Ensure emergency response equipment and personnel training are adequate to follow the procedures contained within the Emergency Operations Plan for a major event, through maintaining and updating, as appropriate, the City's emergency preparedness programs, plans, and procedures to ensure the health and safety of the community in the event of an earthquake or other disaster

Policy 7-P-28. Expand the capability of the Fire Department to respond to River related emergencies.

Goal 7-G-6. Provide police services that are responsive to citizens' needs to ensure a safe and secure environment for people and property in the community.

Policy 7-P-31. Maintain a minimum standard of 1.3 police officers per 1,000 population or a similar level of coverage to meet increased service calls.

Policy 7-P-34. Plan for expanding or replacing the police station with a facility (either on-site or elsewhere) of sufficient size to accommodate police operations, community requirements and anticipated population growth. Funding of expanded facilities should be addressed through the implementation of adequate Public Facilities fees as identified in the Implementation Plan.

Policy 7-P-35. Incorporate, into new development to the extent deemed appropriate and feasible, the Development Code Urban Design Standards for crime prevention

Policy 7-P-36. Ensure adequate police staff to provide rapid and timely response to all emergencies and maintain the capability to have minimum average response times. Actions that could be taken to ensure rapid and timely response to all emergencies include:

- Analyze and monitor factors affecting response time (population growth, police staffing, and community policing programs) and average response times as guidelines based on past experience.
- Maintain, train, and equip special response teams for extraordinary or extremely hazardous emergency incidents

Petaluma Municipal Code

Petaluma Municipal Code (PMC) includes several provisions for the preservation of public services and recreation. PMC Title 19, Development Related Fees, includes Chapter 19.04, Public Facilities Development Impact Fees, which authorizes the City of Petaluma to collect fees to support the future development of public safety facilities and the purchase of equipment and vehicles necessary to serve growth resulting from development. It also includes Chapter 19.12 Park Land Acquisition Fee (Non-Quimby Act) and Chapter 19.16 Park Land Development Fee, which establish the authority of the City to collect development impact fees for parkland acquisition and improvements. PMC Title 20, Chapter 20.34 Park and Recreation Land Dedication and Improvement implements the Quimby Act and requires developers to dedicate land and pay in-lieu fees for both park and recreation purposes as a condition of subdivision approval, using the City's standard of 5 acres of parkland per 1,000 residents.

PMC Title 17 Building and Construction includes provisions related to building safety and school development. Chapter 17.04 California Codes Based on International Codes adopts the California Building Standards Code with local amendments for safety and energy efficiency. Chapter 17.20 Fire Code adopts and enforces fire safety standards for buildings and recreational facilities. Chapter 17.28 School Facilities includes requirements for school facility fees related to new development.

Petaluma Park Ordinance

The Petaluma Park Ordinance (Chapter 13 of the Petaluma Municipal Code) sets parameters of uses within parks and establishes the standards for the issuance of park permits. This is to ensure all persons may enjoy and make use of the parks and to protect the rights of those in surrounding areas.

City of Petaluma Emergency Operations Plan

The City adopted its Emergency Operations Plan (EOP) in March 2022. The EOP established guidelines for managing emergencies and disasters within Petaluma, integrated with the Sonoma County Operational Area as well as state and federal systems. The EOP addresses all phases of emergency management, including preparedness, response, recovery, and mitigation. The EOP also establishes guidelines for activating the Emergency Operations Center (EOC). The City Manager, Assistant City Manager, or Deputy City Manager/Finance Director all have authority to active the EOC either partially or fully. Examples of triggers that may activate the EOC include but are not limited to an immediate event such as an earthquake or fire, and immediate event with warning such as a flood or fire that may affect the city, or a human-caused disaster such as a chemical spill or gas leak. The EOC coordinates with Sonoma County for resource requests and public information

through the Joint Information System, and operates under a structured organization with sections for Management, Operations, Planning, and Logistics/Finance (City of Petaluma 2022c).

Petaluma River Access and Enhancement Plan

The Petaluma River Access and Enhancement Plan was adopted in 1996 as an area plan that describes the community's vision for the Petaluma River, including riverfront uses, activities, and development. It elaborates on the information in the City's General Plan related to the river and adjacent properties. The plan requires that new development or redevelopment along the Petaluma River to dedicate public access easements and construct segments of a continuous multi-use trail, or pay in-lieu fees where immediate construction is not feasible, with design standards, staging areas, and street-end access points specified in the plan (City of Petaluma 1996).

Bicycle and Pedestrian Master Plan

The City of Petaluma's Bicycle and Pedestrian Master Plan includes a chapter on the regional trail system, which is an important component of Petaluma's network of recreational facilities. The multi-use trails in Petaluma accommodate various types of recreational activities, including walking, running, bicycling, and skating. The city's trail system is discussed in the context of the pedestrian and bicycle networks in the Transportation Existing Conditions Report prepared as part of the process for the General Plan Update. The City of Petaluma recently updated the Active Transportation Plan which supersedes the BPMP and was adopted in September 2025.

4.13.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

The assessment of potential environmental impacts related to public services is based on a qualitative analysis of how future development under the General Plan Update would impact the provision of public services in the Plan Area. As a programmatic document, this Program EIR presents a citywide assessment of the project.

Significance Thresholds

According to Appendix G of the CEQA Guidelines, impacts related to public services and recreation from implementation of the proposed project would be significant if it would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other objectives for any of the public services:
    a. Fire protection;
    b. Police protection;
    c. Schools;
    d. Parks; or
    e. Other public facilities;

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

Impacts related to public stormwater facilities are addressed in Section 4.9, *Hydrology and Water Quality,* impacts related to public wastewater, water, and solid waste facilities are discussed in Section 4.16, *Utilities and Service Systems*.

b. Impacts and Mitigation Measures

Threshold 1a:	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?
Threshold 1b:	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?
Threshold 1e:	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered public facilities, or the need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Impact PS-1 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD INCREASE THE POPULATION IN THE PLANNING AREA, WHICH WOULD RESULT IN AN INCREASE IN DEMAND FOR FIRE PROTECTION, POLICE PROTECTION, AND LIBRARIES. COMPLIANCE WITH PROPOSED POLICIES IN THE GENERAL PLAN UPDATE, PETALUMA MUNICIPAL CODE TITLE 19, AND REQUIRED DISCRETIONARY REVIEW FOR FUTURE PROJECTS FACILITATED BY THE GENERAL PLAN UPDATE WOULD MINIMIZE ADVERSE ENVIRONMENTAL EFFECTS ASSOCIATED WITH THE PROVISION OF NEW OR PHYSICALLY ALTERED FIRE, POLICE, OR LIBRARY FACILITIES. THESE IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Future development facilitated by the project would result in an increase in the Plan Area's population, which would result in an incremental increase in demand for fire protection, police protection, and other public services such as libraries.

The Plan Area would be served with fire protection and emergency medical services provided by the Petaluma Fire Department and other participants of the California Mutual Aid System Region II (City of Petaluma 2022a). Future development would be required to meet the standard fire code safety and access requirements administered by the City of Petaluma and California Building Code. As future buildout occurs in accordance with the project, the City would evaluate operations and deployment of fire protection services. In accordance with standard practices, Petaluma Fire

Department would review project plans before permits are issued to ensure compliance with all applicable fire and building code standards and ensure adequate emergency access is provided to the site. The Plan Area would be served with police protection provided by the Petaluma Police Department. Police protection services are not "facility-driven," meaning such services are not as reliant on facilities in order to effectively patrol a beat. An expansion of, or intensification of development within a beat does not necessarily result in the need for additional facilities if police officers and patrol vehicles are equipped with adequate telecommunications equipment in order to communicate with police headquarters. However, if the geographical area of a beat is expanded, population increases, or intensification/redevelopment of an existing beat results in the need for new police officers, new or expanded facilities may be needed. The proposed project would gradually increase the population of Petaluma by 16,445 residents through 2050, however, the General Plan Updated includes updates to the Public Facilities and Safety Elements and includes policies that would ensure adequate police protection services to adequately serve the City's growing population.

Policy FAC-1.1 of the Public Facilities Element includes Action FAC-1.1.4, which establishes plans to renovate existing Fire and Police Department facilities as funding becomes available. If construction is not financially feasible, the action includes an option for leasing space or pursuing other creative and cost-effective solutions to continue providing adequate service. In addition, Policies SAF-3.1 and SAF-3.5 of the Safety Element include plans to maintain a minimum staffing standard for the Police and Fire Departments and to maintain rapid and timely response to emergencies requiring police response.

Future development facilitated by the project would result in an increase in population which could result in an increased demand for library services. However, as described in Section 4.13.1(e), *Libraries*, the Petaluma Regional Library recently underwent renovations. In addition, the Public Facilities Element of the proposed project incorporates a policy and action plan that would facilitate the maintenance and potential expansion of the Petaluma Regional Library, as described below.

> **Policy FAC-1.1: Update, expand, relocate, or replace public facilities.** Upgrade, expand, relocate, and replace public facilities as appropriate to effectively and efficiently meet the future needs of the community as the city grows in a fiscally sustainable manner.
>
> > **Action FAC-1.1.1.** Develop, maintain, and implement a Facilities Master Plan that plans for the equitable provision of public facilities, maintenance, relocation, and replacement of facilities, programming, and funding. Update the plan every five years. Facilities Master Plan components may include:
> >
> > - Existing Facilities Inventory
> > - Equitable Access and Distribution
> > - Library Renovations and Expansions
> > - Animal Shelters and Services
> > - Public Bathrooms and Essential Amenities
> > - Signage and Wayfinding
> > - Maintenance and Lifecycle Planning
> > - Age-Friendly Programming
> > - Implementation of the Blueprint for Climate Action

The proposed project does not include new or expanded police, fire protection, or library facilities, and future development would be required to comply with the proposed General Plan Update policies provided above. The expansion of facilities and services would not be necessary until the level of new development within the service area exceeds the capacity of existing facilities to provide services. Because the General Plan Update is a policy document and does not propose specific development projects, this threshold is not met by the proposed project, but could eventually be met by future development. Should an expansion of an existing facility or the construction of a new facility be required as a result of increased demands from future development, additional CEQA review would be required.

In addition, the City proactively evaluates its long-range public facility and service needs through its Capital Improvement Program, prepared pursuant to California Government Code Section 65403. The Capital Improvement Program identifies the location, timing, size, and financing of anticipated public facilities and services, including police, fire, libraries, parks and other public buildings, and is reviewed annually by the City Council to ensure consistency with the General Plan Update and alignment between investments and projected growth. Furthermore, future development would be required to pay applicable development impact fees pursuant to PMC Title 19, which provides funding for construction, expansion, and equipment purchases necessary to maintain adequate public safety and public service facilities as the community grows. These fees would be available to support items such as fire station renovations, construction of new fire and/or police facilities, purchases of vehicles and emergency equipment, and expansion of library or other community facilities, as identified in the City's adopted fee nexus study (City of Petaluma 2025c).

Therefore, although the City's population and subsequent need for police, fire and other public services are expected to grow under the proposed project, the General Plan Update includes policies to ensure that public safety standards are maintained alongside growth in the Plan Area. With compliance to applicable regulations, impacts to fire protection, police protection, and other public facilities would be less than significant.

Mitigation Measures

No mitigation required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 1c:	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

Impact PS-2 THE PROPOSED PROJECT WOULD RESULT IN A POPULATION INCREASE THAT WOULD INCREASE DEMAND FOR SCHOOL SERVICES AND POTENTIALLY CREATE THE NEED FOR NEW SCHOOL FACILITIES. FUTURE DEVELOPMENT FACILITATED BY THE PROJECT WOULD BE REQUIRED TO PAY IMPACT FEES THAT WOULD PROVIDE FUNDING FOR THE PROVISION OR EXPANSION OF NEW SCHOOL FACILITIES, PURSUANT TO GOVERNMENT CODE SECTION 65995(B). THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Future development facilitated by the project would result in an increase in population in the Plan Area, which would contribute to an increase in students who would be served by Cinnabar School

District, Old Adobe Union School District, Waugh School District, Wilmar Union School District, Liberty School District, Laguna Joint School District, and Petaluma City Schools. Future residential, commercial, and industrial development in Petaluma would be required to pay state-mandated impact mitigation fees to provide funding for additional schools to serve the area, pursuant to Senate Bill 50. Pursuant to Section 65995(h) of the California Government Code the payment of statutory fees "… is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization." The mandatory payment of impact mitigation fees would serve as full and complete mitigation for future development.

The Public Facilities Element of the General Plan Update includes goals and policies specific to education and providing school facilities for the Plan Area. Relevant goals and policies are listed below.

> **Policy FAC-2.1: Coordinate with school districts.** Work with local school districts to anticipate community needs for educational programming and building upgrades at City-owned public facilities over time and support the efficient and effective delivery of educational programs for the community.
>
> **Policy FAC-2.2: Support childcare and pre-kindergarten**. Support childcare and pre-kindergarten services at City, non-profit, and private facilities through the following strategies:
>
> - Encouraging school districts, local libraries, and other public agencies to offer after-school recreation programs and after school enrichment-based care;
> - Considering the impact of residential and commercial development projects on the supply of childcare;
> - Supporting business development of private childcare businesses seeking to operate in Petaluma; and
> - Supporting the development of childcare facilities in City government buildings, new housing, or office/industrial developments.
>
> **Action FAC-2.2.1.** Develop partnerships with local agencies and organizations to provide childcare and pre-kindergarten services.
>
> **Policy FAC-2.3: Invest in flexible and adaptable spaces for educational programming.** Use the City's existing public facilities and spaces creatively for indoor and outdoor educational programming for residents of all ages. Where feasible, invest in flexible, adaptable spaces in public facilities to expand and support educational programming.

The proposed General Plan Update policies would ensure that the City, Cinnabar School District, Old Adobe Union School District, Waugh School District, Wilmar Union School District, Liberty School District, Laguna Joint School District, and Petaluma City Schools coordinate on long range planning efforts to facilitate Petaluma City Schools planning for future growth. Therefore, future development facilitated by the project would not result in substantial adverse physical impacts associated with the provision of or need for new or physically altered schools, the construction of which could cause significant environmental impacts. This impact would be less than significant.

Mitigation Measures

No mitigation required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 1d:	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?
Threshold 2:	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated?
Threshold 3:	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Impact PS-3 DEVELOPMENT ASSOCIATED WITH THE PROPOSED PROJECT WOULD INCREASE THE PLAN AREA'S POPULATION AND THE USE OF EXISTING PARKS AND RECREATIONAL FACILITIES, AND THUS REDUCE THE CITY'S PARKLAND TO POPULATION RATIO. HOWEVER, THE CITY'S PARKLAND TO POPULATION RATIO ALREADY EXCEEDS STATE AND LOCAL STANDARDS, AND THE DEDICATION OF PARKLAND OR PAYMENT FEES PURSUANT TO BOTH THE QUIMBY ACT AND PMC CHAPTERS 19.16 AND 20.34 WOULD BE REQUIRED PRIOR TO DEVELOPMENT OF INDIVIDUAL PROJECTS. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

As described in Section 4.13.2, *Regulatory Setting*, the Quimby Act allows cities and counties to adopt park dedication standards/ordinances requiring developers to set aside land, donate conservation easements, or pay fees towards parkland when property is subdivided. PMC reinforces the Quimby Act through Chapter 19.16 Park Land Development Fee, which establishes the authority of the City to collect development impact fees for parkland acquisition and improvements, and PMC Title 20, Chapter 20.34 Park and Recreation Land Dedication and Improvement, which implements the Quimby Act on the local level and requires developers to dedicate land and pay in-lieu fees for both park and recreation purposes as a condition of approval, using a standard of 5 acres of parkland per 1,000 residents.

As described in Chapter 2, *Project Description*, the proposed project would facilitate the development of approximately 6,449 residential units and increase employment opportunities in the Plan Area. The additional residential units would result in approximately 16,445 additional persons in the Plan Area. The proposed project includes developments with approved plans and code requirements to dedicate new park and open space facilities consistent with the PMC standard of 5 acres per 1,000 residents.

As described in Section 4.13.1(d), *Parks*, the Plan Area currently has a parkland to population ratio goal of 5.0 acres per 1,000 residents. The General Plan Update would establish standards of three acres per 1,000 population for community parks and two acres per 1,000 population for neighborhood parks. As of 2022, the City of Petaluma offers a total of 265.8 acres of parks and recreational facilities across 51 parks. Using baseline year 2020 conditions of 59,828 residents, this translates to a parkland to population ratio of approximately 4.4 acres per 1,000 residents[2], which is below Quimby Act and PMC standards (City of Petaluma 2022b). Assuming no change in existing park acreage, growth facilitated by the proposed project would reduce the parkland ratio to

[2] 4.44 acres per 1,000 residents = 265.8 acres / (59,828 residents/1,000)

approximately 3.49 acres per 1,000 residents[3] by 2050. While the City's parkland to population ratio would be reduced further below the standard goal of 5.0 acres per 1,000 residents, the General Plan Update introduces a new park standard of 2.0 acres of neighborhood parks per 1,000 residents and 3.0 acres of community parks per 1,000 residents (See Policy P-1.2, below). In addition, as described in Section 4.13.1(d), *Parks*, the proposed project includes plans for the development of additional parks and recreational facilities. While the total acreage of these parks has not yet been determined, it is estimated that the proposed project will facilitate the development of over 23 acres of parkland. Taking this into account, implementation of the proposed project would result in a parkland to resident ratio of approximately 3.79 acres per 1,000 residents.[4] Therefore, the proposed project would meet the City's parkland standard.

In addition to parkland, Petaluma maintains an extensive system of open space lands, including approximately 953 acres of City-owned open space and approximately 216 acres of creek and riverfront open space, totaling approximately 1,168 acres of open space citywide. This amounts to approximately 19.5 acres of open space per 1,000 residents under existing conditions, nearly double the proposed Policy P-1.2 requirement of 10 acres per 1,000 residents, as discussed below. Even at the proposed project's full buildout, the City would continue to meet and exceed the open space standard, providing approximately 15.3 acres per 1,000 residents.[5]

As mentioned above, the Parks and Recreation Elements of the General Plan Update include goals and policies specific to maintaining parks and recreational facilities in Petaluma. Relevant goals and policies are listed below.

Goal P-1: Expanded Parks and Recreation Facilities. The City actively retains and expands its city-wide parks and recreational facilities which strengthen community connectedness and improve overall health and wellbeing.

> **Policy P-1.1: Create a city-wide plan for the future of Petaluma's parks and open spaces by prioritizing an equity-focused, 'experience'-based model.** Create a city-wide vision and implementation strategy for the planning and maintenance of the City's parks and recreation system by prioritizing an equity-focused, 'experience'-based model.
>
> **Policy P-1.2: Maintain park standards**. Achieve and maintain a minimum park standard of five acres per 1,000 residents (community parks at three acres per 1,000 population and neighborhood parks at two acres per 1,000 population) and an open space/urban separator standard of 10 acres per 1,000 population in order to improve access to parks and recreational amenities that enhance the quality of life for residents, the environment, native habitats and the growing needs of a vibrant community.
>
> **Policy P-1.3: Expand parks and open space through development approval**. Contribute to parks, recreational facilities, and open spaces as part of the City's development approval process through the following strategies:
>
> - Require dedication of parcel-specific proposed parks, and proposed extension of parks, as shown in Figure P-3, Figure P-4, and Table P-4, as a condition of development entitlements, consistent with federal, State, and local law, including but not limited to the Quimby Act (Government Code Sec. 66477).

[3] 3.49 acres per 1,000 residents = 265.8 / (76,273 residents/1,000)
[4] 3.79 acres per 1,000 residents = 288.8 / (76,276 /1,000)
[5] Existing conditions: (1,168 acres of open space / 59,828 residents) * 1,000 = 19.52 acres per 1,000 residents
Under full buildout: (1,168 acres of open space / 76,273 residents) * 1,000 = 15.31 acres per 1,000 residents

- Increase funding, acquisition, and/or construction for and of new parks or recreation facilities, beyond those identified in the General Plan, as well as contributions to the Enhanced Maintenance Fund depending on the outcome of negotiations between the City and property owners during the entitlement process.
- Require neighborhood parks, pocket parks, open spaces, and river and creek access points to be donated, constructed, and maintained within or in addition to the developing property(ies). Evaluate existing maintenance levels that align with assessments levied within the landscape assessment districts and engage parcel owners impacted on recommendations for funding mechanisms to offset costs associated with developing, upgrading, and maintaining parks and recreational facilities that may be imposed as a condition of development. Privately owned, publicly accessible open spaces (e.g., roof gardens and patios), and transfer of density within a project site from donated acreage in excess of dedication/in lieu requirements may be considered.
- Seek to receive and fund parkland and recreation amenities in excess of minimum dedication requirements, where feasible and desirable, to better serve growing community needs.

  Action P-1.3.1. Seek creative ways to incentivize opportunities for enhancing citywide park maintenance, capital park improvement projects, and park operations through the development entitlement process.

Policy P-1.4: Acquire Park Land. Acquire necessary land and develop new parks in the locations shown in Figure P-3, Figure P-4, and Table P-4, and as identified in the Strategic Parks and Recreation Master Plan, prioritizing areas where new development may occur, neighborhoods underserved by parks, Equity Priority Areas, transportation corridors to create greenways, and other areas identified as having significant park needs. Prioritize the identification and development of adequate parks to meet identified standards, community needs, and growth planned for in the General Plan. Projected costs of park development should include inflation-adjusted costs of annual maintenance to ensure the City can appropriately weigh the priority of improving existing parks versus acquiring new land.

Goal P-4: Interconnected Parks and Facilities Network. Parks, recreational facilities, shaded walking paths, trails, and public facilities are connected and accessible to all in an interconnected public space network.

Policy P-4.1: Develop an interconnected public space network. Develop a framework for an interconnected public space network, inclusive of habitats, the Petaluma River, the urban tree canopy, parks, open spaces, public plazas, public facilities, and active transportation corridors, in order to guide City decision-making and create more equitable access to public space throughout the city.

Policy P-4.2: Ensure 10-minute walk access to parks and open space. Ensure 100 percent of residents are within a 10-minute walk of a community park, neighborhood park, linear greenway or "Park Street", accessible open space, regional park, or State park.

Policy P-4.4: Co-locate recreation facilities. Connect City parks and recreational facilities with other public facilities, open spaces, employment centers, and residential neighborhoods by locating new recreation facilities in proximity to these uses and by fully integrating the parks system and recreational facilities with the City's pedestrian, bicycle, and transit systems.

> **Policy P-4.7: Provide safe and high-quality public trails.** Provide safe and high-quality public trails, ensuring that trails are adequately surfaced and maintained and provide lighting, seating, and signage that supports accessibility, safety, and wayfinding as appropriate.

In addition to implementation and compliance with the proposed General Plan Update policies described above, future development projects contributing to recreational demand would also be required to fund parkland acquisition and improvement. Pursuant to Title 19 (Development Related Fees) and Chapter 20.34 (Park and Recreation Land Dedication and Improvement) of the Petaluma Municipal Code, development projects would be required to pay a City Facilities Development Impact Fee (Chapter 19.04), Open Space Land Acquisition Fee (Chapter 19.08), Park Land Acquisition Fee (Chapter 19.12), and Park Land Development Fee (Chapter 19.16) equal to each development's fair share to finance open space and park land construction and acquisition costs needed to serve such new development. These fees are adopted and implemented pursuant to the Mitigation Fee Act (Gov. Code, Section 66000 et seq.), which requires a reasonable relationship between the fee, the type of development, and the facilities funded (Gov. Code, Section 66001(b)). In addition, dedication requirements associated with new development where the Quimby Act (Government Code Section 66477) applies would be implemented in a manner consistent with the requirements of that Act. Accordingly, future development would be required to contribute its fair share toward acquisition and development of parks and recreation facilities serving new growth through the City's adopted fee and dedication requirements, thereby reducing the potential for substantial deterioration of existing facilities.

Although full buildout of the General Plan Update would facilitate the development of new parks and recreation facilities, mitigation measures discussed throughout this EIR and implementation of the proposed General Plan Update goals and policies would ensure impacts from construction of new parks and enhancements to existing parks are reduced to the extent feasible. In addition, all proposed parks would undergo individual environmental review processes prior to development, as would any potential new or expanded parks that may become necessary to serve residents of future development. New parks would be sited in previously disturbed areas and areas compatible with recreational uses, further reducing the potential for substantial adverse physical impacts associated with the provision of new parks. Moreover, the proposed General Plan Update policies noted above would ensure park facilities are kept up to date and park acreage to population ratio is maintained within Petaluma. Therefore, development facilitated by the project would not result in an increase in use of existing parks and recreational facilities such that substantial physical deterioration of the facility would occur. Because the General Plan Update and Petaluma Municipal Code Title 19 Chapters 19.12 and 19.16, and Title 20 Chapter 20.34 regulate provision of parkland concurrently with development and population growth, impacts to parks and recreation facilities would be less than significant.

Mitigation Measures

No mitigation required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.13.4 Cumulative Impacts

The cumulative analysis considers the nearby past, present, and reasonably foreseeable future plans and projects listed in Table 3-1 (refer to Chapter 3, *Environmental Impact Analysis*) located in Petaluma, Cotati, Rohnert Park, Sonoma, adjacent areas of unincorporated Sonoma County, and on tribal lands in addition to the proposed plan.

Fire Protection

The geographical scope for cumulative fire protection impacts is the City's urban growth boundary. This geographic scope is appropriate because projects within this area will increase the demand on the Petaluma Fire Department, which serves this area.

For this analysis, a cumulative impact would occur if growth in the service area requires physical expansion of facilities such as construction of new fire facilities that would result in adverse physical impacts. Fire protection services are maintained and expanded through property taxes and collection of fees that grow incrementally as development occurs within a service area. Therefore, cumulative impacts related to adverse physical impacts from new or physically altered fire protection services would not be significant.

As described under Impact PS-1 above, the project would generate additional demand for fire protection services. While development facilitated by the project would generate additional demand, proposed General Plan Policy SAF-3.1 requires the City to maintain a minimum staffing standard for fire protection services. Although development facilitated by the project would directly not result in construction of new or altered fire stations, they would be required to pay impact fees to support development of public facilities as required by PMC Title 19 Chapter 19.04 to maintain response times and staffing, as described in Section 4.13.2, Regulatory Setting. In addition, the proposed General Plan Policy FAC-1.1, Action FAC-1.1.3, and Action FAC-1.1.4 include policies and actions to account for the update, expansion, relocation, or replacement of public facilities, including the construction of a new Fire Station and Emergency Operations Center and renovation of existing Fire Department facilities. Therefore, the project would not make a cumulatively considerable contribution to the previously identified significant cumulative impact related to fire protection services.

Police Protection

The geographical scope for cumulative police protection impacts is the City's urban growth boundary. This geographic scope is appropriate because projects within this area, like the project, will increase the demand from the Petaluma Police Department, which serves this area.

Cumulative impacts would occur if growth within the service area requires the construction of a new or the expansion of an existing police station that would result in significant adverse physical impacts. Cumulative development could result in new police officers that would need to be added to the Petaluma Police Department. While development facilitated by the project would generate additional demand, proposed General Plan Policy SAF-3.1 requires the City to maintain a minimum staffing standard for police protection services. Although development facilitated by the project would not directly result in construction of new or altered police stations, the proposed General Plan Policy FAC-1.1, Action FAC-1.1.4, and Policy SAF-3.1 include policies and actions to account for the update, expansion, relocation, or replacement of public facilities, including the construction of a new Police Station, renovation of existing Police Department facilities, and to maintain a minimum staffing standard for the Police Department. Therefore, the proposed project would increase

staffing required to maintain service ratios to serve cumulative projects concurrently with population growth. In addition, the City's Capital Improvement Program would identify the need for and associated funding strategies for any additional Police Department facilities that may be necessary to support future citywide population growth. Any future facilities would be sited in previously disturbed areas or areas compatible with public facilities land uses. As identified in Table 3-1 of Chapter 3, *Environmental Setting*, the City's Capital Improvement Program is planning and has received entitlements for the construction of a 45,000 square-foot facility for Petaluma Public Safety, which would reduce strain on existing police protection facilities and services concurrent with population growth facilitated by the project. Furthermore, pursuant to PMC Title 19, Chapter 19.04, Public Facilities Development Impact Fees, development facilitated by the General Plan Update would be required to pay impact fees to support the future development of public safety facilities and the purchase of equipment and vehicles necessary to serve growth resulting from development. Therefore, this cumulative impact is less than significant. Development facilitated by the project would not have a cumulatively considerable contribution to a significant cumulative impact related to police protection services.

Schools

The geographical scope for cumulative school impacts is the school district boundary of Petaluma City Schools. This geographic scope is appropriate because projects within this area, like the proposed project, will increase the demand on school district services and facilities.

Cumulative impacts would occur if growth within a district would result in significant adverse physical impacts with the provisions for, or the need for, new or physically altered school facilities. Cumulative development, including development facilitated by the project, is required to pay school impact fees at the time building permits are issued. These fees are used by the local district to mitigate cumulative impacts associated with long-term operation and maintenance of school facilities. Because the payment of fees is considered adequate mitigation for school facility impacts under both project-level and cumulative scenarios, cumulative impacts would be less than significant, and the project would not have a cumulatively considerable contribution to a significant cumulative impact regarding school services.

Libraries

The geographical scope for cumulative library impacts is the Petaluma Regional Library service area. This geographic scope is appropriate because projects within this area, like the proposed project, would increase the demand on library services within the Plan Area.

Cumulative impacts could occur if growth within the system requires the construction of new or the expansion of an existing library that would result in adverse physical impacts. Cumulative population growth, including the proposed project, would increase the demand for new libraries. The additional demand could require the expansion of existing library facilities, which has already been planned for at the Petaluma Regional Library. Therefore, this cumulative impact would be less than significant, and the proposed project would not have a cumulatively considerable contribution to a significant cumulative impact regarding library services.

Parks

The geographic scope for cumulative parks and recreation impacts is the City of Petaluma, adjacent incorporated cities, and unincorporated Sonoma County. This geographic scope is appropriate because new residents from cumulative projects would use parks throughout the county.

Cumulative impacts to parks and recreational facilities would occur if development, and related population growth, within the county increases the use of existing facilities such that substantial physical deterioration of those facilities would occur, or if new facilities would need to be constructed or existing facilities expanded that would have an adverse effect on the environment. Further, any subsequent subdivision project that would increase the population would be required to comply with the Quimby Act, which may require parkland dedication or an in-lieu fee and to provide on-site open space and recreational amenities.

Development facilitated by the project in combination with other cumulative development would result in an increase in the use of existing recreational facilities, including nearby regional and state parks such as Helen Putnam Regional Park and Petaluma Adobe State Park. But the payment of parkland fees would ensure cumulative projects are served by adequate park and recreational facilities. Although the payment of parkland fees only applies to local City-owned parks, growth facilitated by the General Plan Update would not reduce the parkland to resident ratio for open spaces, regional, and state parks below acceptable service thresholds. Additionally, the planned parks under the General Plan Update would give residents additional options and reduce the strain on existing park and recreation facilities that are expected with population growth. By expanding local recreational opportunities, these planned facilities would also help diffuse demand across the wider system of local, regional, and state parks. Furthermore, the General Plan Update contains several actions and policies with the aim of expanding and improving parks and recreational resources in Petaluma, as discussed in Section 4.13.2(c), *Local Regulations*, Therefore, cumulative impacts related to new or expanded park and recreation facilities, or the physical deterioration of existing park and recreation facilities, would be less than significant, and the proposed project would not have a cumulatively considerable contribution to a significant cumulative impact regarding park and recreation facilities.

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4.14 Transportation

This section evaluates the potential impacts on the local and regional circulation system that would result from implementation of the proposed project. This includes an analysis of the potential for the proposed project to conflict with existing programs, plans, ordinances, or policies addressing the circulation system; conflict with *CEQA Guidelines* Section 15064.3(b); increase hazards due to geometric design features; or result in inadequate emergency access. This analysis is based on the *Transportation Impact Analysis* (TIA) prepared by Fehr & Peers in March 2026 (Appendix B).

4.14.1 Setting

a. Existing Transportation System

There is a natural hierarchy of streets in Petaluma that provide various levels of access and mobility, with freeways accommodating the highest volumes and speeds, cross-town streets connecting to freeways and operating at moderate speeds and/or volumes, and local streets that link neighborhoods, parks, and schools to the cross-town streets and to each other, with many of these serving adjacent development and neighborhoods. An overview of key regional roadways in Petaluma is provided below.

Regional Roadway System

Highway 101

U.S. Route 101 (Highway 101) is a major north-south freeway that extends northward from San Francisco and the Golden Gate Bridge as a four-to-eight lane divided freeway through Marin County, reducing to four lanes with alternating freeway and highway segments through northern Marin County and into Sonoma County before continuing to the North Coast counties of Mendocino, Humboldt, and Del Norte. Access to Petaluma from Highway 101 is provided via interchanges at the Lakeville Highway Interchange (State Route [SR] 116), East Washington Street, Petaluma Boulevard North, and San Antonio Road. In Petaluma, Highway 101 is a six-lane freeway with two mixed-flow lanes and one high-occupancy vehicle [HOV] lane in each direction.

State Route 116

SR 116 is an east-west highway that orients northwest-southeast through Petaluma. The route runs from SR 1 on the coast near the town of Jenner to SR 121 south of Sonoma, connecting with Highway 101 at Lakeville Street, to the east of downtown Petaluma, and running concurrently with Highway 101 throughout most of central and northern Petaluma. To the east of Highway 101, SR 116 is Lakeville Highway, a four-lane road with additional storage lanes for turning movements. West of Highway 101, Lakeville Highway continues as a City-maintained (non-Caltrans) roadway named Lakeville Street, which terminates at its intersection with Petaluma Blvd North, north of Downtown.

Local Roadway System

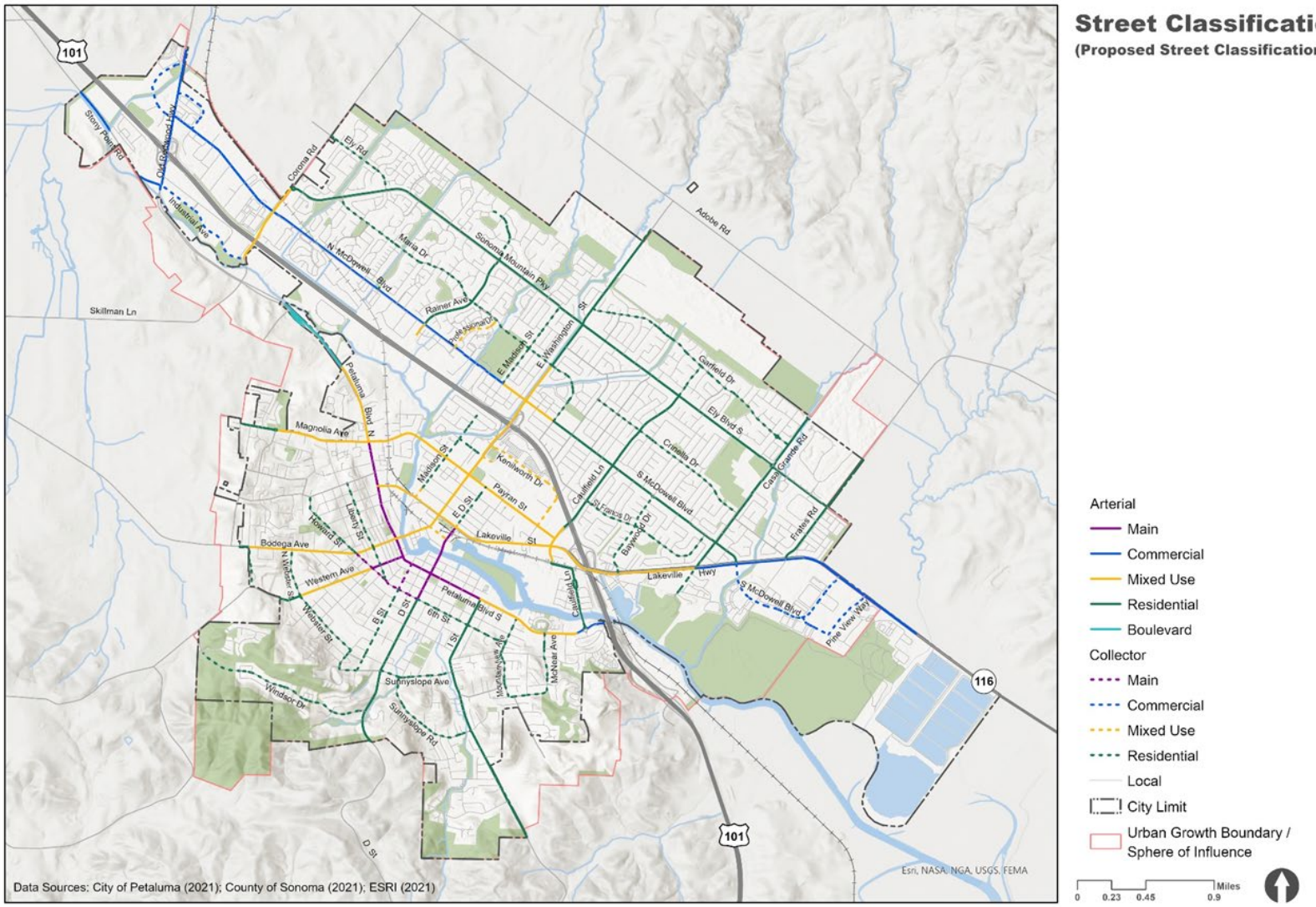
Petaluma's local road network includes approximately 177 miles of streets which are classified as arterials, collectors, connectors, and local streets. Arterials are typically higher-volume, higher-speed roadways which connect regional highways with the local roadway network. Arterials within

Petaluma include Ely Boulevard, Lakeville Street, Payran Street, McDowell Boulevard, Petaluma Boulevard, and Sonoma Mountain Parkway, among others.

Collector streets serve as principal traffic arteries within residential and commercial areas. Major collectors are those with four lanes of travel, and minor collectors are those with two travel lanes. Examples of collector streets within Petaluma include 6th Street, B Street, Bantam Way, Crinella Drive, East D Street, East Madison Street, Ellis Street, and Ely Road, among others. Connector streets provide low-speed, medium-volume access within and between neighborhoods and nearby collector and arterial streets. Local streets provide direct connections to residences and businesses. They are typically designed as lower-speed streets and typically allow on-street parking.

The local roadway system, including arterial and collector street classifications, is shown in Figure 4.14-1, below.

Figure 4.14-1 Street Classification Map[1]



[1] Fehr & Peers. 2026. Petaluma General Plan Transportation Impact Analysis, Figure 1. Available: Appendix B.

Bicycle Facilities

The City maintains a network of bikeways and bicycle support facilities to meet transportation and recreational needs. Key bicycle facilities in Petaluma include the following:

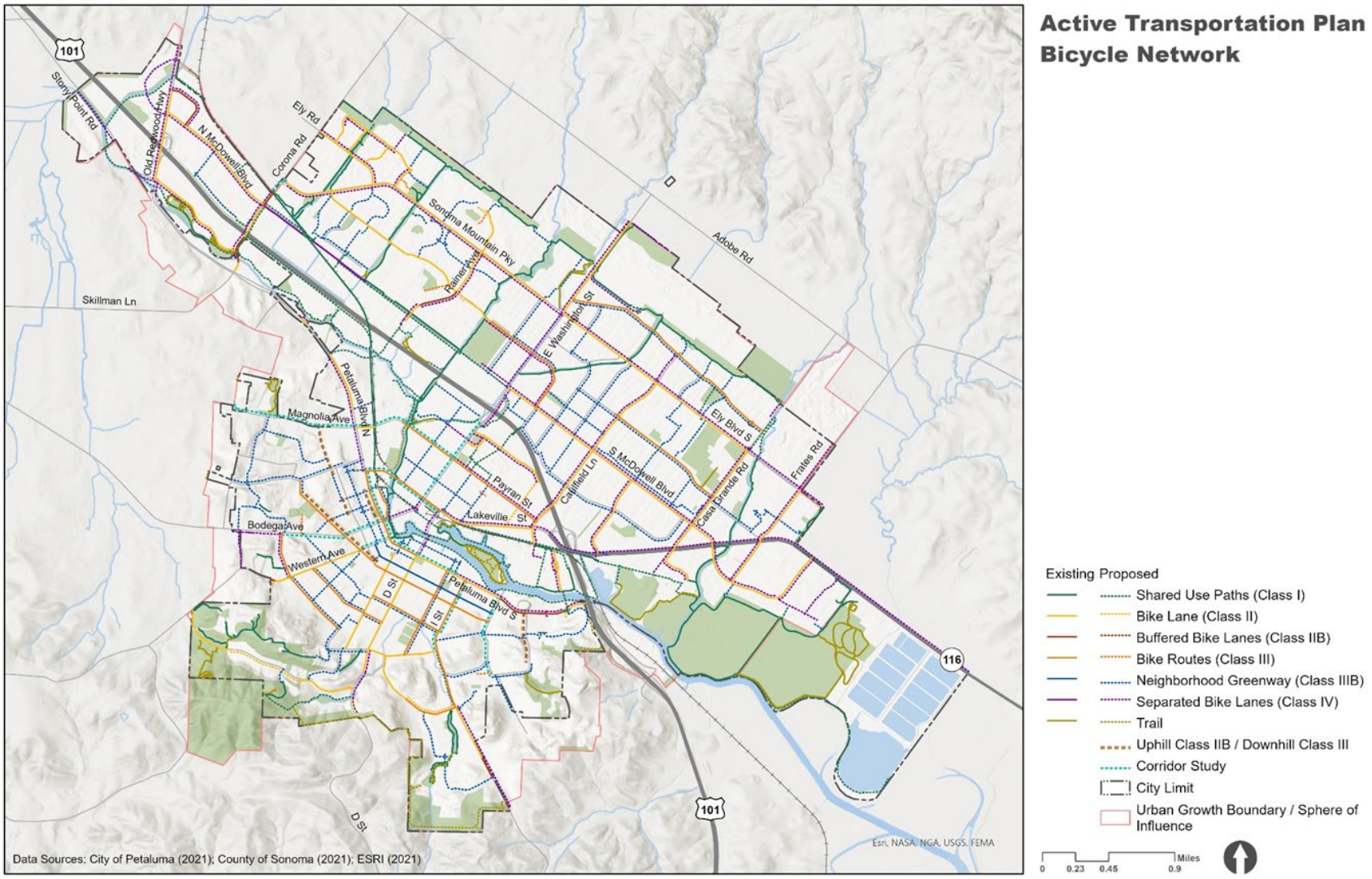
- **Class I Facilities**, also known as bike paths or bikeways, are separated from automobile traffic and reserved exclusively for bicyclists. Class I facilities are located along portions of several creeks in Petaluma as well as adjacent to sections of the Petaluma River.
- **Class II Facilities**, or bike lanes, are designated lanes for bicyclists located directly next to automobile traffic. Class II facilities are located on portions of several streets including McDowell Boulevard, Ely Boulevard, Sonoma Mountain Parkway, Western Avenue, Sunnyslope Road, Rainier Avenue, Lakeville Street; and Riesling Road.
- **Class III Facilities**, or bike routes, are shared on-street routes where bicycles and vehicles travel together. Class III facilities are located along segments of McDowell Boulevard, Sky Ranch Drive, Keokuk Street and 5th Street.
- **Class IV Facilities**, also called cycle tracks or protected bike lanes, combine features of Class I and Class II facilities. These provide an exclusive bicycle route adjacent to a roadway with physical separation from traffic using curbs, delineators, or parked cars.

Sonoma-Marin Area Rail Transit (SMART) provides commuter rail services in Petaluma. Along this corridor, SMART provides a multi-use pathway along a major north-south corridor for biking in Petaluma. It parallels the SMART rail line and connects neighborhoods, schools, parks, commercial areas, and downtown, while providing access to both Petaluma SMART stations and regional trail systems. Recent improvements to the SMART pathway have extended the trail and enhanced accessibility at key crossings, while additional segments are planned to improve safety and close existing gaps, for example, between Lakeville Street and Water Street (Appendix B).

In addition, Petaluma is a participant in a regional pilot bikeshare program, Redwood Bikeshare, which provides pedal-assist e-bikes across Sonoma and Marin Counties (Redwood Bikeshare 2026). As of December 2025, Redwood Bikeshare has deployed approximately 300 e-bikes at SMART stations, downtowns, and other key destinations in Sonoma and Marin Counties (Appendix B).

The City's bicycle network, as adopted by the Active Transportation Plan in September 2025, is shown in Figure 4.14-2, below.

Figure 4.14-2 Active Transportation Bicycle Network[2]



[2] Fehr & Peers. 2026. Petaluma General Plan Transportation Impact Analysis, Figure 2. Available: Appendix B.

Pedestrian Facilities

Pedestrian facilities in Petaluma include sidewalks, trails, crosswalks, curb ramps, and signals. The City generally requires sidewalks along public roadways, and most streets have sidewalks on both sides. Pedestrian-oriented land uses, street widths, lighting, and landscaping contribute to the quality of the pedestrian environment, particularly in downtown Petaluma and the West Side neighborhood, where a grid street pattern and a well-developed sidewalk network support walkability. Most signalized intersections in Petaluma include pedestrian signals and marked crossings, but sidewalk gaps remain in several areas. Notable examples include Hopper Street between East D Street and Caulfield Lane in Central Petaluma, and streets such as D Street and Western Avenue that connect outlying western neighborhoods to downtown.

Transit Facilities and Providers

There are four major transit facilities in Petaluma. Transit providers serving Petaluma include local and intercity buses as well as passenger rail. Transit that serves Petaluma is briefly described below.

Major Transit Stations

Major transit stations within Petaluma include the following:

- **Petaluma Downtown Station/ Copeland Street Transit Mall:** Located at the edge of the downtown area, this facility functions as the City's primary transit hub. It is served by SMART, Petaluma Transit, Sonoma County Transit (SCT), Golden Gate Transit (GGT), , and Amtrak Thruway bus services.
- **Petaluma North Station:** Located in north Petaluma near the intersection of McDowell Boulevard and Corona Road, this station is served by SMART and provides a transfer point to Petaluma Transit buses.
- **Eastside Transit Center:** Situated within a commercial center on the east side of the city, this transit center serves as a principal boarding location for several Petaluma Transit routes.
- **Petaluma Fairgrounds:** Located at the Sonoma-Marin Fairgrounds near Washington Street, this location is served by multiple Petaluma Transit and Sonoma County Transit routes, making it an important public transit connection point within the city. The site is also served by Groome Transportation's Sonoma County Airport Express, which provides scheduled private shuttle service to Charles M. Schulz–Sonoma County Airport, the San Rafael Transit Center, San Francisco International Airport, and Oakland International Airport.

Sonoma-Marin Area Rail Transit

Sonoma-Marin Area Rail Transit (SMART) is a commuter rail line serving Sonoma and Marin Counties. The existing SMART line serves 14 stations between the Town of Windsor and the Larkspur Ferry Terminal (with future connections planned to Healdsburg and Cloverdale). Petaluma is currently served by the Downtown Petaluma station and transit center on Copeland St and the Petaluma North/Corona Station, located on the north side of the City at McDowell Boulevard and Corona Road. Current weekday service operates at 30- to 90-minute headways with more frequent service focused on the peak periods and direction of commute travel. SMART will be expanding service through the Marin-Sonoma Coordinated Transit Service Plan (MASCOTS) with changes going into effect in 2026. The planned service expansion will focus on adding trips during midday periods, filling existing service gaps, and extending evening service, thereby increasing overall weekday

operations. Weekend service will also be expanded, with more trains throughout the day to reduce headways.

Petaluma Transit

Petaluma Transit is a local, public bus service serving commuter and community routes in Petaluma offering fare-free service for all fixed-route buses, paratransit, and on-demand LumaGo shuttles. Petaluma Transit currently offers service for six routes:

- **Route 2** runs from the Safeway Eastside Transit Center to Old Redwood Highway east of North McDowell Boulevard. Route 2 operates on weekdays every 15 to 30 minutes between 6:30 AM to 8:00 PM. On Saturdays this route runs every 60 minutes between 7:30 AM to 7:30 PM, and on Sundays every 60 minutes between 8:30 AM to 4:30 PM.
- **Route 3** loops from the Safeway Eastside Transit Center along Maria Drive, Sonoma Mountain Parkway, Ely Boulevard, Frates Road, and South McDowell Boulevard. Route 3 operates every 60-90 minutes on weekdays between 6:30 AM to 7:30 PM.
- **Route 10** runs from the downtown SMART Station to the Gossage Park & Ride and the Petaluma Village Premium Outlets. The route also stops in downtown Petaluma. Route 10 operates at hourly headways on weekdays from 7:32 AM to 6:15 PM.
- **Route 11** runs east-west from the Safeway Eastside Transit Center to Petaluma Market Station, to the Copeland Transit Mall. Route 11 operates on between a 15 to 30-minute headway on weekdays from 6:30 AM to 8:00 PM and a 30-minute headway on weekends from 7:30 AM to 8:00 PM.
- **Route 24** runs from the D Street SMART Station to Lakeville and then Kaiser Hospital. Route 24 operates on 30 to 60-minute headways on weekdays from 6:16 AM to 6:46 PM.
- **Route 33** runs in a loop from the Safeway Eastside Transit Center along South McDowell Boulevard, Sonoma Mountain Parkway, and Maria Drive. This route operates on 60 to 75-minute headways on weekdays from 7:00 AM to 8:00 PM and 60-minute headways on weekends and holidays from 8:00 AM to 8:00 PM.
- **Routes 301, 302, 303, 311, and 501** provide limited AM and afternoon school trip service when Petaluma City Schools are in service.

Petaluma Transit currently serves approximately 350,000 passenger trips per year equal to pre COVID 19 pandemic ridership levels.

LumaGo

LumaGo is an on-demand microtransit service operated by Petaluma Transit. The program launched in August 2024 as a pilot to provide flexible, app-based transportation within a defined service zone covering key destinations such as downtown, the downtown SMART station, schools, shopping centers, and residential neighborhoods. The service operates seven days per week, with one vehicle available during off-peak hours and two vehicles during peak periods. In its first year, LumaGo completed more than 23,500 rides, serving over 3,400 unique riders, with average daily ridership increasing to more than 100 trips by mid-2025.

Sonoma County Transit

Sonoma County Transit (SCT) is the primary intercity transit provider in Sonoma County. SCT provides local transit services in Petaluma along with services to the City of Santa Rosa and other

areas of Sonoma County. There are three SCT routes that operate within Petaluma: Route 40, Route 44, and Route 48.

- **Route 40** provides service between Downtown Petaluma and Sonoma. The line travels along Lakeville Street and terminates at the Copeland Street Transit Mall.
- **Routes 44 and 48** provide service between Downtown Petaluma and Santa Rosa. Route 44 travels along McDowell Boulevard, East Washington Street, and Sonoma Mountain Parkway. The route serves the Petaluma and Santa Rosa campuses of Santa Rosa Junior College as well as Sonoma State University. Route 48 travels along Old Redwood Highway, Petaluma Boulevard, and East Washington Street.

Golden Gate Transit

Golden Gate Transit (GGT) has historically been the primary long-distance regional transit provider in Sonoma County. In April 2026, GGT implemented the MASCOTS Plan, which restructured regional bus service along the Highway 101 corridor. As part of this restructuring, several routes serving Petaluma were discontinued (Routes 101, 164, and 172X), and service was consolidated to improve efficiency and coordination with expanded SMART rail service.

Under implementation of the MASCOTS Plan, Route 172 continues to serve the west side of Petaluma with increased frequencies and trips, maintaining the combined service hours among routes 164, 172X, and 172.

Amtrak

Amtrak Thruway route 7 provides service connecting Humbolt, Mendocino, Sonoma, Napa Solano and Contra Costa Counties. The route includes a Petaluma stop at the Copeland Transit Mall.

Other Transit Services

Petaluma Transit and SCT also provide ADA paratransit services within their respective service areas for riders who are unable to use the fixed-route services. In addition, Petaluma People Service Center operates a volunteer driver program (iRIDE) that serves seniors who are unable to drive but who may not qualify for paratransit services.

Private Transit Services

Groome Transportation serves Petaluma at the Petaluma Fairgrounds on Fairgrounds Drive. From this stop, riders can travel north to Charles M. Schulz–Sonoma County Airport and south to the San Rafael Transit Center, San Francisco International Airport, and Oakland International Airport.

Petaluma is also currently served by several private transportation network companies including Uber, Lyft, and multiple taxi services.

4.14.2 Regulatory Setting

The following is a brief summary of the regulatory context under which transportation is managed at the federal, state, and local levels. A number of federal and state statutes provide a regulatory structure that guides the maintenance of transportation infrastructure and services. Agencies with the responsibility for governing transportation within the city include the following:

- Federal Highway Administration
- Federal Transit Administration

- Federal Aviation Administration
- Federal Railroad Administration
- California Department of Transportation (Caltrans)
- California Transportation Commission
- California Highway Patrol
- California Office of Land Use and Climate Innovation (formerly the Office of Planning and Research)
- Metropolitan Transportation Commission (MTC)

a. Federal Regulations

Americans with Disabilities Act

The Americans with Disabilities Act (ADA) of 1990 provides comprehensive rights and protections to individuals with disabilities. The goal of the ADA is to assure equality of opportunity, full participation, independent living, and economic self-sufficiency for people with disabilities. To implement this goal, the United States Access Board, an independent federal agency created in 1973 to ensure accessibility for people with disabilities, has created accessibility guidelines for public rights-of-way. While these guidelines have not yet been formally adopted, they have been widely followed by jurisdictions and agencies nationwide in the last decade. The guidelines, last revised in July 2011, address issues including roadway design practices, slope and terrain issues, pedestrian access to streets, sidewalks, curb ramps, street furnishings, pedestrian signals, parking, and other components of public rights-of-way. All Petaluma Transit passenger vehicles are fully ADA accessible and include lifts and can transport riders utilizing wheelchairs and other mobility assistance devices.

Federal Highway Administration

The Federal Highway Administration (FHWA) is the agency of the United States Department of Transportation responsible for the federally funded roadway system, including the interstate highway network and portions of the primary State highway network. FHWA funding is provided through the Fixing America's Surface Transportation Act. Federal funds can be used to fund eligible local transportation improvements such as projects to improve the efficiency of existing roadways, traffic signal coordination, bikeways, pedestrian facilities, and transit system upgrades.

Federal Aviation Administration

The Federal Aviation Administration (FAA) is the agency of the United States Department of Transportation responsible for regulating civil aviation, including the safety, operation, and development of public-use airports such as the Petaluma Municipal Airport. The FAA establishes standards for airport design, aircraft operations, navigational safety, and airspace management through regulations contained in Title 14 of the Code of Federal Regulations. FAA guidance also governs compatible land uses around airports, including requirements related to airspace protection, height restrictions, noise exposure contours, and safety zones, as established by Federal Aviation Regulations (FAR) Part 77 and related Advisory Circulars. Airports receiving federal funding must comply with FAA design standards and grant assurances, including maintaining safe operating conditions and protecting runway protection zones. While Petaluma Municipal Airport does not

serve commercial passenger aviation, it operates under FAA oversight for general aviation activity related to regional emergency response, goods movement, and business travel.

Federal Railroad Administration

The Federal Railroad Administration (FRA) is the agency of the United States Department of Transportation responsible for implementing and enforcing rail safety regulations governing railroad operations, track and signal systems, equipment standards, and hazardous materials transport throughout the United States. FRA regulations under Title 49 of the Code of Federal Regulations apply to freight and passenger rail service, including the SMART system that serves Petaluma. The FRA oversees rail safety programs such as track inspection, grade-crossing safety, and positive train control requirements, and coordinates with state and local agencies on rail-related infrastructure improvements and public safety initiatives. Although SMART operations are also subject to oversight by the California Public Utilities Commission (CPUC) for at-grade crossings, FRA safety regulations establish the national framework for track standards, train operations, and roadway worker protection.

b. State Regulations

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for the planning, design, construction and maintenance of all interstate freeways and state routes, including U.S. 101 and SR 116. Caltrans builds, maintains, and operates the State Highway System in California with a goal to facilitate the safe and efficient use of the state transportation system for all users. Caltrans implements federal-aid highway programs in partnership with the FHWA under a Stewardship and Oversight Agreement, through which Caltrans assumes specified project responsibilities and administers federal funds consistent with Title 23 requirements while FHWA retains ultimate oversight authority. In addition, Caltrans sets standards in its 2020 *Transportation Impact Study Guide* that focus on the vehicle miles traveled (VMT) metric. The document is intended to be a reference and informational document that aligns with the standards and thresholds established in the Governor's Office of Land Use and Climate Innovation (LCI; formerly titled the Governor's Office of Planning and Research) *Technical Advisory on Evaluating Transportation Impacts in CEQA*. This document is available to be used by local governments to uniformly review transportation analyses and assess the operational standards of Caltrans-maintained facilities. The 2020 *Transportation Impact Study Guide* acts as a replacement for the 2002 *Guide for the Preparation of Traffic Impact Studies* but is only intended to be used with local land use projects and plans, not to be used for transportation projects on the State Highway System.

Senate Bill 743 and Related Regulatory Framework

Senate Bill (SB) 743, which was signed into law in 2013, directed LCI to develop revisions to the CEQA Guidelines by July 1, 2014 to establish new criteria for determining the significance of transportation impacts and define alternative metrics instead of traffic level of service. SB 743 requires the new criteria to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." It also states that alternative measures of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated." SB 743 changes the way that public agencies evaluate the transportation impacts of projects in accordance with CEQA by

recognizing that roadway congestion, while an inconvenience to drivers, is not itself an environmental impact (see Pub. Resource Code, Section 21099, subd. [b][2]).

On January 20, 2016, LCI released the Revis*ed Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA*, which was an update to *Updating Transportation Impacts Analysis in the CEQA Guidelines, Preliminary Discussion Draft of Updates to the CEQA Guidelines Implementing SB 743,* which had been released on August 6, 2014. Of note was the updated text of the proposed new CEQA Guidelines Section 15064.3 that relates to the determination of the significance of transportation impacts, alternatives, and mitigation measures. Specifically, CEQA Guidelines Section 15064.3 establishes VMT as the most appropriate measure of transportation impacts. In November 2018, the California Natural Resources Agency finalized the updates to the CEQA Guidelines, and the updated guidelines became effective on December 28, 2018.

California Air Resources Board Scoping Plans

The California Air Resources Board (CARB) Scoping Plans are statewide climate frameworks prepared under AB 32 and updated approximately every five years. The 2017 CARB Scoping Plan informed many local SB 743 VMT significance thresholds adopted in the 2018–2021 period, including Petaluma's, which commonly targeted VMT reductions on the order of approximately 16.8 percent below baseline averages. In December 2022, CARB adopted the 2022 Scoping Plan, which identifies more ambitious statewide planning targets to reduce per-capita VMT by at least 25 percent below 2019 levels by 2030 and 30 percent by 2045 as part of achieving carbon neutrality by 2045.

c. Local Regulations

City of Petaluma General Plan

The Mobility Element of the City of Petaluma General Plan contains goals and policies related to transportation. The following goals and policies are relevant to the project (City of Petaluma 2008).

Goal 5-G-1. To improve Petaluma's mobility system to increase efficiency for all modes of travel.

> **Policy 5-P-1**. Develop an interconnected mobility system that allows travel on multiple routes by multiple modes.
>
> - Develop a network for off-street paths and routes according to function and type, considering the intensity of use and purpose.
>
> **Policy 5-P-4**. New development and/or major expansion or change of use may require construction of off-site mobility improvements to complete appropriate links in the network necessary for connecting the proposed development with existing neighborhoods and land uses
>
> **Policy 5-P-5.** Consider impacts on overall mobility and travel by multiple travel modes when evaluating transportation impacts.

Goal 5-G-2. Promote the safe movement of people and goods through Petaluma's streets.

> **Policy 5-P-10**. Maintain an intersection level of service (LOS) standard for motor vehicle circulation that ensures efficient traffic flow and supports multi-modal mobility goals. LOS

should be maintained at Level D or better for motor vehicles due to traffic from any development project.

Policy 5-P-11. Require proposed development to assist, in addition to seeking other funding sources, in the funding and construction of the following improvements:

- Washington Street/Highway 101 interchange improvements
- Rainier Avenue extension and interchange
- Caulfield Lane extension to Petaluma
- Boulevard South (southern crossing)
- Old Redwood Highway interchange widening
- Copeland Street extension to Petaluma Boulevard North
- Caulfield Lane/Payran Street Intersection Improvements
- Petaluma Boulevard North/Magnolia Avenue/West Payran Street Intersection

Goal 5-G-5. Create and maintain a safe, comprehensive, and integrated bicycle and pedestrian system throughout Petaluma that encourages bicycling and walking and is accessible to all

Policy 5-P-19. All new and redesigned streets shall be bicycle and pedestrian friendly in design

Policy 5-P-20. Ensure that new development provides connections to and does not interfere with existing and proposed bicycle facilities.

Policy 5-P-26. Require all new development and those requiring new city entitlements with "frontage" along creeks and the river to permit through travel adjacent to creeks and the river with access points from parallel corridors spaced at minimum intervals of 500–1,000 feet.

Policy 5-P-30. Require all new development abutting any public trail to provide access to the trail.

Policy 5-P-31. Make bicycling and walking more desirable by providing or requiring development to provide necessary support facilities throughout the city.

- Require projects subject to discretionary approval to install public benches where appropriate.

Plan Bay Area 2050

Plan Bay Area 2050 is a joint regional planning document overseen by the Metropolitan Transportation Commission and the Association of Bay Area Governments (ABAG). It serves as the region's Sustainable Communities Strategy (SCS) pursuant to SB 375 and the 2050 Regional Transportation Plan (preceded by Plan Bay Area 2040) and integrates four elements (Housing, Economy, Transportation, and Environment) and five guiding principles (affordable, connected, diverse, healthy, and vibrant) to manage greenhouse gas emissions and plan for future population growth. As required by SB 375, the Regional Housing Needs Allocation (RHNA) must be consistent with the SCS, aligning the region's housing distribution with the SCS land use/transportation pattern (for example, infill and transit-oriented development) that supports lower per-capita VMT. In the Bay Area, ABAG administers RHNA in coordination with MTC's SCS so that local Housing Elements and zoning capacity reflect the growth geography set by Plan Bay Area. Most of the investments are

directed toward residents of Equity Priority Communities or other systematically underserved communities. The plan envisions investment in affordable housing production and preservation, a universal basic income to support residents' essential needs, investments in means-based transit fare discounts, and subsidies to protect homes and businesses from natural hazards. Strategies within Plan Bay Area include strategies aimed at housing production, improving mobility, creating safe streets, reducing greenhouse gas emissions, and expanding access to parks and open space. As the SCS, Plan Bay Area guides local jurisdictions such as the City of Petaluma in developing land use and transportation plans that support infill development, transit-oriented development, and reduced per-capita VMT, as well as inform local implementation of SB 743 and related VMT practices within a consistent regional context.

Sonoma County Transportation and Climate Authority

The Sonoma County Transportation and Climate Authority (SCTCA) serves as the countywide Congestion Management Agency and is responsible for regional transportation planning, coordination, and programming of federal, state, and local transportation funds. SCTCA maintains the Sonoma County Travel Model, the regional travel demand model used by the City of Petaluma for General Plan and CEQA analyses to estimate future travel patterns, VMT, and multimodal accessibility. The model provides a consistent regional forecast framework that aligns with Plan Bay Area and supports the City's evaluation of land use, transportation investments, and VMT reduction strategies as required under SB 743.

City of Petaluma Senate Bill 743 Implementation Program

The City of Petaluma adopted *Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines Final* (2021 VMT Guidelines) through City Council Resolution No. 2021-112 and replaced automobile delay with VMT analysis as the City's CEQA Transportation analysis metric, pursuant to SB 743. The 2021 VMT Guidelines shifts the focus away from vehicle delays on local roadways to regional traffic patterns and reducing GHG emissions and establishes the methods, VMT metrics, thresholds of significance, screening criteria, and mitigation strategies for CEQA evaluation of discretionary projects. Given the City's commitment to climate resilience, City Council adopted a significance threshold in alignment with the California Air Resources Board's (CARB) identified reduction at 16.8 percent below baseline VMT levels. As the City updates its General Plan, the 2021 VMT Guidelines will be reviewed to ensure continued alignment with the City's commitment to the climate emergency and reflective of the Blueprint for Climate Action. While the City's current VMT threshold of 16.8 percent below baseline remains valid and supported by CARB scoping guidance, CARB's 2022 Scoping Plan establishes more ambitious statewide expectations for reducing per-capita VMT. Future revisions to Petaluma's VMT threshold may therefore consider CARB's recommended 25 percent reduction by 2030 and 30 percent reduction by 2045 to better reflect the City's climate priorities. Evaluation of potential threshold updates will be completed through the General Plan Update process in coordination with Fehr & Peers and the project team to ensure technical defensibility and policy consistency.

Petaluma Blueprint for Climate Action

The City adopted the Blueprint for Climate Action in 2024 which establishes a target of achieving carbon neutrality by 2030 and identifies transportation as the largest source of communitywide greenhouse gas emissions (approximately 67 percent). The Blueprint sets forth transportation-related actions to minimize greenhouse gas emissions from transportation, including implementing

transportation demand management programs, prioritizing 15-minute neighborhoods and transit-oriented development, and transitioning municipal and transit fleets to zero-emission vehicles. The Blueprint also calls for comprehensive EV charging infrastructure, parking reform to discourage single-occupancy vehicle use, and integration of mobility hubs to support mode shift. Implementation of the Blueprint's transportation actions is supported through the General Plan Update to ensure alignment with the City's VMT guidelines, active transportation investments, and long-range land use policies.

Petaluma Active Transportation Plan

The City's 2025 Active Transportation Plan (ATP) provides a roadmap for creating a safe, connected, and equitable network for walking, biking, rolling, and other self-powered modes of travel. Building on the 2008 Bicycle and Pedestrian Master Plan, the ATP identifies infrastructure projects, policy initiatives, and educational programs that enhance mobility for people of all ages and abilities while reducing greenhouse gas emissions and traffic-related injuries. Developed through extensive community engagement with partners including CityThread, the Petaluma Equitable Climate Action Coalition, and Safe Streets Petaluma, the plan addresses existing challenges such as sidewalk gaps, fragmented bikeways, and accessibility barriers, and proposes solutions such as lane conversions, neighborhood greenways, and improved crossings.

Petaluma Local Roadway Safety Plan

The City adopted a Local Roadway Safety Plan (LRSP) in 2022, which took a data-driven approach to safety planning in coordination with local stakeholders in order to reduce traffic fatalities and serious injuries on public roadways. Starting in 2022, having an adopted LRSP was required for jurisdictions to be eligible for Highway Safety Improvement Program grant funding. This study included stakeholder and public outreach, collision data analysis to identify key risk factors, countermeasure selection, and priority project identification, with focus on high-injury corridors and intersections.

Petaluma Transit Short Range Transit Plan

Petaluma Transit maintains a Short Range Transit Plan which provides an overview of the transit system, goals and performance measures, system evaluation, and operating and capital improvement plans. The Short Range Transit Plan), last updated in 2016, is planned to be updated starting in 2026.

The plan will provide a 10-year outline for future operations of Petaluma Transit including: operational goals, financial plans, fleet provision planning, and a list of service improvements. The plan bridges short-term operational needs with long-term goals, providing a roadmap for routes, schedules, capital improvements, and funding requirements.

Sonoma County Vision Zero Action Plan

As adopted by the Sonoma County Board of Supervisors in December 2022 and implemented by SCTCA, the Sonoma County Vision Zero Action Plan establishes a countywide plan to eliminate traffic-related fatalities and severe injuries through safe-system principles, multimodal safety investments, and data-driven prioritization of high-injury corridors. The Vision Zero framework complements Petaluma's Local Roadway Safety Plan by providing regional crash trend analysis, coordinated safety strategies, and funding pathways that support implementation of the City's roadway safety goals. The Vision Zero framework is organized into six high-level goals:

1. Create Safe Speeds
2. Eliminate Impaired Driving
3. Create a Culture of Safety
4. Build Safe Streets for All
5. Make Vehicles Safer and Reduce Private Vehicle Use
6. Improve Data for Effective Decision Making

The Sonoma County Vision Zero Action Plan serves as a mid-range planning document with the goal of eliminating traffic-related fatalities and severe injuries by 2030. As part of Goal 6, Improve Data for Effective Decision Making, SCTCA tracks Vision Zero Action Plan progress through the Sonoma County Vision Zero Data Dashboard (SCTCA 2022).

Central Petaluma Specific Plan

The 2003 Central Petaluma Specific Plan (CPSP) intended to redirect growth in Central Petaluma with a specific emphasis on the Petaluma River as a source of connectivity and identity. It seeks to promote sustainable and mixed-use development, historic preservation, and multimodal transportation to facilitate this growth. The plan calls for an expansion of employment, mixed uses and region-serving commercial activity in the area generally bounded by Petaluma Boulevard, Lakeville Street/Highway, and U.S. 101, while maintaining river-dependent industrial uses. The CPSP also encourages transit use and pedestrian and bicycle circulation by creating new local streets to improve access. The CPSP also introduced the adoption of the SmartCode, which is a form-based regulatory code that implements the objectives of the CPSP.

SMART Station Areas TOD Master Plan

The 2013 SMART Station Area Master Plan (SAMP) provides a framework to guide future development around Petaluma's existing and proposed SMART stations and to support and increase transit ridership. The SAMP encourages the development and redevelopment of the Petaluma Downtown Station Area and Petaluma North Station Area into a pedestrian-oriented, livable, mixed-use environment that both capitalizes on and supports SMART train ridership. This vision of transit-oriented development aims to attract people and create vibrant neighborhoods near transit. Key objectives of the SAMP include improving connectivity, developing urban design standards, identifying infrastructure needs, and providing a financing plan. Currently, the City is preparing a Specific Plan for the Petaluma North Station Priority Development Area and is in the beginning stages of preparing an update to the Central Petaluma Specific Plan that will update the plan for the area around the Downtown SMART Station.

Petaluma Trip Reduction Ordinance

The Petaluma's Trip Reduction Ordinance, Chapter 11.90 of the Petaluma Municipal Code, originally adopted in 1992 and most recently updated in 1996, requires all Petaluma employers with over one hundred employees to designate a transportation coordinator, provide information about commute alternatives to employees, and administer annual commute surveys.

4.14.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

This analysis is based on the *Traffic Impact Analysis* (TIA) prepared by Fehr & Peers in March 2026, which relies on the 2019 base year SCTCA model (Appendix B). For the reasons described in Section 4.14.2*, Regulatory Setting*, to implement SB 743, this analysis uses the metric of VMT to determine the project's traffic-related impact.

Significance Thresholds

In accordance with Appendix G of the *CEQA Guidelines*, a significant impact to transportation would occur if new development facilitated by the proposed project would:

1. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
2. Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b);
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
4. Result in inadequate emergency access.

In accordance with the City's adopted VMT thresholds, the proposed project would result in a significant impact related to VMT if any of the following would occur:

- **For residential growth:** Total home-based VMT per resident exceeds 16.8 percent below the citywide average. The citywide average baseline value applies until such time that the City of Petaluma exceeds the housing allocation for the City as identified in the Sustainable Communities Strategy (SCS) for the Bay Area region; if the City exceeds the SCS housing allocation, the nine-county Bay Area regional average applies. The SCS housing allocation limit is suggested by the California State Office of Planning and Research (OPR) in the *Technical Advisory on Evaluating Transportation Impacts in CEQA* as when the use of a citywide average becomes inappropriate for the evaluation of CEQA VMT impacts (in favor of the Bay Area regional average).
- **For office and other employment-focused growth:** Project total home-based work VMT per employee exceeds 16.8 percent below the nine-county Bay Area regional average.
- **For retail and other commercial service growth:** Project results in a net increase in VMT over the geographic area that the project influences.
- **For mixed-use and other growth:** Project components should be analyzed using the relevant thresholds for residential, office/employment-focus, or retail/commercial service projects. The benefits of a mix of uses on-site can and should be included in the analysis.
- **For transportation growth:** Project results in induced travel and an increase in citywide VMT.
- **For redevelopment growth:** Project results in increased VMT versus current land uses. City staff retain discretion to identify the baseline VMT for use in the calculation (i.e. based on current uses or permitted uses).

Consistent with CEQA Guidelines and the City's adopted SB 743 VMT Implementation Guidelines (Resolution No. 2021-112), this EIR uses the City's existing VMT significance threshold for impact determinations. The City's thresholds were originally informed by CARB's 2017 Scoping Plan and require a 16.8 percent reduction below the applicable average for residential and employment metrics. For context only, and to inform future policy updates, this EIR also compares results to CARB's 2022 Scoping Plan statewide planning targets, which recommends reducing VMT per capita to 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045. These thresholds are consistent with the City's Blueprint for Climate Action. Accordingly, the proposed project's VMT impacts are evaluated for CEQA significance based on the City's adopted VMT threshold of a 16.8 percent reduction below the applicable average, with an additional comparison to the CARB 2022 Scoping Plan targets provided for informational and policy-context purposes only.

b. Project Impacts and Mitigation Measures

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 THE PROPOSED PROJECT WOULD INCLUDE MODIFICATIONS TO EXISTING TRANSIT, ROADWAY, BICYCLE, OR PEDESTRIAN FACILITIES AND WOULD NOT INTERFERE WITH TRANSPORTATION PROJECTS IDENTIFIED IN EXISTING PROGRAMS, PLANS, ORDINANCES, OR POLICIES. THE PROPOSED PROJECT INCLUDES ACTIONS WHICH WOULD PROMOTE THE USE OF TRANSIT, ROADWAY, BICYCLE, AND PEDESTRIAN FACILITIES. THE PROPOSED PROJECT WOULD HAVE A LESS THAN SIGNIFICANT IMPACT RELATED TO CONFLICTS WITH PROGRAMS, PLANS, ORDINANCES, OR POLICIES ADDRESSING THE CIRCULATION SYSTEM.

The project is a legislative procedure that updates the City's existing general plan and guides the visions towards realizing a city that is well connected and promotes accessible and safe use for all travel modes.

Discussions of the project's potential to conflict with plans governing transit, roadway, bicycle, and pedestrian facilities are provided below.

Transit

The proposed project would facilitate development within Petaluma which could increase the use of transit services and demand for transit facilities in Petaluma. Pairing transit-oriented development with improvements to transit access and street designs supports ridership growth for train, bus, and shuttle services. While growth within Petaluma would result in increased transit use, the proposed project includes several actions aimed at improving the transit network and supporting an increase in transit use. These include:

- **Action TP-3.5.1**. Expand the fixed-route transit network through route additions and decreased headways as feasible to connect major destinations such as parks, schools, and 15-minute neighborhood nodes.
- **Action TP-3.5.2**. Develop microtransit/transportation network company partnerships in a fiscally sustainable manner to enhance public access to gaps in the fixed-route transit network and areas with high parking demand (such as Downtown in coordination with 5.3 and 5.4) in a targeted manner that supports safe, equitable, and inclusive mobility options for people of all ages and abilities.
- **Action TP-3.5.3**. Implement bus rapid transit (BRT) and bus queue jump lanes on roads and intersections where buses are stuck in traffic to enhance Petaluma transit coverage, frequency,

and seasonal regularity so it is convenient, serves key destinations such as education, shopping, and employment centers, and SMART, and serves the whole public in a safe, equitable, and inclusive manner.

- **Action TP-3.5.4**. Ensure that key transit nodes are designed as mobility hubs consistent with MTC guidance that serve the broader community by prioritizing access for people walking and bicycling.
- **Action TP-3.5.5.** Implement the Petaluma portion of applicable local, county, and regional transit plans.
- **Action TP-3.5.6**. Improve transit amenities throughout the system including, but not limited to, bus tracking information, ADA access, bus shelters, comfortable seating, lighting, public art, safety improvements, passenger information, bicycle racks, benches, trash receptacles, bathrooms, and path connections.
- **Action TP-3.5.7.** Provide transit service at a nominal cost, or no cost, to riders and incentivize its use by implementing programs such as specialized fare structures or community-transit passes.
- **Action TP-3.5.8**. Evaluate the need for a Downtown Circulator or shuttle bus for short-distance travel throughout Downtown Petaluma, providing service at a nominal or no cost. This can be implemented with Action TP-5.4.3 on parking benefit districts.
- **Action TP-3.5.9**. Collaborate with Sonoma-Marin Area Transit Authority (SMART) to increase the frequency and capacity of SMART trains, and integrate with other transit routes, creating a reliable alternative to internal combustion engines for intercity travel.
- **Action TP-3.5.10**. Collaborate with Sonoma-Marin Transit Authority to create a comprehensive bicycle commuting, bike storage, and bike share system, creating a reliable alternative to internal combustion engines for intracity travel.

Implementation of these actions would promote improvement of the existing transit network and support programs to increase travel by transit. In addition, pursuant to PMC Chapter 19.24, new development facilitated by the proposed project would be required to contribute to the City's Transportation Impact Fee (TIF), which allocates 22.43 percent of eligible project costs to transit capital projects, providing a funding source to offset additional transit demand generated by citywide growth (City of Petaluma 2023). Together, implementation of the actions described above and required adherence to local regulations would ensure the proposed project would not conflict with a program, plan, ordinance, or policy of the circulation system regarding transit systems, or otherwise decrease the performance or safety of such facilities Therefore, this impact would be less than significant.

Roadway

Development facilitated by the proposed project would result in the increased use of roadway facilities in Petaluma. The proposed project includes several actions that address roadway planning, safety, accessibility, and multimodal integration. These include:

- **Action TP-1.1.1.** Prioritize citywide mobility of people rather than single-occupancy vehicles in transportation and land-use planning and decision-making.
- **Action TP-1.1.2.** Adopt Complete Streets roadway design standards to ensure modal priorities, the Safe, Equitable, and Inclusive framework, and All Ages and Abilities Bikeway Design are accounted for in all transportation planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities.

- **Action TP-1.1.3.** Develop a Street Typology Framework with right-of-way allocation priorities that recognize street design must prioritize safety, consider mobility needs, and support economic development opportunities of adjacent land uses.
- **Action TP-1.1.6.** Evaluate the relationship of traffic flow on safety, accessibility, livability, economy, and climate when assessing driver delay and traffic congestion.
- **Action TP-3.3.3.** Enhance crosstown access for emergency service providers through infrastructure and programmatic measures that maintain roadway safety for all users. Avoid solutions that create or maintain excessive roadway capacity, and instead pursue creative approaches that balance emergency response needs with the safety and comfort of people walking, biking, and using transit.
- **Action TP-4.1.1.** Apply the Safe Systems Approach and Vision Zero principles, prioritizing safety over automobile speed, capacity, and delay in transportation planning and engineering decisions.
- **Action TP-4.1.9.** Prioritize street design and/or traffic device changes to reduce vehicle speeds at locations where speeds exceed desired levels, using current California laws (such as Assembly Bill 43) to lower speed limits, particularly on high-injury corridors, in commercial districts, and near schools and parks.
- **Action TP-4.4.1.** Continue to ensure that all neighborhoods have access to designated evacuation routes in an emergency.
- **Action TP-4.4.2.** Continue to ensure that all emergency access routes required of new developments provide adequate access for people walking or traveling by wheelchair, bicycle, or other micromobility device.
- **Action TP-5.2.3.** Update and/or create new impact fees to ensure new land uses pay their fair share for roadway use, congestion, pollution, and use of curb space of the vehicle trips generated by the project, accounting for transportation system operations, maintenance, and social costs through a VMT or similar fee program.
- **Action TP-5.5.4.** Periodically monitor designated truck routes and ensure they direct freight traffic away from residential areas and other sensitive land uses where possible, adhere to time-of-day restrictions, and consider prohibiting through truck traffic on streets other than identified truck routes.

The above actions would ensure that roadway facilities within Petaluma would be designed around the performance and safety established in state guidance related to roadway design and planning. The proposed project's actions also focus on enhancing existing connections and multimodal options rather than expanding roadway capacity. Additionally, roadway improvements are funded through the City's TIF program, which allocates up to 100% of eligible project costs for roadway-related capital improvements, thereby ensuring that new development would fund roadway improvements proportionate to its impact. Accordingly, the proposed project would not conflict with a program, plan, ordinance, or policy of the circulation system regarding the roadway system, or otherwise decrease the performance or safety of such facilities. Therefore, this impact would be less than significant.

Bicycle and Pedestrian

Development facilitated by the proposed project would result in the increased use of bicycle and pedestrian facilities in Petaluma. The proposed project aligns with the city's Active Transportation Plan, which seeks to improve bicycle and pedestrian safety and improve mobility options in

Petaluma. Future development would occur within a multimodal system that is already structured around improving safe access to key community destinations, including schools, thus supporting the most vulnerable roadway users. The proposed circulation network enhances bicycle and pedestrian facilities citywide, improves connectivity, and shortens walking and biking distances. Specifically, the proposed project would facilitate the development of 83.3 combined miles of bicycle and pedestrian facilities, as shown in Table 4.14-1, below.

Table 4.14-1 Existing and Future Miles of Bicycle and Pedestrian Facilities

	Facility Type	Existing Miles	Future Miles
Bicycle Facilities	Class I	22.8	46.9
	Class II	25.3	7.6
	Class IIB	1.5	0.1
	Class III	12.1	0.7
	Class IIIB	1.0	35.3
	Class IV	0.8	34.7
	Trail/Recreational[1]	9.3	10.7
	Uphill Class IIB/Downhill Class III	0	2.3
Pedestrian Facilities	Sidewalks	354.5	372.3
Total Miles		**427.3**	**510.6**

Source: Appendix B

[1.] Trail/Recreational bicycle facilities include a mix of paved and unpaved pathways that are accessible by people walking and biking.

Furthermore, the proposed project includes the following actions aimed at improving bicycle and pedestrian travel in Petaluma:

> **Policy TP-3.4: Create a Low-Stress Walking and Bicycling Network.** Create and maintain a safe, low stress, comprehensive, and integrated bicycle and pedestrian system throughout Petaluma that encourages bicycling and walking and is accessible to all.
>
> > **Action TP-3.4.1:** Enhance the safety, accessibility, and coverage of the low-stress bicycle and pedestrian network by fully implementing the City's Active Transportation Plan, providing safe, convenient, and ADA-compliant access to all areas of the City, particularly key community destinations and transit nodes in coordination with policies related to safety outlined in Goal 4.
> >
> > **Action TP-3.4.2:** Prioritize enhanced amenities for people walking in Downtown, transit-oriented districts, and neighborhood hubs (including centers of 15-minute neighborhoods) that include, but are not limited to, wide sidewalks and multi-use trails, accessible crossing features, signage and wayfinding, bicycle repair stations, street furniture (e.g. benches), outdoor dining, public art, crosswalks, drinking fountains, bathrooms, waste receptables, street lighting, street trees, and gathering areas.
> >
> > **Action TP-3.4.3:** Provide amenities throughout the low stress/all ages and abilities bicycle network including, but not limited to, wayfinding signage, public art, drinking fountains, bathrooms, service stations, and secure and convenient bicycle parking.

Action TP-3.4.4: Support economic vitality and VMT reduction goals by connecting commercial activity centers and local destinations to the citywide pedestrian and bicycle network, while raising awareness through wayfinding signage and marketing campaigns.

Action TP-3.4.5: Enhance trail and greenway connections throughout Petaluma, including working with the Bay Area Ridge Trail Council and SMART to implement a revised off-street route through the City with connections to regional destinations (e.g., Petaluma Adobe State Park, Jack London State Historic Park, Helen Putnam Regional Park, and Mt. Burdell) and completing a network of river and creek trails to expand car-free transportation and recreation opportunities along waterfronts. Create seamless connectivity between the City's trail and greenway networks by providing wayfinding signage and all ages and abilities bicycle and pedestrian connections where streets must be used to travel between trails and greenways.

Policy TP-4.1: Apply the Safe Systems Approach. Apply the Safe Systems Approach, in support of a Vision Zero goal, by prioritizing safety over automobile speed, capacity, and delay in transportation planning and engineering decisions and consistently communicate safety issues to the public. See Figure 1 to understand how vehicle speed affects fatality risk in collisions that involve a pedestrian.

Action TP-4.1.6: Prioritize bicycle facilities that offer the greatest protection from motor vehicles (e.g., Class I multiuse paths and Class IV protected cycle tracks over Class II lanes and Class III routes) over vehicle speeds on designated bikeway networks.

Action TP-4.1.7: Prioritize installing and/or upgrading appropriately designed and lit sidewalks and crosswalks for pedestrians near transit stops, schools, parks, commercial areas, and other activity centers.

Action TP-4.1.8: Develop crosswalk standards that account for paths of travel and nearby activity centers to enhance safety for people walking citywide.

Action TP-4.1.9: Prioritize street design and/or traffic device changes to reduce vehicle speeds at locations where 85th percentile and other outlier speeds are above the desired speed based on the street typology and use current California laws (such as Assembly Bill 43) to lower speed limits, particularly on high-injury corridors, in commercial districts, and near schools and parks.

Policy TP-4.2: Prioritize Roadway Safety for Vulnerable Users. Prioritize roadway safety surrounding schools, parks, and in areas with a high concentration of youth and older adults, residential neighborhoods, and commercial activity centers.

Action TP-4.2.1: Enhance active transportation network connections to key community amenities and healthy spaces, particularly for groups including people who experience disabilities, children, older adults, people of color, and those in low-income communities.

Action TP-4.2.2: Engage all Petaluma schools in Safe Routes to Schools (SR2S) planning to increase school travel via active transportation and transit, reduce congestion and harmful pollutants around schools, and increase the safety and physical activity of students.

Action TP-4.2.3: Create slow zones that prioritize street design features to reduce vehicle speeds on streets adjacent to schools, parks, and areas with high concentrations of youth and older adults.

Policy TP-6.2: Employ Data-Driven Mobility Planning. Gather in-depth quantitative and qualitative information on the travel behavior of Petaluma residents to provide a reliable empirical foundation to plan solutions to transportation-related problems, monitor changes to travel patterns as the network changes are completed, and understand the effects on the City's carbon footprint.

Action TP-6.2.2: Conduct robust Level of Traffic Stress bicycle and pedestrian network gap analyses on a recurring basis. Update online transportation-network maps on an annual basis showing the bicycle and pedestrian network, highlighting low-stress connections that meet NACTO's All Ages & Abilities criteria, in addition to the public transit networks and other major transportation nodes. Promote the Petaluma transit app to connect residents and students to transit options.

Action TP-6.2.3: Establish protocols for collecting bicycle and pedestrian traffic counts comparable to vehicle counts.

Implementation of these actions would improve the bicycle and pedestrian network and support programs to increase bicycle and pedestrian travel. In addition, pursuant to PMC Chapter 19.24, development facilitated by the proposed project would be required to contribute to the TIF, which currently allocates up to 40 percent of eligible project costs for bicycle and pedestrian capital improvements, which would ensure that new development would fund the necessary infrastructure to serve future residents and reduce VMT. Accordingly, implementation of the actions described above and compliance with local regulations would ensure that the proposed project would not conflict with a program, plan, ordinance, or policy of the circulation system regarding bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Therefore, this impact would be less than significant.

All new development facilitated by the proposed project would be subject to the City's TIF, which is intended to cover the costs of improvements needed to accommodate new development within the City. The TIF ensures that development is consistent with the land use and transportation polices of the General Plan by creating a source of funding to implement the improvements needed to develop a transportation system that will accommodate the City's expected future traffic demand and to accommodate the needs generated by future development. Thus, in conjunction with the actions described throughout this impact analysis, the TIF would ensure that citywide growth contributes proportionately to transit, roadway, bicycle, and pedestrian infrastructure necessary to maintain mobility system performance aligned with adopted plans and policies. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2:	Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Impact TRA-2 THE PROPOSED PROJECT WOULD RESULT IN PER CAPITA VEHICLE MILES TRAVELED THAT WOULD EXCEED BOTH THE CITY'S ADOPTED VEHICLE MILES TRAVELED REDUCTION THRESHOLD AND THE CARB 2022 SCOPING PLAN RECOMMENDATIONS FOR VEHICLE MILES TRAVELED REDUCTIONS. THIS IMPACT WOULD BE SIGNIFICANT AND UNAVOIDABLE.

As described under Section 4.14.3a, *Methodology and Significance Thresholds*, above, consistent with CEQA Guidelines and the City's adopted SB 743 VMT Guidelines (Resolution No. 2021-112), the following analysis relies upon the City's existing VMT significance thresholds for impact determinations. Those thresholds, originally informed by CARB's 2017 Scoping Plan, require a 16.8 percent reduction below the applicable average (citywide, or if/when triggered by the City's guidelines, regional) for plan- and project-level screenings and findings. For informational context only, this EIR also compares results to the CARB 2022 Scoping Plan statewide planning targets to reduce per-capita VMT 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045. Although these are not Petaluma's CEQA thresholds, they inform long-range planning alignment with State climate policy.

The proposed project would induce growth, which would increase the overall VMT in the City. Although build out of the proposed General Plan would reduce the per capita VMT throughout Petaluma relative to the existing General Plan, it would remain above thresholds of significance. Table 4.14-2 presents a comparison of VMT projections with implementation of the proposed project to the City's adopted threshold of 16.8 percent below existing VMT baseline values. Relative to CARB's 2022 Scoping Plan targets, as shown in Table 4.14-2, although the proposed project would reduce overall VMT per capita from 35.6 to 32.3, VMT results would remain above the corresponding significance threshold of 16.8 percent below average.

Table 4.14-2 Projected Per Capita VMT Based on City's Existing Threshold

	Residential VMT Per Capita	Employment VMT per Capita	Total VMT per Service Population[1]
Existing (2019) VMT	17.6	18.1	35.6
Existing City Threshold 16.8% Below Average	14.6	15.1	29.6
VMT with Proposed Project (2050)	18.2	15.6	32.3
Exceeds Threshold?	**Yes**	**Yes**	**Yes**

Source: Appendix B

[1.] Total VMT per service is calculated as total modeled VMT divided by the sum of residents and employees within the analysis geography.

As described in the TIA included in Appendix B, the City's adopted VMT threshold of 16.8 percent below existing VMT baseline values is based on the CARB's 2017 Scoping Plan. Since then, CARB has released the 2022 Scoping Plan, which identifies statewide planning targets of reducing VMT per capita to 25% below 2019 levels by 2030 and 30% below 2019 levels by 2045. Although these statewide planning targets do not replace or supersede the City's adopted CEQA thresholds, this EIR presents an additional comparison to the 2022 Scoping Plan 2045 target for informational context. Accordingly, Table 4.14-3 presents the results of the VMT analysis compared to CARB's 2022 Scoping Plan target.

Table 4.14-3 Projected Per Capita VMT Based on CARB's 2022 Scoping Plan

	Residential VMT Per Capita	Employment VMT per Capita	Total VMT per Service Population
Existing (2019) VMT	17.6	18.1	35.6
CARB Scoping Plan Target (30% Below Average)	12.3	12.7	24.9
VMT with Proposed Project (2050)	18.2	15.6	32.3
Exceeds Threshold?	**Yes**	**Yes**	**Yes**

Source: Appendix B

[1.] Total VMT per service is calculated as total modeled VMT divided by the sum of residents and employees within the analysis geography.

As shown above in Table 4.14-3, the proposed project would still exceed the CARB's target. This result does not reflect a continuation of low-density patterns; rather, the proposed project would shift growth toward infill locations, station areas, and 15-minute activity centers specifically to shorten trip lengths and enable mode shift to walking, bicycling, and transit, thereby reducing per-capita VMT even as total VMT may rise with additional residents and jobs. This growth pattern is consistent with Plan Bay Area 2050, which ties RHNA to the SCS such that local housing capacity and zoning reflect the region's land use/transportation pattern intended to single occupancy vehicle use.

Even with this infill emphasis and expanded multimodal accessibility, a residual per-capita VMT gap remains due to regional commutes to major employment centers such as Marin, San Francisco, and Santa Rosa, which keep average trip lengths above what fully transit-rich, job-dense areas experience. As regional operators expand service, for example, SMART's ongoing service expansion planning, the combination of land use shifts and transit service expansion would incrementally increase multimodal transportation and reduce total VMT. However, under baseline conditions and regional travel patterns, the General Plan's per-capita VMT improvement would not meet the CARB 2022 Scoping Plan goal of 30 percent below-average or the City's adopted 16.8 percent below average threshold.

However, the proposed policy framework includes goals, policies, and actions to reduce VMT in the long-term. The following list of policies and actions from the proposed General Plan would directly and indirectly result in the reduction of VMT by managing vehicle trips and incentivizing use of transit and active transportation.

> **Policy TP-1.1: Develop a reliable and connected transportation network that fulfills the City's Vision.** Develop a reliable and connected transportation network with a hierarchy of modal priorities for roadways so that moving around Petaluma can simply become more enjoyable, efficient, safer, and fun.
>
> > **Action TP-1.1.1:** Prioritize citywide mobility of people rather than single-occupancy vehicles in transportation and land-use based planning and decision-making. Develop a modal priority map that prioritizes travel modes and their interconnectivity in the following order to reflect their vulnerability while traveling: 1) walk (walking and persons with disabilities); 2) micromobility (bicycles [standard and e-bikes] and scooters); 3) transit and shuttle; 4) drop-off and pick-up (ride share and taxi); and 5) auto (motorcycle, carpool/vanpool, electric vehicle carshare, and SOV). Modal priority should focus on safety and reflect the surrounding land use, intensity of activity, and the street's role in the transportation network—placing greater emphasis on walking and

biking in areas with high pedestrian activity, and on transit and goods movement along key regional corridors.

Action TP-1.1.2: Adopt Complete Streets roadway design standards to ensure modal priorities, the Safe, Equitable, and Inclusive framework, and All Ages and Abilities Bikeway Design are accounted for in transportation planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities and products. Standards should allow for flexibility given existing constraints, costs, and input from emergency service providers. Street design should be scaled to the level of surrounding activity and mobility demands. This approach ensures that safety and comfort are prioritized in areas with high pedestrian activity, while still accommodating access and throughput on streets serving essential travel and emergency functions.

Action TP-1.1.3: Develop a Street Typology Framework with right-of-way allocation priorities that recognize that street design (including sidewalks, bikeways, transit facilities, landscaping, and vehicle space) must prioritize safety, while considering the mobility needs and economic development opportunities of adjacent land uses and the street's role in the citywide network, providing sufficient emergency access. This framework should allow individual streets to be clearly evaluated based on their role in connecting people and goods, as well as their importance as a destination or gathering space.

Action TP-1.1.4: Adopt seamless transit policies and integrate transportation services, in alignment with Plan Bay Area 2050+, across operators, geographies, and complementary modes via physical connections, interoperable payments, Mobility as a Service, and combined information resources.

Action TP-1.1.5: Develop mobility hubs consistent with MTC guidance tailored to the surrounding land use context that support last- and first-mile connections and reliable access to low carbon mobility, including through shared public micromobility of bikeshare and/or scooter share programs. Hubs should incorporate a variety of short- and long-term bike parking options.

Action TP-1.1.6: Evaluate the relationship of traffic flow on safety, accessibility, livability, economy, and the climate when assessing driver delay and traffic congestion.

Policy TP-5.1: Integrate Development and Transportation Policies. Ensure land use and transportation policies work in concert with one another to incentivize compact, accessible, livable, and sustainable development that supports a high quality of life and vibrant economy.

Action TP-5.1.1: Integrate 15-minute Neighborhood objectives into land use and transportation planning to ensure all Petaluma residents have access to essential services within a 15-minute walk of their home.

Action TP-5.1.2: Prioritize new and infill development along existing transit corridors and within proximity to major mobility hubs through zoning code, specific plans, and other land use plans.

Action TP-5.1.3: Require that active transportation be an integral part of land use-based planning processes and decisions from inception.

Policy TP-5.2: Align Land Use and Building Codes with Modal Priorities. Revise land use and building codes, and related planning, permitting, application, and project processing steps, to orient building and privately owned public space design to reflect the City's modal priorities and safe, equitable, inclusive mobility framework, and Complete Streets design standards.

Action TP-5.2.1: Require dedication of needed right-of-way for transportation improvements identified in adopted City plans, including pedestrian facilities, bikeways, and trails.

Action TP-5.2.2: Create guidelines that outline under what circumstances level of service calculations will be required for discretionary non-transit-oriented land use projects in the context of Policy 3.2.

Action TP-5.2.3: Update and/or create new impact fees to ensure new land uses pay their fair share for roadway use, congestion, pollution, and use of curb space of the vehicle trips generated by the project, accounting for transportation system operations, maintenance, and social costs through a VMT or other similar fee program.

While implementation of these policies and actions in the General Plan would support VMT reduction for new and future residents, employees, and visitors, and would reduce VMT per capita compared to the existing General Plan, the forecast VMT reduction would not be sufficient to meet the City's adopted VMT thresholds nor CARB's 2022 Scoping Plan Target as presented in Table 4.14-2 and Table 4.14-3. Accordingly, impacts would be potentially significant and Mitigation Measures TRA-1, TRA-2, and TRA-3 would be required.

Mitigation Measures

Mitigation Measure TRA-1 Community-Based VMT Reduction Program

To achieve measurable reductions in per capita VMT consistent with the City's adopted SB 743 VMT thresholds (Resolution No. 2021-112) and to inform long-range planning alignment with the 2022 CARB Scoping Plan (30% reduction by 2045), the proposed project would be required to implement the following actions:

- **15-Minute Neighborhoods**: Implement actions that integrate transportation and land use that allows everyone, in every neighborhood, to meet most of their daily needs within close proximity to their home. This means creating a human-scale city composed of vibrant, people-friendly, and complete neighborhoods, connected by quality public transport and pedestrian and bicycle infrastructure and amenities that residents want or need to access commercial, recreational, and community opportunities and resources. Success requires achieving safe, comfortable connections that facilitate travel by people of all ages and abilities in a manner that garners near-term physical and mental health benefits and longer-term public health and economic benefits via reduced carbon emissions.
- **VMT reduction and banking:** Per action TDM-3 of the Blueprint for Climate Action, adopt a VMT-based development impact fee program in coordination with SCTCA.
- **Universal Basic Mobility Program:** Per action TDM-4 of the Blueprint for Climate Action, evaluate the feasibility of funding a transportation benefits program, e.g. Universal Basic Mobility Program, for existing low-income residents in disadvantaged neighborhoods. Conduct a survey of low-income residents in disadvantaged communities to understand financial,

logistical, and informational barriers to transportation to inform a Universal Basic Mobility program.

- **Parking Reform:** Per actions PM-1 through PM-3 of the Blueprint for Climate Action, establish parking management policies and standards to balance supply and demand, to reduce demand for parking and single-occupancy vehicle use, and to meet target utilization rates at key destinations through the use of dynamic pricing.
- **Active Transportation Network Completion:** Per action AT-1 of the Blueprint for Climate Action, implement a citywide low-stress bicycle and pedestrian network, including connections to SMART stations, schools, and neighborhood hubs.
- **Mobility Hubs:** Per actions TLUC-4: General Plan implementation of the Blueprint for Climate Action, construct multimodal hubs at transit nodes integrating bike share, scooter share, EV car share, EV and e-bike charging, and real-time transit information.
- **Transit Enhancements:** Per Actions TS-1 through TS-6 of the Blueprint for Climate Action, expand Petaluma Transit service frequency and coverage and provide enhanced connections to transit stops.
- **Neighborhood-Level Incentives:** Provide e-bike rebates, subsidized regional transit passes, and car-share credits to residents.

Mitigation Measure TRA-2 Employer-Based VMT Reduction Program

To reduce commute-related VMT the proposed project shall require employers to demonstrate reductions in home-based work VMT per employee consistent with City thresholds through the following actions:

- **City employee Transportation Demand Management Program.** Per action ETDM 1 through ETDM 3 of the Blueprint for Climate Action, establish a plan to reduce employee single-occupancy vehicle trips, engage with employees, and adapt the program based on surveys.
- **Employer TDM Policy.** Per TDM-1 of the Blueprint for Climate Action, adopt a modern TDM policy for employers that requires employers to submit an emission reduction plan to the City to meet the City's greenhouse gas reduction targets as outlined in the Blueprint for Climate Action. This should include a range of strategies listed in the Blueprint such as transit and micromobility subsidies, and on-site secure bicycle parking and parking management strategies.

Mitigation Measure TRA-3 Safe Routes to School Program and Monitoring

To increase walking and bicycling for school-related trips, reduce school-related VMT, and align programs with the buildout of the ATP network, the proposed project shall implement the following actions consistent with City mobility and climate goals:

- **Implement TDM in schools:** Per action TDM-6 of the Blueprint for Climate Action, partner with Petaluma schools to voluntarily implement TDM plans and parking management strategies.
- **Ongoing Program Updates:** Implement a Safe Routes to School (SR2S) monitoring and update process every five to ten years or following completion of major ATP corridors or school-area improvements consistent with action AT-4 of the Blueprint for Climate Action. Updates shall incorporate the most recent network buildout, confirm new walking and bicycling catchment areas for each campus, and identify remaining gaps or emerging safety issues.

- **Annual Monitoring:** Review SR2S participation levels, mode share, travel patterns, and safety outcomes annually. Monitoring shall include coordination with schools, parent groups, and partner agencies to collect information on student travel, identify barriers, and confirm where new ATP projects or safety treatments may change access patterns.
- **Safety Data Tracking:** Track school-related collision data and traffic stress conditions for walking and bicycling routes.
- **Program Enhancements:** Updated SR2S guidance shall include strategies such as enhanced crossing treatments, traffic calming around schools, expanded education and encouragement programs, and targeted enforcement measures that support safe travel.
- **School Reporting:** Require participating schools to submit annual summaries documenting program activities, changes in mode share, and operational issues affecting student travel.
- **Corrective Actions:** If performance targets are not met, the City shall consider corrective actions such as prioritizing new ATP projects near schools, adjusting program resources, expanding education efforts, or modifying school arrival and dismissal traffic management plans.
- **Funding Allocation:** Apply available program funds toward improvements and activities that support SR2S goals of increasing safety, expanding equitable access, and promoting active travel for students.

Significance After Mitigation

Mitigation Measures TRA-1, TRA-2, and TRA-3 include community-based VMT reduction programs, employer-based VMT reduction programs, and safe route to school programs which could potentially reduce project-specific VMT by incentivizing mode shift, improving transit and active transportation options, and managing parking and travel demand. However, at this time, the feasibility of implementing these programs City-wide is not known and specific actions that could be feasibly taken to reduce VMT have not been evaluated. Furthermore, although the General Plan would concentrate new growth within infill areas and 15-minute activity centers which would reduce VMT for residents by increasing proximity to daily needs, the effectiveness of the measures described above would be limited by existing land use patterns and development, regional travel behavior, and uncertainties in future transit service levels and technology adoption. Some mitigation strategies primarily apply to new development, which are expected to generate less VMT than existing land uses by design, while existing land use patterns would continue to have high-VMT by design characteristics such as the low density, single-use patterns present throughout the City. Accordingly, specific measures to reduce citywide VMT per capita to levels below significance are not feasible at this time.

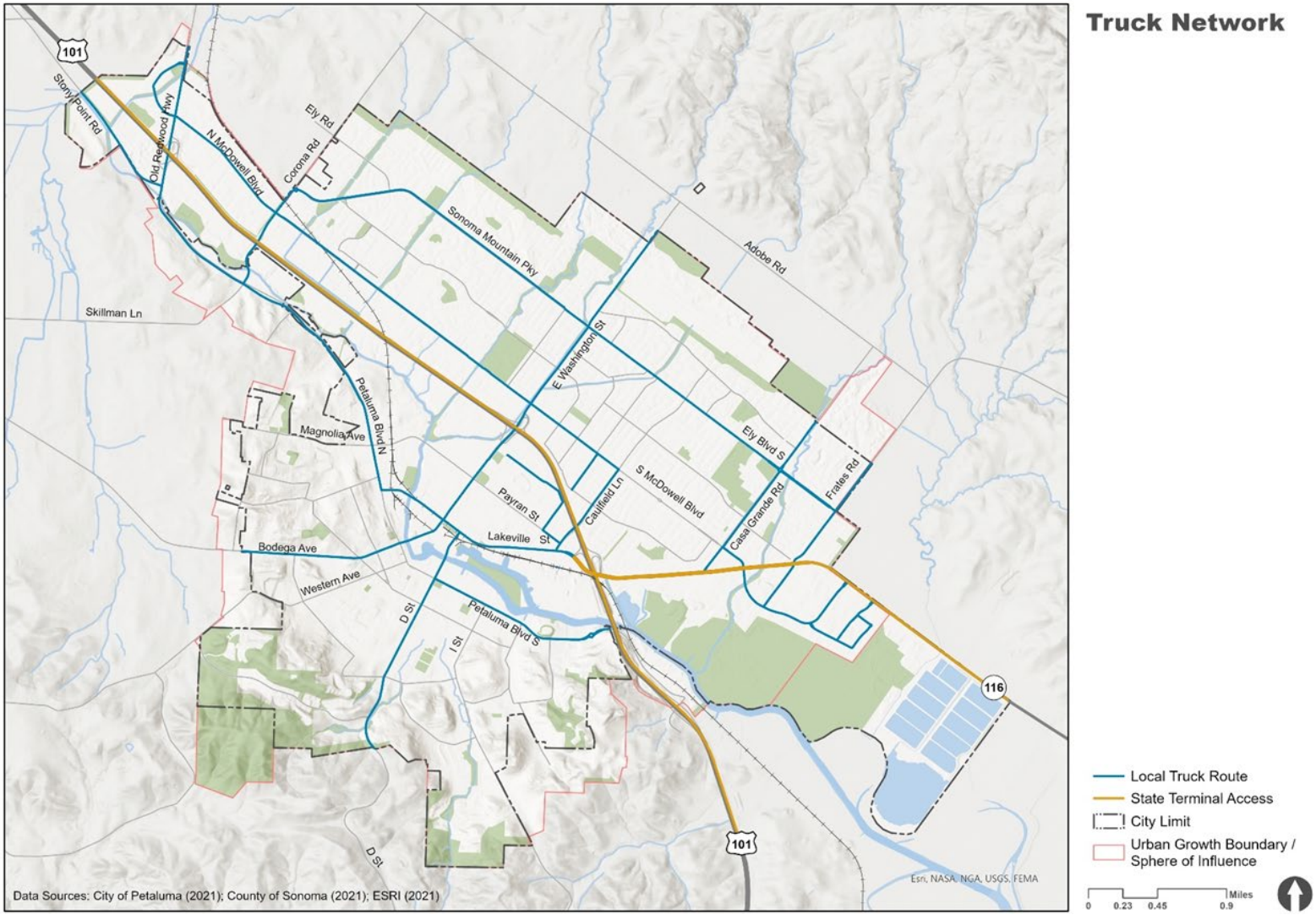
Based on the infeasibility of implementing specific VMT reduction measures, and the uncertainty of specific VMT reductions in accordance with VMT reduction programs, the proposed project is not anticipated to achieve the VMT reduction thresholds established within the City's adopted VMT threshold or the CARB 2022 Scoping Plan 2045 VMT reduction recommendation, and this impact 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 THE PROPOSED PROJECT WOULD INCLUDE ACTIONS THAT PROMOTE THE SAFE DESIGN OF TRANSPORTATION FACILITIES THROUGHOUT PETALUMA. FUTURE ROADWAY IMPROVEMENTS AND SITE ACCESS DESIGN WOULD BE SUBJECT TO REVIEW AND APPROVAL BY THE CITY WHICH WOULD MINIMIZE TRANSPORTATION HAZARDS DUE TO GEOMETRIC DESIGN FEATURES OR INCOMPATIBLE USES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Future development facilitated by the proposed project would modify the existing transportation network to support current and future users and may change travel patterns or traveler expectations. This would include implementation of new and improved walking and bicycling links to schools, parks, neighborhood hubs, SMART stations, and other major destinations such that more short trips within the city could be made by alternative modes of transportation, such as active transportation and public transit. In addition, modifications would include designating street typologies and modal priorities that re-allocate limited rights of way to improve safety and access for all people at varying accessibility levels, implementing speed management and traffic-calming measures on sensitive streets and in activity centers to reduce crash risk and severity, targeting first/last-mile and local transit service enhancement in station areas and 15-minute activity centers, and improving east-west connectivity and emergency response. All modifications to existing facilities and construction of new facilities would comply with applicable design standards in the California Manual on Uniform Traffic Control Devices and the California Highway Design Manual to minimize potential conflicts and collisions. Furthermore, the proposed project includes policies to emphasize the expansion of walking and bicycling connections to schools and other community destinations to improve safety for students and families. The proposed project also reinforces official truck routes and would enforce truck parking restrictions to direct heavy vehicles to appropriate corridors and discourage their use on neighborhood streets that are not suited for such traffic. City-designated truck routes are shown in Figure 4.14-3, below.

Figure 4.14-3 City-Designated Truck Routes[3]



[3] Fehr & Peers. 2026. Petaluma General Plan Transportation Impact Analysis, Figure 9. Available: Appendix B.

In addition, the proposed project would implement the following actions which would emphasize the minimization of transportation hazards:

> **Policy TP-1.1: Develop a reliable and connected transportation network that fulfills the City's Vision.** Develop a reliable and connected transportation network with a hierarchy of modal priorities for roadways so that moving around Petaluma can simply become more enjoyable, efficient, safer, and fun.
>
> > **Action TP-1.1.1:** Prioritize citywide mobility of people rather than single-occupancy vehicles in transportation and land-use based planning and decision-making. Develop a modal priority map that prioritizes travel modes and their interconnectivity in the following order to reflect their vulnerability while traveling: 1) walk (walking and persons with disabilities); 2) micromobility (bicycles [standard and e-bikes] and scooters); 3) transit and shuttle; 4) drop-off and pick-up (ride share and taxi); and 5) auto (motorcycle, carpool/vanpool, electric vehicle carshare, and SOV). Modal priority should focus on safety and reflect the surrounding land use, intensity of activity, and the street's role in the transportation network—placing greater emphasis on walking and biking in areas with high pedestrian activity, and on transit and goods movement along key regional corridors.
>
> > **Action TP-1.1.2:** Adopt Complete Streets roadway design standards to ensure modal priorities, the Safe, Equitable, and Inclusive framework, and All Ages and Abilities Bikeway Design are accounted for in transportation planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities and products. Standards should allow for flexibility given existing constraints, costs, and input from emergency service providers. Street design should be scaled to the level of surrounding activity and mobility demands. This approach ensures that safety and comfort are prioritized in areas with high pedestrian activity, while still accommodating access and throughput on streets serving essential travel and emergency functions.
>
> > **Action TP-1.1.3:** Develop a Street Typology Framework with right-of-way allocation priorities that recognize that street design (including sidewalks, bikeways, transit facilities, landscaping, and vehicle space) must prioritize safety, while considering the mobility needs and economic development opportunities of adjacent land uses and the street's role in the citywide network, providing sufficient emergency access. This framework should allow individual streets to be clearly evaluated based on their role in connecting people and goods, as well as their importance as a destination or gathering space.
>
> > **Action TP-1.1.6:** Evaluate the relationship of traffic flow on safety, accessibility, livability, economy, and the climate when assessing driver delay and traffic congestion.
>
> > **Action TP-5.5.4:** Periodically monitor designated truck routes and ensure they direct freight traffic away from residential areas and other sensitive land uses where possible, adhere to time-of-day restrictions that support the well-being of people who live on truck routes, and consider prohibiting through truck traffic on streets other than identified truck routes.
>
> > **Action TP-5.5.5:** Integrate the Petaluma Airport and supportive industrial uses into the low stress bicycle and pedestrian and public transit networks while supporting its continued operation as a transportation, recreation, and commercial freight asset.

Implementation of the proposed project would establish actions that would enhance safety on local streets by expanding safe walking and bicycling connections to key destinations such as schools. Development facilitated by the proposed project would be subject to review and approval from the City, including the design of circulation patterns for individual developments, which would ensure such developments would minimize geometric hazards. Accordingly, the proposed project would have a less than significant impact related to transportation hazards due to design features or incompatible uses.

Mitigation Measures

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 4:	Would the project result in inadequate emergency access?

Impact TRA-4 **THE PROPOSED PROJECT WOULD INCLUDE ACTIONS THAT PROMOTE ADEQUATE EMERGENCY ACCESS THROUGHOUT PETALUMA. FUTURE ROADWAY IMPROVEMENTS AND SITE ACCESS MEASURES WOULD BE SUBJECT TO REVIEW AND APPROVAL BY THE PETALUMA FIRE DEPARTMENT WHICH WOULD MINIMIZE THE POTENTIAL FOR INADEQUATE EMERGENCY ACCESS. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.**

Future development facilitated by the proposed project would be subject to the provisions of the California Fire Code including those that pertain to emergency access. As part of the requirements to obtain building permits, the Petaluma Fire Department would review and approve the design of individual developments which would ensure such developments would provide adequate ingress/egress for emergency access. Furthermore, the proposed project would include the following policies which emphasize adequate emergency access:

> **Policy TP-3.3: Connect East and West Petaluma.** Physically and psychologically integrate and connect East and West Petaluma through frequent, safe, and comfortable connections across U.S. 101, SMART, and the Petaluma River for all travelers.
>
> > **Action TP-3.3.3:** Enhance crosstown access for emergency service providers through infrastructure and programmatic measures that maintain roadway safety for all users. Avoid solutions that create or maintain excessive roadway capacity, and instead pursue creative approaches that balance emergency response needs with the safety and comfort of people walking, biking, and using transit.
> >
> > **Action TB-3.3.5:** Implement emergency vehicle priority equipment (EVP) on crosstown connectors, especially in high traffic and high congestion areas, preferably in coordination with BRT infrastructure.
>
> **Policy TP-4.4: Provide Multimodal Evacuation Routes.** Provide multimodal emergency evacuation routes that align with the safe, equitable, and inclusive mobility framework.
>
> > **Action TP-4.4.2:** Continue to ensure that all emergency access routes required of new developments provide adequate access for people walking or traveling by wheelchair, bicycle, or other micromobility device.

Action TP-4.4.4: Continue to engage with the Fire Department to ensure citywide access is provided for emergency services, and response times are monitored and maintained relative to an adopted minimum threshold.

Action TP-4.4.5: Maintain emergency vehicle access to the Petaluma Airport to support countywide public safety responses.

Implementation of actions to promote adequate emergency access and compliance with applicable development standards for individual developments would ensure the proposed project would not promote inadequate emergency access. This impact would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.14.4 Cumulative Impacts

The geographic scope for cumulative transportation impacts related to policy consistency, safety, and emergency access is Sonoma County. This geographic scope is appropriate for evaluating because cumulative development in this region would be subject to the same circulation-related programs, plans, ordinances, and policies as the proposed project. By contrast, for VMT, the cumulative study area is the nine-county ABAG/MTC region because vehicle trips routinely cross city and county boundaries and regional land use and transportation planning (e.g., the SCS in Plan Bay Area 2050) operates at this scale. Accordingly, cumulative development would be required to demonstrate consistency with the Plan Bay Area 2050, as well as applicable jurisdiction's Transportation Element, which guide the continued development and improvement of the transportation system. Regional cumulative impacts consider impacts that would occur from the buildout of cumulative planning documents and reasonably anticipated projects identified in Chapter 3, *Environmental Setting*.

With respect to conflicts with a program, plan, ordinance, or policy addressing the circulation system, a cumulative impact could occur if development within Petaluma resulted in conflicts existing plans such as Plan Bay Area 2050, the Petaluma Blueprint for Climate Action, the Petaluma Active Transportation Plan, or the CPSP. Cumulative development would be subject to the same circulation-related programs, plans, ordinances, and policies as development facilitated by the proposed project. Cumulative development would be required to demonstrate consistency with applicable plans which guide the continued development and improvement of the transportation system in Petaluma. Additionally, all future discretionary projects would align with and implement the goals and actions outlined by the General Plan, thereby reducing cumulative impacts to the existing circulation system. Moreover, such projects would be subject to individual CEQA review which would minimize potential for cumulative development to result in conflicts with existing circulation system. Therefore, cumulative impacts related to conflict with a program, plan, ordinance, or policy addressing the circulation system would be less than significant.

The geographic scope for cumulative transportation impacts related to VMT increases is the ABAG region. This geographic scope is appropriate because VMT is often considered at a regional scale, as vehicle trips can start in one region or city and end in another. Significant cumulative VMT impacts

could occur from cumulative development if cumulative development would raise VMT in Petaluma beyond established thresholds. As described in Chapter 3, *Environmental Setting*, given that cumulative growth in the Plan Bay Area 2050 region could result in 3,404 residential units by 2050, there is potential for growth to exceed VMT thresholds. With implementation of land use pattern changes and actions proposed by the General Plan, per-capita VMT would decrease, however, total VMT would exceed the City's adopted threshold. Accordingly, even with implementation of Mitigation Measures TRA-1 through TRA-3, cumulative VMT impacts would be considered significant and unavoidable, as the City's adopted SB 743 VMT threshold governs CEQA findings. Given that the proposed project represents a General Plan Update that would facilitate future land use and growth within Petaluma, as project-specific VMT would exceed applicable VMT thresholds, the proposed project's contribution to cumulative VMT impacts would be cumulatively considerable.

With respect to geometric hazards and emergency access, a cumulative impact could occur if several development projects within Petaluma were constructed simultaneously, resulting in dangerous geometric hazards, incompatible uses on the roadways, or inadequate emergency access. Cumulative impacts related to transportation hazards and emergency access would be potentially significant. As discussed under Impact TRA-3 and Impact TRA-4, development facilitated by the proposed project would be required to be designed in accordance with the requirements of the City. The City and the Petaluma Fire Department would review and approve the design of individual developments facilitated by the proposed project, which would ensure such developments would minimize geometric hazards and provide adequate ingress/egress for emergency access. All jurisdictions must also comply with AB 747 and SB 99, which would facilitate identification of emergency access routes and identify potential emergency access constraints. Accordingly, the proposed project would not result in a cumulatively considerable contribution to geometric design hazards, incompatible uses, or emergency access. Cumulative impacts associated with geometric design hazards, incompatible uses, and emergency access would be less than significant.

4.15 Tribal Cultural Resources

This section assesses potential impacts to tribal cultural resources. This section includes a brief summary of tribal cultural resources background information and a review of known tribal cultural resources as well as potential impacts to these resources as a result of implementation of the General Plan Update.

4.15.1 Setting

a. Ethnographic Background

Coast Miwok

Petaluma lies within an area traditionally occupied by the Coast Miwok. The Coast Miwok are members of the larger Miwokan subgroup of the Utian language family. They inhabited areas within Marin and Sonoma counties, including a northern extent of Duncan's Point and a southern extent at the Golden Gate, and inland to the current area of the city of Sonoma (Kroeber 1925; Levy 1978). Coast Miwok territory is bordered by the Pomo, to the north, Wappo to the northeast, and Patwin to the east. One Coast Miwok village, *Péta Lúuma*, was located east of Petaluma and the Petaluma River (City of Petaluma 2022). The villages of *Tuchayelin*, *Likatuit*, and *Etem*, are also known to have existed in the Plan Area (City of Petaluma 2006; State Clearinghouse No. 2004082065).

The pre-contact Coast Miwok inhabited villages made up of conical dwellings, semi-subterranean sweathouses, and dance houses (Kelly 1978:417). Each village had a chief to oversee village affairs and social and ceremonial life was organized around moieties, or dichotomous groups, classed as either Land or Water (Kelly 1978:419).

Coast Miwok subsistence was based on hunting, gathering, and fishing (Kelly 1978: 415-417). Dried acorns and kelp were primary food sources during the winter and early spring when food was scarce. Coast Miwok relied heavily on nearshore fish and shellfish and on fish from rivers, marshes, and the bay. Hunting focused on deer, elk, bear, and small game. The material culture of the Coast Miwok included clamshell disk beads as currency, and a variety of stone tools, shell ornaments, ceremonial artifacts, and baskets (Kelly 1978: 417-418).

Coast Miwok social organization is characterized by the moiety pattern, with all living things belonging to one of two categories: land and water (Kelly 1978:419). Large villages were reportedly headed by a male chief (hóypuh), female chief (hóypuh kul(·)éy·ih), and ceremonial female leader (máien).

The Coast Miwok were exploited for labor by Mission Dolores, established in 1800 in San Francisco, and later by the Mexican land grant holders. As a direct result of the establishment of the mission system, the Coast Miwok population dramatically declined. After the establishment of the United States, the Coast Miwok were legally prevented from owning land in their traditional territories. Despite this, Coast Miwok continue to populate the Marin area (Milliken et al. 2009; Federated Indians of Graton Rancheria 2016a).

Federated Indians of Graton Rancheria

The following historical overview of the Federated Indians of Graton Rancheria (FIGR) is based on the *Historical Background & Timeline* published by the FIGR (2016a).

In 1861, after California's statehood, the United States Congress enacted legislation, which effectively extinguished Native American title to most land in California. In 1920, the Bureau of Indian Affairs purchased a 15.45-acre tract of land in Graton for the "village home" of the Southern Pomo and the Coast Miwok. Through the purchase of this land, which was put into federal trust, the federal government consolidated these neighboring, traditionally interactive groups into one federally recognized entity, Graton Rancheria; thus, establishing them as a federally recognized tribe of American Indians. However, in 1958, Congress passed the California Rancheria Act of 1958 calling for the termination of 41 California Rancherias, including the Graton Rancheria. Under the Act, Graton Rancheria was removed from federal trust and its land was distributed to three residents as private property. This action terminated federal recognition of Graton Rancheria as a tribe.

Despite the federal government's termination of federal recognition of the Graton Rancheria, members continued to protect the cultural identity of their people by preserving tribal cultural resources, tribal ecological knowledge, and other archeologically important sites throughout their original territory. In the 1990s, operating as the Federated Coast Miwok, later renamed the "Federated Indians of Graton Rancheria" (FIGR), tribal members lobbied the federal government for the restoration of their federal status. By 1997, a Congressionally mandated study recommended the immediate restoration of three California tribes, including the FIGR. On December 27, 2000, President Clinton signed into law legislation restoring federal recognition to the FIGR. The FIGR reservation includes land within the northwestern portion of Petaluma and as noted within Section 4.5, *Cultural Resources*, ancestral tribal territory encompasses the City of Petaluma's planning area.

As described in Section 1, *Introduction*, the City began an intergovernmental consultation with FIGR over the General Plan Update and this EIR on April 5, 2024 in accordance with AB 52 and SB 18.

4.15.2 Regulatory Setting

This section includes a discussion of the applicable state laws, ordinances, regulations, and standards governing tribal cultural resources, which must be adhered to before and during implementation of the proposed project.

a. Federal Regulations

No federal laws or regulations directly address tribal cultural resources as defined in CEQA. See Chapter 4.5, *Cultural Resources*, for a summary of federal regulations applicable to cultural resources that may also be considered tribal cultural resources.

b. State Regulations

Native American Heritage Commission

The Native American Heritage Commission (NAHC) is the California state agency charged with protecting Native American cultural resources. NAHC maintains the Sacred Lands File, identifies and notifies Most Likely Descendants (MLDs) under Health & Safety Code §7050.5, and oversees tribal consultation requirements under CEQA. The NAHC also assists lead agencies in identifying culturally affiliated tribes, helps resolve disputes related to tribal cultural resources, and ensures that development projects appropriately avoid, minimize, or mitigate impacts to sacred sites, burial grounds, and other Tribal Cultural Resources.

California Environmental Quality Act and Assembly Bill 52

CEQA applies to discretionary projects proposed to be conducted or approved by a California public agency and is intended to disclose significant environmental effects of a project to the public, prevent or minimize damage to the environment through the development of project alternatives and mitigation measures. As of July 1, 2015, California Assembly Bill 52 of 2014 (AB 52) was enacted and expands CEQA by defining a new resource category, "tribal cultural resources." AB 52 established 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 stated that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3). PRC Section 21074 (a)(1)(A) and (B) and 21074 (a)(2) define tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that meet either of the following criteria:

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 PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

The California Register of Historical Resources is further described in Chapter 4.5, Cultural Resources.

AB 52 also established a formal consultation process to be implemented by CEQA lead agencies. Specifically, PRC Section 21080.3.1(b) requires that "prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report for a project, the lead agency shall begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project if: (1) the California Native American tribe requested to the lead agency, in writing, to be informed by the lead agency through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe, and (2) the California Native American tribe responds, in writing, within 30 days of receipt of the formal notification, and requests the consultation."

Pursuant to PRC Section 21080.3.2(b), consultation is considered concluded when either: (1) the parties agree to measures for avoidance or mitigation of significant effects, if a significant effect exists, on a tribal cultural resource, or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

Senate Bill 18

California Government Code Sections 65352.3 and 65352.4 (Senate Bill [SB] 18) requires local governments to conduct meaningful consultation with California Native American tribes on the contact list maintained by the NAHC prior to the adoption or amendment of a city or county general plan, specific plan, or open space designation for the purpose of preserving or mitigating impacts to Native American traditional tribal cultural places, features, and objects (collectively referred to as

"cultural places" in this document)[1] on lands affected by a proposal. Under SB 18, notified tribal entities have 90 days from the date of receipt of the letter to respond, in writing, to the local government if they are interested in consulting, unless a shorter timeframe has been agreed to by that tribe. Consultation is concluded when the parties come to a mutual agreement concerning appropriate measures for preservation or mitigation, or either the local government or tribe, acting in good faith and after reasonable effort, concludes that a mutual agreement cannot be reached.

Assembly Bill 168

AB 168, signed in 2020, creates a process for tribal consultation for housing development projects seeking ministerial approval through the process outlined in 2017's SB 35. Before submitting an application for SB 35 approval, applicants must submit a notice of intent to apply and preliminary application. Upon receipt of the preliminary application, local agencies must engage in consultation with any California Native American Tribe traditionally and culturally affiliated with the geographic area. If the parties agree there is no potential for the project to impact tribal cultural resources, the project proponent may submit an application for ministerial approval pursuant to SB 35. If tribal consultation identifies a potential impact, the parties must document an enforceable agreement, included as a condition of approval for the project, regarding the methods, measures, and conditions of treatment of tribal cultural resources.

Assembly Bill 130

AB 130, signed in 2025, includes a new urban infill housing CEQA exemption and includes rules regarding tribal consultation. Local agencies must provide notification to tribes traditionally and culturally affiliated with the project site pursuant to Government Code 21080.66(b). Enforceable agreements made during consultation must be included as conditions of approval on the project. Additional conditions of approval listed in Government Code 21080.66(b)(4)(B) must be included unless otherwise agreed by the Tribe and project proponent, including avoidance of tribal cultural resources, treatment and documentation of tribal cultural resources in a culturally appropriate manner, a California Historical Resources Information System records search, Sacred Lands File search, compliance with Health and Safety Code 7050.5 and Public Resources Code Section 5097.98, application of tribal ecological knowledge into habitat restoration, and, if requested by a consulting tribe, tribal monitoring.

California Health and Safety Code

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the Coroner of the county in which the remains are discovered has determined if the remains are subject to the Coroner's authority. If the human remains are of Native American origin, the Coroner must notify the NAHC within 24 hours of this identification.

[1] As referred to in SB 18, traditional tribal cultural places, features, and objects are defined as Native American sanctified cemeteries, places of worship, religious or ceremonial sites, and sacred shrines (PRC Section 5097.9) and Native American historic, cultural, or sacred sites that are listed or may be eligible for listing in the CRHR (PRC Section 5097.993).

California Public Resources Code Section 5097.98

PRC Section 5097.98 states that the NAHC, upon notification of the discovery of Native American human remains pursuant to California Health and Safety Code Section 7050.5, shall immediately notify those persons (i.e., the Most Likely Descendant [MLD]) that it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

c. Local Regulations

Other than the notification and consultation requirements established by state law (e.g., AB 52 and SB 18), there are no local regulations related to tribal cultural resources applicable to the proposed project.

Existing Conditions

As presented in Chapter 4.5, *Cultural Resources*, there is high potential to encounter previously unidentified archaeological resources, including those that may also qualify as tribal cultural resources, throughout the Plan Area. As noted in the City of Petaluma's 2025 General Plan EIR, "geographic features with potential for encountering Native American archaeological resources include areas near ridgetops, midslope terraces, alluvial flats, ecotones, and sources of water (City of Petaluma 2006; State Clearinghouse No. 2004082065). Examples of tribal cultural resources may include, but are not limited to, landscape features, viewsheds, natural resources, sacred places, and Native American archaeological resources such as the remains of village settlements (e.g., habitation debris), cemeteries, seasonal/temporary camps, lithic and food processing resources, and special use or ceremonial sites.

Assembly Bill 52 Notification/Consultation

Projects that may cause a substantial adverse change to a tribal cultural resource under CEQA are subject to AB 52. Under AB 52, the City is required to notify California Native American tribes that are traditionally and culturally affiliated with the Plan Area and who have requested such notification. Only one tribe, the FIGR, has previously requested to be notified of projects under the City's jurisdiction. The City sent an AB 52 notification letter via email to the FIGR on March 27, 2024.

The FIGR submitted a formal written request to consult on the proposed project under AB 52 on April 5, 2024. The city responded to the request and offered availability to initiate consultation. A consultation meeting was scheduled for June 17, 2024, but was rescheduled. The City engaged in consultation on October 14, 2024. Consultation with the FIGR related to the proposed project is on-going.

Senate Bill 18 Consultation

The proposed project is subject to compliance with SB 18, since the City is considering an amendment to the City of Petaluma General Plan 2025 (adopted in 2008).

The City sent SB 18 notification letters to all tribal entities/individuals on the contact list provided by the NAHC (dated December 10, 2024) for the proposed project via email, USPS mailing, and certified mailing (to one tribe) on March 27, 2024, and December 26, 2024. The notification letters included

proposed project information, an invitation to consult on the proposed project, an outline of SB 18 timing, and contact information for the appropriate lead agency representative. Letters were sent to the following California Native American tribes:

- FIGR – notified March 27, 2024, via email and USPS mailing
- Guidiville Rancheria of California – notified December 26, 2024, via email and USPS mailing
- Lytton Rancheria – notified December 26, 2024, via email and USPS mailing
- Pinoleville Pomo Nation – notified December 26, 2024, via email and certified mailing

The City received a response from the FIGR on April 5, 2024, requesting formal consultation under SB 18 for the proposed project. The city responded to the request and offered availability to initiate consultation. A consultation meeting was scheduled for June 17, 2024, but was rescheduled. The City engaged in consultation on October 14, 2024. Consultation with the FIGR related to the proposed project is on-going.

The City also received a response from Lytton Rancheria on January 6, 2025, stating that they are not requesting to consult on the proposed project. The City did not receive requests to consult from the Guidiville Rancheria of California and Pinoleville Pomo Nation; therefore, it is assumed the invitation to consult on the proposed project was declined by these tribes.

4.15.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

The evaluation of impacts to tribal cultural resources addressed in this section is based on the results of consultation between the City and FIGR. The presence and significance of potential tribal cultural resources are determined through consultation between lead agencies and consulting California Native American tribes. Impacts to tribal cultural resources are highly dependent on the nature of the resource but, in general, could occur if the project results in the destruction or alteration of the resource or its surroundings, restricted access to the resource, or other disturbances.

Significance Thresholds

Based on Appendix G of the *CEQA Guidelines*, a project may be deemed to have a significant impact on tribal cultural resources if it would:

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

As described in PRC Section 21084.2, a project that may cause a substantial adverse change in the significance of a tribal cultural resource is considered to have a significant impact on the environment. What constitutes a "substantial adverse change" to a tribal cultural resource is not defined in CEQA Statues or Guidelines, however, guidance can be garnered from *CEQA Guidelines* Section 15064.5(b)(1). Therefore, in this section a substantial adverse change to a tribal cultural resource is considered to include the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings that results in the material impairment of the tribal cultural resource. Material impairment is defined as the demolition or alteration in an adverse manner those characteristics that convey the significance of the resource.

Pursuant to PRC Section 21084.3, public agencies shall, when feasible, avoid damaging effects to tribal cultural resources. If a lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, AB 52 requires the implementation of mitigation measures identified in the consultation process required under PRC Section 21080.3.2. If consultation fails to identify specific mitigation, PRC Section 21084.3(b) lists the following measures that may be considered, where feasible, to avoid or minimize the impacts:

- Avoidance and preservation of the resources in place, including, but not limited to, planning and construction 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.
  - 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.
  - Protecting the resource.

b. Project Impacts and Mitigation

Threshold 1:	Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?
Threshold 2:	Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?

Impact TCR-1 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD INVOLVE LAND DISTURBANCE, WHICH HAS THE POTENTIAL TO IMPACT TRIBAL CULTURAL RESOURCES. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

Effects on tribal cultural resources are typically known once a specific project has been proposed because the effects are highly dependent on the individual project site conditions, the characteristics of the proposed activity, including but not limited to the level of ground disturbance associated with construction activities and the feasibility of mitigation.

A request was sent to the Native American Heritage Commission (NAHC) to obtain a current SB 18 Native American Contact List for the project vicinity. The NAHC provided a list of six tribal contacts with traditional lands or cultural places within Sonoma County. As discussed above in the Section, 4.15.2 under *Existing Conditions*, the City sent letters via email and USPS mailing to three tribes (FIGR, Guidiville Rancheria of California, and Lytton Rancheria) and to one tribe (Pinoleville Pomo Nation) via certified mailing, on March 27, 2024 and December 26, 2024, inviting them to consult on the proposed project under AB 52 and/or SB 18. The FIGR requested consultation under AB 52 and SB 18 on April 5, 2024, which has been on-going since 2024.

This analysis is being performed at a programmatic level and tribal cultural resources may be identified or established during implementation of the specific activities contemplated by the General Plan Update, which is expected to occur over many years. To ensure that tribal cultural resources are identified and impacts are appropriately mitigated, the General Plan Update includes the following policy frameworks and associated proposed goals and policies:

Goal HR-4: Tribal Cultural Resources Protection. The preservation of tribal cultural resources shall be prioritized honored and protected, in consultation with FIGR.

> **Policy HR-4.1: Engage in Consultation.** Consultation with FIGR is required for all new development.
>
> > **Action HR-4.1.1:** Review discretionary development projects, as part of any required CEQA review, to identify and protect important TCRs and their contributing environment from damage, destruction, and abuse. Consistent with CEQA findings, require project-level mitigation to include a records search at the Northwest Information Center, a Tribal cultural resource survey that includes a FIGR Cultural Monitor, consideration of project alternatives to preserve TCRs, provisions for resource recovery, and preservation measures when displacement is unavoidable.
> >
> > **Action HR-4.1.2:** Continue to consult with the Federated Indians of Graton Rancheria and other tribes as required by California Senate Bill 18 (requires local governments to

consult with Native American tribes to protect traditional tribal cultural places when enacting or amending general plans specific plans and open space designation); Assembly Bill 52 (which amended CEQA to require consultation with Native American tribes whenever a project must comply with CEQA); SB 35 and AB 168 (which requires scoping consultation with Native American tribes on those affordable housing project that may be eligible for streamlined approvals under SB 35), and AB 130 (which requires consultation be completed within 60 days for eligible projects), as well as other state mandated notification and consultation requirements.

Action HR-4.1.3: In consultation with FIGR, determine if Tribal monitoring or other management strategies are required for development review projects. If Tribal Cultural Resources are identified, require the applicant consult with FIGR to determine next steps. Require implementation of any mitigation determined to be necessary by the City, and FIGR.

Policy HR-4.2: Formalize a Consultation Process. Work with the Federated Indians of Graton Rancheria to develop a robust tribal consultation process.

Action HR-4.2.1: Develop a local tribal consultation policy or memorandum of agreement (MOA) between the Tribe and the City.

Action HR-4.2.2: Collaborate with Federated Indians of Graton Rancheria to establish treatment protocols for tribal cultural resources.

Policy HR-4.3: Celebrate Tribal Heritage. Collaborate with Federated Indians of Graton Rancheria to recognize and celebrate cultural heritage and contributions to Petaluma.

Action HR-4.3.1: Support events hosted by FIGR to celebrate tribal culture and history.

Action HR-4.3.2: Host workshops in which FIGR tribal representatives educate City staff about tribal cultural resources, history and cultural heritage and ways to incorporate this education into their work.

Policy HR-4.4: Partner in Stewardship. Partner with Federated Indians of Graton Rancheria to identify, preserve, and steward lands and sites with Tribal Cultural Resources.

Action HR-4.4.1: Support the designation of Tribal Cultural Resources to the national, state, or local registers, as appropriate and in consultation with Federated Indians of Graton Rancheria.

Action HR-4.4.2: Coordinate with Federated Indians of Graton Rancheria to develop interpretative signage and programming to promote the recognition of FIGR contributions to Petaluma.

Goal ENV-2: Healthy, Protected, and Productive Natural Lands. Continue to develop a cohesive network of healthy, protected, and productive natural lands that facilitates the coexistence of people and the natural environment including plants, wildlife, fungi, and insects.

Policy ENV-2.6: Coordinate and Consult with the Federated Indians of Graton Rancheria. Engage, consult, and coordinate with the Federated Indians of Graton Rancheria (FIGR), regarding matters of open space management including native plantings, habitat restoration, fire prevention, and interpretive sites and signage.

Action ENV-2.6.1: Notify, and on request, consult with the Federated Indians of Graton Rancheria on best practices for managing natural and cultural resources and fire prevention and seek to enter into monitoring agreements with the Tribe.

Action ENV-2.6.2: Collaborate with Federated Indians of Graton Rancheria to discuss the feasibility of, and interest in, establishing Tribal cultural heritage conservation easements.

Policy P-4.8: Support Native Wildlife. Ensure parks and open spaces support the movement of, and resources for, native wildlife through the following:

- Evaluating park and open space improvements for their ability to support biodiversity, enable the movement of wildlife, and increase resilience.
- Evaluating and updating existing guidelines for landscape design and planting to support native species and non-native species that provide valuable resources for native wildlife.
- Where appropriate, planting for pollinators to support food and habitat health.
- Prioritizing restorative land management best practices including expanding urban and open space grazing programs and upgrading water conservation infrastructure.
- Providing interpretive signage to educate the community on City programs and habitat functions.
- Prioritizing connections between habitat nodes, including open spaces and greenways in the public right of way.

Goal P-9: High Quality Recreation. The City provides high-quality recreational services and programming.

Policy P-9.4: Enhance Arts and Cultural Programming. Provide opportunities for arts and cultural programming in the City's parks and recreation spaces, including:

- Partnering with the Petaluma Public Art Committee to create, fund, and maintain art integrated into public spaces and playgrounds.
- Interpretative signage within public parks and spaces to acknowledge Coast Miwok history, in consultation and partnership with FIGR.
- Banners and signs that announce community events, cultural celebrations, and programs.
- Prioritize arts and cultural placemaking, including public art from local artists and cultural organizations.
- Activate spaces with performing arts and temporary/ephemeral art in City parks and recreational facilities.

Goal GOV-3: Regional Leadership. Petaluma is a model community that leads the region in creatively and collaboratively addressing complex challenges around climate change, social services, transportation, infrastructure, equity, and more.

Policy GOV-3.3: Strengthen Partnerships with the FIGR. Strengthen partnerships with the Federated Indians of Graton Rancheria to identify and implement best practices for partnering, engaging, and consulting with FIGR on local decision-making processes and City and regional projects.

Implementation of the proposed goals and policies identified above are intended to identify tribal cultural resources and, when such resources are identified, reduce potential impacts due to new development. This approach ensures that future projects and related actions are evaluated within the broader framework of the General Plan Update, aligning with long-term planning objectives while protecting tribal cultural resources and minimizing adverse environmental effects.

Goal HR-4 would reduce potential impacts to tribal cultural resources by requiring collaboration and consultation with FIGR, and the identification and evaluation of such resources early in the environmental planning process. This goal would also require designation of significant tribal cultural resources and development projects to avoid and preserve known Native American cultural sites and resources to the extent feasible. Goal ENV-2 would reduce potential impacts to natural resources that are of importance to FIGR and may be considered tribal cultural resources by emphasizing collaboration with the FIGR on managing natural lands, restoring habitats, and preserving tribal plant species, and on the identification, preservation, and public education of landscapes and natural resources of cultural value. Goal P-9 would reduce potential impacts to tribal cultural resources by preserving natural elements significant to FIGR through ecological stewardship, public education, and cultural programming. Specific actions include interpretive signage, wildlife-supportive landscaping, and community events that celebrate FIGR. Goal GOV-3 would further reduce potential impacts to tribal cultural resources by consulting with FIGR in the local decision-making processes.

Implementation of applicable goals, policies, and actions under these frameworks for future proposed projects would protect tribal cultural resources through on-going consultation with the FIGR. Notwithstanding, there may be additional potential impacts to tribal cultural resources that are not specifically protected by these goals, policies, and actions; therefore, the impact to tribal cultural resources remains potentially significant.

Mitigation measures TCR-1 through TCR-4 are required to reduce potential impacts to tribal cultural resources to less-than-significant levels.

Mitigation Measures

TCR-1 Avoidance of Tribal Cultural Resources

When feasible, development facilitated by the project shall be designed to avoid known tribal cultural resources. The feasibility of avoiding tribal cultural resources shall be determined by the City in consultation with FIGR, as required by State law.

TCR-2 Tribal Cultural Resource Plan

A Tribal Cultural Resources (TCR) Plan shall be required for development occurring in areas identified as potentially sensitive for tribal cultural resources during consultation with FIGR.

If the project includes ground disturbance, the TCR Plan shall include a TCR treatment plan to be implemented if a tribal cultural resource is identified during construction. The treatment plan shall include any necessary monitoring requirements, suspension of all earth-disturbing work in the vicinity of the find, avoidance of the resource or, if avoidance of the resource is infeasible, the plan shall outline the appropriate treatment of the resource in coordination and consultation with the FIGR and, if applicable, a qualified archaeologist.

Examples of appropriate treatment for tribal cultural resources include, but are not limited to, protecting the cultural character and integrity of the resource, protecting traditional use of the resource, protecting the confidentiality of the resource, or heritage recovery. The TCR Plan and treatment plan shall be reviewed and accepted by the City and FIGR to confirm compliance with this measure prior to construction.

TCR-3 Native American Monitoring

For development activities occurring in areas identified as potentially sensitive for tribal cultural resources through consultation with FIGR, the project applicant/proponent shall retain a FIGR Tribal monitor to observe ground disturbance as requested by FIGR through the consultation process. If a FIGR Tribal monitor is not available, a qualified archeologist from FIGR's preferred list of archaeologists will be contacted instead for monitoring purposes. Monitoring methods and requirements shall be outlined in a tribal cultural resources treatment plan prepared as described above under Mitigation Measure TCR-2. In the event of a discovery of tribal cultural resources, the steps identified in the TCR treatment plan prepared under Mitigation Measure TCR-2 shall be implemented.

TCR-4 Sensitive Location of Human Remains

For any development facilitated by the project where human remains are expected to be present based on the results of tribal consultation and/or as identified by a qualified archaeologist, the City shall consult with FIGR on the decision to employ a canine forensics team. If a canine forensics team is employed, the City shall require the team to attempt to identify human remains in a noninvasive way (e.g., non-excavation). Any requirements for the use of a canine forensics team shall be documented in the TCR treatment plan prepared under Mitigation Measure TCR-2. The tribal cultural resources treatment plan may require revisions to the design of development facilitated the project or an addendum to the treatment plan in the event that human remains are identified, with avoidance as the preferred recommendation, as set forth in Mitigation Measure TCR-1.

Significance After Mitigation

With the implementation of General Plan Update goals, policies, and actions under HR-4, ENV-2, P-4, P-9, and GOV-3 and Mitigation Measures TCR-1 through TCR-4, as described above, potential impacts to tribal cultural resources from development and ongoing maintenance activities facilitated by the proposed project would be reduced to a less-than-significant level by requiring avoidance, treatment plans, and monitoring in areas identified as sensitive for tribal cultural resources.

4.15.4 Cumulative Impacts

The geographic scope for cumulative impacts to tribal cultural resources includes the City of Petaluma's Plan Area and adjacent jurisdictions such as Sonoma County, Cotati, Sebastopol, Santa Rosa, and Tribal lands of the Federated Indians of Graton Rancheria. This geographic scope is appropriate because tribal cultural resources are regionally specific and determined by the local tribes. The cumulative analysis considers the nearby past, present, and reasonably foreseeable future plans and projects listed in Table 3-1 (refer to Section 3, *Environmental Setting*) located outside the Plan Area, in addition to the proposed plan.

Within the Plan Area, past and present projects primarily consist of residential development and parcel annexations, which are either approved, under construction, or in the planning phase. Adjacent areas are experiencing similar development patterns. The magnitude of impacts from these projects depends on factors such as location, size, depth of ground disturbance, and proximity to known or potential tribal cultural resources.

Development under the General Plan Update, combined with other nearby projects, could potentially disturb or otherwise adversely affect areas containing tribal cultural resources. To address this, the City will conduct tribal notification and consultation (as required) and on request enter into consultations on a case-by-case basis for future development in accordance with State law. These consultations, along with adherence to local and State regulations and implementation of relevant General Plan Update policies, will ensure that potential cumulative impacts are appropriately mitigated. Therefore, cumulative impacts to tribal cultural resources are not expected to be considerable, and the proposed project would not contribute significantly to such impacts.

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4.16 Utilities and Service Systems

This section evaluates potential effects on utilities related to adoption and implementation of the proposed project. Increased demand is estimated and compared to existing and planned service availability. In this EIR, utilities and service systems consist of water and recycled water supply and distribution; wastewater collection, treatment, and disposal; stormwater collection and discharge; electricity, natural gas, and telecommunications services; and solid waste collection, recycling, and disposal services. Water quality is discussed in Section 4.9, *Hydrology and Water Quality,* other public services are discussed in Section 4.13, *Public Services*, and energy demand is discussed in Section 4.18, *Effects Found Not to be Significant.*

Analysis in this section is based in part on the following technical studies prepared for the project:

- Water Supply and Wastewater System Evaluation Technical Memorandum prepared by EKI in October 2025 (Appendix E)
- General Plan Update Water System Evaluation Technical Memorandum prepared by West Yost in December 2025 (Appendix F)
- General Plan Update Sewer Study Technical Memorandum prepared by Woodard and Curran in November 2025 (Appendix G).

4.16.1 Setting

Petaluma is in the San Francisco Bay Hydrologic Region and overlies the Petaluma Valley Groundwater Basin, as defined by the California Department of Water Resources (DWR) in its hydrologic region atlas (DWR 2025; 2024).

a. Water and Recycled Water Supply & Distribution

The City of Petaluma manages its own public water system and receives almost all (95 percent) of its potable water supply from the Sonoma County Water Agency (Sonoma Water). Sonoma Water provides water principally from the Russian River to several retail water providers in Sonoma County and some providers in Marin County. The City also produces approximately five percent of its potable water supply from groundwater wells. The City offsets two to three percent of its total demand for potable water in the urban system with recycled water. The total supply available to the City through these three sources is approximately 9,500 acre-feet per year (AFY) (City of Petaluma 2021). Each of these water supply sources is discussed in further detail below.

Sonoma Water Supply

The City has access to water supply from the Sonoma Water through the Restructure Agreement for Water Supply (Restructured Agreement). Under the Restructured Agreement, the City has contract rights to 13,400 AFY. The City's estimates of reliable supply are based on Sonoma Water's current water rights of 75,000 AFY, Sonoma Water's Russian River System Model and the "Water Shortage Allocation Methodology" adopted by Sonoma Water's Board of Directors. As described in more detail in the City of Petaluma 2020 Urban Water Management Plan (City of Petaluma 2021), incorporated herein by reference, Sonoma Water anticipates being able to meet the City's water allocation through 2045 under normal water conditions.

Groundwater

The Plan Area overlies the Petaluma Valley Groundwater Basin, which is designated as a medium priority basin by DWR and is required to comply with the Sustainable Groundwater Management Act (SGMA). The City owns and operates 10 municipal wells, but does not rely on groundwater due to yield and water quality limitations. Water from the municipal wells is used for supplemental and emergency purposes only. The City intends to only use groundwater in the future for emergency backup supply, to meet peak demands, or other short term scenarios. In 2020, 37 acre-feet (AF) of groundwater was pumped (City of Petaluma 2021).

Recycled Water

The City owns and operates a municipal wastewater collection and treatment system, including the Ellis Creek Water Recycling Facility (ECWRF). Tertiary-treated recycled water produced by the ECWRF is distributed through a system of pump stations and pipelines and is used to irrigate agricultural uses, golf courses, parks, and other open spaces. Between 2016 and 2020, approximately 20 to 30 percent of recycled water was used to irrigate golf courses that previously relied on groundwater and parks that previously relied on the potable water system. Therefore, this use of recycled water is an urban offset to water demand (City of Petaluma 2021).

Water Shortage Contingency

In its 2020 Urban Water Management Plan (UWMP), the City anticipated that its total water demands through 2045 will be 12,117 AFY, which can be met by the available supplies under all hydrologic conditions (City of Petaluma 2021). However, pursuant to Section 10632 of the California Water Code, the City adopted a Water Shortage Contingency Plan (WSCP) that addresses short-term and long-term water supply shortages that may result from droughts, climate change, disasters, reduced deliveries from Sonoma Water, and other conditions (City of Petaluma 2021). In the event of a water supply shortfall, the City may decide to implement additional water conservation measures to reduce demand and to increase its groundwater supply to ensure that demand does not exceed supply in a single dry year (City of Petaluma 2022).

Climate Change Impacts to Water Supply

Based on water supply characteristics identified in the Climate Change Handbook for Regional Water Planning prepared by the United States Environmental Protection Agency (USEPA) and DWR (USEPA and DWR 2011), the City considers that its water supply has low vulnerability to climate change. This determination is made on the basis that:

- No portion of the City's water supply comes from snowmelt;
- No portion of the City's water supply comes from the Sacramento-San Joaquin River Delta, the Colorado River, or other climate-sensitive areas;
- No portion of the City's water supply comes from coastal aquifers;
- Sonoma Water's water supply does not have difficulty in storing carry-over water from year to year, and the current storage volume can meet several years' water demand;
- The City has not experienced a drought that has caused it to not meet local water demands; and
- The region does not have invasive species management issues at the water supply facilities.

Although the City considers vulnerability to be low, the 2020 UWMP (City of Petaluma 2021) identifies the following potential impacts to water supply related to climate change:

- **Sonoma Water Supply.** At this time climate change impacts to Sonoma Water's water supply is unknown, although Sonoma Water is working with the US Geological Survey to analyze potential long-term impacts. However, because Sonoma Water's supply is rainfall-driven, climate change is expected to affect supply in that timing of runoff is expected to become more variable. This will affect reservoir storage, especially in spring and summer months. Annual precipitation is expected to vary with vulnerability to droughts and dry periods.
- **Groundwater.** Climate change can affect the availability and yield from groundwater aquifers. Groundwater levels in the area fluctuate depending on precipitation, aquifer recharge, and pumping. Although the City does not rely on groundwater for supply, the City coordinated with the Petaluma Valley Groundwater Sustainability Agency on the development of the Groundwater Sustainability Plan for the basin, which was completed in December 2021.
- **Recycled Water.** Climate change can impact the supply for recycled water by reducing the amount of wastewater available for recycling. The existing and proposed recycled water demand from urban offset users within the service area is much less than the capacity of the ECWRF. It is expected that the impacts due to climate change on the recycled water supply will be minimal.

Water and Recycled Water Distribution Systems

The City's Water Resources and Utilities Department maintains and manages the system of pipes, mains, service lines, hydrants, and valves throughout the Plan Area. which includes approximately 265 miles of water mains (potable and recycled) and approximately 21,000 service connections (City of Petaluma 2021).

b. Wastewater Collection, Treatment and Disposal

The City owns and operates the wastewater collection system within city limits, which consists of approximately 190 miles of pipe ranging from 6 to 48 inches in diameter; 894 clean-outs, over 3,800 manholes, and 9 lift stations (City of Petaluma 2023). Most collection system facilities were installed between 1960 and 2000. Wastewater is transported through the system to the ECWRF, which provides advanced secondary treatment, anaerobic digestion, and tertiary treatment of wastewater. The ECWRF has an average dry weather capacity of 6.7 million gallons per day (MGD) and a wet weather design capacity of 36 MGD. The ECWRF treats an average of 4.6 million gallons of wastewater each day and 1,900 million gallons annually (City of Petaluma 2021).

The ECWRF treats wastewater to Title 22 tertiary recycled water standards. While most of the ECWRF's recycled water is used for urban, agricultural, or industrial purposes, the ECWRF maintains a permitted discharge to the Petaluma River between October 21 to April 30 (City of Petaluma 2021).

c. Stormwater Collection and Discharge

Stormwater discharges consist of surface water runoff generated from various land uses. The quality of these discharges varies and is affected by geology, land use, season, hydrology, and sequence and duration of hydrologic events. Stormwater within Petaluma that does not infiltrate into the ground becomes surface runoff, which either flows into surface waterways or is channeled into the City's stormwater system. The City's stormwater system consists of street gutters, storm drain inlets, catch basins, pipes, and outfalls, as well as ditches and constructed channels. The stormwater system is entirely separate from the sewer system (City of Petaluma 2025). Stormwater ultimately runs off to the Petaluma River, its tributaries, San Pablo Bay, and the Pacific Ocean. All 24.27 miles

of the Petaluma River main stem, as well as segments and tributaries including San Antonio Creek, Lichau Creek, Willow Brook, Lynch Creek, Adobe Creek, and Ellis Creek are listed by the USEPA as impaired water bodies on the Clean Water Act 303(d) list. This list is discussed further in Section 4.9, *Hydrology and Water Quality.* Discharges from the City's storm drain system to the Petaluma River and ultimately the Pacific Ocean are regulated in accordance with the State Water Resources Control Board's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Small General Municipal Separate Storm Sewer Systems (Phase II MS4). The City's discharge of stormwater is regulated under Order 2013-0001-DWQ, NPDES No. CAS000004, issued by the San Francisco Bay Regional Water Quality Control Board (RWQCB) and described in Section 4.16.2, *Regulatory Setting*. New developments in Petaluma is required to be designed to comply with state regulations, incorporating features such as retention basins and bio swales to enhance stormwater infiltration and reduce stormwater runoff. Sonoma Water has instituted programs to improve and increase groundwater recharge, increase water reuse, and reduce stormwater impacts in accordance with the NPDES permit (Sonoma Water 2013).

d. Electricity

Sonoma Clean Power (SCP) and Pacific Gas and Electric Company (PG&E) serve the City of Petaluma. PG&E is responsible for all electric delivery and maintaining the electric grid, and SCP provides an optional electric generation service (customers can opt out of SCP's electric generation service). SCP provides electricity from cleaner power sources with lower greenhouse gas (GHG) emissions than PG&E, including power sourced from renewable electricity (wind, solar, geothermal, etc.) and carbon-free large hydroelectric power. The City purchases Evergreen Power, from SCP, which is a carbon-free power source. Energy is discussed in more detail in Section 4.5, *Energy*. Existing power lines are available throughout the Plan Area.

As shown in Table 4.16-1, communitywide development in Sonoma County (the smallest scale at which electricity consumption data is readily available) consumed approximately 2,880 gigawatt-hours in 2022 (the most recent year of data available), which was approximately 1 percent of statewide electricity consumption (California Energy Commission [CEC] 2022a). In comparison, the population of Sonoma County is approximately 1.2 percent of California's population (California Department of Finance [DOF] 2025). Therefore, per capita electricity consumption in Sonoma County is slightly lower than the statewide average.

Table 4.16-1 2022 Electricity Consumption

Energy Type	Sonoma County (GWh)	California (GWh)	Proportion of Statewide Consumption[1]
Electricity	2,800	287,826	1.0%

GWH = gigawatt-hours

[1] For reference, the population of Sonoma County (478,152 persons) is approximately 1.2 percent of the population of California (39,128,162 persons) (DOF 2025).

Source: CEC 2022a

e. Natural Gas

The city is in PG&E's natural gas service area, which spans central and northern California (PG&E 2022a). In 2022 (the most recent year of data available), PG&E customers consumed 4.4 billion therms of natural gas. Residential users accounted for approximately 42 percent of PG&E's natural gas consumption (CEC 2022b). The remainder was used for industry (31 percent), commercial buildings (20 percent), mining and construction (5 percent), other commercial (1

percent), and agricultural and water pump accounts (1 percent) (CEC 2022b). In 2022, Sonoma County users accounted for approximately 2.4 percent of PG&E's total natural gas consumption across the entire service area (CEC 2022b, 2022c).

PG&E's service area is equipped with approximately 6,400 miles of gas transmission pipelines as 42,000 miles of gas distribution pipelines. Large-diameter gas transmission pipelines run along most major roadways within the City of Petaluma (PG&E 2025).

As shown in Table 4.16-2, communitywide development in Sonoma County (the smallest scale at which natural gas consumption data is readily available) consumed approximately 107 million US therms in 2022 (the most recent year of data available), which was approximately 2.4 percent of natural gas consumption by PG&E customers and 0.9 percent of statewide natural gas consumption (CEC 2022b, 2022c). In comparison, the population of Sonoma County is approximately 1.2 percent of California's population (DOF 2024). Therefore, per capita natural gas consumption in Sonoma is lower than the statewide average.

Table 4.16-2 2022 Natural Gas Consumption

Energy Type	Sonoma County (millions of US therms)	PGE (millions of US therms)	California (millions of US therms)	Proportion of PGE Consumption[1]	Proportion of Statewide Consumption[1]
Natural Gas	107	4,421	11,710	2.4%	0.9%

[1] For reference, the population of Sonoma County (478,152 persons) is approximately 1.2 percent of the population of California (39,128,162 persons) (DOF 2024).

Source: CEC 2022b, 2022c

f. Telecommunications

In California, approximately 98 percent of households have access to telecommunication infrastructure, including telephone and cable access (Broadband for All 2025). Petaluma and the County of Sonoma are in the 707 area code. Internet providers that service the city include Xfinity, AT&T, Sonic and HughesNet (HighSpeedInternet.com 2025). Additionally, a number of wireless data and cellular phone companies provide service options to residents.

g. Solid Waste and Recycling

The Plan Area is within the jurisdiction of the Sonoma County Waste Management Agency (SCWMA). Recology, a private company, is responsible for the collection of municipal solid waste generated in Petaluma. Recology provides weekly curbside collection of refuse, recycling, and compost. Recology collection vehicles deliver the material to Redwood Landfill at 8950 Redwood Way outside of Novato in Marin County. Redwood Landfill comprises approximately 420 acres and 222 acres are permitted for disposal. Redwood Landfill is anticipated to be operational through 2036, and can accept a maximum throughput of 2,300 tons per day. The remaining capacity of the landfill is 26 million cubic yards (California Department of Resources Recycling and Recovery [CalRecycle] 2024a). Beyond the Redwood Landfill's anticipated closure year of 2036, solid waste generated by the city may be diverted to other nearby landfills, such as the Potrero Hills Landfill. The Potrero Hills Landfill has a maximum throughput of 4,330 tons per day and a remaining capacity of 13.8 cubic yards, and is estimated to remain operational through 2048 (CalRecycle 2024b).

4.16.2 Regulatory Setting

a. Federal Regulations

Clean Water Act

The federal Clean Water Act, enacted by Congress in 1972 and amended several times since, is the primary federal law regulating water quality in the United States and forms the basis for State and local laws throughout the country. The Act established the basic structure for regulating discharges of pollutants into the waters of the United States. The Clean Water Act gave the U.S. Environmental Protection Agency (USEPA) the authority to implement federal pollution control programs, such as setting water quality standards for contaminants in surface water, establishing wastewater- and effluent discharge limits for various industry contaminants in surface water, establishing wastewater and effluent discharge limits for various industry categories, and imposing requirements for controlling nonpoint-source pollution. At the federal level, the Clean Water Act is administered by the USEPA and U.S. Army Corps of Engineers. At the State and regional levels in California, the act is administered and enforced by the State Water Resources Control Board (SWRCB) and the nine RWQCBs.

Section 402 of the Clean Water Act requires that all construction sites on an acre or greater of land, as well as municipal, industrial and commercial facilities discharging wastewater or stormwater directly from a point source, such as a pipe, ditch, or channel, into a surface water of the United States must obtain permission under the NPDES permit. All NPDES permits are written to ensure that the surface water receiving discharges will achieve specified water quality standards.

Safe Drinking Water Act

The Safe Drinking Water Act (42 United States Code Section 300(f) et seq.; 40 Code of Federal Regulations (CFR) Section 141 et seq.) regulates public water systems that supply drinking water. The main components of the federal Safe Drinking Water Act are to:

1. Ensure that water from the tap is potable (safe for drinking, cooking, and hygiene)
2. Prevent contamination of groundwater aquifers that are the main source of drinking water for a community
3. Regulate the discharge of wastes into underground injection wells pursuant to the Underground Injection Control program (see 40 CFR Section 144)
4. Regulate distribution systems

Title 40 of the Code of Federal Regulations

Title 40 of the CFR, Part 258 (Resource Conservation and Recovery Act Subtitle D) contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs incorporating the federal landfill criteria. The federal regulations address the location, operation, design, groundwater monitoring, and closure of landfills.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 set energy efficiency standards for lighting (specifically light bulbs) and appliances.

Energy Star Program

Energy Star is a voluntary labeling program introduced by the USEPA 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 specifications for maximum energy use established under the program are certified to display the Energy Star label. In 1996, the USEPA joined with the Energy Department to expand the program, which now also includes certifying commercial and industrial buildings as well as homes (Energy Star 2025).

Telecommunications Act

In 1996, the Federal Communications Commission (FCC) passed the Telecommunications Act, allowing any communications business to compete in any market against any other business. This act affects telephone service, cable programming, and other video services, including broadcast services and services provided to schools (FCC 2025).

b. State Regulations

Water and Wastewater

Sustainable Groundwater Management Act

In September 2014, the governor signed legislation requiring that California's critical groundwater resources be sustainably managed by local agencies. The Sustainable Groundwater Management Act gives local agencies the power to sustainably manage groundwater and requires groundwater sustainability plans to be developed for medium- and high-priority groundwater basins, as defined by the DWR.

The Petaluma Valley Groundwater Basin is a medium priority basin. The City of Petaluma is a member agency of the Petaluma Valley Groundwater Sustainability Agency (GSA), which developed a Groundwater Sustainability Plan (GSP) in 2022. The Petaluma Valley GSA is further described under Section 4.16.3(c), *Regional and Local Regulations*, below.

Urban Water Management Planning Act

In 1983 the California Legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610–10656). The Act states that every urban water supplier that provides water to 3,000 or more connections, or that provides over 3,000 acre-feet annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act requires that urban water suppliers adopt an UWMP at least once every five years and submit them to the DWR. Noncompliant urban water suppliers are ineligible to receive funding pursuant to Division 24, commencing with Section 78500, or Division 26, commencing with Section 79000, or receive drought assistance from the State until the UWMP is submitted and deemed complete pursuant to the Urban Water Management Planning Act.

In accordance with California Water Code Section 10632, every urban water supplier is required to prepare and adopt a WSCP as part of its UWMP. The WSCP must be updated at least once every five years and must include specific elements such as an annual water supply and demand assessment, six standard water shortage levels ranging from up to 10 percent to greater than 50 percent

reductions, and corresponding response actions. These plans are designed to ensure that suppliers can respond effectively to droughts, catastrophic events, or other conditions that impact water availability. The WSCP also outlines procedures for public communication, enforcement measures, and legal authorities to implement water use restrictions. Urban water suppliers that fail to submit a compliant WSCP may be ineligible for certain state funding or drought assistance programs until their plan is deemed complete by DWR.

Porter-Cologne Water Quality Control Act (California Water Code)

The State of California is authorized to administer Federal or State laws regulating water pollution within the State. The Porter-Cologne Water Quality Control Act (Water Code Section 13000, *et seq*.), provides authority to the state and regional water quality control boards, and includes provisions to address requirements of the Clean Water Act, including NPDES permitting, dredge and fill programs, and civil and administrative penalties. Where the NPDES program focuses on discharge to surface waters, the Porter-Cologne Water Quality Control Act provides California with the authority to issue Waste Discharge Requirements, which regulate the discharge of water to land.

The Porter-Cologne Water Quality Control Act is broad in scope and addresses issues relating to the conservation, control, and utilization of the water resources of the State. Additionally, the Porter-Cologne Act states that the quality of all the waters of the State, including groundwater and surface water, must be protected for the use and enjoyment by the people of the State. The City's operations must comply with the following permits issued by the SWRCB and the North Coast RWQCB, under the authority of the Porter-Cologne Water Quality Act.

CONSTRUCTION STORMWATER GENERAL PERMIT (ORDER 2022-0057-DWQ)

The federal Clean Water Act prohibits the discharge of stormwater from construction activities unless such discharges are authorized under a NPDES permit. To comply with both state and federal requirements, the SWRCB adopted the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, commonly referred to as the Construction Stormwater General Permit. This permit applies to construction sites that disturb one acre or more of soil. Prior to beginning construction, the landowner and/or contractor must submit permit registration documents and pay an annual fee for the duration of the project. Required documents include a Notice of Intent, risk assessment, site map, Stormwater Pollution Prevention Plan (SWPPP), and a signed certification statement. The SWPPP must outline measures to control all pollutant sources, identify and manage non-stormwater discharges, and implement site-specific Best Management Practices (BMPs) that effectively reduce or eliminate pollutants in stormwater and authorized non-stormwater discharges. Additionally, BMPs intended to function post-construction must be properly installed and maintained. The Construction General Permit establishes minimum BMP requirements based on the site's risk level and defines the qualifications necessary for a Qualified SWPPP Developer and Qualified SWPPP Practitioner.

WATER RECLAMATION REQUIREMENTS FOR RECYCLED WATER USE (ORDER WQ 2016-0068 DDW)

The Water Reclamation Requirements for Recycled Water Use (General Order) establishes standard conditions for non-potable recycled water use and conditionally delegates authority to a local agency "Administrator" to manage that agency's program and issue recycled water permits to its recycled water users. The City operates its recycled water system under the General Order and is an approved local "Administrator". The City uses a recycled water agreement, executed with each user, as its local permit.

STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR SANITARY SEWER SYSTEMS (ORDER WQ 2022-0103 DWQ)

To provide a consistent, statewide regulatory approach to address the maintenance and management of sanitary sewer collection systems, the SWRCB adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (the Sanitary Sewer Systems General Order) in 2006 and recently updated these requirements in 2022. The Sanitary Sewer Systems General Order requires public agencies that own or operate sanitary sewer systems to develop and implement sewer system management plans and report all sanitary sewer overflows to the SWRCB's online sanitary sewer overflow database. The City has been enrolled under the General Order since 2006 and operates and maintains the collection system in accordance with these requirements.

STATEWIDE PHASE II SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT (ORDER NUMBER NO. 2013-0001-DWQ)

The City of Petaluma is regulated under the Statewide Phase II Municipal Separate Storm Sewer System (MS4) Permit, which governs stormwater discharges from small municipal storm drain systems serving populations under 100,000. The Phase II Permit, issued by the SWRCB, establishes requirements to reduce pollutants in stormwater runoff through best management practices, public education, construction and post-construction controls, and municipal operations programs. As a small MS4 operator, the City of Petaluma must implement these permit provisions across its storm drain network, which includes streets, gutters, inlets, culverts, and other conveyances that discharge to local waterways such as the Petaluma River and its tributaries. Although the permit is statewide, compliance and enforcement within Petaluma fall under the oversight of the San Francisco Bay Regional Water Quality Control Board, which serves as the regional permitting authority for the city.

Title 22 of California Code of Regulations

Among other things, Title 22 of the California Code of Regulations (Title 22) regulates public water systems and provides the authority for the SWRCB's Division of Drinking water to issue permits to public water systems. The City operates a public water system under permit number CA4910006. As required by its permit the City regularly monitors the quality of water it delivers and distributes annual consumer confidence reports to customers.

STATE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE

The State of California's Model Water Efficient Landscape Ordinance (MWELO) establishes minimum statewide standards for the design, installation, and maintenance of new and rehabilitated landscapes to promote efficient outdoor water use. Adopted and implemented by local agencies pursuant to the Water Conservation in Landscaping Act, MWELO requires climate-appropriate plant selection, efficient irrigation systems, soil preparation, mulch application, and sustainable water management practices for qualifying projects. Local jurisdictions must adopt, implement, and enforce MWELO or a local ordinance that is at least as effective, and they are required to report annual implementation to the California Department of Water Resources. These requirements ensure that outdoor landscapes are designed to reduce potable water demand, support environmental health, and improve long-term sustainability of California's limited water resources.

Electricity and Natural Gas

California Energy Commission

As the State's primary energy policy and planning agency, the CEC collaborates with State and federal agencies, utilities, and other stakeholders to develop and implement State energy policies. Since 1975, the CEC has been responsible for reducing the State's electricity and natural gas demand, primarily by adopting new Building and Appliance Energy Efficiency Standards that have contributed to keeping California's per capita electricity consumption relatively low. The CEC is also responsible for the certification and compliance of thermal power plants 50 megawatts and larger, including all project-related facilities in California (CEC 2025).

California Public Utilities Commission

The CPUC regulates investor-owned electric and natural gas utilities operating in California. The energy work responsibilities of the CPUC are derived from the California State Constitution, specifically Article XII, Section 3 and other sections more generally, numerous State legislative enactments and various Federal statutory and administrative requirements. The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from PG&E and other natural gas utilities across California (CPUC 2025).

Senate Bill 350

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires a doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030.

Solid Waste

California Department of Resources Recycling and Recovery

CalRecycle serves as the State's primary regulatory authority for solid waste management, with oversight responsibilities that include developing, implementing, and enforcing California's waste reduction, recycling, and disposal regulations. In this role, CalRecycle establishes statewide requirements for local jurisdictions, solid waste facilities, and waste haulers, and ensures compliance with statutory mandates such as Assembly Bill (AB) 939 and Senate Bill (SB) 1016, both of which are described below.

Assembly Bill 939

AB 939 (Public Resources Code Section 41780) requires cities and counties to prepare integrated waste management plans and to divert 50 percent of solid waste from landfills beginning in calendar year 2000 and each year thereafter. AB 939 also requires cities and counties to prepare Source Reduction and Recycling Elements as part of the integrated waste management plans. These elements are designed to develop recycling services to achieve diversion goals, stimulate local recycling in manufacturing and stimulate the purchase of recycled products.

Senate Bill 1016

SB 1016 requires that the 50 percent solid waste diversion requirement established by AB 939 be expressed in pounds per person per day. SB 1016 changed the CalRecycle review process for each municipality's integrated waste management plan. After an initial determination of diversion

requirements in 2006 and establishing diversion rates for subsequent calendar years, the Board reviews a jurisdiction's diversion rate compliance in accordance with a specified schedule. The Board is required to review a jurisdiction's source reduction and recycling element and hazardous waste element once every two years.

Assembly Bill 341 – Mandatory Commercial Recycling

The purpose of AB 341 is to reduce GHG emissions by diverting commercial solid waste to recycling efforts and to expand the opportunity for additional recycling services and recycling manufacturing facilities in California. AB 341 required all businesses that generate four or more cubic yards of garbage per week and multi-family dwellings with five or more units to recycle by July 1, 2012. AB 341 also sets a statewide goal of 75 percent waste diversion.

Senate Bill 1383 – Short-Lived Climate Pollutant Reduction Strategy

SB 1383 aims to reduce emissions of short-lived climate pollutants by diverting organic waste from landfills and increasing edible food recovery statewide. SB 1383 establishes two key statewide targets: a 75 percent reduction in the landfilling of organic waste from 2014 levels by 2025, and a 20 percent increase in the recovery of edible food for human consumption. To achieve these goals, SB 1383 requires all residents and businesses to participate in an organic waste collection program and mandates proper separation of organic materials such as food scraps, yard trimmings, and food-soiled paper. The law also imposes requirements on certain commercial edible food generators to donate the maximum amount of surplus edible food to approved food recovery organizations.

Senate Bill 54 – Plastic Pollution Prevention and Packaging Producer Responsibility Act

SB 54 establishes statewide requirements to reduce single-use plastic packaging and shift responsibility for managing these materials from local jurisdictions to producers. The law mandates a 25 percent reduction in single-use plastic packaging and foodware by 2032 and requires all covered materials sold in California to be recyclable or compostable by that same year. Producers must participate in a Producer Responsibility Organization, report packaging data, and fund recycling system improvements to support compliance and advance statewide waste reduction goals.

c. Regional and Local Regulations

Petaluma Valley Groundwater Sustainability Agency

The Petaluma Valley GSA is a joint powers authority formed in June 2017 by the City of Petaluma, North Bay Water District, Sonoma Resource Conservation District, Sonoma County Water Agency, and the County of Sonoma. The agency was created to fulfill the requirements of SGMA and to ensure the long-term sustainability of groundwater resources in the Petaluma Valley Groundwater Basin.

In January 2022, the Petaluma Valley GSA submitted its GSP to DWR, which was approved in January 2023. The GSP outlines a 20-year roadmap to achieve groundwater sustainability by 2045. It includes an evaluation of current and historical groundwater conditions, identifies data gaps, and proposes projects and management actions to address challenges such as drought vulnerability, groundwater level declines, and potential impacts to interconnected surface waters. The GSP concludes that while groundwater levels are generally stable, some areas require closer monitoring

and targeted management. The plan emphasizes adaptive management, climate resilience, and community engagement.

To support implementation of the GSP, the Petaluma Valley GSA adopted a groundwater sustainability fee and has secured state grant funding, including $6.7 million awarded in 2023 through the Sustainable Groundwater Management Grant Program. These funds support aquifer assessments, water use efficiency programs, and stakeholder outreach.

The GSA currently exercises limited regulatory authority, focusing on well registration, data collection, and voluntary programs such as LEVEL UP (well monitoring), Flow Smart (voluntary flow metering), and Well Aware (tools for well owners). The agency continues to collaborate with local partners and residents to ensure a resilient groundwater future for the Petaluma Valley.

Countywide Integrated Waste Management Plan

The Countywide Integrated Waste Management Plan, dated October 15, 2003, provides a solid waste disposal strategy through the year 2050. Plan updates are prepared every five years, and the most recent five-year update was completed in November 2025. The Sonoma County Waste Management Agency prepared this plan for the jurisdictions of Petaluma, Cloverdale, Cotati, Healdsburg, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Windsor, and the County of Sonoma. The plan includes the following goals, objectives, and policies to ensure adequate waste prevention, reuse, recycling, composting, and disposal services:

Goal A: In order to help ensure the sustainability of our communities and to conserve natural resources and landfill capacity, the Sonoma County Waste Management Agency (SCWMA), County and the Cities will continue to improve their municipal solid waste management system through emphasis on the solid waste management hierarchy of waste prevention (source reduction), reuse, recycling, composting and disposal.

Goal B: The County and the Cities will exercise regional cooperation in the achievement of solid waste planning objectives through the SCWMA.

Objective: The County and the Cities will achieve a 50 percent diversion (see Figure 1-1 [of the Countywide Integrated Waste Management Plan]) of waste being disposed of in County landfills by the year 2003 and a 70 percent diversion rate (see Figure 1-2) by 2015 based on 1990 rates.

2.4.1 Source Reduction Implementation Policy: The SCWMA, County and the Cities will encourage and support the use of waste minimization practices for business, government agencies, and the public by distributing information on the availability of waste minimization options.

2.4.1 Source Reduction Implementation Policy: The SCWMA, the County, and the Cities will continue to encourage and support backyard composting for businesses, residences, and government agencies by providing information and technical assistance.

2.4.2 Recycling Implementation Policy: The County and the Cities will provide access to residential recycling programs for all households, including single-family, multi-family, and mobile homes, that subscribe to garbage services by the end of the short-term planning period.

2.4.3 Composting Implementation Policy: The SCWMA, County and the Cities will provide access to composting opportunities through implementation of composting facilities and programs which may be regional or local, public or private.

2.4.4 Special Waste Implementation Policy: The SCWMA, County and the Cities will promote recycling of construction and demolition debris through education, regulation and economic incentives.

2.4.6 Solid Waste Management Implementation Policy: Satisfy the AB 939 solid waste planning and diversion mandates in a manner that is consistent with the objectives of the community, as reflected by the deliberations and documents of the AB 939 Local Task Force and Sonoma County Waste Management Agency.

Sonoma County Low Impact Development Requirements

Sonoma County implements Low Impact Development (LID) requirements to reduce stormwater pollution, protect local waterways, and promote groundwater recharge. As a Phase I NPDES co-permittee, the County, along with participating cities and the Sonoma Water Agency, requires new development and certain redevelopment projects to comply with the Storm Water Low Impact Development Technical Design Manual, which provides technical standards for permanent stormwater best management practices (BMPs). The LID Manual establishes design measures intended to mimic natural hydrology by infiltrating, filtering, storing, and detaining stormwater close to its source, thereby reducing pollutant loads, minimizing increases in runoff, and preserving natural site functions.

LID requirements apply to projects that create or replace qualifying amounts of impervious surface, triggering the need for permanent BMPs and preparation of a Storm Water LID Submittal consistent with the County's determination worksheets and design standards. These measures include bioretention features, vegetated swales, permeable pavement, rain gardens, and other infiltration-based systems designed in accordance with the LID Manual and the regional NPDES permit. Collectively, Sonoma County's LID standards ensure that development incorporates sustainable stormwater practices that maintain water quality and support long-term watershed health.

City of Petaluma 2020 Urban Water Management Plan

The City of Petaluma's 2020 UWMP, adopted by the City Council on June 21, 2021, fulfills the requirements of the California Urban Water Management Planning Act and provides a 20-year planning horizon for the City's water supply, demand projections, conservation programs, and drought preparedness. The UWMP describes Petaluma's water supply portfolio, which is primarily imported water from the Russian River system via Sonoma Water, supplemented by municipal groundwater wells and recycled water used for landscape irrigation and non-potable applications.

The plan also evaluates historical and projected water use, population trends, and water system reliability under normal, single-dry, and multiple-dry year conditions. In accordance with state requirements, the UWMP includes an updated Water Shortage Contingency Plan that establishes six water shortage levels and associated demand-reduction actions for shortages ranging from 10 percent to greater than 50 percent. Overall, the 2020 UWMP provides the regulatory foundation for long-term water resource planning in Petaluma, ensuring that the City can meet projected demands, maintain water system reliability, and implement structured conservation responses during drought or supply interruptions.

Petaluma Municipal Code

Chapter 8.16 of the Petaluma Municipal Code regulates the storage, collection, and disposal of garbage and rubbish within the city. The chapter requires that all garbage be kept in approved containers and prohibits the accumulation of waste in a manner that may create a nuisance or health hazard. These regulations support the City's efforts to maintain sanitary conditions and ensure safe, consistent solid waste handling practices.

Chapter 8.18 of the Petaluma Municipal Code includes regulations related to the reduction of organic waste disposal. It outlines requirements for the storage, collection, and diversion of recyclables, organics, and other solid waste materials. These regulations implement state mandates such as SB 1383 and support the City's broader climate and sustainability goals.

Chapter 14.32, General Regulation of Utilities, of the Petaluma Municipal Code governs public utilities operating within Petaluma, defining a "public utility" to include entities that deliver heat, light, gas, power, water, communications, or other similar services to the community. The chapter authorizes the City to regulate utility activities, including the location of underground pipes and conduits, to ensure coordinated utility installation and protect public infrastructure.

Title 15 of the Petaluma Municipal Code includes regulations related to potable water, recycled water, and wastewater. These provisions govern water service connections, construction standards for water infrastructure, and permit requirements. Petaluma's Water Efficient Landscape Ordinance (WELO), implemented through Chapter 15.17 of the Municipal Code, establishes water use efficiency standards for new and rehabilitated landscapes within the city. The ordinance applies to new projects with 500 square feet or more of landscape area and to rehabilitated landscapes of 2,500 square feet or greater, and requires applicants to submit a landscape documentation package demonstrating compliance with the City's performance or prescriptive requirements. These standards mandate the use of climate-adapted, low-water-use plant materials, application of mulch on exposed soil surfaces, and design of irrigation systems that utilize efficient technologies such as non-volatile controllers, pressure regulation, and rain sensors.

Chapter 15.20, Water Wells, of the Petaluma Municipal Code regulates the construction and operation of water wells within city limits. While the City does not have a blanket prohibition on private wells, it requires permits and compliance with specific standards, supporting the City's coordination with the Petaluma Valley GSA to manage groundwater use. Chapter 17.30 establishes storm drainage impact fees for new development to fund construction of drainage improvements needed to manage increased runoff. The City Council finds these fees necessary to address drainage demands created by development and to protect public health, safety, and welfare. Fees are calculated based on the increase in site runoff from development and are deposited into a dedicated fund for storm drainage improvements.

Chapter 19, Development Related Fees, of the Petaluma Municipal Code establishes a suite of development-related impact fees, including fees for City facilities, open space acquisition, parkland, traffic, water capacity, wastewater capacity, and commercial linkage. These fees ensure that new development contributes its fair share toward the public infrastructure, services, and community facilities necessary to support growth.

Chapter 20.36 of the Petaluma Municipal Code establishes the public improvement obligations required of subdivision developers to ensure that new development is adequately served by essential infrastructure. These requirements include installation of sanitary sewer facilities that connect to the City's existing system, with a separate private lateral for each lot and a prohibition on septic systems (Section 20.36.060). Stormwater drain systems must also be installed consistent with

plans approved by the City Engineer (Section 20.36.070). Water mains and fire hydrants must be constructed of sufficient capacity to provide adequate domestic water service and fire protection to all lots within the subdivision (Section 20.36.080). Additionally, all utility distribution facilities, including electric, communication, and cable television lines, must be installed underground, with the subdivider responsible for coordinating required utility company arrangements and complying with applicable California Public Utilities Commission and City cable television service requirements (Section 20.36.140). Collectively, these provisions ensure that subdivision development incorporates the necessary public infrastructure to protect public health, safety, and service reliability.

City of Petaluma General Plan

The Natural Environment Element and Water Resources Element of the City of Petaluma General Plan contains goals and policies related to utilities and service systems. The following policies are relevant to the project (City of Petaluma 2008).

Goal 4-G-5. Meet Petaluma's solid waste disposal needs while maximizing opportunities for waste reduction, reuse, and recycling, in compliance with the California Integrated Waste Management Act of 1989.

Policy 4-P-21. Reduce solid waste and increase reduction, reuse and/or recycling, in compliance with the Countywide Integrated Waste Management Plan (CoIWMP).

- Work with Sonoma County to identify environmental and economical means to meet the need for solid waste disposal.
- Require new or remodeled residential and all non-residential development to incorporate sufficient, attractive, and convenient interior and exterior storage areas for recyclables and green waste.
- Continue to encourage waste reduction and recycling at home and in businesses through public education programs, such as informational handouts, on recycling, yard waste, wood waste, and hazardous waste collection.
- Develop a residential and commercial food waste composting program.
- Purchase goods containing recycled materials for City use.
- Continue to cooperate, require, and/or support the operation of resource recovery facilities by the City waste hauler and the disposal site operators.
- Investigate and replace bottled water in City offices with alternate source of drinking water.
- Ensure that all public facilities have adequate and accessible depositories for recyclables.

Policy 4-P-22. Require future waste contract negotiations to include the following:

- Disposal of City waste products at a site with the least potential for environmental impacts.
- Discussion on resource recovery services for Petaluma waste.
- The identification of recycling and waste stream diversion goals.
- Hazardous waste collection

Goal 8-G-1. Provide a safe, reliable, high-quality, economical and sustainable source of water to meet the community's needs.

Policy 8-P-1. Optimize the use of imported water from the SCWA to provide adequate water for present and future uses.

Policy 8-P-4. The City shall routinely assess its ability to meet demand for potable water.

Policy 8-P-6. The City shall utilize the Water Demand and Supply Analysis Report, June 2006 and any amendments thereto, for monitoring, assessing and improving the City's municipal water supply.

Policy 8-P-7. Limit the provision of potable water service to lands within the Urban Growth Boundary with the exception of the provisions outlined in the Urban Growth Boundary measure and incorporated into Chapter 2 Land Use, Growth Management, and the Built Environment.

Goal 8-G-3. Maximize the use of recycled water as a potable water offset to manage water demands, and meet regulatory requirements for wastewater discharge.

Policy 8-P-9. Provide tertiary recycled water for irrigation of parks, playfields, schools, golf courses and other landscape areas to reduce potable water demand.

Policy 8-P-10. The City may require the use of recycled water through the City development review process.

Policy 8-P-11. The City may continue to work with agricultural users to reuse secondary recycled water. In addition, the City may purchase land as a backup reuse site, if deemed necessary and appropriate to meet system needs.

Policy 8-P-12. Provide water of adequate quality and quantity to meet customer needs. The City, at its' sole discretion, during the environmental review and entitlement process, will determine whether a given customer's supply will be potable water, tertiary recycled water, secondary recycled water, groundwater, or a combination of these.

Policy 8-P-13. Work to convert existing potable water customers identified under the City's Recycled Water Master Plan to tertiary recycled water as infrastructure and water supply becomes available.

Goal 8-G-4. Manage the wastewater collection and treatment system to address 100 percent capture and treatment of the City's wastewater in an economically and ecologically sound manner.

Policy 8-P-14. The water recycling facility shall be operated and maintained in compliance with all State and Federal permit requirements.

Policy 8-P-15. Capacity of the water recycling facility shall be maintained, and expanded as necessary, to keep pace with the city's growth.

Policy 8-P-16. Comply with the current Statewide General Waste Discharge Requirements concerning the operation and maintenance of the City's sanitary sewer collection system

Goal 8-G-7. Continue to invest in the City's storage and distribution system to insure reliable delivery of high quality water to meet daily and emergency needs.

> **Policy 8-P-22:** Invest in the maintenance, repair and replacement of the water utility infrastructure.
>
> **Policy 8-P-23**: Provide storage facilities to serve twice the average daily water demand.
>
> **Policy 8-P-24:** Water quality shall be maintained to meet local, State, and Federal standards.
>
> **Policy 8-P-26:** Encourage continued development of the City's water supply and distribution system to meet established system pressure and fire flow standards (including reservoirs, mains, and hydrants).
>
> **Policy 8-P-27**: Maintain existing and future water supply, storage, treatment and distribution facilities with minimal or no adverse impact to the environment.

Goal 10-P-1. Minimize risks of property damage and personal injury posed by natural hazards.

> **Policy 10-P-1A:** Require geotechnical studies prior to development approval in geologic and/or seismic hazard areas. Require or undertake comprehensive geologic and engineering studies for critical structures regardless of location. Critical structures are those most needed following a disaster or those that could pose hazards of their own if damaged. They include utility centers and substations, water reservoirs, hospitals, fire stations, police and emergency communications facilities, and bridges and overpasses.

4.16.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

The following subsections summarize the methodologies used in the technical memoranda supporting the analysis. A detailed discussion of the methodology used in each memorandum is included in Appendices G, H, and I.

Water Supply and Wastewater System Evaluation Technical Memorandum

The Water Supply and Wastewater System Evaluation Technical Memorandum (Appendix E) outlines the approach used to project the City's water demands through 2050. The methodology applies a land-use–based framework developed in coordination with the City and is consistent with California Water Code Section 10631(d)(4)(A), which requires urban water suppliers to account for water savings associated with adopted codes, standards, and plans.

Future water demand estimates were developed through the following steps:

- Account Growth Projections: Growth in potable and recycled water accounts was estimated based on recent historical trends and the City's General Plan Update projections for population, employment, and non-residential square footage. Residential account growth reflects population forecasts, while commercial, industrial, and institutional (CII) sectors are tied to projected increases in non-residential development. Recycled water projections were provided by City staff.

- Water Demand Factors**:** Baseline demand factors were established for each potable water use sector using recent historical per-account water use. Factors were based on maximum annual use during 2017 through 2019, capturing typical demands while allowing for some variance observed over the past decade.
- Passive Water Savings**:** Anticipated passive conservation (i.e., savings from fixture standards, building codes, and normal replacement of water-using devices) was estimated using the Alliance for Water Efficiency's Water Conservation Tracking Tool.
- Total Demand Calculation: Future water demand was calculated by combining projected account growth, sector-specific demand factors, and estimated passive savings. Non-revenue water, consisting of unbilled authorized uses, apparent losses, and real losses, was added based on values reported in the City's 2023 water loss audit.

General Plan Update Water System Evaluation Technical Memorandum

The General Plan Update Water System Evaluation Technical Memorandum (Appendix F) projects future water demands associated with the General Plan Update by using a parcel-level land use database and water use factors (WUFs) tied to each land use designation. Existing conditions were represented by the City's 2024 maximum day demand. WUFs were taken from the City's in-progress Water Master Plan, with new factors developed for land use categories added in the General Plan. Residential densities were assumed at the midpoint of each allowed range.

Demand projections included two components: vacant parcels, all of which were assumed to develop within the General Plan horizon, and redeveloped parcels, identified where land use designations are expected to change, primarily along Petaluma Boulevard, East Washington Street, and east Lakeville Highway. Parcel-level demands were calculated by multiplying WUFs by parcel area and then allocated in the City's hydraulic model.

General Plan Update Sewer Study Technical Memorandum

The General Plan Update Sewer Study Technical Memorandum (Appendix G) developed a conservative buildout scenario to estimate the maximum potential wastewater flows associated with the General Plan Update. This scenario represents the upper limit of potential development and is intended to identify sewer segments that could experience capacity constraints under intensified land uses. The analysis assumes that all major City-identified development projects would proceed; that all vacant parcels would be developed at the maximum allowable density; and that parcels where the General Plan increases allowable density would redevelop to the maximum permitted intensity. For Mixed Use areas, assumed floor-area ratios applied to estimate non-residential square footage and corresponding flows. Parcels without changes to allowable density were assumed to retain existing estimated sewer flows. These intentionally conservative assumptions provide a high-end estimate of potential future wastewater generation, and base wastewater flow factors were applied to calculate projected increases.

Other Methodology

Impacts to other utilities and service systems, including stormwater, natural gas, electricity, and telecommunications are evaluated based on the project's adherence to local, state, and federal standards, and with consideration to the project's anticipated need for various utility services and facilities, in comparison to the capacity and condition of existing utilities and facilities.

Development facilitated by the project would connect to existing facilities providing natural gas, electricity, and telecommunications services throughout the project area; potential need for new or

upgraded utility connections was considered based on existing site-specific conditions and regulatory requirements for reliable service connections. In addition, development facilitated by the project would utilize existing solid waste infrastructure in the region. Potential need for new or upgraded solid waste facilities was considered based on remaining capacity for existing facilities and regulatory requirements for solid waste disposal.

As detailed in Section 2.3.2 of Chapter 2, *Project Description,* the City of Petaluma expects 6,449 additional residential units and 1,414,741 square feet of new non-residential land uses by 2050. Of this new development, approximately 2,437 new residential units and 708,312 feet of new non-residential land uses would be attributable to the General Plan Update itself. The analysis herein analyzes a full buildout scenario of all 2050 citywide growth.

Based on the number of new dwelling units projected under buildout of the General Plan Update and an assumed persons per unit rate by unit type in 2020[1], buildout of the General Plan Update in 2050 would result in an additional estimated 16,445 new residents[2] in Petaluma. This number is based on the Department of Finance's estimate of 2.55 persons per household for the City of Petaluma in 2020 (Department of Finance [DOF] 2025). These additional residents would result in a projected total population of 76,273 in 2050.[3] The methodology used in Appendix E to estimate water demands in 2050 produces a slightly different population estimate of 77,265 residents by 2050. Although this differs from the projection discussed above and used in other sections of this EIR, it provides a conservative basis for analysis because it assumes a higher population and therefore slightly overestimates potential future water demand.

Significance Thresholds

In accordance with Appendix G of the *CEQA Guidelines*, a significant impact to utilities would occur if new development facilitated by the proposed project would:

1. 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;
2. Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;
3. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
4. 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
5. Conflict with federal, state, and local management and reduction statutes and regulations related to solid waste.

[1] 2020 is utilized as the project baseline to align with the SCTA traffic model projections baseline
[2] 16,445 residents = 6,449 units * 2.55 persons per household
[3] 59,828 (Petaluma's 2020 population) plus 16,445 additional residents equals an estimated 2050 population of 76,273.

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?
Threshold 3:	Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Impact UTIL-1 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD INCREASE DEMAND FOR UTILITY INFRASTRUCTURE; HOWEVER, NO SUBSTANTIAL RELOCATION OR CONSTRUCTION OF UTILITY SERVICES WOULD BE REQUIRED TO SERVE DEVELOPMENT FACILITATED BY PROJECT BEYOND EXISTING CONDITIONS. EXISTING WASTEWATER TREATMENT CAPACITY IS ADEQUATE TO SERVE THE PROJECT'S PROJECTED DEMAND. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Water

Growth and development facilitated by the proposed plan would create additional demand for water in Petaluma. Existing large scale water supply infrastructure including Sonoma Water's facilities, the City's groundwater wells, and the recycled water treatment and distribution systems, exist and were designed to accommodate anticipated future growth. Therefore, water infrastructure is generally available for new development. In some cases, local pipeline infrastructure may be required to serve specific development sites, or existing infrastructure would need to be upsized to serve increased development. The installation or expansion of existing water infrastructure could result in ground disturbance. Generally, this ground disturbance would occur in previously disturbed or developed areas, such as paved roadways, reducing the potential for environmental impacts. As described in Section 4.3, *Biological Resources*, compliance with mitigation measures and existing regulations would minimize impacts to sensitive environmental resources where construction activities, such as necessary facilities upgrades, occur within the Plan Area. Further, the plan includes the following goals and policies to ensure water infrastructure would be available to serve future development facilitated by the plan:

Goal IU-1: Sustainable Water Supply. The community has access to safe, clean, affordable, accessible, and sustainable supplies of water.

> **Policy IU-1.2: Develop alternative local water sources.** Develop alternative local sources of water to at least the extent indicated in the Restructured Agreement for Water Supply.
>
> **Policy IU-1.3: Maintain and expand water infrastructure.** Maintain and expand as needed the City's potable, non-potable, and wastewater storage, distribution, collection, and reuse systems with minimal or no adverse impact on the environment, and update the Integrated Water Master Plan.

Goal IU-5: Zero-Emission Water and Wastewater. City- and privately-owned water supply and wastewater systems produce zero net operational carbon emissions, and new water supply facilities are optimized for a low embodied carbon footprint during normal operations.

> **Policy IU-5.1: Consider embodied and operational carbon costs**. When planning for water resources, consider and optimize for the embodied and operational carbon cost of existing

and new water supply, storage, and distribution systems, using both centralized and decentralized approaches where appropriate.

Additionally, new development facilitated by the proposed project would be required to pay applicable development impact fees to accommodate increased demand on water infrastructure. Through compliance with existing regulations and mitigation measures to reduce construction impacts, and with adherence to the plan's proposed policies, the proposed project would not result in construction or relocation of water facilities such that significant environmental impacts would result. Therefore, the proposed project would not result in the relocation or construction of water facilities and impacts would be less than significant. Water supply availability is discussed further under Impact UTIL-2, below.

Wastewater

Development facilitated by the General Plan Update would generally occur within the Plan Area and on sites that are already developed or surrounded by existing wastewater facilities. New or upsized collection system improvements required to serve future development would be conditioned to comply with all applicable provisions of the Petaluma Municipal Code, including requirements for sewer system design, construction, and connection. Future development would also be required to pay wastewater impact fees, which fund expansion of the City's wastewater system consistent with adopted master planning efforts and ensure that new growth contributes its fair share toward necessary infrastructure upgrades. In addition, all improvements must align with the City's ongoing Sewer System Master Plan.

The plan includes the following goals and policies to ensure wastewater infrastructure would be available to serve future development facilitated by the plan:

Goal IU-2: Integrated Water Resources Management. The City and its inhabitants adopt an integrated water resources management approach to managing all available water resources for long-term resilience and reliability, meeting both community and environmental needs.

> **Policy IU-2.4: Allow onsite reuse of wastewater**. Create a regulatory framework to allow onsite reuse of wastewater in private developments.

Goal IU-5: Zero-Emission Water and Wastewater. City- and privately-owned water supply and wastewater systems produce zero net operational carbon emissions, and new water supply facilities are optimized for a low embodied carbon footprint during normal operations.

> **Policy IU-5.1: Consider embodied and operational carbon costs**. When planning for water resources, consider and optimize for the embodied and operational carbon cost of existing and new water supply, storage, and distribution systems, using both centralized and decentralized approaches where appropriate.

Development facilitated by the project would generate wastewater that requires treatment before discharge or reuse. As described in Section 4.16.1(b), the ECWRF has an average dry weather capacity of 6.7 MGD, a wet weather design capacity of 36 MGD, and treats an average of 4.6 million gallons of wastewater each day. Based on modeling performed for the Water Supply and Wastewater System Evaluation Technical Memorandum, cumulative growth would generate a dry weather flow of approximately 5.35 MGD in 2050 (Appendix E). This is within the ECWRF's average dry weather capacity of 6.7 MGD. Therefore, the ECWRF would have sufficient capacity to

accommodate wastewater generated by cumulative development in 2050 and the Plan Area would be adequately served by existing wastewater treatment facilities.

Based on modeling performed for the General Plan Update Sewer Study Technical Memorandum, there are five locations in the Plan Area that could potentially experience sewer capacity deficiencies due to growth facilitated by the project. These locations include McDowell Boulevard, D Street and Vallejo Street, Washington Street, Petaluma Boulevard, and a portion of pipeline along the railroad corridor and the Petaluma River. More precise locations and the areas of development that result in potential deficiencies are detailed in Appendix G. Development in the Plan Area that results in the need for new or upsized wastewater infrastructure, including but not limited to the locations identified in Appendix G, would be required to pay wastewater impact fees to offset costs associated with expansion of the City's sewer system. New or expanded wastewater infrastructure would also be required to comply with other applicable regulations of Petaluma Municipal Code, as discussed in Section 4.16.2, *Regulatory Setting,* that pertain to design and capacity.

Additionally, the California Plumbing Code contains provisions requiring the installation of low flow fixtures and toilets in new developments and the retrofitting of existing structures with water efficient fixtures. Development facilitated by the proposed project would be required to comply with Part 5, Chapter 4 of the California Plumbing Code which would reduce wastewater generation within the city. As described above, the ECWRF has adequate capacity to meet the wastewater treatment demands that would be generated by 2050. The expansion or construction of a new wastewater treatment facility to meet the demands of the proposed project would not be required. Therefore, impacts would be less than significant.

Stormwater

Development facilitated by the project would not require the construction of additional stormwater infrastructure because Petaluma is largely developed and equipped with an existing stormwater drainage system that serves the city. Development facilitated by the project would introduce new impervious surfaces through the construction or reconstruction of paved areas; however, all new development in the Plan Area would be required to comply with Chapter 15.80, Stormwater Management and Pollution Control, of Petaluma Municipal Code. These requirements include implementation of stormwater best management practices (BMPs) consistent with the California Stormwater Quality Association Best Management Practice Handbooks or equivalent. Development must also meet the design standards and low-impact development requirements outlined in the Sonoma County Low Impact Development Technical Design Manual, which establishes criteria for minimizing runoff, maximizing onsite infiltration, and incorporating green infrastructure where feasible. In addition, projects are subject to applicable storm drainage impact fees under Petaluma Municipal Code Chapter 17.30 and development-related fees under Chapter 19, which ensure that new development contributes its proportional share toward stormwater and related infrastructure needs.

The City may impose additional source control and post-construction treatment measures to manage the volume, rate, and pollutant load of stormwater runoff. These measures must be incorporated into land use entitlements and construction permits, and final occupancy cannot be granted until stormwater control features are properly installed and long-term maintenance provisions are accepted by the City. Existing regulations would ensure development facilitated by the General Plan Update would not result in substantial additional runoff, necessitating the expansion of stormwater infrastructure within the Plan Area. In addition, as discussed further in Section 4.9, *Hydrology and Water Quality,* future development over one acre in size would be

required to comply with MS4 and NPDES permit conditions as overseen by the San Francisco Regional Water Quality Control Board.

Additionally, the General Plan Update includes the following goals and policies related to stormwater facilities:

Goal IU-1: Sustainable Water Supply. The community has access to safe, clean, affordable, accessible, and sustainable supplies of water.

> **Policy IU-1.1: Complete an Integrated Water Master Plan.** Complete an Integrated Water Master Plan (IWMP) that identifies opportunities to increase water supplies locally. The IWMP will identify, screen, and analyze water supply alternatives such as urban recycled water, agricultural recycled water, recycled water storage, groundwater well expansion, groundwater recharge and banking, regional projects, brackish desalination, and options for stormwater capture, storage, and treatment.

With adherence to the state, regional, and local standards above, consistency with applicable policies of the General Plan Update, development impact fees, , and applicable NPDES requirements, sufficient stormwater management would be maintained, and impacts related to new or expanded stormwater infrastructure would be less than significant.

Natural Gas, Electricity, and Telecommunications

Connections to existing electrical and natural gas transmission and distribution systems in the Plan Area would be required to serve development facilitated by the General Plan Update. Development facilitated by the project would occur on sites that are generally developed or surrounded by existing development, and are served by existing natural gas, electrical, and telecommunication (including cable television, landline services, internet, and cellular phone service) infrastructure. Development would generally have access to utility infrastructure and would not require the installation of substantial natural gas, electrical, or telecommunication infrastructure to meet increased demands. However, individual development may require provision of new and upgraded utility infrastructure such as powerline or pipeline upgrades and new connections. In the event that new or upgraded utility infrastructure would be needed, it would be required to comply with Chapter 14.32 of Petaluma Municipal Code, which regulates the installation and location of public utilities, and Chapter 14.36, which designates certain areas to be underground utility districts. Although development facilitated by the project may require new or expanded electric, natural gas, and telecommunications connections, any necessary infrastructure improvements would occur within existing service corridors and would be implemented in accordance with applicable regulatory requirements, industry standards, and the City's Municipal Code. Accordingly, utility providers have sufficient existing system capacity and established procedures for coordinating service extensions to meet projected demand. Compliance with these requirements ensures that system upgrades, if needed, would be planned and constructed in a manner that minimizes environmental effects. Therefore, environmental impacts related to electric, natural gas, and telecommunications would be reduced to the maximum extent feasible by existing regulations and the City's Municipal Code, resulting in a less-than-significant impact.

Mitigation Measures

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2:	Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Impact UTIL-2 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD INCREASE DEMAND FOR WATER. THE CITY HAS ADEQUATE WATER SUPPLY TO PROVIDE FOR DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT DURING NORMAL YEARS AND MULTIPLE DRY YEARS, BUT WOULD EXPERIENCE A SUPPLY SHORTFALL IN A SINGLE-DRY YEAR. IMPLEMENTATION OF THE CITY'S WATER SHORTAGE CONTINGENCY PLAN AND COMPLIANCE WITH GENERAL PLAN POLICIES WOULD REDUCE DEMAND SUCH THAT THE CITY WOULD HAVE SUFFICIENT SUPPLY THROUGH 2050 IN ALL YEAR TYPES. WATER SUPPLIES WOULD BE ADEQUATE TO SUPPORT NEW DEVELOPMENT AND THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

Growth and development facilitated by the proposed project, and cumulative development by 2050, would create additional demand for water in Petaluma. As described in the *Methodology* section above, the Water Supply and Wastewater System Evaluation Technical Memorandum prepared for the project (Appendix E) projects that Petaluma's population in 2050 is 77,265 residents. As discussed above, although this differs from the projection discussed above and used in other sections of this EIR, it provides a conservative basis for analysis because it assumes a higher population and therefore slightly overestimates future water demand.

Table 4.16-3 summarizes the projected water supply and water demand associated with cumulative growth in the Plan Area in normal, single-dry, and multiple-dry years through 2050.

Table 4.16-3 Projected Supply and Demand in Normal, Dry, and Multiple Dry Years

Water Supplies (AFY)[1]		2025	2030	2035	2040	2045	2050
Normal Year							
Supply		9,298	11,353	12,285	12,387	12,508	12,640
Demand		9,298	11,353	12,285	12,387	12,508	12,640
Difference		0	0	0	0	0	0
Single Dry Year[2]							
Supply		10,428	10,232	11,088	11,238	11,407	-
Demand		9,298	11,353	12,285	12,387	12,508	-
Difference		1,130	(1,121)	(1,197)	(1,149)	(1,101)	-
Multiple Dry Years							
First Year	Supply	9,298	11,353	12,285	12,387	12,508	12,640
	Demand	9,298	11,353	12,285	12,387	12,508	12,640
	Difference	0	0	0	0	0	0
Second Year	Supply	9,298	11,353	12,285	12,387	12,508	12,640
	Demand	9,298	11,353	12,285	12,387	12,508	12,640
	Difference	0	0	0	0	0	0
Third Year	Supply	9,298	11353	12285	12387	12508	12640
	Demand	9,298	11,353	12,285	12,387	12,508	12,640

Water Supplies (AFY)[1]		2025	2030	2035	2040	2045	2050
	Difference	0	0	0	0	0	0
Fourth Year	Supply	9,298	11,353	12,285	12,387	12,508	12,640
	Demand	9,298	11353	12285	12387	12508	12640
	Difference	0	0	0	0	0	0
Fifth Year	Supply	9,298	11,353	12,285	12,387	12,508	12,640
	Demand	9,298	11,353	12,285	12,387	12,508	12,640
	Difference	0	0	0	0	0	0

AFY = acre feet per year

Source: Appendix E

1 Appendix E presents potable and non-potable supply and demand separately. To present a total overview of supply and demand for the General Plan Update, potable and non-potable supplies are added together in this table. Refer to Appendix E for potable and non-potable supplies.

2 Single-dry year projections were developed using a model specific to Sonoma Water, which only provides single-dry year projected supply and demand through 2045. Therefore, assumptions were not able to be made for the 2050 single-dry year condition.

As shown above, there would be sufficient water supply for cumulative growth in the Plan Area in normal years and across multiple dry years. However, a shortfall would occur in a single-dry year, and there would be approximately a 12 percent difference between supply and demand in a single-dry year starting in 2030. This shortfall is similar in magnitude to what is anticipated in the City's 2020 UWMP. When a water supply shortfall occurs, the City would implement its WSCP, which addresses short-term and long-term water supply shortages that may result from droughts, climate change, disasters, reduced deliveries from Sonoma Water, and other conditions. Demand reduction actions identified in the WSCP include, but are not limited to, initiating a public information campaign, implementing water waste patrols, limiting water for landscaping irrigation, and mandating that customers use water only for health and safety purposes (City of Petaluma 2022). Implementation of the WSCP, if necessary, would facilitate the provision of water to new development in Petaluma. Further, applicable policies in the General Plan Update below would assist the City in maintaining the water supply and water service for future use and development through managing the City's water supply sources, promoting efficient water use, and promoting recycled water use.

Additionally, the General Plan Update includes the following goals and policies related to water supply:

Goal IU-1: Sustainable Water Supply. The community has access to safe, clean, affordable, accessible, and sustainable supplies of water.

> **Policy IU-1.1: Complete an Integrated Water Master Plan.** Complete an Integrated Water Master Plan (IWMP) that identifies opportunities to increase water supplies locally. The IWMP will identify, screen, and analyze water supply alternatives such as urban recycled water, agricultural recycled water, recycled water storage, groundwater well expansion, groundwater recharge and banking, regional projects, brackish desalination, and options for stormwater capture, storage, and treatment.
>
> **Policy IU-1.2: Develop alternative local water sources.** Develop alternative local sources of water to at least the extent indicated in the Restructured Agreement for Water Supply.
>
> **Policy IU-1.3: Maintain and expand water infrastructure.** Maintain and expand as needed the City's potable, non-potable, and wastewater storage, distribution, collection, and reuse

systems with minimal or no adverse impact on the environment, and update the Integrated Water Master Plan.

Policy IU-1.4: Maintain water quality. Maintain exceptional potable and recycled water quality as determined by local, State, and federal standards.

Goal IU-2: Integrated Water Resources Management. The City and its inhabitants adopt an integrated water resources management approach to managing all available water resources for long-term resilience and reliability, meeting both community and environmental needs.

Policy IU-2.1: Require efficient water use in new development. During the environmental review and entitlement process, require efficient use of City-supplied potable and non-potable water, including onsite reuse where feasible, to balance new demand with future water needs. Discuss water supply with the developer for each new development early in the planning process and inform Water Resources staff of upcoming demands as provided by the applicant. Enforce all relevant water efficiency requirements such as Model Water Efficient Landscape Ordinance (MWELO), State Urban Water Use Objectives, California Building Code, CEQA, and others.

Policy IU-2.2: Promote effective water use. Promote effective use of existing potable and recycled water supply by providing developers and land use planners with information on the capacity of water supply and wastewater infrastructure.

Policy IU-2.3: Increase use of recycled water. Reduce potable water demands by converting existing potable water uses to tertiary recycled water and promoting private onsite reuse where feasible.

Goal IU-3: Water Conservation. Water conservation measures continue to improve water use efficiency and reduce overall water demands.

Policy IU-3.1: Increase water efficiency and reduce total demand. Reduce total (potable and non-potable) demand through conservation measures, building standards, land use and density planning, incentives, and progressive fee structures, as planned in the IWMP and the Blueprint for Climate Action.

Goal IU-4: Groundwater Sustainability. The City is a member agency of the Petaluma Valley Groundwater Sustainability Agency (GSA) and other regional agencies to improve the long-term resilience and natural function of groundwater resources.

Policy IU-4.1: Manage groundwater resources. Manage groundwater as a valuable and limited shared resource by protecting groundwater recharge areas and stream sides from urban encroachment, enacting stormwater standards to reduce runoff inside the city, and enacting watershed restoration efforts within the greater Petaluma watershed.

Goal IU-5: Zero-Emission Water and Wastewater. City- and privately-owned water supply and wastewater systems produce zero net operational carbon emissions, and new water supply facilities are optimized for a low embodied carbon footprint during normal operations.

Policy IU-5.1: Consider embodied and operational carbon costs. When planning for water resources, consider and optimize for the embodied and operational carbon cost of existing and new water supply, storage, and distribution systems, using both centralized and decentralized approaches where appropriate.

The combination of these policies would ensure that the growth and development facilitated by the proposed project would not exceed available or anticipated water supplies in normal water years (non-drought scenarios), or in multiple-drought year scenarios. In particular, Policy IU-2.1 would identify water demand associated with each new development and would facilitate enforcement of water efficiency measures and water conservation with new development throughout the Plan Area. Accordingly, the City would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years, and impacts to water supply would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 4:	Would the project 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?
Threshold 5:	Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Impact UTIL-3 DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD INCREASE THE VOLUME OF SOLID WASTE GENERATED IN PETALUMA. HOWEVER, NEW DEVELOPMENT WOULD COMPLY WITH STATE AND LOCAL STANDARDS FOR WASTE REDUCTION AND LOCAL INFRASTRUCTURE SERVING THE CITY HAS ADEQUATE CAPACITY TO ACCEPT THE ADDITIONAL WASTE. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

Implementation of the proposed project would generate additional solid waste. Construction of development through 2050 would create construction debris, such as scrap lumber and flooring materials, and operation of development would create typical wastes associated with residential, office, and commercial uses. Industrial development would also generate solid waste.

As discussed in Section 4.16.1, *Setting,* waste in Petaluma is disposed of at the Redwood Landfill. Table 4.16-4 provides the per capita solid waste disposed of by the SCWMA (includes disposal at landfills other than the Redwood Landfill). As shown below, the average per capita solid waste disposal rate in recent years is approximately 4.66 pounds per day per person.

Table 4.16-4 Annual Solid Waste Disposal Per Capita – Sonoma County Waste Management Agency

Year	Solid Waste Disposal Originating from Sonoma County Waste Management Agency (annual tons)[1]	Population[2]	Solid Waste Disposal Per Capita (pounds per day)
2020	423,426	488,863	4.75
2021	402,772	485,182	4.54
2022	395,165	481,223	4.50
2023	389,906	480,343	4.46
2024	402,283	482,050	4.57

Year	Solid Waste Disposal Originating from Sonoma County Waste Management Agency (annual tons)[1]	Population[2]	Solid Waste Disposal Per Capita (pounds per day)
Average			

Note: Disposal tonnage was reviewed by CalRecycle staff and corrected to incorporate the 50 percent diversion rate.

1 CalRecycle 2025

2 California Department of Finance 2025

As described in the *Methodology* section above, Petaluma's projected population in 2050 is 76,273 residents. Based on the average per capita solid waste disposal rate for the SCWMA, which disposes of the City's waste, a total of approximately 66,200 tons of solid waste would be generated in year 2050, under full buildout of the proposed project. The approximately 66,200 tons of solid waste generated from the population of Petaluma annually in 2050 would be less than one percent of the remaining capacity of the landfill, 26 million cubic yards, reported by CalRecycle in November 2024 (CalRecycle 2024a).

The approximately 66,200 tons of solid waste that would be generated annually in Petaluma by 2050 would be equivalent to approximately 180 tons per day. As described under *Setting*, the Redwood Landfill is permitted to receive 2,300 tons per day. Thus, solid waste generated by the population of Petaluma would account for approximately eight percent of the permitted daily capacity of the landfill. Therefore, the Redwood Landfill has permitted capacity to accommodate the solid waste disposal needs that would be anticipated from the growth envisioned by the proposed project.

Should the Redwood Landfill cease operations, solid waste generated by the city may be diverted to other nearby landfills, such as the Potrero Hills Landfill. The Potrero Hills Landfill has a maximum throughput of 4,330 tons per day and a remaining capacity of 13.8 million cubic yards, and is estimated to remain operational through 2048 (CalRecycle 2024b). Solid waste generated by development facilitated by the General Plan Update would represent approximately four percent of the weekly throughput for the Potrero Hills Landfill. So, while it is anticipated that implementation of the plan would increase solid waste generation, the remaining capacity of the Central Landfill and other nearby landfills, such as the Potrero Hills Landfill, are anticipated to be able to accommodate this increase in solid waste generation.

Development facilitated by the project would be required to comply with existing solid waste statues and regulations, including paying a fair share for solid waste services and achieving diversion rates consistent with AB 939. Pursuant to AB 939, the City must divert 50 percent of solid waste from landfills. Development would also be subject to AB 341, which establishes California's mandatory commercial recycling program and supports the State's goal of achieving a 75-percent statewide waste diversion rate by increasing recycling from commercial and multifamily sectors. In addition, projects must comply with SB 1383, which sets statewide targets to reduce disposal of organic waste and requires implementation of organics recycling and edible food recovery programs. Construction activities associated with development would also be required to meet the CALGreen Code's construction and demolition waste management standards, which mandate diversion of at least 65 percent of nonhazardous debris through reuse or recycling. Furthermore, the proposed General Plan Update includes the following policy to reduce solid waste generation:

Goal IU-6: Waste Reduction. The City and its inhabitants see opportunities for recycling and reuse in everything, sending 90 percent less to landfills than they did in 2003.

Policy IU-6.1: Reduce solid waste. Reduce solid waste and increase reduction, reuse, and/or recycling in compliance with the Countywide Integrated Waste Management Plan (CIWMP) and consistent with the Blueprint for Climate Action.

Goal IU-7: Zero-Emissions Waste Operations. The City's waste management program has eliminated its net operational greenhouse gas emissions.

Policy IU-7.1: Promote composting within City limits. Promote processing and reuse of organic waste within City limits, consistent with the Blueprint for Climate Action.

Policy IU-7.2: Prioritize maximum reuse and recycling of materials. Prioritize recycling service contracts that reduce emissions and maximize reuse and recycling of materials, consistent with the Blueprint for Climate Action.

Through the implementation of statewide regulations for waste disposal and the uniformly applied standards in the Municipal Code and the California Building Code (CalGreen), the project would not generate solid waste in excess of state or local standard, or in excess of the capacity of local infrastructure. Therefore, impacts related to local solid waste infrastructure capacity and solid waste management and reduction regulations would be less than significant.

Mitigation Measures

No mitigation measures are required.

Significance After Mitigation

Impacts would be less than significant without mitigation.

4.16.4 Cumulative Impacts

The cumulative analysis considers the nearby past, present, and reasonably foreseeable future plans and projects listed in Table 3-1 (refer to Chapter 3, *Environmental Impact Analysis*) located in Petaluma, Cotati, Santa Rosa, Sebastopol, unincorporated Sonoma County, and on tribal lands in addition to the proposed plan.

Water

The geographic scope for cumulative water supply impacts is the Petaluma Valley Groundwater Basin, Sonoma Water's service area, and the City's water service area. This geographic scope is appropriate because these are the sources of groundwater, water supply, and recycled water that would supply water to development facilitated by the project and cumulative projects relying on the same water supply sources.

Cumulative development in the water service area will continue to increase demands on water supplies. The Sonoma Water 2020 UWMP shows that Sonoma Water has adequate water supply to meet demands through 2045 under most conditions, except for a single dry year; in this water year condition, there would be an approximately 12 percent difference between supply and demand, resulting in a shortfall (Sonoma Water 2020). The water demand modeled for the proposed project, which includes cumulative growth and growth facilitated by the General Plan Update, similarly indicates that there would be sufficient water in all year types except for a single dry year, which would experience a similar shortfall (Appendix E). However, under a single dry year, all cities and water suppliers within the Sonoma Water service area are required to implement their WSCPs,

which include measures designed to eliminate water shortages. With implementation of WSCP water conservation measures across the service area, cumulative demand would be sufficiently reduced to meet the available supply. Therefore, cumulative impacts to water supplied by Sonoma Water would be less than significant. As discussed under Impact UTIL-2, development facilitated by the project would not result in demands on Sonoma Water resources that could not be met; therefore, the project would not have a considerable contribution to this cumulative impact.

Wastewater

The geographic scope for cumulative wastewater facilities impacts encompasses all areas within the ECWRF service area, which includes the City of Petaluma and the unincorporated community of Penngrove in southern Sonoma County. This geographic scope is appropriate because the local wastewater operator is responsible for treating and discharging wastewater to all land uses within its service area.

Cumulative development in the wastewater service area will continue to increase wastewater generation. As described under Impact UTIL-1, there is generally sufficient existing wastewater capacity to accommodate anticipated cumulative development, although five locations may need to be improved or upsized (Appendix G). Development in the Plan Area that results in the need for new or upsized wastewater infrastructure, including but not limited to the locations identified in Appendix G, would be required to pay wastewater impact fees to offset costs associated with expansion of the City's sewer system. New or expanded wastewater infrastructure would also be required to comply with other applicable regulations of Petaluma Municipal Code, as discussed in Section 4.16.2, *Regulatory Setting,* that pertain to design and capacity. Therefore, cumulative impacts related to wastewater facility capacity would be less than significant, and the proposed project would not have a considerable contribution to cumulative impacts regarding wastewater generation.

Stormwater

The geographic scope for cumulative stormwater impacts is the City's stormwater collection area and the Petaluma River. This geographic scope is appropriate because the City is responsible for providing stormwater collection services to all residential, commercial, and industrial within its service area, and collected stormwater is discharged into the Petaluma River.

Cumulative projects predominantly consist of residential and commercial uses. The cumulative plans and projects would be located in urban areas that would be served by existing municipal storm drainage systems. Consistent with measures in the Petaluma, Cotati, Rohnert Park, and Santa Rosa Municipal Codes, development in the cities would incorporate a stormwater control plan and stormwater collection systems into the development that would in turn reduce the volume and velocity of stormwater runoff that cumulative development would generate. In addition, cumulative development would be subject to the County's LID requirements, which mandate measures such as on-site infiltration, bioretention, and other hydromodification controls to maintain pre-project runoff conditions to the extent feasible. Cumulative development also would pay applicable Development Impact Fees, which are specifically intended to fund the expansion, maintenance, and upgrading of stormwater infrastructure needed to accommodate increased runoff from new growth. Collectively, these regulations ensure that cumulative development would implement site-specific stormwater management features that minimize increases in stormwater flows. Therefore, the cumulative impact related to stormwater infrastructure and facilities would not be

considerable, and the proposed project would not have a considerable contribution to this cumulative impact.

Electric Power and Natural Gas Transmission Facilities

The geographic scope for cumulative electricity and natural gas impacts is the PG&E and SCP service area. This geographic scope is appropriate because, as the local providers, PG&E and SCP are responsible for transmitting electricity (both companies) and natural gas (PG&E only) to all land uses within its service area. SCP relies on PG&E infrastructure to supply electricity.

PG&E is subject to the requirements set forth and/or enforced by the CPUC which is responsible for conducting and managing environmental review of infrastructure projects. The need for electric and natural gas infrastructure would be addressed on a case-by-case basis for each cumulative project, and would be subject to CPUC requirements, similar to those applicable to the project. Cumulative development projects would be subject to applicable local, regional, State, and federal policies regarding energy efficiency including new iterations of the California Building Energy Efficiency Standards and CALGreen which require increasingly more efficient appliances and building materials that reduce energy consumption in new development, including on-site solar for new residential development.

As discussed in Section 4.18, *Impacts Found to Be Less than Significant,* development in Petaluma would be consistent with the energy-related goals and policies of the Statewide plans and regulations. Therefore, cumulative impacts related to electric power and natural gas transmission facilities would be less than significant, and the proposed project would not have a considerable contribution to this cumulative impact.

Telecommunication

The geographic scope for cumulative telecommunications impacts is Sonoma County. This geographic scope is appropriate because local telecommunication providers are responsible for providing adequate telecommunication infrastructure to all land uses within the county.

Cumulative development would increase demand for telecommunications infrastructure in the county. However, cumulative projects would each be required to provide adequate telecommunications infrastructure on a project-by-project basis and would be subject to the same requirements as the project. Therefore, cumulative impacts related to telecommunications infrastructure would be less than significant, and the project would not have a considerable contribution to this cumulative impact.

Solid Waste Facilities

The geographic scope for cumulative solid waste impacts encompasses all areas in the region that contribute solid waste to the Redwood Landfill and Potrero Hills Landfill. This geographic scope is appropriate because, as the local providers, the Redwood Landfill and Potrero Hills Landfill are responsible for accepting solid waste from all land uses within its service area.

As discussed in Section 4.16.1(g), the Redwood Landfill is projected to reach its maximum capacity in 2036 (CalRecycle 2024a). Compliance with applicable solid waste regulations and with General Plan Update goals, objectives, and policies would maintain or improve upon diversion rates. Cities in the region have implemented waste diversion programs and policies to meet state-mandated solid

waste diversion rates. For example, AB 341 requires a solid waste diversion rate of 75 percent. Thus, cumulative impacts to solid waste facilities would be less than significant.

The solid waste generated by the project would account for approximately eight percent of the average daily throughput capacity and less than one percent of the remaining capacity of the Redwood Landfill. Although the project would facilitate increased development compared to existing conditions, the Redwood Landfill has sufficient capacity to accommodate the projected increase in solid waste generation. In addition, should the Redwood Landfill cease operations, the remaining capacity of other nearby landfills such as the Potrero Hills Landfill are anticipated to be able to accommodate this increase in solid waste generation. Furthermore, cumulative development would be subject to statewide waste reduction and diversion requirements, including mandatory commercial recycling under Assembly Bill 341, mandatory organics recycling under Assembly Bill 1826, statewide organic waste reduction targets under Senate Bill 1383, and single-use packaging and plastics reduction requirements under Senate Bill 54. These regulatory programs substantially reduce the volume of solid waste requiring landfill disposal by increasing recycling, composting, and waste diversion across all jurisdictions. Therefore, the project would not have a considerable contribution to a significant cumulative impact regarding solid waste services.

4.17 Wildfire

This section addresses the potential for the proposed project to exacerbate wildfire risks. The potential impacts related to exposure to wildfire, including smoke and subsequent flooding and runoff are also assessed in this section.

4.17.1 Setting

a. Wildfire Fundamentals

Wildfire is defined as an unplanned fire caused by lightning or other natural causes, by accidental (or arson-caused) human ignitions, or by an escaped prescribed fire, generally including uncontrolled fire in an area of extensive combustible fuel, including vegetation and structures (National Park Service [NPS] 2025). 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 wildfires 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. Any storm that has rainfall intensities greater than approximately 10 millimeters/hour (0.4 inches/hour) poses the risk of producing debris flows (United States Geological Survey 2018). 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:

1. **Direction of the advance of the fire front.** 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.
2. **Speed of the advance of the fire front (rate of spread).** 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.
3. **Mechanism causing the advance.** Wildfires advance by two principal mechanisms - combustion resulting from radiant heating and remote ignition resulting from ember production.
4. **Duration at any one location.** 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).

5. **Structure-related consumption of fuels.** 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.
6. **Flame length.** 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 produces 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.
7. **Intensity.** 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.
8. **Gaining control.** 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.

b. Wildfire-Conducive Conditions

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 other vegetation is extremely flammable. For example, cured grass is much more flammable than standing trees (CAL FIRE 2024). 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. It is worth noting that some plant types in California landscapes are fire resistant, while others are fire dependent for their seed germination cycles. Wildfire behavior depends on the type of fuels present, such as ladder fuels, surface fuels, and aerial fuels. Ladder fuels provide a path

for a surface fire to climb upward into the crowns of trees; surface fuels include grasses, logs, and stumps low to the ground; and aerial fuels include limbs, foliage, and branches not in contact with the ground (CAL FIRE 2021).

Vegetation cover within the City of Petaluma, excluding ornamental landscaping and agricultural vegetation, includes a diverse range of plant species within terrestrial and aquatic habitat types, including herbaceous wetlands, riparian forests and shrubs, hardwood forests, and herbaceous communities. Vegetation cover in the Plan Area is described in additional detail in Section 4.4, *Biological Resources*. Some of the vegetation in these habitats may present an increased risk to wildfires, including dry grasses and herbaceous vegetation on hillsides adjacent to the Plan Area.

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 [NPS] 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, and exposure to prevailing winds. *Aspect* is the direction that 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 north to northeast, creating a higher potential for wildfire ignition and spread (University of California Berkeley 2018).

The city is located in the Petaluma River Valley, and the northern and central portions of the city are primarily flat with no distinguishable aspect. The river valley floor gives way to foothills rising to Sonoma Mountain (approximately 2,300 feet above sea level) to the north of the city, and Mount Burdell (approximately 1,560 feet above sea level) to the south of the city.

Climate and Weather

Wind, temperature, and relative humidity are the most influential weather elements in fire behavior and susceptibility (NPS 2017). Fire moves faster under hot, dry, and windy conditions. Wind may also blow embers ahead of a fire, causing its spread. Drought conditions lead to extended periods of excessively dry vegetation, increasing the fuel load and ignition potential.

Petaluma has a mediterranean climate with cool wet winters and hot dry summers. The Petaluma Valley is bordered to the east by the Sonoma Mountains. To the west is a series of low hills, followed by the Estero Lowlands, which open to the Pacific Ocean. The region from the Estero Lowlands to the San Pablo Bay in the east is known as the Petaluma Gap (City of Petaluma 2006). Winds move eastward through the Petaluma Gap, along the trough occupied by the Bodega Bay Highway (City of Petaluma 2006). During winter storms, winds shift about 180 degrees and come from the south-southeast. The Petaluma Municipal Airport reports light prevailing winds from the west-northwest about 90 percent of the time, where the average measured wind speed is seven miles per hour (City of Petaluma 2006).

The National Oceanic and Atmospheric Administration (NOAA) maintains a weather monitoring station in Santa Rosa, approximately 12 miles north of the city. Most precipitation is received from

November through April, with an average annual rainfall of approximately 34 inches (NOAA 2022). Generally, the fire season extends from June through October of each year during the hot, dry months; however, wildfires are now burning larger and more intensely during dry conditions and are happening outside the typical fire season (City of Petaluma 2020). Increasingly persistent drought and climatic changes in California have resulted in drier winters, and fires during the autumn, winter, and spring months are becoming more common.

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 powerlines, 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 make new requirements for power line safety practices (Atkinson 2018).

c. Wildfire Hazard Designations

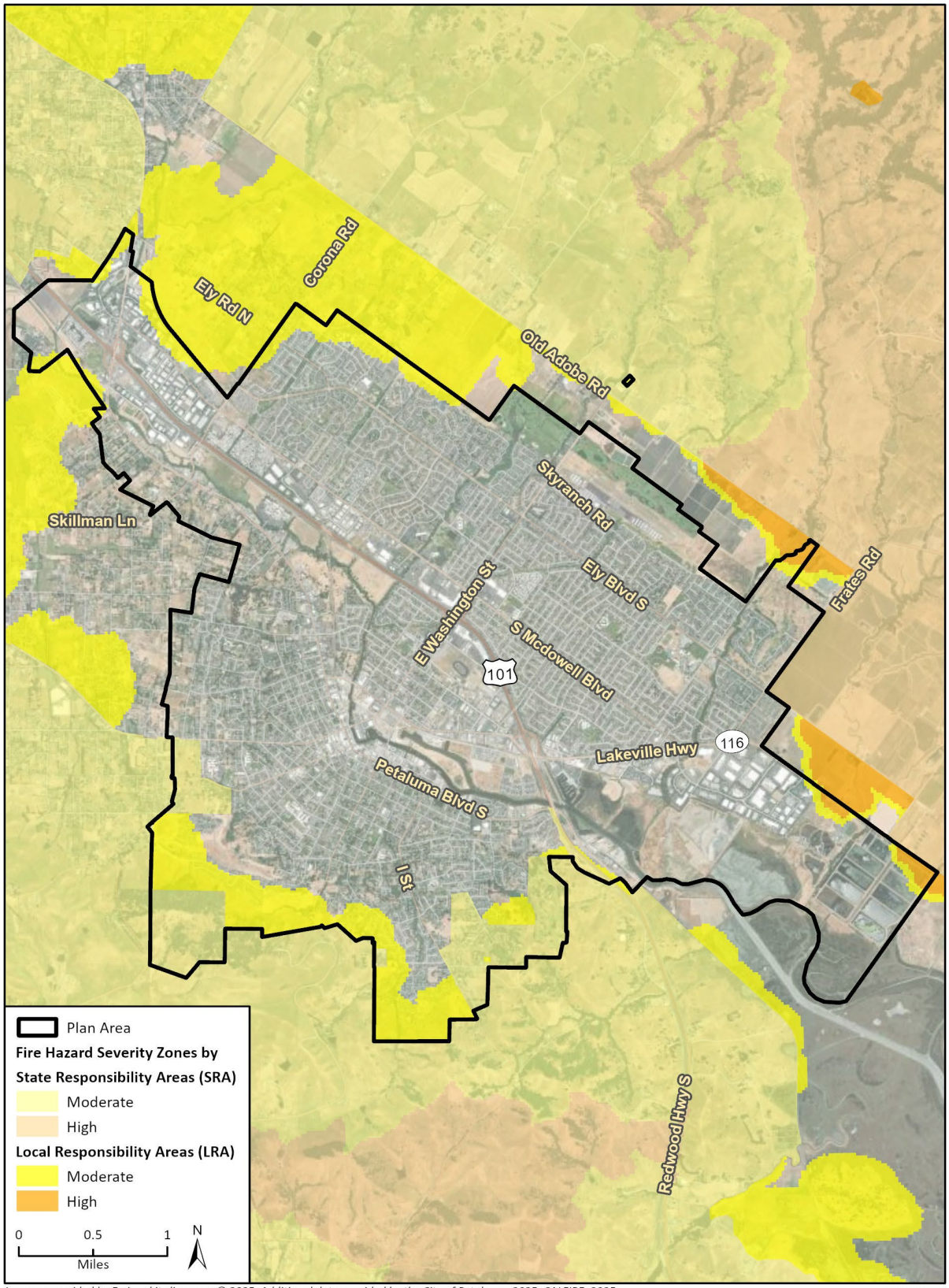
In California, responsibility for wildfire prevention and suppression is shared by federal, state and local agencies. Federal agencies are responsible for federal lands in Federal Responsibility Areas (FRA). The State of California has determined that some non-federal lands in unincorporated areas with watershed value are of statewide interest and have classified those lands as State Responsibility Areas (SRA), which are managed by the California Department of Forestry and Fire Protection (CAL FIRE). All incorporated areas and other unincorporated lands 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 (California Code of Regulations [CCR] Title 19, Public Resources Code [PRC] sections 4201-4204 and California Government Code sections 51175-89). As described above, 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 based on zones, referred to as Fire Hazard Severity Zones (FHSZs). CAL FIRE maps three zones in SRA and LRA: 1) Moderate FHSZs; 2) High FHSZs; and 3) Very High FHSZs.

Each of the FHSZs influence how people construct buildings and protect property to reduce risk associated with wildfires. 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.

As shown in Figure 4.17-1, the majority of the city is an LRA. The southern portions of the city, particularly south of the Petaluma River and near Windsor Drive, are mapped as Moderate FHSZs at both the SRA and LRA levels. Small portions of agricultural and open space areas near the eastern entrance to the city, along Lakeville Highway, are mapped as Moderate and High FHSZ at both the SRA and LRA levels. Moderate LRA and SRA FHSZs surround the city to the north, west, and south, and High LRA and SRA FHSZs abut the city to the northeast and east.

Figure 4.17-1 State and Local Responsibility Areas



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20-10614 EPS
Fig X Wildfire Severity Zones

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, 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 2019):

- 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)

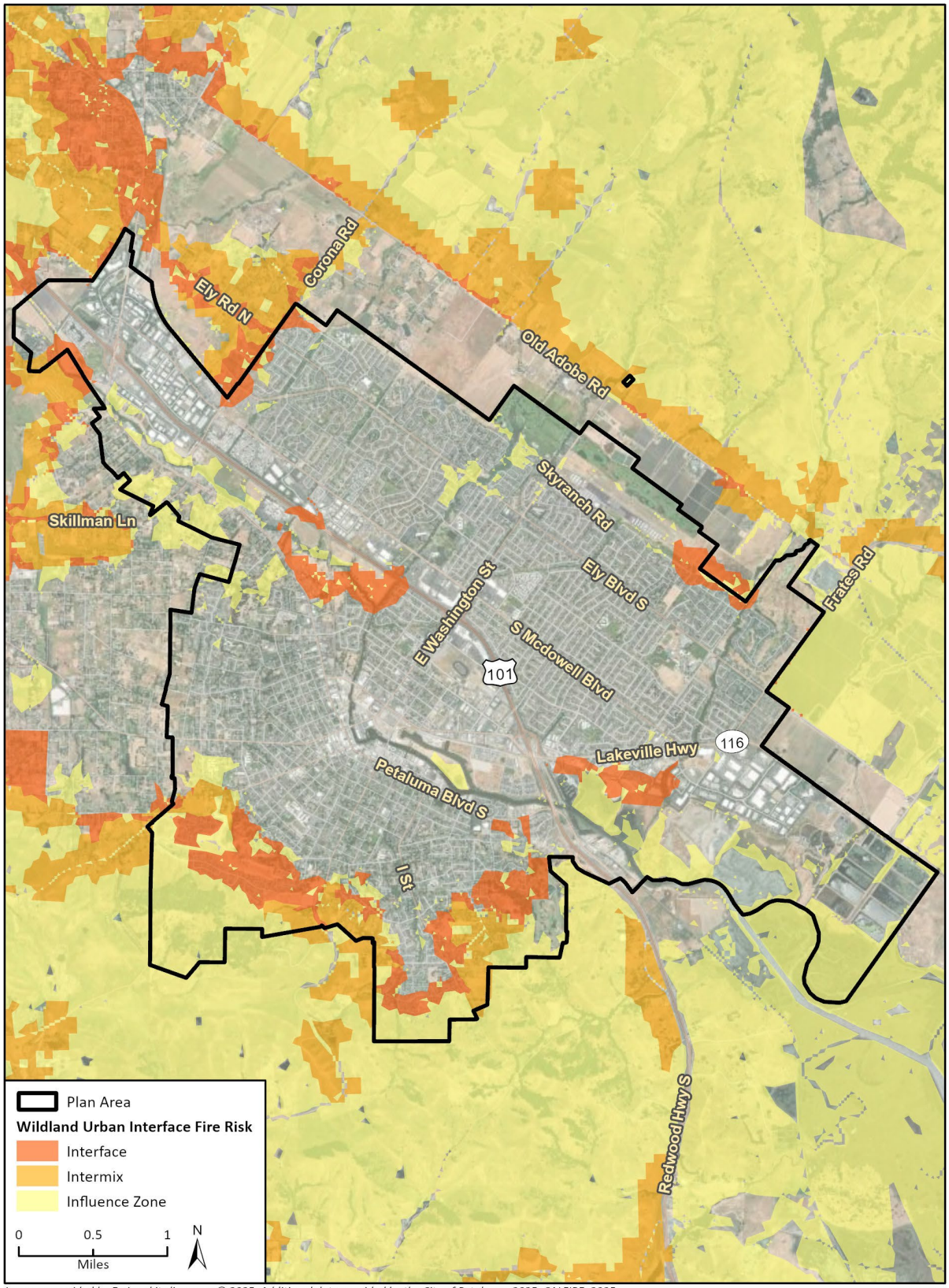
The Wildland Urban Intermix is a similar term commonly used interchangeably with WUI, although it is typically represented by areas with much higher vegetation density among built infrastructure. Pursuant to CAL FIRE, an area must meet all of the following criteria in order to be considered Wildland Urban Intermix (CAL FIRE 2019):

- 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 2019). These zones essentially serve as a buffer to these two designations.

Figure 4.17-2 shows the designated WUI and Wildland Urban Intermix areas present within, and around, the City of Petaluma. Petaluma is largely surrounded on all sides by WUI and Wildland Urban Intermix areas, with the exception of small pockets and few larger areas to the northeast and southeast, but most of the area within city limits is not WUI designated. Areas around the city's southern and western borders, as well as a few small areas within city limits are designated as WUI and Wildland Urban Intermix. Wildland Urban Influence zones are located within city limits, and surround the Plan Area on all sides.

Figure 4.17-2 Petaluma WUI Areas



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20-10614 EPS
Fig X Petaluma WUI

d. Sonoma County Wildfire History

According to the Sonoma County Community Wildfire Protection Plan, since 1939, 15 of the 20 most destructive fires in the county occurred between 2015 and 2020 – burning a total of 255,080 acres and 42,418 structures, and claiming 158 lives. Seven of the most destructive fires in state history occurred within Sonoma County and/or a bordering county. More recently, the 2017 Tubbs (Central LNU) Complex Fire caused 24 deaths, burned over 112,000 acres, and destroyed about 5,300 homes (California Department of Forestry and Fire Protection [CAL FIRE] 2025c); the Glass Fire of 2020 burned over 67,000 acres, destroyed 1,555 structures, and damaged an additional 282 structures across both Napa and Sonoma counties, burning as close as approximately 6 miles northeast of the Plan Area (CAL FIRE 2020). However, none of these fires occurred within the City of Petaluma (Sonoma County 2023). The two largest wildfires that have occurred nearest to the City of Petaluma include the 1965 Pacific Gas and Electric (PG&E) #5 Fire, which burned 3,250 acres approximately 1.25 miles north of the Plan Area and the 1965 Anderson Fire, which burned 4,954 acres approximately 0.25 miles southwest of the Plan Area (Sonoma County 2023).

e. 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. Additionally, as vegetation and soil layers burn, they can create hydrophobic or water-repellent soil conditions. This hydrophobic zone manifests as a distinct layer within or parallel to the soil surface, where organic compounds with hydrophobic properties coat the soil. This phenomenon occurs when temperatures range between 176 to 288 degrees Celsius (approximately 349 to 550 degrees Fahrenheit). Hydrophobic soils create a barrier against water infiltration, effectively sealing off the soil during rainfall, which leads to heightened post-fire surface runoff and erosion (Western Fire Chiefs Association 2025).

As detailed in Section 4.6, *Geology and Soils,* the majority of Petaluma is located within low landslide susceptibility areas due to its flat terrain. Areas including, and adjacent to, steep or hilly terrain in the west and south of the Plan Area have high landslide susceptibility.

f. Fire Protection Services

The City of Petaluma has mutual aid agreements with Sonoma County, CAL FIRE, and other neighboring jurisdictions. Sonoma County and the City of Petaluma are located within California Mutual Aid System Mutual Aid Region II (City of Petaluma 2022).

The City of Petaluma Fire Department (Petaluma Fire Department) provides fire prevention, fire suppression, rescue and emergency medical services within the city limits of Petaluma, and is the primary ambulance provider for Southern Sonoma County and a portion of Marin County; covering 184 square miles and approximately 70,000 persons. The Department has a total of 71 full-time personnel working in prevention, operations, and support services. Its 57 firefighters are divided among three platoons that work 24-hour rotating shifts at three fire stations around the city (City of Petaluma 2020). In 2022, the Fire Department conducted a comprehensive operational and administrative analysis through the Center for Public Safety Management, LLC. The City and Fire Department are actively working to implement its recommendations, most notably the addition of a centrally located fourth fire station, aimed in part at improving response times.

The City of Petaluma Fire Prevention Bureau performs project and site inspections, provides safety and emergency preparedness education, performs permit review, facilitates the weed abatement and hazardous vegetation program, and performs development review as part of the City of Petaluma's Development Review Committee (City of Petaluma 2025a).

The Petaluma Fire Department administers the Certified Unified Program Agency and provides response and mitigation services to the city. As part of this program, the Fire Prevention Bureau manages the prevention, control and mitigation of dangerous conditions related to hazardous materials and enforces state and local laws regulating the storage, use, dispensing and handling of hazardous materials (City of Petaluma 2020)

4.17.2 Regulatory Setting

a. Federal Regulations

The Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 provided a new set of mitigation plan requirements for state and local jurisdictions that encourage them to coordinate disaster mitigation planning and implementation. States are encouraged to complete either a "Standard" or "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 federal funding available through the Hazard Mitigation Grant Program. The State of California Multi-Hazard Mitigation Plan (SHMP) complies with this act.

National Fire Code

The National Fire Protection Association's (NFPA) National Fire Code establishes a comprehensive set of standards designed to prevent fire ignition, minimize fire spread, reduce structural vulnerability, and improve emergency response across all building types and land uses. These standards, including widely adopted codes such as NFPA 1 (Fire Code) and NFPA 101 (Life Safety Code), establish minimum requirements for fire prevention practices, fire protection systems, emergency planning, safe building design, and effective evacuation, supporting consistent fire-safety implementation nationwide and include specialized codes such as those governing electrical safety, fire sprinklers, and flammable materials. The National Fire Code provides the technical framework that state, local, and federal agencies rely on when developing fire-resistant construction requirements, defensible space policies, and emergency planning procedures that align with broader federal wildfire-mitigation strategies, such as the National Fire Plan.

National Fire Plan

The National Fire Plan was developed in August 2000, following a historic wildfire season. Its intent was to establish plans for active response to severe wildfires 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. Communities across Sonoma County, including the City of Petaluma, are identified as communities at risk.

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 Code of Regulations, Title 8

CCR Title 8 Section 5141.1 establishes worker protection requirements related to wildfire smoke. CCR Section 5141.1 requires employers to assess $PM_{2.5}$ concentrations, communicate wildfire smoke hazards to employees, and implement protective measures (i.e., engineering controls, administrative controls, and respiratory protection) when wildfire smoke results in unhealthy air quality. These obligations specifically apply when the Air Quality Index (AQI) for $PM_{2.5}$ reaches 151 or higher and employees may reasonably be exposed.

California Health and Safety Code

California's Health and Safety Code establishes the foundational framework that supports wildfire-related safety regulations. Division 12 outlines the State Fire Marshal's authority to adopt and enforce building standards and fire-prevention requirements aimed at protecting life and property from fire hazards (i.e., the California Fire and Building Codes). These provisions require local and state fire authorities to enforce fire-safety building standards, including those related to ignition-resistant construction and defensible space, and authorize abatement of hazardous vegetation and other fire-risk conditions to reduce the likelihood and severity of wildfire impacts.

California Fire and Building Codes (2019)

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, the Fire Code is included in Title 24 of the CCR. Title 24, part 9, Chapter 7 addresses fire-resistances-rated construction; CBC (Part 2), Chapter 7A addresses materials and construction methods for exterior wildfire exposure; Fire Code Chapter 8 addresses fire related Interior finishes; Fire Code Chapter 9 addresses fire protection systems; and Fire Code Chapter 10

addresses fire related means of egress, including fire apparatus access road width requirements. Fire Code Section 4906 also contains existing regulations for vegetation and fuel management to maintain clearances around structures. These requirements establish minimum standards to protect buildings located in FHSZs within SRAs and Wildland-Urban Interface (WUI) Fire Areas. This code includes provisions for ignition-resistant construction standards for new buildings.

California Building Code: Wildland-Urban Interface Building Standards

On September 20, 2007, the California Building Standards Commission approved the Office of the State Fire Marshal's emergency regulations amending CCR, Title 24, Part 2, known as the California Building Code (CBC), to include wildland-urban interface standards. The provisions of the CBC apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout California. The wildland-urban interface standards include provisions for ignition-resistant construction standards in the wildland-urban interface and use a hazard classification system to determine what protective measures are required to ensure fire safety and protect lives. Specifically, CBC Chapter 7A addresses materials and construction methods for exterior wildfire exposure. City of Petaluma Municipal Code (PMC) Section 17.04 adopts the CBC by reference, and Section 17.20 adopts the CFC by reference.

California Strategic Fire Plan

The 2024 Strategic Plan prepared by CAL FIRE and the California Natural Resources Agency lays out central goals for reducing the risk and preventing the impacts of fire in the state, and emphasizes four identified core values: integrity, service, community, and diversity. The five-year goals are established to meet CAL FIRE's mission to improve its fire prevention efforts, work to make California's forest lands healthier and more resilient after hundreds of years of excluded naturally recurring fire, ensure the state's fire suppression needs to protect lives and property are met, and diversify perspectives through equity and inclusive opportunities focusing on underinvested communities (CAL FIRE 2024). The most recent version of the plan was released in August 2024 and directs each CAL FIRE Unit to address and meet incremental requirements to achieve six specific goals, including:

1. Attract, hire, and retain quality employees.
2. Ensure all employees understand how the Department's various programs and job duties contribute towards efficiently achieving the CAL FIRE mission.
3. Promote a culture that values equitable access, embraces diverse backgrounds and experiences, and actively removes barriers to cultivate a more inclusive environment.
4. Leverage technology to modernize internal human resources processes and create efficient and effective innovative solutions to promote, support, and enhance the employee experience.
5. Strengthen the Department's physical and digital infrastructure and streamline equitable access to information across core services.
6. Identify core capabilities and strengthen operational capacity.

In addition to the 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. The unit fire plan applicable to the City of Petaluma is the CAL FIRE Sonoma-Lake-Napa Strategic Fire Plan, which covers the five counties (Sonoma, Lake, Napa, Solano, Yolo, and Colusa) of the CAL FIRE Sonoma-Lake-Napa Unit (CAL FIRE 2024).

California Multi-Hazard Mitigation Plan

The California Governor's Office of Emergency Services (Cal OES) prepares the State Hazard Mitigation Plan (SHMP), which identifies hazard risks and includes a vulnerability analysis and a hazard mitigation strategy for the state (Cal OES 2023a). 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 an emergency. The SEP further describes hazard mitigation (actions to reduce risk), as well as preparedness and recovery from disasters. (Cal OES 2023b)

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 six mutual aid regions. The City of Petaluma is located in Mutual Aid Region II, which includes Del Norte, Humboldt, Mendocino, Sonoma, Lake, Napa, Marin, Solano, Contra Costa, San Francisco, San Mateo, Alameda, Santa Clara, Santa Cruz, San Benito, and Monterey Counties (CalOES 2023b). Region II is currently coordinated by Eric Moore (CalOES 2023c).

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); and
- 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 2025b).

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 (now the California Office of Land Use and Climate Innovation) 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. SB 1241 is codified in Government Code Sections 65302, 65302.5, 65040.20, and 66474.02 and PRC Section 21083.01.

SB 1028 (2016)

SB 1028 (2016) requires each electrical corporation to construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those components, and makes a violation of these provisions by an electrical corporation a crime under state law. The bill also requires each electrical corporation to annually prepare a wildfire mitigation plan submitted to CPUC for review. The plan must include a statement of objectives, a description of preventive strategies and programs that are focused on minimizing risk associated with electric facilities, and a description of the metrics the electrical corporation uses to evaluate the overall wildfire mitigation plan performance and assumptions that underlie the use of the metrics. SB 1028 is codified in the Public Utilities Code as Sections 8385–8387 within Division 4.1 (Chapter 6).

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. AB 2911 is codified in Government Code Sections 51179, 51189, 65302.5, and 65040.21, and PRC Sections 4291, 4291.3, 4290.5, and 4295.5.

AB 747 (2019)

AB 747, codified as Government Code Section 65302.15, requires local hazard mitigation plans and safety elements of general plans to be reviewed and updated, as necessary, to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios. AB 747 authorizes a city or county that has adopted a local hazard mitigation plan, emergency operations plan, or other document that fulfills commensurate goals and objectives to use that information in the safety element of the general plan to comply with this requirement by summarizing and incorporating by reference that other plan or document in the safety element.

SB 99 (2019)

SB 99 requires that, during the next housing element revision, safety elements of general plans be reviewed and updated to identify residential developments in any hazard area that do not have at least two evacuation routes, as amended in Government Code Section 65302.

CPUC General Orders

General Order 95

CPUC General Order 95 applies to construction and reconstruction of overhead electric lines in California. The replacement of poles, towers, or other structures is considered reconstruction and requires adherence to all strength and clearance requirements of this order. Additionally, General Order 95 requires each utility company to establish an auditable maintenance program. The CPUC has promulgated various rules to implement the fire safety requirements of General Order 95, including (CPUC 2024):

- Rule 18A: requires utility companies to take appropriate corrective action to remedy safety hazards
- Rules 31.2: requires lines be inspected frequently and thoroughly
- Rule 35: requires vegetation management activities be performed to establish necessary and reasonable clearances. These requirements apply to all overhead electrical supply and communication facilities that are covered by General Order 95, including facilities on lands owned and maintained by state and local agencies
- Rule 38: establishes minimum vertical, horizontal, and radial clearances of wires from other wires
- Rule 43.2.A.2: requires the wind loads established in Rule 43.2.A.1 be multiplied by a wind load factor of 1.1 for lines located in all parts of California where the elevation above sea level is 3000 feet or less
- **CPUC Fire-Threat Maps** are a tool used by CPUC in planning and managing infrastructure. Unlike the LRA/SRA maps, it doesn't indicate the potential wildfire hazard severity zones. Rather, CPUC Maps guide how a utility company must build and maintain its equipment.

General Order 165

General Order 165 establishes requirements for the inspection of electric distribution and transmission facilities that are not contained in a substation. Utilities must perform “Patrol” inspections, defined as a simple visual inspection of utility equipment and structures that are designed to identify obvious structural problems and hazards, at least once per year for each piece of equipment and structure. “Detailed” inspections, where individual pieces of equipment and structures are carefully examined, are required every five years for all overhead conductors and cables, transformers, switching/protective devices, and regulators/capacitors. By July 1 of each year, each utility subject to this General Order must submit an annual report of its inspections for the previous year under penalty of perjury (CPUC 2017a).

General Order 166

General Order 166 Standard 1.E requires investor-owned utilities to develop a fire prevention plan that describes measures the electric utility will implement to generally mitigate the threat of power-line fires. Additionally, this standard requires investor-owned utilities to outline a plan to mitigate power-line fires when wind conditions exceed the structural design standards of the line during a Red Flag Warning in a high fire threat area. Fire prevention plans created by investor-owned utilities are required to identify specific parts of the utility’s service territory where the conditions described above may occur simultaneously. Standard 11 requires utilities report annually to the CPUC regarding compliance with General Order 166 (CPUC 2017b). In compliance with Standard 1.E of this General Order, Pacific Gas and Electric Company adopted a Fire Prevention Plan dated October 31, 2018.

c. Regional and Local Regulations

Sonoma County Multi-Jurisdictional Hazard Mitigation Plan

The Sonoma County Multi-Jurisdictional Hazard Mitigation Plan includes mitigation measures that should be adopted by participating municipalities across Sonoma County. The mitigation measures focus on hazards such as earthquakes, fire, and flooding. The hazard mitigation planning process provided local governments with the tools necessary to meet federal hazard mitigation planning

requirements, and this regional template has been used by numerous counties and cities within the Sonoma County area, including the City of Petaluma.

Sonoma County Community Wildfire Protection Plan

The Sonoma County Community Wildfire Protection Plan was developed with input from many organizations including state and local fire departments, federal agencies, community groups, and land management agencies. The purpose of the Sonoma County Community Wildfire Protection Plan is to help reduce the potential loss of human life and damage to property, natural and cultural resources within Sonoma County due to wildfire. The plan describes the wildfire risk and potential throughout the County, designates WUI areas, discusses assets at risk throughout the County (including the City of Petaluma), provides mitigation strategies, and discusses resources available (Sonoma County 2023).

City of Petaluma Local Hazard Mitigation Plan

The City of Petaluma's Local Hazard Mitigation Plan identifies effective and feasible actions to reduce the risks posed by potential hazards. The plan assesses various risks from hazards such as drought, earthquakes, flood, and wildfire, lists mitigation actions, and describes the process of implementing, monitoring, and evaluating the plan. Wildfire is considered a medium threat, and it is noted that wildfire frequency is likely to increase as climate change is exacerbated (City of Petaluma 2020).

Petaluma Emergency Operations Plan

The Petaluma Emergency Operations Plan provides the foundation for the management of emergencies and disasters within the City of Petaluma and addresses the integration and coordination with the Sonoma County Operational Area, other governmental agencies, and key community partners. The Plan sets the foundation for emergency management activities before, during, and after an emergency or disaster and provides guidance for disaster-related actions based on the functions and principles of the Standardized Emergency Management System (SEMS) and National Incident Management System. The City of Petaluma Fire Department is responsible for reviewing the Plan annually or after disaster and coordinating any required revisions (City of Petaluma 2022).

Petaluma Municipal Code

Petaluma Municipal Code (PMC) Chapter 17.04 adopts the 2022 California Building Standards Code by reference with local amendments including, but not limited to, those related to fire resistance-related construction, fire protection systems, and roof assemblies and rooftop structures. PMC Chapter 17.20 adopts the California Fire Code with local amendments including, but not limited to, those related to violation penalties, defensible space, fire service features, and fire resistance-rated construction materials. Chapter 17.22 establishes fire zones throughout Petaluma to guide building and development requirements outlined under Title 17 of the PMC. The City's building code provisions regarding fire safety are either identical to or more stringent than those found in the California Building Code. Additionally, the City requires utility undergrounding for new subdivisions and developments pursuant to Chapter 20.36 and Chapter 4.60.050 the SmartCode.

PMC Chapter 10.70 "Hazardous Vegetation and Rubbish Inspection and Abatement for Wildfire Safety" provides for the removal of hazardous vegetation and combustible material situated on real property so as to reduce the potential for fire and to promote the public health, safety and welfare

of the community and authorizes the Petaluma Fire Department to perform emergency abatements. PMC Title 19 also establishes development impact fees to ensure that public facilities, including fire suppression and emergency services, are financed to provide services for new development.

In early 2025, the Office of the State Fire Marshal (OFSM) rolled out updated Local Responsibility Area (LRA) Fire Hazard Severity Zone (FHSZ) recommendations for all local jurisdictions throughout California, including the City of Petaluma (CAL FIRE 2025a). The City adopted the OFSM recommendations by ordinance (Ordinance No. 2903) with updated LRA maps on June 16, 2025.

City of Petaluma General Plan

Chapter 7 (Community Facilities, Services, and Education), Chapter 8 (Water Resources), and Chapter 10 (Health & Safety) of the 2025 General Plan contains the following goals and policies applicable to the project related to wildfire (City of Petaluma 2008):

Goal 7-G-5: Fire Protection. Protect lives, property, and the environment by providing the highest quality of service in prevention, fire protection, emergency medical services, and community preparedness.

> **Policy 7-P-17:** Achieve and maintain a minimum ratio of one fire suppression personnel per 1,000 population served or a similar level of response service to meet increased call volumes.
>
> **Policy 7-P-18:** Ensure facilities, equipment and personnel are adequate to maintain quality of service demands of the community, including but not limited to: fire suppression, Advanced Life Support (ALS), rescue, fire prevention, education, CUPA, and disaster preparedness and management.
>
> **Policy 7-P-19:** Maintain a four minute travel time for a total of 6-minute response time for emergencies within the City.
>
> **Policy 7-P-22:** Ensure emergency response equipment and personnel training are adequate to follow the procedures contained within the Emergency Operations Plan for a major event, through maintaining and updating, as appropriate, the City's emergency preparedness programs, plans, and procedures to ensure the health and safety of the community in the event of an earthquake or other disaster.
>
> **Policy 7-P-23:** Continue to utilize the Emergency Operations Center (EOC) to provide early warning of and response to all life-threatening hazards, such as earthquakes, floods, landslides, severe storms, and hazardous materials incidents.
>
> **Policy 7-P-24:** Ensure that critical facilities, including medical centers, school facilities, and other structures that are important to protecting health and safety in the community, remain operative during emergencies.
>
> **Policy 7-P-25:** Reduce the potential for a catastrophic fire event in the historic Downtown and other areas.
>
> **Policy 7-P-26:** Recognize the value of providing public education in fire safety, first aid/CPR, and accident prevention.
>
> **Policy 7-P-27:** Reduce the impacts of wildland fires.

Policy 7-P-29: Consider the feasibility of pursuing national accreditation through the Commission on Fire Department Accreditation International. 7-P-30 Maintain cooperative agreements for mutual aid at a State level and automatic aid at a local level.

Policy 8-P-19: Ensure adequate water supply during emergency situations by developing potential groundwater resources and aquifer storage capacity, combined with management of surface water, to meet overall emergency water supply objectives. The City's groundwater resources shall be preserved to meet emergency needs and to offset peak demands.

Goal 8-G-7: Water Distribution. Continue to invest in the City's storage and distribution system to insure reliable delivery of high quality water to meet daily and emergency needs.

Policy 8-P-25: Work with SCWA to provide and improve emergency measures to ensure adequate water, storage and distribution during supply interruptions.

Policy 8-P-26: Encourage continued development of the City's water supply and distribution system to meet established system pressure and fire flow standards (including reservoirs, mains, and hydrants).

Policy 8-P-27: Maintain existing and future water supply, storage, treatment and distribution facilities with minimal or no adverse impact to the environment.

Policy 10-P-1: Minimize risks of property damage and personal injury posed by natural hazards.

Policy 10-P-2: Protect the community from risks associated with seismically induced surface ruptures, ground-shaking, ground failure, slope instability leading to mudslides and landslides, subsidence, liquefaction, and other seismic, geologic, and fire hazards.

Central Petaluma Specific Plan

The Central Petaluma Specific Plan (CPSP) is applicable to the area that is bounded by Lakeville Street on the east and north, Petaluma Boulevard on the west, and U. S. Highway 101 on the south. Changes in this area related to the proposed project would be subject to the following CPSP chapters related to wildfire (City of Petaluma 2003):

Chapter 6 (Circulation) Policy 2.4: Create new local streets to improve access and better serve potential development.

Chapter 8 (Utilities and Public Services) Objective 1: Construct an adequate water system to provide service and fire flow capacity to serve new development.

4.17.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

The assessment of impacts related to wildfire hazards and risks were evaluated using CAL FIRE FHSZ data for Petaluma. Additionally, weather patterns related to prevailing winds and precipitation trends were evaluated as they relate to the spread and magnitude of wildfire. As a programmatic document, this EIR presents a citywide assessment of impacts associated with buildout under the

General Plan Update. Because the programmatic EIR is a long-term document intended to guide actions for many years into the future, this analysis relies on program-level and qualitative evaluation. CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. Consequently, impacts under the thresholds identified below would only be considered significant if the proposed project risks exacerbate those existing environmental conditions.

Significance Thresholds

Appendix G of the *CEQA Guidelines* provides the following significance thresholds to determine if a project may have a significant impact related to wildfire. If located in or near SRAs or lands classified as Very High FHSZs, would the proposed project:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan.
2. 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.
3. 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.
4. 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

b. Impacts and Mitigation Measures

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 BUILDOUT OF THE PROPOSED PROJECT WOULD RESULT IN NEW DEVELOPMENT IN PETALUMA. THE GENERAL PLAN UPDATE INCLUDES POLICIES TO ADDRESS EMERGENCY ACCESS, RESPONSE, AND PREPAREDNESS. THEREFORE, THE PROPOSED PROJECT WOULD NOT SUBSTANTIALLY IMPAIR AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The Petaluma General Plan Update is a policy document which does not include specific development entitlements but rather sets forth goals and policies with the intention to facilitate development in Petaluma through 2050. The City would evaluate development facilitated by the proposed project on a project-specific basis for wildfire safety, including the ability of emergency vehicles to access the site and ease of evacuation. Nevertheless, development facilitated by the proposed project would result in new development within the Plan Area. This development would introduce new residents that would require emergency response evacuation in the case of wildfire.

As described above, there are no VHFHSZ's located in or near Petaluma, and the entirety of the city is designated as an LRA by CAL FIRE; the nearest VHFHSZ within an SRA is located more than five miles northeast of city limits, near the community of El Verano (CAL FIRE 2025b). However, the city is surrounded by SRA lands. As described in Section 2, *Project Description*, most of Petaluma is currently developed, and development facilitated by the proposed project would primarily occur in urbanized areas of the Plan Area.

As detailed above, Petaluma Fire Department serves the City's fire and emergency response services, and three fire stations are located throughout the city. Petaluma Fire Department Station 1 is centrally located at 198 East D Street; Station 2 is located in the western extents of the city at 1101 North McDowell Boulevard, and Station 3 is located in the northeastern area of the city at 831 South McDowell Boulevard. Additionally, the mutual aid CAL FIRE Petaluma Station is located less than half a mile west of city limits at 655 Lohrman Lane. As discussed within Section 4.13, *Public Services and Recreation*, future development would be required to comply with PMC Title 19, which provides funding for construction, expansion, and equipment purchases necessary to maintain adequate public safety and public service facilities as the community grows. These fees would be available to support items such as fire station renovations, construction of new fire facilities, and purchases of vehicles and emergency equipment (City of Petaluma 2025b).

The proposed Safety Element contains the following goals, policies, and implementation actions which would ensure safe and efficient evacuation and emergency response in Petaluma:

Goal SAF-1: Emergency Guidance and Tools. Emergency responders and community members have the guidance and tools to effectively respond to hazard events.

> **Policy SAF-1.1: Update emergency operation plans**. Maintain updated emergency operations guidance, standards, and plans per the Local Hazard Mitigation Plan (LHMP) and ensure its compliance with the Stafford Disaster Relief and Emergency Act and the Disaster Mitigation Act to remain eligible for federal grants.
>
> > **Action SAF-1.1.1:** Maintain and update an Emergency Operations Plan that conforms to the California Emergency Services Act and Standardized Emergency Management System in coordination with operational area partners such as Sonoma County.
> >
> > **Action SAF-1.1.2:** Coordinate with Sonoma Operational Area partners to develop and maintain an Evacuation Map with established zones that accounts for all types of emergencies, to be updated a minimum of every eight years during or immediately following Safety Element updates.
> >
> > **Action SAF-1.1.3:** Identify needed updates to communication and notification systems to issue alerts and warnings to residents, ensuring a variety of methods to reach all residents, including non-digital communication systems.
>
> **Policy SAF-1.2: Prepare the community for emergencies.** Provide resources and training opportunities for the community to improve their ability to prepare for and respond to emergencies.
>
> > **Action SAF-1.2.1:** Educate the community about emergency response through the City's website, social media platforms, and in-person engagement events.
> >
> > **Action SAF-1.2.2:** Collaborate with schools to educate students and their families about emergency preparedness.
> >
> > **Action SAF-1.2.3:** Initiate local community participation in Neighborhood Response Group trainings by distributing training opportunities to community-based organizations and neighborhood associations.
> >
> > **Action SAF-1.2.4:** Conduct annual Neighborhood Response Group trainings to prepare community members for emergency response.

Policy SAF-1.3: Seek Funds for Emergency Operations. Seek grants to fund emergency operations and first responder assistance.

Action SAF-1.3.1: Explore grant funding for fire assistance, such as grants through the FEMA Assistance to Firefighters Grants Program and emergency response through the FEMA Emergency Operations Center (EOC) Grant Program

Goal SAF-2: High-Quality Emergency Services. Lives, property, and the environment are protected by providing the highest quality of service in disaster preparation and prevention, crime and fire prevention, fire protection, emergency medical services (EMS), and emergency management and response.

Policy SAF-2.1: Maintain quality emergency response service. Ensure facilities, equipment, and personnel are adequate to maintain the quality of service demands of the community, including but not limited to, fire suppression, pre-hospital Advanced Life Support (ALS) medical care, ambulance transport, rescue, fire prevention, education, Certified Unified Program Agency (CUPA), and disaster preparedness and management.

Action SAF-2.1.1: Ensure public safety facilities are sized appropriately to accommodate necessary staff and equipment. Ensure they are located to align with decreased response times and place specialized equipment, such as a ladder truck, in a location based on an all-hazard risk assessment.

Action SAF-2.1.5: Maintain and modernize emergency response facilities, including fire stations, as needed to accommodate population growth.

Action SAF-2.1.6: Maintain the responsiveness of safety-related departments to changes in community demographics.

Action SAF-2.1.7: Continue to upgrade and improve emergency response communications, including upgrades and additions to “repeater” sites. Evaluate and design communications and radio infrastructure for resiliency, redundancy, and interoperability.

Action SAF-2.1.8: Continue to upgrade and integrate City-wide inter-departmental communication systems for all City personnel, specifically field staff, including Police, Fire, Emergency Medical Services, Public Works, and Emergency Management staff.

Action SAF-2.1.9: Encourage communication compatibility between local and regional systems.

Action SAF-2.1.10: Develop wildfire response and mitigation programs consistent with the State Fire Marshal’s recommendations.

Action SAF-2.1.11: Alleviate roadway network bottlenecks that impede the ability of Police and Fire from meeting established response times in a manner that is consistent with the Transportation Element.

Policy SAF-2.5: Maintain mutual aid agreements. Maintain cooperative agreements for mutual aid at a State level and automatic aid at a local level, and review and update as needed to maintain an acceptable level of service within Petaluma.

Goal SAF-4: Evacuation. Petaluma has safe and efficient evacuation routes and/or safe shelter-in-place plans for residents, workers, and visitors in preparation for an emergency scenario.

Policy SAF-4.1: Prepare single-access neighborhoods. Alleviate evacuation constraints associated with single-access neighborhoods.

Action SAF-4.1.1: Encourage residents on single-access roads to maintain emergency supplies for at least three days.

Action SAF-4.1.2: Identify opportunities to create secondary access for identified single-access neighborhoods where possible and in a manner consistent with the Circulation Element.

Action SAF-4.1.3: Designate safety zones as places of refuge for single-access communities in case evacuation routes are blocked.

Action SAF-4.1.4: Conduct annual trainings and additional informational campaigns for evacuation emergency preparedness for single-access neighborhoods through social media, fliers, brochures, and in-person events in identified neighborhoods.

Action SAF-4.1.5: Prioritize undergrounding of utilities for designated routes to make them more reliable during a hazard event.

Policy SAF-4.2: Provide emergency evacuation resources. Address emergency evacuation constraints, particularly among low-income and minority populations.

Action SAF-4.2.1: Designate and publicize evacuation routes, including existing pedestrian pathways.

Action SAF-4.2.2: Coordinate community engagement activities with relevant regional jurisdictions to solicit input from the community on wildfire preparation needs for fast evacuation support.

Action SAF-4.2.3: Consider the needs of vulnerable populations in the city, such as senior housing facilities and schools, and others without access to a personal vehicle when updating the City Evacuation Map.

Action SAF-4.2.4: Issue mandatory evacuation orders and release evacuees by pre-designated zones to manage roadway congestion. Anticipate school district evacuation needs as part of evacuation orders.

Action SAF-4.2.5: Maintain emergency roadways and improve them as necessary and appropriate to ensure they stay in operation during hazardous events.

Policy SAF-5.2: Establish inter-jurisdictional evacuation plans. Collaborate with Sonoma County, neighboring jurisdictions, and community based organizations (CBOs) to establish a network of temporary evacuation points.

Action SAF-5.2.1: Identify locations throughout the city that can be used as temporary evacuation points in the event of an emergency, such as the Petaluma Fairgrounds, large parking lots, parks, or other open areas.

Action SAF-5.2.2: Prepare a plan that outlines the process of setting up and operating temporary evacuation points that addresses signage, distribution of basic supplies like food and water, and staffing.

Action SAF-5.2.3: Ensure that emergency alert and warning systems inform the community on where temporary evacuation points are located, alongside evacuation routes for access to these shelters in coordination with operational area partners such as Sonoma County.

Additionally, the proposed Transportation Element contains the following goals, policies, and implementation actions related to emergency evacuation and emergency response:

Action TP-1.1.2: Adopt Complete Streets roadway design standards to ensure modal priorities, the Safe, Equitable, and Inclusive framework, and All Ages and Abilities Bikeway Design are accounted for in transportation planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities and products. Standards should allow for flexibility given existing constraints, costs, and input from emergency service providers. Street design should be scaled to the level of surrounding activity and mobility demands. This approach ensures that safety and comfort are prioritized in areas with high pedestrian activity, while still accommodating access and throughput on streets serving essential travel and emergency functions.

Action TP-3.3.3: Enhance crosstown access for emergency service providers through infrastructure and programmatic measures that maintain roadway safety for all users. Avoid solutions that create or maintain excessive roadway capacity, and instead pursue creative approaches that balance emergency response needs with the safety and comfort of people walking, biking, and using transit.

Policy TP-4.4: Provide Multimodal Evacuation Routes. Provide multimodal emergency evacuation routes that align with the safe, equitable, and inclusive mobility framework.

Action TP-4.4.1: Continue to ensure that all neighborhoods have access to designated evacuation routes in an emergency.

Action TP-4.4.2: Continue to ensure that all emergency access routes required of new developments provide adequate access for people walking or traveling by wheelchair, bicycle, or other micromobility device.

Action TP-4.4.3: Identify new emergency evacuation routes and disaster resource access routes specifically for residents and visitors without personal motor vehicles who may be walking or traveling by wheelchair, bicycle, or other micromobility device, and provide for the installation of signage and wayfinding to support whole community use of these routes.

Action TP-4.4.4: Continue to engage with the Fire Department to ensure citywide access is provided for emergency services, and response times are monitored and maintained relative to an adopted minimum threshold.

Action TP-4.4.5: Maintain emergency vehicle access to the Petaluma Airport to support countywide public safety responses.

Policies listed above direct the City to ensure effective and coordinated response to disasters, which would include events warranting evacuation. Furthermore, the City's Emergency Operation Plan helps maintain the City's ability to prepare, respond and recover from a variety of emergency incidents. The proposed project would not conflict with the Emergency Operations Plan; rather, updates to policies such as SAF-1.1 would enable regular updates to the plan and facilitate further

coordination of the plan's implementation. Additionally, the proposed project would not impair evacuation and emergency access; rather, the proposed policies above would ensure that emergency access is maintained throughout the city, and through Policy TP-4.4, multimodal emergency evacuation routes would be identified.

The City would review and approve specific development facilitated by the proposed project to ensure that emergency access meets City standards. Development facilitated by proposed project, as well as all development in the Plan Area, must comply with road standards, and undergo review by the Petaluma Fire Department to ensure development would not interfere with evacuation routes or impede the effectiveness of evacuation plans. The goals, policies, and actions included in the proposed Safety and Transportation Elements and development projects facilitated by the proposed project would be reviewed by the City and Petaluma Fire Department to ensure that emergency access meets City standards. Therefore, impacts related to impairing an adopted emergency response plan or emergency evacuation plan would be less than significant.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

This impact 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 PROPOSED PROJECT INCLUDES POLICIES TO ENSURE DEVELOPMENT WOULD NOT EXACERBATE WILDFIRE RISK DUE TO SLOPE, PREVAILING WINDS, OR OTHER FACTORS. FURTHERMORE, DEVELOPMENT FACILITATED BY THE PROPOSED PROJECT WOULD ADHERE TO THE CFC AND BE REVIEWED BY THE PETALUMA FIRE DEPARTMENT TO ENSURE WILDFIRE RISK WOULD NOT BE EXACERBATED. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

As described above, there are no VHFHSZ's located in or near Petaluma, and the entirety of the city is designated as an LRA by CAL FIRE; the nearest VHFHSZ within an SRA is located more than five miles northeast of city limits, near the community of El Verano (CAL FIRE 2025b). However, the city is surrounded by SRA lands designated moderate and high FHSZ.

Development facilitated by the proposed project would be concentrated on infill areas of Petaluma, which are largely urbanized and developed, where the risk of wildfire is reduced as compared to areas on the city's perimeter where open space is more plentiful and fuels are more continuous and abundant. This land use approach is consistent with General Plan policies that prioritize infill development and direct growth toward flatter, lower-risk areas rather than steeper, hillside terrain where fire behavior can intensify due to slope-driven flame lengths and rapid upslope spread. However, as evidenced by the 2018 Woolsey Fire and the 2025 Palisades Fire, urban and developed areas are also susceptible to wildfires, despite the reduced presence of typical wildfire fuels. Built structures and ornamental landscaping can function as fuels in the event of a fire in urban areas.

Wildfire smoke produced from combustion of natural biomass contains thousands of individual compounds, including particulate matter, CO_2, water vapor, CO, hydrocarbons and other organic chemicals, NO_x, and trace minerals that can be carried by the wind. Petaluma is relatively flat and

surrounded by hills which rise towards Sonoma Mountain, to the north, and Mount Burdell, to the south. As described in Section 4.17.1, above, prevailing winds are variable and shift throughout on the seasons, ranging from west-northwest, east, and south-southwest. Winds have the potential to push a potential wildfire and wildfire smoke from the hills through areas of low-fuel volumes and to areas with substantial development, thereby exposing residents to pollutant concentrations associated with wildfire. Development allowed under the General Plan, including any projects located near local ridgelines or elevated terrain, could therefore experience elevated exposure to smoke or embers depending on wind direction during a wildfire event.

The non-developed areas of Petaluma are primarily comprised of herbaceous wetlands, riparian forests and shrubs, oak woodlands, and other herbaceous vegetation communities (i.e. grasslands). Grasslands are capable of generating dangerous fuel behavior, and woody fuel types, such as tree and brush formations, are generally associated with rapid fire front advance, high burn intensities, longer duration at a given location, and generation of airborne embers, especially under extreme fire weather conditions. While existing urban development provides some barriers to the uncontrolled spread of wildfire, such as paved roads and other non-flammable surface materials, undeveloped and open space areas would be susceptible, and built structures and ornamental landscaping have the potential to become fuel sources in urban areas especially during the increasingly persistent dry season. However, the development facilitated by the proposed General Plan would be required to comply with Chapter 16 of the Implementing Zoning Ordinance (IZO) which includes hillside development standards that limit grading on steep slopes, regulate development on visually prominent hillsides, and require incorporation of defensible space and fire-resistant design features. Together, these standards and the General Plan Update's infill-oriented growth strategy, reduce the potential for future residents to be exposed to wildfire hazards and smoke influenced by slope-related fire behavior. Although future development could still be subject to pollutant exposure during a wildfire event, the General Plan Update focuses new growth in the urban core which is characterized by flatter terrain, improved emergency access, and more discontinuous fuels, thereby reducing the potential for disproportionate exposure to wildfire-related pollutant concentrations.

The proposed Safety Element also includes the following goals, policies, and associated implementation actions in order to minimize potential wildfire risks:

> **Action SAF-2.1.10:** Develop wildfire response and mitigation programs consistent with the State Fire Marshal's recommendations.

Policy SAF-2.4: Educate the public on risk reduction. Continue and expand on public education in fire safety, first aid/CPR, accident prevention, disaster preparedness, wildfire mitigation, and other community risk reduction efforts.

> **Action SAF-5.1.1:** Conduct a feasibility analysis of existing community resilience centers' infrastructure to determine community needs during extreme temperature days, extreme storm days, and wildfire smoke days.
>
> **Action SAF-6.1.4:** Develop a Post-Disaster Recovery Plan that addresses all hazard events, including actions such as debris removal, evaluation of post-disaster re-development options, and educational materials for recovery services for rebuilding.

Goal SAF-8: Wildfire Risk Management. Wildfire risk is managed through local and regional strategies and interdisciplinary approaches.

Policy SAF-8.2: Implement fire protection programs. Continue to implement the strategies put forth by the Sonoma County Community Wildfire Protection Plan, including fuel and vegetation reduction and community engagement.

Action SAF-8.2.1: Reduce flammable vegetation through the annual weed abatement program.

Action SAF-8.2.2: Develop program in coordination with the Petaluma Fire Department to conduct inspections of all properties in the wildland hazard severity/wildland-urban interface (WUI) zones annually.

Action SAF-8.2.3: Develop educational materials and distribute to residents on the standards and requirements of vegetation clearance, maintenance of defensible space, and wildfire risks identified by the City.

Policy SAF-8.3: Create a fuel management plan. Coordinate with the Petaluma Fire Department and Sonoma County to prepare a long-term fuel reduction and management plan.

Action SAF-8.3.1: Ensure compliance with requirements of Title 14 of the California Code of Regulations to strengthen fire-fighting capabilities and response times especially for residential areas adjacent to Very High Fire Hazard areas, if and where relevant in the future.

Action SAF-8.3.2: Conduct regular maintenance of evacuation routes through vegetation maintenance of roadways and critical facilities and verify private and public road emergency access routes to comply with Title 14 regulations.

Action SAF-8.3.3: Establish standards in addition to vegetation management that include the identification of fuel breaks and brush management and revegetation to reduce wildfire risk adjacent to at-risk structures.

Action SAF-8.3.4: Collaborate with local fire protection districts and regional, State, and Federal fire agencies to coordinate and implement wildfire mitigation measures and fuel load modifications including load clearing, prescribed burns, prescribed grazing, and other mitigation activities for areas proximal to the city, particularly potential wildfire approach pathways.

Action SAF-8.3.5: Continue to evolve and expand Petaluma's existing chipper program managed through the Fire Department.

Policy SAF-8.4: Minimize wildland-urban interface risk. Develop a WUI Pre-Fire Plan and evaluate the WUI Zone within the city.

Action SAF-8.4.1: Create fire suppression water system guidelines that include the use of water storage for fire response in the WUI.

Action SAF-8.4.2: Develop a plan to identify future water supply needs for fire suppression efforts, especially for new developments.

Action SAF-8.4.3: Continue to require new developments to have adequate water pressure or fire flows through the permitting process. Require on-site fire suppression

systems for all new industrial and commercial developments to decrease reliance on local fire resources and for early response in high-risk areas.

Policy SAF-8.5: Promote fire safe development. Ensure fire safe design in future developments and during post-disaster recovery and minimize new residential development in areas with medium wildfire hazard risk.

Action SAF-8.5.1: Update the City's development standards to comply with State fire protection requirements regarding emergency access, signage, water supply for fire response, and fuel modifications.

Action SAF-8.5.2: Explore creating a development district overlay that applies higher standards for construction in very high wildfire risk areas and identifies natural and geologic assets that reduce wildfire risk for preservation.

Action SAF-8.5.3: Require Fire Protection Plans and evacuation plans for new developments in Moderate Fire Hazard Safety Zones.

Action SAF-8.5.4: Support neighborhood programs that improve disaster resilience including reducing wildfire risk.

As detailed in Section 4.10, *Land Use and Planning,* the Land Use and Transportation Elements of the proposed 2050 General Plan also include the following policies to promote infill development as opposed to development in open space areas with exacerbated fire risk and vegetative fuels:

Policy LU-1.1: Only build within the Urban Growth Boundary. It is the policy of the City to build within the agreed upon Urban Growth Boundary. No urban development shall be permitted beyond the Urban Growth Boundary. “Urban development" shall mean development requiring one or more basic municipal services including, but not limited to, water service, sewer, improved storm drainage facilities, fire hydrants and other physical public facilities and services; but shall not mean providing municipal or public services to open space uses, public or quasi-public uses such as schools or public safety facilities. Said municipal or public services or facilities can be developed beyond the UGB to provide services within the UGB.

Policy LU-3.1: Facilitate infill development. Facilitate infill urban development at densities and intensities depicted on the Land Use Map (see Policies 1.3 and 2.4 in the adopted Housing Element).

Policy LU-3.2: Facilitate higher density housing development. Encourage the efficient use of higher density residential and mixed-use land by facilitating development at the upper end of the density range (see Policy 1.5 in the Housing Element).

Policy LU-7.3: Facilitate infill residential development. Facilitate new infill residential in predominantly single-family neighborhoods. (see Policies 1.7 and 6.4 in the adopted Housing Element)

Policy TP-5.1: Integrate Development and Transportation Policies. Ensure land use and transportation policies work in concert with one another to incentivize compact, accessible, livable, and sustainable development that supports a high quality of life and vibrant economy.

The Petaluma Fire Department enforces fire and building codes for development within the city through discretionary and ministerial processes. Individual development projects under the proposed project would therefore be required to comply with Petaluma Fire Department regulatory programs and standards that reduce wildfire risk, such as those related to vegetation management and weed abatement, as required by Chapter 10.70 of the Municipal Code.

Development under the proposed project 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, which are detailed in Section 4.17.2:

- Title 24, CCR, Building Regulations
- International Fire Code/California Fire Code (CFC)
- National Fire Codes of the NFPA
- Title 14, CCR, SRA Fire Safe Regulations
- Title 19, CCR, Public Safety
- Title 8, CCR, Occupational Safety
- California Health and Safety Code

Compliance with these regulations and building standards would reduce the potential for development implemented under the proposed project from contributing to the exposure of pollutants to persons in or near future development.

The City would evaluate development facilitated by the proposed project to ensure development would minimize risks associated with wildfire, including the potential for development to exacerbate wildfire risk due to slope, prevailing winds, or other factors. Compliance with State and federal regulations, Petaluma Fire Department requirements and recommendations, and the policies outlined in proposed Safety Element would ensure that the proposed project would not exacerbate wildfire risk due to slope, prevailing winds, or other factors which could expose occupants to substantial pollutant concentrations or the uncontrolled spread of a wildfire. This impact would be less than significant.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

This impact would be less than significant without mitigation.

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 PROPOSED PROJECT WOULD FACILITATE GROWTH PRIMARILY AS INFILL AND REDEVELOPMENT WITHIN URBANIZED AREAS OF THE CITY WHERE INFRASTRUCTURE AND ROADS CURRENTLY EXIST. THE PROPOSED PROJECT WOULD NOT REQUIRE THE INSTALLATION OR MAINTENANCE OF SUBSTANTIAL INFRASTRUCTURE THAT MAY EXACERBATE FIRE RISK OR RESULT IN TEMPORARY OR ONGOING IMPACTS TO THE ENVIRONMENT ASSOCIATED WITH FIRE RISK. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

As described above, there are no VHFHSZ's located in or near Petaluma, and the entirety of the city is designated as an LRA by CAL FIRE; the nearest VHFHSZ within an SRA is located more than five miles northeast of city limits, near the community of El Verano (CAL FIRE 2025b). However, the city is surrounded by SRA lands.

Development facilitated by the proposed project would primarily occur in urbanized areas of Petaluma. These areas typically do not have large tracts of continuous vegetation cover and already contain existing utility infrastructure. As a result, minimal additional infrastructure, such as roads, fuel breaks, emergency water sources, power lines or other utilities, would be required to accommodate development facilitated by proposed project. Primarily, development facilitated by the proposed project would require lateral infrastructure connections to existing utilities, resulting in negligible temporary or ongoing environmental impacts. The utility that poses the greatest potential wildfire risk would be electrical lines. However, existing lines are maintained in accordance with CPUC requirements and all electrical lines associated with future subdivisions and development would be undergrounded, pursuant to PMC Chapter 20.36 and Chapter 4.60.050 the SmartCode. Additionally, the proposed Infrastructure and Utilities Element includes the following to minimize fire risk associated with utility lines:

> **Policy IU-8.2: Underground public utility lines.** Pursue the undergrounding of public utility lines wherever appropriate, especially in high fire risk areas, and the conversion of overhead lines to underground lines in conjunction with public and private projects.
>
> > **Action IU-8.2.1:** Where feasible, support the undergrounding of public utility lines, particularly in high fire risk areas. Develop a priority list of important streets for undergrounding.
> >
> > **Action IU-8.2.2:** Collaborate with other public and private entities to explore cost- and time-efficient alternatives to traditional trenching of utilities.

Accordingly, the proposed project would not exacerbate fire risk from the installation of electrical lines. In addition, to minimize risks associated with the uncontrolled spread of wildfire, the proposed Safety Element includes the following to ensure emergency water source resiliency and availability:

> **Policy SAF-5.5: Ensure public services during disaster response**. Ensure adequate continuation of service of water, wastewater, electricity, and telecommunications during hazard events.
>
> > **Action SAF-5.5.1:** Identify critical public infrastructure, including major pipelines, power lines, pumping stations, storage tanks, treatment facilities, and other similar equipment

that is vulnerable to hazards, and maintain a prioritized list of improvement projects to increase resiliency of critical infrastructure.

Action SAF-8.4.1: Create fire suppression water system guidelines that include the use of water storage for fire response in the WUI.

Action SAF-8.4.2: Develop a plan to identify future water supply needs for fire suppression efforts, especially for new developments.

Action SAF-8.4.3: Continue to require new developments to have adequate water pressure or fire flows through the permitting process. Require on-site fire suppression systems for all new industrial and commercial developments to decrease reliance on local fire resources and for early response in high-risk areas.

Action SAF-8.5.1: Update the City's development standards to comply with State fire protection requirements regarding emergency access, signage, water supply for fire response, and fuel modifications.

The proposed project includes policies described in Impact W-2 which would ensure new development would minimize fire risk through adherence to hazardous vegetation and weed abatement, development standards, and wildfire resilience standards enforced by the Petaluma Fire Department. Establishment and maintenance of vegetation reduction (Policy SAF-8.2) and a long-term fuel reduction and management plan (Policy SAF-8.3) could result in temporary and ongoing impacts to the environment. Through Policy SAF-8.2, flammable vegetation would be reduced through the annual weed abatement program overseen by the Petaluma Fire Department. Through Policy SAF-8.3, a long-term fuel reduction and management plan would be implemented and maintained throughout the Plan Area; new community fire breaks and fuel modification/reduction zones would be evaluated for environmental impacts at the project level prior to approval. While maintenance of fuel breaks and fuel modification/vegetation management could result in temporary impacts to the environment, they would ultimately reduce the potential for severe or catastrophic wildfires, rather than exacerbate them. Additionally, as described in Section 4.13, *Public Services and Recreation,* PMC Chapter 19.04 authorizes the City of Petaluma to collect fees to support the future development and maintenance of public safety facilities such as additional fire management and equipment.

No additional ongoing impacts to the environment would occur beyond those discussed throughout this document. Development facilitated by the proposed project would generally require minimal additional utility infrastructure, and the CPUC, City, and County requirements, as well as policies included in the Petaluma General Plan Update, would ensure development facilitated by the proposed project would not result in substantial fire risk or temporary or ongoing impacts to the environment. Therefore, this impact would be less than significant.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

This impact 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 PROPOSED PROJECT INCLUDES WILDFIRE RESILIENCY POLICIES TO ENSURE DEVELOPMENT WOULD NOT EXACERBATE RISKS FROM FLOODING OR LANDSLIDES DUE TO WILDFIRE. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

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, the lack of roots decreases the structural integrity of the soil, and the high temperatures can create hydrophobic soil conditions which prevent water infiltration. 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.

As described in Section 4.6, *Geology and Soils*, Petaluma is generally located outside of landslide probability zones. However, the southwestern extents of the city abut foothills that contain higher landslide susceptibility. Development facilitated by the proposed project would be required to adhere to the standards of the California Building Code and the requirements of the following proposed policies and associated implementation actions included in proposed Safety Element to minimize potential landslide risks:

> **Policy SAF-5.4: Prepare for multi-hazard scenarios.** Continue to prepare City facilities for multi-hazard scenarios.
>
> > **Action SAF-5.4.2:** Engage and coordinate with the County of Sonoma on natural hazard management, preparedness and response efforts.
> >
> > **Action SAF-6.1.4:** Develop a Post-Disaster Recovery Plan that addresses all hazard events, including actions such as debris removal, evaluation of post-disaster re-development options, and educational materials for recovery services for rebuilding.
>
> **Policy SAF-6.3: Prepare buildings for climate change.** Partner with community organizations to promote and support efforts to retrofit and upgrade residential and commercial buildings to better prepare for climate change impacts.
>
> **Policy SAF-9.1: Reduce seismic risk on critical infrastructure.** Utilize advanced planning and investments in critical infrastructure to reduce the effects of geologic and seismic events.
>
> > **Action SAF-9.1.1:** Implement the California Building Code to address geologic and seismic hazards.
>
> **Policy SAF-9.2: Consider Geotechnical Information for Development.** Update development standards to consider earthquake and liquefaction risk in building siting and design.
>
> > **Action SAF-9.2.4:** Enhance requirements for geotechnical investigations on all newly occupied buildings and structures.
> >
> > **Action SAF-9.2.5:** Enhance requirements for building structural upgrades on existing occupied structures and buildings where substantial alterations occur.

Development facilitated by the proposed project would be required to adhere to the standards of the California Building Code and Petaluma Municipal Code which provide design guidelines and construction standards to reduce the risk of post-wildfire debris flow and drainage impacts. State and City regulations for controlling drainage, stormwater, grading, and erosion, including PMC Chapter 17.31 regulating grading and erosion control as well as implementation of BMPs would minimize the impact, and risk, of post-wildfire debris and flooding. Further, pursuant to Implementing Zoning Ordinance (IZO) Chapters 16, development in hillside areas – which would be at higher risk of post-wildfire debris flow and landslides – would be designed in accordance with Fire Department and CFC requirements (IZO Section 16.050.G) and construction methods would reduce hazards by limiting cut slopes and ensuring revegetation to control erosion (IZO Section 16.010.C.2). Development would also adhere to the Natural Environment and Flood Resilience Elements of the General Plan Update, including, but not limited to, the following policies to minimize erosion, landslide, and flood-related impacts:

> **Policy NAT-3.1: Minimize Erosion and Runoff.** Minimize soil erosion and discharge of sediments into surface runoff, drainage systems, and water bodies.
>
> **Policy FR-3.2: Develop a Flood Adaptation Master Plan.** Develop and maintain a Flood Adaptation Master Plan (FAMP) that prioritizes and plans the appropriate flood adaptation strategies (avoid, protect, accommodate, realign land use) for different areas of the city.
>
> **Policy FR-4.1: Prepare post-disaster plans.** Work with the community to prepare regulatory standards and post-disaster recovery overlays for flood-affected properties that are in alignment with long-term planning documents, adaptation standards, and equity goals.
>
> **Policy FR-5.1: Update building codes to provide future flood resilience.** Integrate adaptation pathways into planning and building code standards so that new developments and significant remodels are required to reduce individual and collective risk from flooding while still providing for a vibrant city. Include regulatory standards that will prevent increased risk from flooding unless those areas are otherwise protected by completed and maintained flood protection systems.
>
> **Policy FR-7.3: Ensure proactive adaptation.** Encourage new and existing development to proactively adopt adaptation measures.

Development facilitated by the proposed project would be required to adhere to these State and City regulations and proposed policies, which would ensure the proposed project would not expose people or structures to substantial flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. This impact would be less than significant.

Mitigation Measures

No mitigation is required.

Significance After Mitigation

This impact would be less than significant without mitigation.

4.17.4 Cumulative Impacts

The geographic scope of the cumulative wildfire analysis is the entirety of Sonoma County. The area comprising Sonoma County is appropriate for the wildfire cumulative impacts analysis, because it contains tracts of wildland fuels, such as forest land and chaparral that are also in or adjacent to the Plan Area. In other words, there are substantial numbers of fire breaks across the county, such as Highway 1 and Highway 101, and developed areas, such as Rohnert Park and Santa Rosa, that potential wildfires in or near the Plan Area would generally be in or spread into, or from, surrounding Sonoma County. The cumulative analysis considers the nearby past, present, and reasonably foreseeable future plans and projects listed in Table 3-1 (refer to Section 3, *Environmental Setting*) located outside the Plan Area, in addition to the General Plan Update.

Other reasonably foreseeable development outside of the Plan Area would place structures and people in VHFHSZs or on or at the base of slopes and hillsides susceptible to post-wildfire risks, such as landslides or mudflows. The cumulative impact related to exacerbated wildfire risks and exposure to post-fire hazards would be potentially significant.

As concluded in Section 4.17.3, *Impact Analysis*, the proposed project would have a less-than-significant impact related to wildfires. Adherence to State, regional, and local fire protection policies and requirements, as well as implementation of policies proposed by the Petaluma General Plan Update would ensure potential impacts related to wildfire are minimized for development facilitated by the proposed project. Additionally, the proposed project largely focuses development in urbanized areas of Petaluma, away from continuous fuels and slopes. Cumulative plans and projects would result in predominantly infill development and would not significantly increase development in hillside and WUI areas containing elevated fire risk. Cumulative project construction would adhere to the applicable Building Code that are designed to minimize the potential for uncontrolled fires, and development within WUI areas would be subject to greater restrictions outlined in the Building and Fire Codes. Adherence to the applicable Building Code would ensure that California Fire Code standards such as automatic sprinkler systems are included in development. Therefore, cumulative wildfire impacts would not be significant. Additionally, as discussed in Section 4.13, *Public Services*, as part of individual project approval for cumulative development facilitated by the project, the City would assess the need for fire protection services, which would inform efforts to improve or expand needed facilities. In addition, all development would comply with emergency access requirements as directed by the City and fire department regulations. Furthermore, the cumulative projects would not result in permanent road closures, nor impede an established emergency or evacuation access route, such as Highway 101, or interfere with emergency response requirements, such as fire protection response time standards. As such, the project would not result in a considerable contribution to cumulative wildfire impacts.

Therefore, the proposed project would not have a cumulatively considerable contribution to the potentially significant cumulative impacts related to wildfires.

4.18 Impacts Found to be Less than Significant (Energy and Minerals)

During evaluation of the proposed project, certain impact areas included in the Appendix G checklist were found to have a less than significant impact or no impact. As allowed under CEQA Guidelines Section 15128, this section discusses why impacts to these environmental topics were determined to have a less than significant impact or no impact and therefore are not discussed in detail in the Draft Environmental Impact Report as individual sections.

4.18.1 Energy

a. Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Construction Impacts

Development facilitated by the General Plan Update would involve construction activities that would consume fuel (e.g., gasoline and diesel fuel) to operate heavy equipment, light-duty vehicles, machinery, and generators for lighting. In addition, temporary grid power would also be required to support construction trailers or electric construction equipment. Energy consumption during the construction of individual projects would be temporary in nature, and equipment used would be typical of construction projects in the region. In addition, construction contractors are required to demonstrate compliance with applicable California Air Resources Board regulations that restrict the idling of heavy-duty diesel motor vehicles and govern the accelerated retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment. Furthermore, in accordance with Executive Order N-79-20 it is anticipated that construction trucks would transition most of their vehicle fleets to zero-emission vehicles by 2035. Construction activities would be required to utilize fuel-efficient equipment consistent with State and federal regulations and would comply with State measures to reduce inefficient, wasteful, or unnecessary consumption of energy.

Operational Impacts

Development facilitated by the plan would be required to comply with Title 17 (Building and Construction) of the Petaluma Municipal Code, which adopts the State's energy efficiency regulations, including the California Energy Code and the California Green Building Standards Code—Part 11, Title 24, California Code of Regulations, to ensure development in Petaluma promotes the State's energy efficiency goals through project design. The General Plan Update includes the following proposed goals and policies that would ensure that wasteful, inefficient, or unnecessary consumption of energy resources would not occur from future development facilitated by the proposed project:

Goal IU-8: Renewable and Resilient Energy. The community uses renewable energy sources that do not contribute to the climate crisis and are resilient against possible disruptions due to earthquake, fire, or other disasters.

Policy IU-8.1: **Encourage renewable energy sources.** Encourage the use and development of renewable or otherwise non-GHG emitting sources of energy through implementation of the Blueprint for Climate Action.

Policy IU-8.2: Underground public utility lines. Pursue the undergrounding of public utility lines wherever appropriate, especially in high fire risk areas, and the conversion of overhead lines to underground lines in conjunction with public and private projects.

Policy IU-8.3: Promote a resilient electrical grid. Promote the modification of electrical subgrids to maintain critical City and community operations during power shutdowns and emergencies, including using strategies like micro gridding and battery backup.

Compliance with uniformly applied development standards contained in the Petaluma Municipal Code as well as implementation of General Plan Update goals and policies would ensure that development facilitated by the proposed project incorporates energy-efficient designs. While the City of Petaluma has not adopted a local plan for renewable energy or energy efficiency, there are several state plans that include energy conservation and energy efficiency strategies intended to enable the State and the City to achieve greenhouse gas (GHG) reduction and energy conservation goals. A full discussion of the project's consistency with GHG reduction plans is included in Section 4.7, *Greenhouse Gas Emissions*. Implementation of the plan would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Furthermore, adherence to the State's energy efficiency regulations, including the California Energy Code and California Green Building Standards Code, combined with implementation of applicable policies in the General Plan Update would ensure that development under the plan would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, these impacts would be less than significant.

4.18.2 Mineral Resources

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

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

There are no mineral resources, existing mines, major mineral deposits, or critical minerals within the Plan Area, and state mineral classification maps do not identify any significant mineral resources in this location (CGS 2013b). Within the Plan Area, there is one basalt quarry, located within the Petaluma city limits adjacent to Petaluma Boulevard. However, the quarry is designated as an area depleted by mining or lost to land uses incompatible with mining (CGS 2013a). Along Mountain View Avenue, there were two gravel and borrow pits which have since been converted to residential land uses (USGS 2025). Additionally, the General Plan Update gives this area the diverse low density residential designation, which would remain the same under the proposed project (City of Petaluma 2020). The Plan Area is also not within a mineral resource zone (MRZ) known to contain the presence of significant mineral resources, as no MRZ-2 areas occur in or near the Plan Area (CGS 2013b). Therefore, no impacts would occur.

5 Other CEQA Required Discussions

This section discusses growth-inducing impacts, irreversible environmental impacts that would be caused by the proposed project.

5.1 Growth Inducement

There are two types of growth-inducing impacts that a plan or project may have: direct and indirect. To assess the potential for growth-inducing impacts, the proposed project's characteristics that may encourage and facilitate activities that individually or cumulatively may affect the environment must be evaluated. *CEQA Guidelines* Section 15126.2(d) requires a discussion of a proposed plan or project's potential to foster economic or population growth, including ways in which a plan could remove an obstacle to growth. Growth does not necessarily create significant physical changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant adverse environmental effects. The *CEQA Guidelines*, as interpreted by the City, state that a significant growth-inducing impact may result if the proposed plan would:

- Induce substantial population growth in an area (for example, by proposing or facilitating new residences or employment-generating uses beyond the land use density/intensity envisioned in the general plan);
- Substantially alter the planned location, distribution, density, or growth rate of the population of an area; and/or
- Include extensions of roads or other infrastructure not assumed in the general plan or adopted capital improvements project list, when such infrastructure exceeds the needs of a project and could accommodate unplanned future development.

Direct growth-inducing impacts occur when the implementation of a plan or project imposes new burdens on a community by directly inducing population growth, or by leading to the construction of additional developments in the same area. Also included in this category are plans or projects that remove physical obstacles to population growth (such as a new road into an undeveloped area or a wastewater treatment plant with excess capacity that could allow additional development in the service area). Construction of these types of infrastructure cannot be considered isolated from the development they facilitate and serve. Plans or projects that physically remove obstacles to growth, or projects that indirectly induce growth, may provide a catalyst for future unrelated development in an area such as a new residential community that requires additional commercial uses to support residents.

5.1.1 Population and Employment Growth

As discussed in Section 4.12, *Population and Housing*, buildout under the proposed project could accommodate approximately 16,445 new residents[1] and 6,449 new dwelling units within the Plan Area. With the projected growth, the City of Petaluma would have an estimated population of

[1] 16,445 residents = (2,437 units under proposed project + 4,012 units under the existing 2025 General Plan) * 2.55 persons per household (DOF 2025)

76,273[2] and 30,516 dwelling units by 2050, representing a 27 percent increase in population from existing conditions.

Growth anticipated under the proposed project is intended to meet regional housing needs and incorporates State-mandated housing goals. The project is consistent with State requirements, including the City's Regional Housing Needs Allocation (RHNA) and recently adopted 2023-2031 Housing Element, which both support increased population in the city. The proposed project would also facilitate development within the growth forecasts in both the Association of Bay Area Governments' (ABAG) Plan Bay Area 2050, the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) prepared by ABAG, which provides population, employment, and housing projections for the region. In addition, the project aligns with the Sonoma County Transportation and Climate Authority's (SCTCA) Moving Forward 2050 plan, which guides transportation infrastructure planning and incorporates the same regional growth assumptions. These forecasts anticipate a 30 percent population increase in South Sonoma County by 2050, consistent with the level of growth projected under the proposed project.

The Housing Element, which includes buildout assumptions that are aligned with the proposed project, has been reviewed and approved by the Housing and Community Development (HCD), demonstrating that it adequately addresses the housing needs and demands of the City. This approval demonstrates that population and housing growth under the General Plan Update would not be substantial or unplanned.

The proposed project is specifically intended to guide growth and development within Petaluma. All proposed development would occur within the City's voter-approved Urban Growth Boundary (UGB). The proposed project also promotes infill development and includes policies to preserve and enhance parks, recreational areas, and open space. The direct impacts of development facilitated by the project are analyzed throughout this EIR. Therefore, by its nature, the proposed project is intended to reduce the potential for uncontrolled growth and associated environmental impacts. For the reasons discussed above, buildout of proposed development would not lead to such impacts.

5.1.2 Removal of Obstacles to Growth

The proposed project does not increase development potential beyond the City's voter-approved UGB. All development would occur within the existing UGB and focus on infill and redevelopment opportunities. Consistent with General Plan goals and policies, the project promotes growth in strategic infill areas and supports efficient use of underutilized land while preserving neighborhood character. The UGB would remain in place and unchanged under the proposed project.

Development of vacant parcels within the Plan Area may require new utility connections and roadways; however, most new development would occur where existing roads, water, sewer, and other utilities are available. Development would be designed to minimize impacts on existing infrastructure and services. All new development envisioned under the proposed project would occur within the Plan Area (city limits and sphere of influence). The proposed project would not create barriers to growth within Petaluma.

[2] 59,828 (2020 baseline population) + 16,445 = 76,273 residents (DOF 2025)

5.2 Irreversible Environmental Effects

Section 15126(c) of the *CEQA Guidelines* requires that EIRs evaluating projects involving amendments to public plans, ordinances, or policies contain a discussion of significant irreversible environmental changes. CEQA also requires decision-makers to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve a project. This section addresses the use of non-renewable resources, the commitment of future generations to the proposed uses, and irreversible impacts associated with the development that would be facilitated by implementation of the proposed project.

Construction associated with development under the proposed projects would use building materials and energy, including non-renewable resources. These resources would be consumed by any development in the region and are not unique to Petaluma or the proposed project. New resident and non-residential development in the Plan Area through 2050 would irreversibly increase local demand for non-renewable energy resources such as petroleum and natural gas. Increasingly efficient building designs would help offset this demand by reducing energy use in future development. As described in Section 4.18, *Effects Found to be Less Than Significant,* development under the proposed project would comply with the California Energy Code (Title 24, Part 6), and the California Green Building Standards Code (Title 24, Part 11). These codes establish energy conservation standards for new and renovated buildings and require solar access, natural ventilation, and renewable energy programs. Consequently, development under the proposed project would not use unusual amounts of energy or construction materials, and impacts related to resource consumption would be less than significant.

As discussed in Section 4.16, *Utilities and Service Systems,* and Section 4.13, *Public Services and Recreation,* growth under the proposed project would require an irreversible commitment of public services, including water supply, wastewater treatment, solid waste disposal, fire protection, and law enforcement. These services would rely on existing and planned infrastructure and would be subject to future project-level environmental review. With implementation of proposed policies, impacts to these systems would remain less than significant.

As discussed in Section 4.3, *Air Quality,* and Section 4.7, *Greenhouse Gas Emissions,* implementation of the General Plan policies, regional air pollution programs, and mitigation measures would reduce the air pollutant and GHG emissions associated with individual future development projects. Air quality pollutants would be reduced to below significant thresholds. However, as discussed within Section 4.7, *Greenhouse Gas Emissions*, without enforcement of the City's Blueprint for Climate Action reduction measures, the project would not be consistent with the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045 and impacts would be significant and unavoidable. As discussed within Section 4.5, Cultural Resources, implementation of General Plan policies, compliance with the Standards, and mitigation measures would reduce impacts to historical resources to the greatest extent feasible. However, it is possible that historical resources could be demolished or substantially impacted by future projects associated with General Plan Update buildout. As discussed in Section 4.11, *Noise*, implementation of proposed policies and mitigation measures would reduce the noise impacts associated with future growth but impacts would remain significant and unavoidable. As discussed in Section 4.14, *Transportation,* the General Plan policies would reduce the majority of traffic impacts to a less than significant level. However, population growth facilitated by the proposed project and the region would increase vehicle miles traveled in the Plan Area, resulting in significant and unavoidable impacts.

5.3 Significant Unavoidable Impacts

CEQA Guidelines Section 15126(b) requires a discussion of the significant environmental effects which cannot be avoided if the project is implemented. These significant and unavoidable impacts are identified in Section 4, *Environmental Impact Analysis* and summarized below. The project would have the following significant and unavoidable impacts:

- **Impact CUL-1:** Development facilitated by the proposed project would have the potential to impact historical resources. Following the implementation of proposed general plan policies, impacts would be significant and unavoidable.
- **Impact GHG-1:** Development facilitated by the project would be consistent with the City's Blueprint for Climate Action, including the Blueprint's Cornerstone. However, without an enforcement mechanism for the Blueprint, reductions cannot be guaranteed; therefore, at this time the project would not be consistent with the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045. Therefore, impacts would be significant and unavoidable.
- **Impact NOI-1:** Construction of individual development facilitated by the project would temporarily produce high noise levels, potentially affecting nearby noise-sensitive land uses and Mitigation Measures NOI-1(a) and NOI-1(b) would be required. However, even with implementation of mitigation, construction impacts would be significant and unavoidable. Operation of development facilitated by the project would also increase transportation noise but impacts would be less than significant.
- **Impact NOI-2:** Construction of individual development projects facilitated by the proposed project would temporarily generate levels of groundborne vibration that exceed City vibration thresholds at nearby structures and Mitigation Measure NOI-2 would be required. However, even with implementation of mitigation, construction impacts would be significant and unavoidable. Operational impacts would be less than significant.
- **Impact TRA-2:** The proposed project would result in per capita vehicle miles traveled that would exceed 2022 Scoping Plan recommendations for vehicle miles traveled reductions. This impact would be significant and unavoidable.

6 Alternatives

Section 15126.6 of the *CEQA Guidelines* provides guidance for the identification and evaluation of project alternatives in an EIR. The *CEQA Guidelines* state that 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." This EIR examines a range of reasonable alternatives to the proposed project that would attain most of the basic project objectives but would avoid or substantially lessen significant adverse impacts.

6.1 Development of Alternatives

Section 15126.6(c) of the *CEQA Guidelines* requires that an EIR identify alternatives that were considered but rejected as infeasible and provide a brief explanation as to why such alternatives were not fully considered in the EIR. As required by the *CEQA Guidelines*, the selection of alternatives for this EIR included a screening process to determine a reasonable range of alternatives, which could reduce significant effects but also feasibly meet project objectives. Alternatives that do not clearly provide any environmental advantages compared to the proposed project, do not meet basic proposed project objectives, or are not feasible to implement have been eliminated from further consideration. Alternatives that were considered but rejected are discussed below in Section 6.1.2.

6.1.1 Project Objectives

As discussed in Chapter 2, *Project Description,* the objectives of the 2050 General Plan are:

1. Protect, restore, and enhance natural systems within the Plan Area to promote biodiversity and improve ecological health.
2. Revitalize and protect the Petaluma River and tributaries to improve habitat and flood resilience and strengthen Petaluma's river-oriented cultural, civic, and educational opportunities.
3. Reduce Petaluma's vulnerability to sea level rise and flooding.
4. Advance social and economic justice by addressing systemic inequalities through inclusive policies, equitable investment strategies, and community led decision-making.
5. Support Community health and well-being through safe housing, clean air and water, active transportation, and access to nature.
6. Improve connectivity throughout Petaluma by expanding multimodal routes to safely link residents citywide.
7. Foster an inclusive and welcoming community by creating public spaces and community programs that reflect Petaluma's diversity and support belonging.
8. Expand affordable and diverse housing options by increasing the supply of affordable, workforce, senior, family, and supportive housing and reducing barriers to building housing where it's most needed.
9. Prioritize infill development to reduce sprawl, support transit, and protect open lands.
10. Preserve and strengthen Petaluma's historic districts and resources.

11. Provide opportunities for economic development by allowing for flexibility in land use and accommodate a variety of commercial and light industrial uses to meet evolving demands.
12. Facilitate 15-minute city centers to create walkable/bikeable communities throughout the city and reduce reliance on automobiles.
13. Achieve carbon neutrality and build climate resilience by implementing policies, programs and infrastructure to reach carbon neutrality and prioritizing equitable access to clean energy, green jobs, and climate resilient infrastructure.
14. Protect, preserve, and honor Petaluma's cultural heritage and tribal cultural resources and tribal knowledge.

6.1.2 Potentially Significant Impacts of the Project

As discussed throughout Chapter 4, *Environmental Impact Analysis*, and summarized in Table ES-1 in the Executive Summary, the proposed project would result in significant and unavoidable impacts to cultural resources (historical resources and cumulative impacts to historical resources), greenhouse gas emissions, noise (construction noise and vibration, and cumulative construction noise impacts), and transportation (vehicle miles traveled and cumulative transportation impacts).

The project would require mitigation to reduce significant impacts related to air quality, biological resources, cultural resources, geology and soils, hazards, noise, transportation, and tribal cultural resources. Identified mitigation measures in Chapter 4 would reduce potentially significant impacts related to air quality, biological resources, geology and soils (paleontological resources), hazards, noise (vibration), and tribal cultural resources to less than significant levels; impacts related to cultural resources, greenhouse gas emissions, noise (construction noise and vibration), and transportation would remain significant and unavoidable even with implementation of mitigation measures.

6.1.3 Alternatives Considered and Rejected

The *CEQA Guidelines* state that an EIR should identify alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination (*CEQA Guidelines* Section 15126.2(c)). Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are (i) failure to meet most of the basic project objectives, (ii), infeasibility, or (iii) inability to avoid significant environmental impacts (*CEQA Guidelines* Section 15126.6(c)). The following describes potential alternatives to the project that were considered by the City but were rejected due to the infeasibility and/or their failure to meet most project objectives.

The City considered an alternative that would involve focusing future development along existing major corridors through Petaluma. This alternative would involve locating higher-density mixed use and residential land uses in the central portion of the city along Petaluma Boulevard North between Payran Street and Washington Street; along Washington Street between Petaluma Boulevard North and Ellis Street; and along Petaluma Boulevard South in downtown and near Petaluma Boulevard South's intersection with U.S. Highway 101. The intent of this alternative is to concentrate higher-density development near major corridors to facilitate transit-oriented development, leverage existing infrastructure, and to improve connectivity. However, because this alternative would facilitate development in more densely-populated areas of the city, it would likely result in similar or more severe impacts to noise and vibration compared to the proposed project. Further, because this alternative would concentrate some higher-density development in Petaluma's historic

downtown, where several historic-age structures and historic resources are located, this alternative would likely result in similar or more severe impacts to cultural resources compared to the proposed project. The impacts of this alternative would be similar or more severe than the impacts of the proposed project, and would not avoid several of the key significant environmental impacts associated with the project. Therefore, this potential alternative does not provide any environmental advantages compared to the proposed project, and it was rejected from further consideration.

The City also considered an alternative that would involve expansion of the Urban Growth Boundary (UGB) consistent with the Exception for affordable housing in the current General Plan and as approved by the voters with the passage of Measure Y. This Exception to the current UGB is to comply with state law regarding the provision of housing for all economic segments of the community and allows the City Council to amend the UGB in order to include within the UGB lands to be designated for residential uses. However, this Exception limits the land that can be brought within the UGB to no more than five acres per calendar year and no more than a total of 50 acres before December 31, 2050. This alternative would add land use changes to property currently outside of Petaluma city limits and the existing UGB specifically for one of the purposes outlined in the exceptions and if approved by a 6/7 vote of the City Council.. These land use changes could include designating several areas outside the UGB as Medium Density and High Density to allow affordable multi-family residential development in several areas on the city's eastern limits over the life of the plan horizon. The intent of this alternative is to shift multi-family residential development away from previously-developed areas in the core of Petaluma into generally undeveloped areas at the periphery of existing development within the City. . This alternative would not meet project objectives to protect and enhance natural systems (Objective 1) and prioritize infill development (Objective 9). Therefore, this alternative was rejected from further consideration. However, the rejection of this alternative as part of this programmatic EIR does not preclude the City from considering this or any of the Exceptions for expansion of the UGB as part of future planning efforts and to best meet the needs of the City over the planning horizon.

6.1.4 Project Alternatives

CEQA Guidelines Section 15126.6(a) states that "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." The selected alternatives are limited to those that would avoid or substantially lessen any of the significant effects of the proposed project, that the lead agency determines to be potentially feasible, and that could feasibly attain most of the basic objectives of the proposed project. This section presents the selected alternatives and includes an evaluation for the environmental topics addressed in Sections 4.1 to 4.17, although at a more general level to compare the merits of the alternatives to the proposed project (consistent with *CEQA Guidelines* Section 15126.6(d)).

This analysis presents three alternatives, including the required No Project Alternative and two alternatives that involve changes to the proposed project that may reduce the project-related environmental impacts identified in this EIR. The following alternatives are evaluated in this EIR:

- Alternative 1: No Project
- Alternative 2: Focus on the Core
- Alternative 3: Corridor Growth

Detailed descriptions of the alternatives are included in the impact analysis for each alternative. The potential environmental impacts of each alternative are analyzed in Sections 6.2 through 6.4. As required by CEQA, this section also includes a discussion of the "environmentally superior alternative" among those studied, included in Section 6.5.

6.2 Alternative 1: No Project Alternative

The *CEQA Guidelines* (Section 15126.6(e)(2)) require that the alternatives discussion include an analysis of a No Project Alternative. Pursuant to CEQA, the No Project Alternative refers to the analysis of existing conditions and what would reasonably be expected to occur in the foreseeable future if the project was not approved, based on current plans and consistent with available infrastructure and community services. The No Project Alternative typically will proceed along one of two lines: (1) when a project is a revision of an existing regulatory plan or policy, the No Project Alternative will be the continuation of the existing plan or policy; or (b) if a project is a development project on identifiable property, the No Project Alternative is the circumstance under which the project does not proceed.

6.2.1 Description

The No Project Alternative assumes that the General Plan Update is not adopted or implemented, and that there is no change to land use designations, zoning, or density for the areas identified by the project. Rather, the existing General Plan would continue to be implemented through 2050. Current uses throughout the city would continue under this alternative, with future buildout limited by existing policies, zoning, and allowable density. Buildout in Petaluma under existing land use designations, zoning, and density would allow for up to 4,012 total housing units, 706,429 square feet of non-residential uses, and a population increase of approximately 10,231 people (see Table 2-1 in Chapter 2, *Project Description*). The No Project Alternative would result in 2,437 fewer housing units, 708,312 fewer commercial square feet, and 6,214 fewer new residents compared to the proposed project.

The No Project Alternative would involve no changes to the City's Land Use Element. No existing land use designations would change, and the Land Use Element would not be revised to change the land use designation or to increase density for several areas throughout the city. Future growth and decision making in Petaluma would continue to be guided by the existing General Plan goals and policies.

This alternative would not accomplish most of the project objectives, including: reducing Petaluma's vulnerability to sea level rise and flooding (Objective 3); advancing social and economic justice (Objective 4); supporting community health (Objective 5); improving multi-modal transit connectivity (Objective 6), providing affordable and diverse housing options (Objective 8); prioritizing infill development (Objective 9); fostering economic growth and development (Objective 11); providing multi-modal transit options and creating a walkable/bikeable community (Objectives 6 and 12); and achieving carbon neutrality (Objective 13). Compared to the project, this alternative would more feasibly meet the project objectives to preserve the city's natural environment and surrounding open spaces (Objectives 1 and 2) and preserve historic districts and resources (Objective 10).

6.2.2 Impact Analysis

a. Aesthetics

The No Project Alternative would facilitate 2,437 fewer housing units and 708,312 fewer commercial square feet than the proposed project. Development under the No Project Alternative would continue the land use pattern that currently exists in Petaluma and would be located primarily within sites that have already been developed. Accordingly, development facilitated by this alternative would be reduced compared to the proposed project and would occur in areas where views of scenic resources are already limited. The city's visual character would remain generally the same, and light and glare conditions would be improved compared to the proposed project because this alternative would involve less dense development. Impacts would be less than significant and reduced compared to the proposed project.

b. Agricultural and Forestry Resources

As discussed in Section 4.2, *Agricultural and Forestry Resources,* there are several parcels designated as Farmland of Local Importance within Petaluma. The proposed project would involve changing the land use designations of these parcels from community commercial and medium density residential to maker/microbusiness, neighborhood commercial and diverse low density residential. The change of these land use designations would not inherently change the existing land use on site or remove agricultural uses from these lands. Under the No Project Alternative, no land use designation changes would occur to these parcels. While many of these agricultural parcels are already designated for non-agricultural uses, this alternative would not facilitate development of agricultural lands beyond what is currently anticipated under the existing General Plan. Impacts to agricultural resources would be less than significant and similar to the proposed project. As discussed in Section 4.2, *Agricultural and Forestry Resources,* there are no forest lands within Petaluma and no impact would occur, similar to the proposed project.

c. Air Quality

As discussed in Section 4.3, *Air Quality,* a project is considered to be consistent with the Bay Area Air District's 2017 Clean Air Plan if it supports the plan's primary goals; includes applicable control measures from the plan; and does not hinder implementation of the plan. Under the No Project Alternative, development within Petaluma would continue to be guided by the City's current General Plan, which was adopted 2008. The current General Plan does not incorporate the 2017 Clean Air Plan's primary goals. Further, it does not include applicable control measures, policies, or actions that would address and mitigate the impacts of air quality; accordingly, the No Project Alternative would conflict with the 2017 Clean Air Plan. Impacts would be greater than the proposed project.

The No Project Alternative would facilitate 2,437 fewer housing units and 708,312 fewer commercial square feet than the proposed project. Therefore, this alternative would generate fewer emissions of criteria air pollutants compared to the proposed project. Impacts would be less than significant and reduced compared to the proposed project, and Mitigation Measure AQ-1 (Construction Emissions Screening), would not be required. Further, because this alternative would involve less development than the proposed project, this alternative would result in fewer total vehicle miles traveled and less emissions associated with construction, vehicle use, and development. Impacts related to exposure of sensitive receptors to substantial pollutant concentrations and odors would be less than significant, and Mitigation Measures AQ-2

(Construction Health Risk Assessment), AQ-3 (Reduce Operational Toxic Air Contaminants Near Sensitive Receptors), and AQ-4 (Operational Health Risk Assessment) would not be required. Impacts would be reduced compared to the proposed project.

Although the No Project Alternative would conflict with the 2017 Clean Air Plan, it would result in fewer air emissions than the proposed project and overall, impacts would be reduced compared to the project.

d. Biological Resources

Development that would occur under this alternative would continue the land use pattern that currently exists in Petaluma, and would be located primarily within sites that have already been developed and lack natural resources. Although the No Project Alternative would not include the policies in actions in the 2050 General Plan that intend to protect the environment and biological resources, this alternative would facilitate less development than the proposed project. Accordingly, the No Project Alternative would have less potential to result in substantial adverse impacts to biological resources compared to the proposed project. Because development under this alternative would be decreased, impacts to special status species, riparian habitat, sensitive natural communities, and wetlands would be less than significant and reduced compared to the proposed project. Mitigation Measures BIO-1 through BIO-7 would not be required.

Habitat connectivity features within the Plan Area are generally located to the southeast of the Plan Area, as well as within the riparian corridor along the Petaluma River and associated tributaries. Under the No Project Alternative, development would occur in areas that are already disturbed or developed, and would not result in potentially significant impacts to wildlife movement. Impacts would be less than significant and reduced compared to the proposed project.

Potential impacts to trees and other biological resources, such as those resulting from tree and vegetation removal, may result from development facilitated by this alternative. Similar to the proposed project, development would adhere to the requirements of the Petaluma Municipal Code and impacts related to conflicts with local ordinances protecting biological resources would be less than significant. Impacts would be similar to the proposed project.

Because this alternative would have less potential to disturb special status species and sensitive natural areas compared to the proposed project, overall impacts to biological resources would be reduced under this alternative.

e. Cultural Resources

As discussed in Section 4.5, *Cultural Resources,* there are several historic resources located throughout Petaluma, including 26 individual resources, three historic districts, 293 properties that have been recommended eligible for listing in the National Register of Historic Places or California Register of Historic Resources, and approximately 100 properties that may be eligible for listing. The No Project Alternative would facilitate 2,437 fewer housing units and 708,312 fewer commercial square feet than the proposed project; accordingly, the No Project Alternative would have less potential to disturb or cause an adverse change in the significance of a historic resource compared to the proposed project. Development under this alternative would continue to be subject to existing General Plan policies and local, state, and federal regulations that pertain to protection and preservation of historic resources. Because development under this alternative could still cause an adverse change in the significance of a historical resource, impacts to historical resources would remain significant and unavoidable under this alternative. However, because the No Project

Alternative would involve less development than the proposed project, impacts would be reduced compared to the proposed project.

As discussed in Section 4.5, *Cultural Resources,* there are several recorded archaeological sites, archaeological resources, and prehistoric burials within the Plan Area. This alternative would facilitate less development than the proposed project, and the potential for development to encounter and disturb archaeological resources and human remains would be reduced under this alternative. However, due to the presence of archaeological resources and burials throughout the Plan Area, development could still cause an adverse change in the significance of an archaeological resource and could disturb human remains. Impacts would be slightly reduced compared to the proposed project.

Overall, impacts to cultural resources would be reduced under the No Project Alternative compared to the proposed project.

f. Geology and Soils

As discussed in Section 4.6, *Geology and Soils,* there are several faults in the vicinity of the Plan Area and the city is located in a seismically active area of California. Similar to the proposed project, development that occurs under the No Project Alternative would be required to adhere to the California Building Code and the Petaluma Municipal Code, which establish design and construction measures and requirements for structures to resist damage from an earthquake to the extent feasible. Further, as required by Title 17 within the Petaluma Municipal Code, which adopts the current California Building Code, site-specific geotechnical investigations would identify liquefaction and landslide potential areas within individual development sites and include recommendations to reduce hazards associated with liquefaction and/or landslide. Accordingly, impacts would be less than significant and similar to the proposed project.

Similar to the proposed project, development under the No Project Alternative could result in soil erosion or the loss of topsoil. As under the proposed project, development under this alternative would be required to comply with Petaluma Municipal Code Chapter 17.31, which regulates grading to control erosion. Development under this alternative could also be located in areas with unstable soil, which are known to be located in the central and southwestern portions of the city. With compliance with the California Building Code and local modifications outlined in the Petaluma Municipal Code, would reduce risks associated with on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, as well as impacts related to expansive soils. Impacts would be less than significant and similar to the proposed project.

As under the proposed project, new development under the No Project Alternative would be required to connect to the City's existing sewer system and no impacts related to septic tanks or alternative wastewater disposal would occur.

As discussed in Section 4.6, *Geology and Soils,* development in the Plan Area could be located on soils with paleontological sensitivity. Because the No Project Alternative would involve less development than the proposed project, the potential to encounter paleontological resources is reduced; however, development in the Plan Area could still directly or indirectly destroy a unique paleontological resource. Impacts would be slightly reduced under this alternative.

Overall, impacts related to geology and soils would be reduced under the No Project Alternative compared to the proposed project.

g. Greenhouse Gas Emissions

As discussed in Section 4.7, *Greenhouse Gas Emissions,* the 2022 Bay Area Air Quality Management District *CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans* provides two plan level thresholds for determining the significance of greenhouse gas (GHG) emissions. One threshold is consistency with a qualified GHG reduction plan; as discussed in Chapter 2, *Project Description,* the City adopted the Petaluma Blueprint for Climate Action in 2024. However, at the time of adoption, the Blueprint did not meet all the criteria for a "qualified" Climate Action Plan or GHG reduction plan under *CEQA Guidelines* Section 15183.5(f) to streamline or tier environmental review for future projects. The current regulatory environment prevents the City from fully implementing and enforcing the Blueprint at this time, therefore, there is not an enforcement mechanism currently available to indicate to projects the necessary measures to achieve the reductions. Accordingly, the Blueprint is not fully enforceable or implementable at this time, and to provide a conservative analysis the project would potentially conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and would generate substantial GHG emissions.

The No Project Alternative would continue implementation of the City's existing General Plan. Therefore, under the No Project Alternative, the Blueprint would not meet all criteria to be a qualified plan, similar to the proposed project. If a jurisdiction does not have a qualified GHG Reduction Plan, the *CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans* provides another threshold for determining the significance of GHG emissions, which is meeting the State's goals to reduce emissions to 40 percent below 1990 levels by 2030 and carbon neutrality by 2045. Although the City's existing General Plan has policies related to the reduction of GHG emissions and would make progress toward the State's goals, it is unlikely that the No Project Alternative would reduce GHG emissions to below the State's targets. Accordingly, impacts related to GHG emissions under the No Project Alternative would be greater than the proposed project and would be significant and unavoidable.

h. Hazards and Hazardous Materials

As discussed in Section 4.8, *Hazards and Hazardous Materials,* there are several active hazardous materials sites throughout the Plan Area. Future development that is proposed to occur within these sites would be remediated with regulatory agency oversight as required, and construction activities would be required to comply with federal and state regulations (discussed in detail in Section 4.8) pertaining to the handling, removal, and disposal of hazardous materials. Because the No Project Alternative would likely result in less development than the proposed project, and the potential to create a significant hazard to the public would be reduced. Impacts would be less than significant and reduced compared to the proposed project.

As discussed in Section 4.8, *Hazards and Hazardous Materials,* there are several schools within 0.25-mile of hazardous materials sites. Compliance with existing federal and state regulations, discussed in detail in Section 4.8, *Hazards and Hazardous Materials,* would prevent the release of hazardous emissions to the extent feasible and would reduce the potential for hazardous emissions to occur near schools. Development under the No Project Alternative would be subject to the same regulations and impacts would be less than significant, similar to the proposed project.

The No Project Alternative would not result in any changes to the City's existing land uses. Therefore, no new safety hazards or excessive noise concerns associated with the Petaluma Municipal Airport would occur.

The proposed project would involve updating the City's Safety Element pursuant to Assembly Bill 747 and Senate Bill 99, which have mandated the inclusion of additional assessments and measures associated with emergency evacuation, including identification of emergency evacuation routes and capacity. The No Project Alternative would continue implementation of the City's existing General Plan, which does not incorporate these requirements. Accordingly, impacts related to emergency response and evacuation would be greater under this alternative.

As discussed in Section 4.8, *Hazards and Hazardous Materials,* and further in Section 4.17, *Wildfire,* the Plan Area is located adjacent to a fire hazard severity zone and there is existing risk of loss, injury, or death involving wildland fires. However, with compliance with state and federal regulations discussed in detail in Section 4.17, *Wildfire,* these risks would be reduced to a less than significant level. Development under the No Project Alternative would be subject to the same risks, and since this alternative would involve less development than the project, it would expose fewer people and structures to risks of wildland fires. Impacts would be less than significant and reduced compared to the proposed project.

Although the No Project Alternative would have greater impacts related to emergency response and evacuation, this alternative would involve less development than the proposed project. Overall, impacts related to hazards and hazardous materials would be reduced under the No Project Alternative compared to the proposed project.

i. Hydrology and Water Quality

Similar to the proposed project, development under the No Project Alternative would involve construction activities which may include excavation, grading, soil compaction and moving, and soil stockpiling. Future development would be required to comply with state and local water quality regulations designed to control erosion and protect water quality, such as the National Pollutant Discharge Elimination System Construction General Permit. Future development would also be required to comply with Chapter 17.31 of the Petaluma Municipal Code, which regulates earth-moving activities and requires an erosion control plan. Because the No Project Alternative would involve less development than the proposed project, the potential to degrade surface or groundwater quality would be reduced. Impacts would be less than significant and reduced compared to the proposed project.

As discussed in Section 4.9, *Hydrology and Water Quality,* the City's water supply is not dependent on groundwater and the proposed project would not substantially decrease groundwater supplies or recharge. Because the No Project Alternative would involve less development than the proposed project, it would result in reduced impacts to groundwater supplies and recharge. Impacts would be less than significant and reduced compared to the proposed project.

As under the proposed project, development under the No Project Alternative may alter drainage patterns within individual sites and incrementally increase overall runoff volumes in the Plan Area. However, this would occur to a lesser extent under the No Project Alternative as it would involve less development than the proposed project. Development under this alternative would be required to comply with the City's and Sonoma Water's low impact development requirements to ensure that existing drainage on an individual site is not substantially altered. Impacts would be less than significant and reduced compared to the proposed project.

Similar to the proposed project, this alternative would not include installation of new groundwater wells, substantially decrease groundwater supply, or interfere with groundwater recharge such that the project would impede sustainable groundwater management of the Petaluma Valley Basin.

Further, operations of future development under this alternative would comply with the Municipal Separate Storm Sewer System Permit, the Industrial General Permit, and the Petaluma Municipal Code requirements for post-construction stormwater control to comply with the San Francisco Regional Water Quality Control Board's Basin Plan for water quality. Impacts related to implementation of a water quality control plan or sustainable groundwater management plan would be less than significant and reduced compared to the proposed project.

Overall, impacts related to hydrology and water quality would be reduced under the No Project Alternative compared to the proposed project.

j. Land Use and Planning

Under the No Project Alternative, development would continue to be guided by the City's existing General Plan and land use pattern. Accordingly, new development would not occur in a way that physically divides established communities in Petaluma. Impacts would be less than significant and similar to the proposed project.

The No Project Alternative would not include updates to the City's existing General Plan. Because the current General Plan was adopted in 2008, it would not be as consistent with other regionally and locally adopted land use plans, policies, and regulations that have been updated since the adoption of the previous General Plan. These plans include Plan Bay Area 2050, the 2017 Clean Air Plan, and the Petaluma Blueprint for Climate Action. Without updates to the City's General Plan, the No Project Alternative would lack consistency with these more recent plans and could conflict with plans, policies, and regulations that intend to mitigate an environmental effect. Impacts would be greater compared to the proposed project.

Overall, the No Project Alternative would have greater impacts related to land use and planning compared to the proposed project.

k. Noise

As discussed in Section 4.11, *Noise,* construction of individual development facilitated by the proposed project would temporarily produce high noise levels and vibration, which could affect nearby noise-sensitive land uses. Although the No Project Alternative would involve less development than the proposed project, this development would still occur adjacent to noise-sensitive land uses such as residences and schools. Construction noise and vibration impacts would be reduced compared to the proposed project, but would remain significant and unavoidable. Operation of development under the No Project Alternative would generate less noise and vibration than the proposed project. Impacts would be less than significant and would be reduced compared to the project.

The No Project Alternative would not result in any changes to the City's existing land uses. Therefore, no new aircraft noise concerns associated with the Petaluma Municipal Airport would occur.

Overall, noise impacts would be reduced under the No Project Alternative compared to the proposed project.

l. Population and Housing

The No Project Alternative would facilitate 2,437 fewer housing units than the proposed project. With an average of 2.55 persons per household in Petaluma, as discussed in Section 4.12,

Population and Housing, the No Project Alternative would result in approximately 6,215 fewer residents than the proposed project. As discussed in Section 4.12, *Population and Housing*, the total population increase associated with the proposed project would align with the growth assumptions outlined in Plan Bay Area 2050, which projects regional population growth. Therefore, growth under the No Project Alternative would also be within projections in Plan Bay Area 2050, and this alternative would not induce substantial unplanned population growth. Impacts would be less than significant and similar to the proposed project.

Development under this alternative would continue to be guided by the existing General Plan, which planned for growth in Petaluma through 2025. Development would occur under the city's existing land use pattern, and would not displace housing envisioned by the current 2025 General Plan. Impacts would be less than significant and similar to the proposed project.

Overall, the No Project Alternative's impacts related to population and housing would be similar to the proposed project.

m. Public Services and Recreation

As discussed in Section 4.13, *Public Services and Recreation,* development facilitated by the proposed project would result in an increase in demand for fire and police protection services, and other public services and facilities. Similar to the proposed project, development under the No Project Alternative would be required to meet the standard fire code safety and access requirements administered by the City of Petaluma and California Building Code. Similar to the proposed project, buildout under the No Project Alternative would require the City to evaluate operations and deployment of fire and police protection services. Because this alternative would increase the population of Petaluma incrementally, and would result in less growth than the proposed project, growth and development under this alternative would be adequately served by the City's fire and police departments. Impacts would be reduced compared to the proposed project and would be less than significant.

As under the proposed project, development under the No Project Alternative would also be required to pay impact fees that would provide funding for the provision or expansion of new school facilities, pursuant to Government Code Section 65995(b). Impacts from the project would be offset by the payment of impact fees, and impacts would be less than significant. Impacts would be similar to the proposed project.

As discussed in Section 4.13, *Public Services and Recreation,* the City of Petaluma offers a total of 549.1 acres of parks and recreational facilities across 49 parks. This translates to a parkland to population ratio of approximately 9.18 acres per 1,000 residents, which greatly exceeds both the Quimby Act and Petaluma Municipal Code Chapter 20.34 standard of 5 acres per 1,000 residents. Implementation of the proposed project would result in a parkland to resident ratio of approximately 8.67 acres per 1,000 residents, which still exceeds the target ratio. Accordingly, because this alternative would result in less growth than the project, this ratio would also be met and exceeded under the No Project Alternative. This alternative would also result in less demand for recreational facilities compared to the proposed project, as it would involve less growth. The No Project Alternative would not result in substantial deterioration of recreational facilities and would not require new or expanded facilities. Impacts to recreational facilities would be less than significant and reduced compared to the proposed project.

Overall, impacts related to public services and recreation would be reduced under the No Project Alternative compared to the proposed project.

n. Transportation

Similar to the proposed project, the No Project Alternative would facilitate development in Petaluma that would increase the use of transit services and alternative transportation options. Since the No Project Alternative would result in less growth than the proposed project, the increased demand and use of transit services and alternative transportation facilities would be reduced under this alternative. Development under the No Project Alternative would be required to pay transportation development impact fees. The City's existing programs, plans, and ordinances would continue to apply to the City's circulation system, including the City's current General Plan, and development guided by the current General Plan under this alternative would not conflict with programs, plans, and ordinances. Impacts would be less than significant and would be similar to the proposed project.

As discussed in Section 4.14, *Transportation,* the proposed project would result in an increase in per capita vehicle miles traveled (VMT) throughout Petaluma. It is anticipated that VMT per person in Petaluma would be 32.3 with implementation of the proposed project, which would exceed the threshold of 29.6 VMT per person. Although the No Project Alternative would result in less overall growth than the proposed project, it would likely not reduce VMT per capita. Under the proposed project, new development would be concentrated near high-quality transit, and many General Plan Update policies promote increased use of alternative transportation. In contrast, development under the No Project Alternative would continue under the existing General Plan and would not necessarily occur in transit-accessible areas. As a result, even with reduced growth, the No Project Alternative would likely generate a VMT per capita similar to or higher than existing conditions, and would therefore exceed the City's significance thresholds. Impacts would be significant and unavoidable and would be greater than the proposed project.

Future development under this alternative could modify the existing transportation network, but any changes would be required to meet applicable design standards in the California Manual on Uniform Traffic Control Devices and the California Highway Design Manual, minimizing potential conflicts. As with the proposed project, new development would also be required to comply with the California Fire Code. The Petaluma Fire Department would review and approve individual project designs during the building permit process to ensure adequate emergency access and ingress/egress. Therefore, impacts related to geometric design features and emergency access would be less than significant and similar to the proposed project.

Because the No Project Alternative would result in greater impacts to VMT, overall transportation impacts would be greater than the proposed project.

o. Tribal Cultural Resources

As discussed in Section 4.15, *Tribal Cultural Resources,* development facilitated by the proposed project would involve land disturbance, which has the potential to expose buried cultural resources and by extension impact tribal cultural resources. Although the No Project Alternative would involve less development and therefore less ground disturbance than the proposed project, the potential to encounter tribal cultural resources still exists. Impacts would be similar to the proposed project.

p. Utilities and Service Systems

As discussed in Section 4.16, *Utilities and Service Systems,* development facilitated by the proposed project would increase demand for utility services and infrastructure. Although utility upgrades may incrementally occur as buildout occurs throughout the project's lifetime, no substantial relocation

or construction of utility services would be required to service development facilitated by project beyond existing conditions. Future development under the No Project Alternative would be required to pay utilities development impact fees. Further, existing wastewater treatment capacity is adequate to serve the project's projected demand. Since the No Project Alternative would result in less growth and buildout than the proposed project, and therefore less demand, existing utility infrastructure and wastewater capacity would be sufficient to accommodate this alternative. Impacts would be less than significant and reduced compared to the proposed project.

As discussed in Section 4.16, *Utilities and Service Systems,* there is adequate water supply for development facilitated by the project during normal, dry, and multiple dry years through the proposed project's planning horizon of 2050. Accordingly, there would be sufficient water supply for the No Project Alternative, as it would result in less development compared to the proposed project. Impacts to water supply would be less than significant and reduced compared to the proposed project.

Similarly, as discussed in Section 4.16, *Utilities and Service Systems,* there is adequate solid waste infrastructure serving Petaluma and the proposed project would not generate waste in excess of existing capacity. The No Project Alternative would result in the generation of less solid waste than the proposed project due to the decrease in development potential and therefore less people and businesses generating waste, and existing capacity of local infrastructure would continue to be sufficient. Impacts would be less than significant and reduced compared to the proposed project.

Overall, impacts related to utilities and service systems would be reduced under the No Project Alternative compared to the proposed project.

q. Wildfire

As discussed in 4.17, *Wildfire,* the Plan Area is located adjacent to a fire hazard severity zone. The proposed project would involve updating the City's Safety Element pursuant to Assembly Bill 747 and Senate Bill 99, which have mandated the inclusion of additional assessments and measures associated with emergency evacuation, including identification of emergency evacuation routes and capacity. The No Project Alternative would continue implementation of the City's existing General Plan, which does not incorporate these requirements. Although the No Project Alternative would result in less population growth and therefore fewer people involved in emergency evacuation scenarios, impacts related to emergency response and evacuation would be greater under this alternative.

As under the proposed project, development under the No Project Alternative would adhere to the California Fire Code and would be reviewed by the Petaluma Fire Department. Compliance with existing regulations and review by the fire department would minimize wildfire risks, including risks related to slope, prevailing winds, flooding, landslides, and other factors, to the extent feasible. This alternative would facilitate less development than the proposed project and would not require the installation of substantial infrastructure that may exacerbate fire risk. Impacts would be less than significant and reduced compared to the proposed project.

Although the No Project Alternative would have greater impacts related to emergency response and evacuation, this alternative would involve less development and less fire risk. Overall, impacts related to wildfire would be reduced under the No Project Alternative compared to the proposed project.

6.3 Alternative 2: Focus on the Core

6.3.1 Description

The "Focus on the Core" Alternative assumes that the General Plan Update is adopted and implemented, with additional land use changes in the "core" of Petaluma. Land use changes under this alternative would include establishing high density, mixed use areas throughout the core of Petaluma, with an overall 25 percent increase in density compared to the proposed project. Development would be concentrated in downtown, along Bodega Avenue and Petaluma Boulevard North, and along Payran Street and Washington Street.

This alternative would reduce the need to increase density in other areas of the city, such as the Stepdown Mixed Use or Neighborhood Center Mixed Use areas proposed along Petaluma Boulevard in the northern portion of the city. While these areas may still be redesignated for higher density mixed use development, this alternative would allow for fewer parcels in this area to be redesignated, or would allow for the densities in this area to be reduced compared to what the proposed project would include. This alternative would result in a similar amount of growth and buildout as the proposed project, but development would be more concentrated in Petaluma's core area rather than spread throughout the city.

By concentrating development in the downtown core, this alternative would facilitate connectivity and reduce vehicle trips by locating people closer to businesses and destinations. In addition, because this alternative would concentrate development in urbanized areas of Petaluma, it would reduce the potential for natural lands to be developed.

The Focus on the Core Alternative would be consistent with most of the project objectives, including: reducing Petaluma's vulnerability to sea level rise and flooding (Objective 3); advancing social and economic justice (Objective 4); supporting community health (Objective 5); improving connectivity (Objective 6); providing affordable and diverse housing options (Objective 8); prioritizing infill development (Objective 9); and providing opportunities for economic development (Objective 11). Further, compared to the project, this alternative would be consistent with the City's objective to achieve carbon neutrality (Objective 13), and to protect natural systems and promote biodiversity (Objective 1).

6.3.2 Impact Analysis

a. Aesthetics

The Focus on the Core Alternative would involve concentrating development facilitated by the General Plan Update in a few key areas near downtown. By focusing the most intense development in one area of the city, this alternative would reduce the potential for aesthetic impacts in more visually-sensitive or less-developed parts of the city. By locating less-dense development in other areas of the city, some of which may be located near scenic vistas, this alternative would reduce the likelihood of obstructing public views or altering the visual quality of less developed neighborhoods. However, locating higher density development in the central portion of the city would alter the visual character of downtown, including the Petaluma Historic Commercial District, and surrounding areas. Light and glare impacts would also be focused in the core area of the city. Although impacts related to scenic vistas, visual character, and light and glare would be distributed differently throughout the city, impacts would ultimately be similar to the proposed project.

b. Agricultural and Forestry Resources

As discussed in Section 4.2, *Agricultural and Forestry Resources,* there are several parcels designated as Farmland of Local Importance within Petaluma. Similar to the proposed project, this alternative would involve changing the land use designations of these parcels from community commercial and medium density residential to maker/microbusiness, neighborhood commercial and diverse low density residential. While this alternative would concentrate more development in the core of the city than the proposed project, it would still involve land use changes and potential future development in these agricultural parcels. Accordingly, impacts to agricultural resources would be similar to the proposed project, and would remain less than significant. There are no forest lands within Petaluma and this alternative would have no impacts to forestry resources, similar to the proposed project.

c. Air Quality

As discussed in Section 4.3, *Air Quality,* a project is considered to be consistent with the Bay Area Air District's 2017 Clean Air Plan if it supports the plan's primary goals; includes applicable control measures from the plan; and does not hinder implementation of the plan. This alternative would involve updating the General Plan with the same goals and policies described for the proposed project, and as demonstrated in Table 4.3-7 in Section 4.3, *Air Quality,* these goals and policies would be consistent with the Clean Air Plan. In particular, this alternative would facilitate development in areas of the city with existing transit service and would locate residents closer to businesses. This would be consistent with the Clean Air Plan's trip reduction control measures. Impacts related to consistency with an air quality plan would be less than significant and similar to the proposed project.

This alternative would facilitate generally the same level of buildout as the proposed project. Therefore, construction impacts related to criteria air pollutant emissions would be similar. This alternative would also require implementation of Mitigation Measure AQ-1, Construction Emissions Screening, which would identify emission reduction measures to reduce criteria pollutants during construction of future development. In operation, this alternative would locate more residences and businesses in areas already served by transit and accessible via alternative transportation by focusing higher-density, mixed use development in the core of Petaluma. Similar to the proposed project, VMT associated with development facilitated by this alternative would increase at a lower rate than population growth. Impacts would be less than significant with mitigation, similar to the proposed project.

This alternative would facilitate generally the same level of buildout as the proposed project, but this development would be focused in the core of Petaluma rather than spread throughout the city. Accordingly, construction activities associated with future development could be more intense and individual projects could be under construction at the same time. As under the project, construction activities for individual projects lasting longer than two months or located within 1,000 feet of sensitive receptors could expose sensitive receptors to substantial pollutant concentrations. Further, with more dense development focused in a more concentrated area, operational emissions would be more concentrated in areas near downtown. Mitigation Measures AQ-2 through AQ-4 would be required, which would reduce the emission of pollutants during construction and operation to the extent feasible. Impacts related to exposing sensitive receptors to substantial pollutant concentrations would be greater under this alternative, but would be less than significant with mitigation.

Although this alternative would result in less VMT and associated emissions compared to the proposed project, this alternative would facilitate more development in the core of the Plan Area and would concentrate construction and operational emissions, which would result in slightly greater impacts than the proposed project. Overall, air quality impacts would be greater under this alternative compared to the proposed project.

d. Biological Resources

The Focus on the Core Alternative would involve concentrating development facilitated by the General Plan Update in a few key areas near downtown. By focusing the most intense development in one area of the city, this alternative would reduce the potential for biological resources impacts in more sensitive or less-developed areas of the city. However, while development outside of the core would be lower density, development would still occur and impacts to special status species, riparian habitat, sensitive natural communities, and wetlands would still be possible. Impacts would be reduced compared to the proposed project, but Mitigation Measures BIO-1 through BIO-7 would still be required to reduce potential impacts to a less than significant level.

Habitat connectivity features within the Plan Area are generally located to the southeast of the Plan Area, as well as within the riparian corridor along the Petaluma River and associated tributaries. Similar to the proposed project, development under this alternative would occur in areas that are already disturbed or developed, and would not result in potentially significant impacts to wildlife movement. Impacts would be less than significant and similar to the proposed project.

Potential impacts to trees and other biological resources, such as those resulting from tree and vegetation removal, may result from development facilitated by this alternative. Similar to the proposed project, development would adhere to the requirements of the Petaluma Municipal Code and impacts related to conflicts with local ordinances protecting biological resources would be less than significant. Impacts would be similar to the proposed project.

Overall, biological resources impacts under the Focus on the Core Alternative would be similar to the proposed project.

e. Cultural Resources

As discussed in Section 4.5, *Cultural Resources,* there are several hundred resources and properties throughout Petaluma that are eligible or potentially eligible for listing in either the National Register of Historic Places or California Register of Historic Resources. Many of these properties are located within or near downtown. Because this alternative would facilitate more, higher-density development in areas near downtown, this alternative has greater potential to result in the adverse change to a historical resource compared to the proposed project. Development under this alternative would continue to be subject to existing General Plan policies and local, state, and federal regulations that pertain to protection and preservation of historic resources; however, impacts would remain significant and unavoidable and would be greater than the proposed project even with implementation of Mitigation Measure CUL-1.

As discussed in Section 4.5, *Cultural Resources,* there are several recorded archaeological sites, archaeological resources, and prehistoric burials within the Plan Area. This alternative would focus development in core areas of Petaluma, and the potential for development to encounter and disturb archaeological resources and human remains would be reduced under this alternative as most of the downtown core is already disturbed in comparison to the rest of the city. However, due to the presence of archaeological resources and burials throughout the Plan Area, development

could still cause an adverse change in the significance of an archaeological resource and could disturb human remains. Impacts would be slightly reduced compared to the proposed project with implementation of Mitigation Measure CUL-2.

Although this alternative would result in reduced impacts to archaeological resources and human remains, this alternative has a greater potential to impact historic resources by concentrating development in downtown Petaluma. Overall, impacts related to cultural resources under the Focus on the Core Alternative would be greater than the proposed project.

f. Geology and Soils

As discussed in Section 4.6, *Geology and Soils,* there are several faults in the vicinity of the Plan Area and the city is located in a seismically active area of California. Similar to the proposed project, development that occurs under the Focus on the Core Alternative would be required to adhere to the California Building Code and the Petaluma Municipal Code, which establish design and construction measures and requirements for structures to resist damage from an earthquake to the extent feasible. Further, as required by Title 17 within the Petaluma Municipal Code, which adopts the current California Building Code, site-specific geotechnical investigations would identify liquefaction and landslide potential areas within individual development sites and include recommendations to reduce hazards associated with liquefaction and/or landslide. Accordingly, impacts would be less than significant and similar to the proposed project.

Similar to the proposed project, development under this alternative could result in soil erosion or the loss of topsoil. As under the proposed project, development under this alternative would be required to comply with Petaluma Municipal Code Chapter 17.31, which regulates grading to control erosion. Development under this alternative could also be located in areas with unstable soil, which are known to be located in the central and southwestern portions of the city. With compliance with the California Building Code and local modifications outlined in the Petaluma Municipal Code, would reduce risks associated with on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, as well as impacts related to expansive soils. Impacts would be less than significant and similar to the proposed project.

As under the proposed project, new development under this alternative would be required to connect to the City's existing sewer system and no impacts related to septic tanks or alternative wastewater disposal would occur.

As discussed in Section 4.6, *Geology and Soils,* development in the Plan Area could be located on soils with paleontological sensitivity. Because the Focus on the Core Alternative would focus development in a more concentrated area of Petaluma, and the potential for development to encounter and disturb paleontological resources would be reduced under this alternative. However, development in the Plan Area could still directly or indirectly destroy a unique paleontological resource. Impacts would be slightly reduced under this alternative and would be less than significant with implementation of Mitigation Measures GEO-1 and GEO-2.

Overall, impacts related to geology and soils would be reduced under this alternative because there would be less potential to disturb paleontological resources.

g. Greenhouse Gas Emissions

As discussed in Section 4.7, *Greenhouse Gas Emissions*, development facilitated by the project would be consistent with the City's Blueprint for Climate Action. However, the Blueprint is not a "qualified" Climate Action Plan or GHG reduction plan under CEQA Guidelines Section 15183.5(f),

and the project would potentially conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and would generate substantial GHG emissions. Project impacts would be significant and unavoidable.

Development facilitated by the Focus on the Core Alternative would similarly be consistent with the Blueprint. In particular, this alternative would further meet goals related to transportation demand and transit. Since this alternative would facilitate higher-density, mixed use development in the core of Petaluma, development would be located in areas already served by transit and accessible via alternative transportation, which would reduce VMT and vehicle emissions compared to the proposed project. However, as under the proposed project, the Blueprint would not be a qualified Climate Action Plan, and because the Blueprint is not enforceable or implementable, this alternative would potentially conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and would generate substantial GHG emissions. Impacts would be similar to the proposed project and would be significant and unavoidable. ..

h. Hazards and Hazardous Materials

As discussed in Section 4.8, *Hazards and Hazardous Materials,* there are several active hazardous materials sites throughout the Plan Area. Future development that is proposed to occur within these sites would be remediated with regulatory agency oversight as required, and construction activities would be required to comply with federal and state regulations (discussed in detail in Section 4.8) pertaining to the handling, removal, and disposal of hazardous materials. With compliance with applicable regulations, the proposed project's impacts related to hazardous materials sites would be less than significant. The Focus on the Core Alternative would locate higher-density development in the core area of Petaluma; however, development would still occur throughout the city, potentially within or near the hazardous materials sites. The potential to create a significant hazard to the public would be similar. Impacts would be less than significant and similar to the proposed project.

As discussed in Section 4.8, *Hazards and Hazardous Materials,* there are several schools within 0.25-mile of hazardous materials sites. Compliance with existing federal and state regulations, discussed in detail in Section 4.8, would prevent the release of hazardous emissions to the extent feasible and would reduce the potential for hazardous emissions to occur near schools. Development under this alternative would be subject to the same regulations and impacts would be less than significant, similar to the proposed project.

Although the Focus on the Core Alternative would concentrate higher-density development near the core area of Petaluma, development would still occur throughout the city similar to the proposed project. As discussed in Section 4.8, *Hazards and Hazardous Materials,* the Plan Area where development would occur is outside of the Petaluma Municipal Airport's referral area boundary and safety zones. Impacts would be less than significant and similar to the proposed project.

Similar to the proposed project, this alternative would involve updating the City's Safety Element pursuant to Assembly Bill 747 and Senate Bill 99, which have mandated the inclusion of additional assessments and measures associated with emergency evacuation, including identification of emergency evacuation routes and capacity. Accordingly, this alternative would not impair implementation of emergency response or evacuation plans and impacts would be less than significant, similar to the proposed project.

As discussed in Section 4.8 and further in Section 4.17, *Wildfire,* the Plan Area is located adjacent to a fire hazard severity zone and there is existing risk of loss, injury, or death involving wildland fires. However, with compliance with state and federal regulations discussed in detail in Section 4.17, these risks would be reduced to a less than significant level. Development under this alternative would be subject to the same risks, and since this alternative would concentrate development in urbanized areas of the city, it would expose fewer people and structures to risks of wildland fires. Impacts would be less than significant and reduced compared to the proposed project.

Overall, impacts related to hazards and hazardous materials under this alternative would be similar to the proposed project.

i. Hydrology and Water Quality

Similar to the proposed project, development under the Focus on the Core Alternative would involve construction activities which may include excavation, grading, soil compaction and moving, and soil stockpiling. Future development would be required to comply with state and local water quality regulations designed to control erosion and protect water quality, such as the National Pollutant Discharge Elimination System Construction General Permit. Future development would also be required to comply with Chapter 17.31 of the Petaluma Municipal Code, which regulates earth-moving activities and requires an erosion control plan. Impacts would be less than significant and similar to the proposed project.

As discussed in Section 4.9, *Hydrology and Water Quality,* the City's water supply is not dependent on groundwater and the proposed project would not substantially decrease groundwater supplies or recharge. Because this alternative would involve generally the same level of buildout compared to the proposed project, it would result in similar impacts to groundwater supplies and recharge. Impacts would be less than significant and similar to the proposed project.

As under the proposed project, development under this alternative may alter drainage patterns within individual sites and incrementally increase overall runoff volumes in the Plan Area. Although higher-density development would be focused in the core of the city, the physical footprint of buildout facilitated by this alternative would be generally similar to the proposed project. Development under this alternative would be required to comply with the City's and Sonoma Water's low impact development requirements to ensure that existing drainage on an individual site is not substantially altered. Impacts would be less than significant and similar to the proposed project.

Similar to the proposed project, this alternative would not include installation of new groundwater wells, substantially decrease groundwater supply, or interfere with groundwater recharge such that the project would impede sustainable groundwater management of the Petaluma Valley Basin. Further, operations of future development under this alternative would comply with the Municipal Separate Storm Sewer System Permit, the Industrial General Permit, and the Petaluma Municipal Code requirements for post-construction stormwater control to comply with the San Francisco Regional Water Quality Control Board's Basin Plan for water quality. Impacts related to implementation of a water quality control plan or sustainable groundwater management plan would be less than significant and similar to the proposed project.

Overall, impacts related to hydrology and water quality under this alternative would be similar to the proposed project.

j. Land Use and Planning

Land use under the Focus on the Core Alternative would be generally similar to the proposed project, but would focus higher-density mixed use land uses in the core area of Petaluma. By concentrating more residences and businesses near downtown, this alternative would enhance connectivity and would not physically divide an established community. Impacts would be less than significant and similar to the proposed project.

This alternative would generally involve the same updates to the General Plan as the proposed project, other than the higher-density land use designations in the core. Accordingly, similar to the proposed project, this alternative would be consistent with regionally and locally adopted land use plans, policies, and regulations, such as Plan Bay Area 2050 and the 2017 Clean Air Plan. This alternative would not conflict with plans that intend to mitigate an environmental effect and impacts would be less than significant, similar to the proposed project.

Overall, land use and planning impacts under this alternative would be similar to the proposed project.

k. Noise

As discussed in Section 4.11, *Noise,* construction of individual development facilitated by the proposed project would temporarily produce high noise levels and vibration, which could affect nearby noise-sensitive land uses. Because the Focus on the Core Alternative would concentrate higher-density development in areas near downtown, construction noise could be louder or occur for longer than the proposed project, and this development would occur adjacent to noise-sensitive land uses such as residences and schools. Therefore, construction noise and vibration impacts would be greater than the proposed project, and impacts would remain significant and unavoidable even with Mitigation Measures NOI-1(a) and NOI-1(b). Because this alternative would result in a similar level of development as the proposed project, operation of development under this alternative would generate similar levels of noise and vibration, although this noise would be more concentrated in downtown. Operational impacts would be less than significant and similar to the project.

The Focus on the Core Alternative would facilitate development outside of the Petaluma Municipal Airport's referral area boundary and safety zones, similar to the proposed project. Airport noise impacts would be less than significant and similar to the proposed project.

Overall, noise impacts under this alternative would be similar to the proposed project.

l. Population and Housing

The Focus on the Core Alternative would facilitate a similar level of growth and buildout as the proposed project, although more of this buildout would be focused near downtown. As discussed in Section 4.12, *Population and Housing*, the total population increase associated with the proposed project would align with the growth assumptions outlined in Plan Bay Area 2050, which projects regional population growth. Therefore, growth under this alternative would also be within projections in Plan Bay Area 2050, and this alternative would not induce substantial unplanned population growth. Impacts would be less than significant and similar to the proposed project.

Similar to the proposed project, this alternative would direct new growth and new urban development on infill sites within the city that are underutilized. As discussed in Section 4.12, *Population and Housing,* substantial displacement of existing residences would occur if allowed land

uses would displace more residences than would be accommodated through growth facilitated by the project. This alternative would facilitate the same level of development as the proposed project. The proposed residential units would provide additional housing opportunities for residents if any are displaced during buildout of the proposed project. In addition, as under the proposed project, future development facilitated under this alternative would be required to comply with Policy 6.1 of the City's 2023-2031 Housing Element, which requires compliance with Fair Housing and anti-discrimination laws and affirmatively further fair housing for all; and Policy 6.3, which protects tenants from discriminatory housing practices and displacement. Impacts would be less than significant and similar to the proposed project.

Overall, impacts related to population and housing under this alternative would be similar to the proposed project.

m. Public Services and Recreation

The Focus on the Core Alternative would facilitate a similar level of growth and buildout as the proposed project, although more of this buildout would be focused near downtown. Therefore, this alternative would result in a similar increase in demand for fire and police protection services, and other public services and facilities, as the proposed project. As under the proposed project, development under this alternative would be required to meet the standard fire code safety and access requirements administered by the City of Petaluma and California Building Code. Similar to the proposed project, buildout under this alternative would require the City to evaluate operations and deployment of fire and police protection services. Because this alternative would increase the population of Petaluma incrementally and development would be required to pay development impact fees, growth and development under this alternative would be adequately served by the City's fire and police departments. Impacts would be similar to the proposed project and would be less than significant.

As under the proposed project, development under this alternative would also be required to pay impact fees that would provide funding for the provision or expansion of new school facilities, pursuant to Government Code Section 65995(b). Impacts from the project would be offset by the payment of impact fees, and impacts would be less than significant. Impacts would be similar to the proposed project.

As discussed in Section 4.13, implementation of the proposed project would result in a parkland to resident ratio of approximately 8.67 acres per 1,000 residents, which exceeds both the Quimby Act and Petaluma Municipal Code Chapter 20.34 standard of 5 acres per 1,000 residents. Because this alternative would result in a similar level of growth as the project, this alternative would also result in a parkland to resident ratio of approximately 8.67 acres per 1,000 residents. This alternative would not result in substantial deterioration of recreational facilities and would not require new or expanded facilities. Impacts to recreational facilities would be less than significant and similar to the proposed project.

Overall, impacts related to public services and recreation under this alternative would be similar to the proposed project.

n. Transportation

Similar to the proposed project, the Focus on the Core Alternative would facilitate development in Petaluma that would increase the use of transit services and alternative transportation options. By focusing higher-density, mixed use development in the core of Petaluma, this alternative would

locate more residences and businesses in areas already served by transit and accessible via alternative transportation modes. Therefore, this alternative would better meet goals and policies within existing programs, plans, and ordinances that promote alternative transportation and encourage fewer vehicle trips. Impacts would be less than significant and would be reduced compared to the proposed project.

As discussed in Section 4.14, *Transportation,* the proposed project would result in an increase in per capita VMT throughout Petaluma. It is anticipated that VMT per person in Petaluma would be 32.3 with implementation of the proposed project, which would exceed the threshold of 29.6 VMT per person. The Focus on the Core Alternative would concentrate new housing and businesses in Petaluma's central area, which would shorten vehicle trips and reduce the total number of miles residents drive to reach jobs, schools, and services. By placing more homes close to destinations, this alternative would also make it easier for residents to walk, bike, or use other non-automobile modes of travel. Therefore, this alternative would result in a lower VMT per capita than the proposed project. This analysis conservatively assumes that, although VMT per capita would be reduced under this alternative, VMT per capita would likely still exceed the threshold of 29.6 VMT per person. Impacts would be significant and unavoidable even with implementation of Mitigation Measures TRA-1 through TRA-3, but would be reduced compared to the proposed project.

Future development under this alternative could modify the existing transportation network, but any changes would be required to meet applicable design standards in the California Manual on Uniform Traffic Control Devices and the California Highway Design Manual, minimizing potential conflicts. As with the proposed project, new development would also be required to comply with the California Fire Code. The Petaluma Fire Department would review and approve individual project designs during the building permit process to ensure adequate emergency access and ingress/egress. Therefore, impacts related to geometric design features and emergency access would be less than significant and similar to the proposed project.

Overall, transportation impacts under this alternative would be reduced compared to the proposed project.

o. Tribal Cultural Resources

As discussed in Section 4.15, *Tribal Cultural Resources,* development facilitated by the proposed project would involve land disturbance, which has the potential to expose buried cultural resources and by extension impact tribal cultural resources. This alternative would focus development in core areas of Petaluma, and the potential for development to encounter and disturb tribal cultural resources would be reduced under this alternative as most of the downtown core is already disturbed in comparison to the rest of the city and development would occur in a smaller geographic area. However, the potential to encounter tribal cultural resources would remain. Mitigation Measures TCR-1 through TCR-4 would be required and impacts would be less than significant with mitigation, similar to the proposed project.

p. Utilities and Service Systems

Development facilitated by the proposed project would increase demand for utility services and infrastructure. As discussed in Section 4.16, *Utilities and Service Systems,* there are several locations in the Plan Area that could experience sewer capacity deficiencies, including pipelines along Washington Street and Petaluma Boulevard. Similar to the proposed project, buildout facilitated by this alternative would be required to pay wastewater impact fees to offset costs associated with expansion of the city's sewer system. New or expanded wastewater infrastructure would also be

required to comply with other applicable regulations of Petaluma Municipal Code that pertain to design and capacity. Impacts would be less than significant and similar to the proposed project.

As discussed in Section 4.16, *Utilities and Service Systems,* there is adequate water supply for development facilitated by the project during normal years and multiple dry years, but a water supply shortfall would occur during a single-dry year. As under the proposed project, Implementation of the Water Shortage Contingency Plan, if necessary, would facilitate the provision of water to new development in Petaluma. Further, applicable policies in the General Plan Update would assist the City in maintaining the water supply and water service for future use and development through managing the City's water supply sources, promoting efficient water use, and promoting recycled water use. Accordingly, there would be sufficient water supply for this alternative. Impacts to water supply would be less than significant and similar to the proposed project.

As discussed in Section 4.16, *Utilities and Service Systems,* there is adequate solid waste infrastructure serving Petaluma and the proposed project would not generate waste in excess of existing capacity. This alternative would generate a similar amount of solid waste as the proposed project, and existing capacity of local infrastructure would continue to be sufficient. Impacts would be less than significant and similar to the proposed project.

Overall, impacts related to utilities and service systems under this alternative would be similar to the proposed project.

q. Wildfire

As discussed in 4.17, *Wildfire,* the Plan Area is located adjacent to a fire hazard severity zone. The proposed project would involve updating the City's Safety Element pursuant to Assembly Bill 747 and Senate Bill 99, which have mandated the inclusion of additional assessments and measures associated with emergency evacuation, including identification of emergency evacuation routes and capacity. The Focus on the Core Alternative would also incorporate these updates, and impacts related to emergency response and evacuation would be similar under this alternative. Impacts would be less than significant.

As under the proposed project, development under this alternative would adhere to the California Fire Code and would be reviewed by the Petaluma Fire Department. Compliance with existing regulations and review by the fire department would minimize wildfire risks, including risks related to slope, prevailing winds, flooding, landslides, and other factors, to the extent feasible. Growth under this alternative would be primarily infill and would not require the installation of substantial infrastructure that may exacerbate fire risk. Additionally, the Focus on the Core Alternative would locate more residents in the developed core of Petaluma, and less residents in other areas of the City that are more proximate to fire hazard areas. Therefore, impacts would be less than significant and reduced compared to the proposed project.

Overall, wildfire impacts under this alternative would be reduced compared to the proposed project.

6.4 Alternative 3: Corridor Growth

6.4.1 Description

The Corridor Growth Alternative assumes adoption and implementation of the General Plan Update, with additional land use modifications that would redirect growth away from the City's core and along major corridors and dispersed throughout the City and within the Urban Growth Boundary (UGB). Under this alternative, land use designations would be modified and development densities increased on select parcels located outside the core where land availability, existing infrastructure capacity, and surrounding land use patterns may better accommodate new development, thereby reducing development pressure in downtown and core areas.

Compared to the proposed project, this alternative would shift multifamily residential development away from previously developed areas in the City's core and disperse development along major corridors. As a result, this alternative would reduce the extent to which higher densities would need to be accommodated in the core of the City, and including mixed use areas along Petaluma Boulevard in the northwestern portion of the City and the Stepdown Mixed Use and Neighborhood Center Mixed Use areas near downtown. While some of these areas may still be redesignated for higher density mixed use development, fewer parcels would require redesignation, or allowable densities would be reduced compared to the proposed project.

Overall, the Corridor Growth Alternative would result in a similar level of growth and buildout as the proposed project; however, residential development would be more broadly distributed across the City along major corridors rather than concentrated within the core.

The Corridor Growth Alternative would be consistent with most of the project objectives, including: reducing Petaluma's vulnerability to sea level rise and flooding (Objective 3); advancing social and economic justice (Objective 4); ; providing affordable and diverse housing options (Objective 8); preserving and strengthening Petaluma's historic districts and resources (Objective 10); and providing opportunities for economic development (Objective 11). However, this alternative would not as effectively meet project objectives to protect and enhance natural systems (Objective 1), improve connectivity (Objective 6), prioritize infill development (Objective 9), City's objective to achieve carbon neutrality (Objective 13).

6.4.2 Impact Analysis

a. Aesthetics

The Corridor Growth Alternative would involve locating higher-density residential developments in more peripheral areas of the city closer to city limits. By locating high density residential development outside of the city's core, this alternative would have reduced impacts to the visual character of downtown Petaluma or other already-developed areas. In addition, by locating higher-density residential developments away from the core of Petaluma, light and glare impacts would be dispersed more evenly throughout the city. However, this alternative would potentially result in impacts to scenic vistas that are currently available from less-developed areas along the city limits. Overall, impacts related to scenic vistas, visual character, and light and glare would be similar to the proposed project, but would be distributed differently in the city.

b. Agricultural and Forestry Resources

As discussed in Section 4.2, *Agricultural and Forestry Resources,* there are several parcels designated as Farmland of Local Importance within Petaluma. Several of these parcels already have General Plan land use designations for community commercial and medium density residential, and similar to the proposed project, this alternative would involve redesignating these parcels to maker/ microbusiness, neighborhood commercial and diverse low density residential. However, this alternative would involve locating high-density residential uses closer to the edges of city limits, potentially encroaching on areas where Farmland of Local Importance within the city limits and the UGB is located. Therefore, this alternative may convert more farmland to non-agricultural uses than the proposed project. Impacts would be greater than the less-than-significant impacts to agricultural resources under the proposed project.

There are no forest lands within Petaluma, and the areas in the UGB proposed for development under this alternative do not contain forest lands. This alternative would have no impacts to forestry resources, similar to the proposed project.

Because this alternative may convert more farmland to non-agricultural uses than the proposed project, impacts to agricultural and forestry resources would be greater under this alternative compared to the proposed project.

c. Air Quality

As discussed in Section 4.3, *Air Quality,* a project is considered to be consistent with the Bay Area Air District's 2017 Clean Air Plan if it supports the plan's primary goals; includes applicable control measures from the plan; and does not hinder implementation of the plan. This alternative would involve updating the General Plan with the same goals and policies described for the proposed project, and as demonstrated in Table 4.3-7 in Section 4.3, these goals and policies would be consistent with the Clean Air Plan. Impacts related to consistency with an air quality plan would be less than significant and similar to the proposed project.

This alternative would facilitate generally the same level of buildout as the proposed project. Therefore, construction impacts related to criteria air pollutant emissions would be similar. This alternative would also require implementation of Mitigation Measure AQ-1, Construction Emissions Screening, which would identify emission reduction measures to reduce criteria pollutants during construction of future development. However, because this alternative would reduce growth in the core of the city and downtown, this alternative would result in more VMT in operation. Therefore, air quality emissions associated with VMT under this alternative would be greater compared to the proposed project. Impacts would be less than significant with mitigation, similar to the proposed project.

This alternative would facilitate generally the same level of buildout as the proposed project, but residential development would be distributed throughout the city. Accordingly, construction activities associated with future development would be surrounded by fewer developed areas, which may contain sensitive receptors. However, as under the project, construction activities for individual projects lasting longer than two months or located within 1,000 feet of sensitive receptors could expose sensitive receptors to substantial pollutant concentrations. Mitigation Measures AQ-2 through AQ-4 would be required, which would reduce the emission of pollutants during construction and operation to the extent feasible. Impacts related to exposing sensitive receptors to substantial pollutant concentrations would be reduced under this alternative, and would be less than significant with mitigation.

Overall, air quality impacts under this alternative would be reduced compared to the proposed project.

d. Biological Resources

The Corridor Growth Alternative would involve locating high-density residential development in less developed areas closer to the edges of city limits. While areas that would potentially accommodate this growth are less developed than Petaluma's core, many areas in the peripheral portions of the city have been previously disturbed. Although native vegetation and habitats may be limited in these areas, disturbance of these undeveloped lands could result in greater impacts to special status species, riparian habitat, sensitive natural communities, and wetlands. Accordingly, impacts to biological resources would be greater under this alternative. Mitigation Measures BIO-1 through BIO-7 would be required to reduce potential impacts to a less than significant level.

Habitat connectivity features are generally located in the southern portion of the Plan Area, as well as within the riparian corridor along the Petaluma River and associated tributaries. While there are no known habitat connectivity features in the areas identified for this alternative, the sites may contain additional habitat since they are undeveloped. Impacts would be less than significant, but greater than the proposed project.

Potential impacts to trees and other biological resources, such as those resulting from tree and vegetation removal, may result from development facilitated by this alternative. Similar to the proposed project, development would adhere to the requirements of the Petaluma Municipal Code and impacts related to conflicts with local ordinances protecting biological resources would be less than significant. Impacts would be similar to the proposed project.

Overall, because the Corridor Growth Alternative would generally facilitate more development in undeveloped areas, impacts related to biological resources would be greater than the proposed project.

e. Cultural Resources

As discussed in Section 4.5, *Cultural Resources,* there are several hundred resources and properties throughout Petaluma that are eligible or potentially eligible for listing in the National Register of Historic Places or California Register of Historic Resources. Many of these properties are located within or near downtown. The Corridor Growth Alternative would locate higher-density residential uses away from previously developed areas that may contain historic resources. Therefore, this alternative would result in reduced impacts to historic resources. However, similar to the proposed project, this alternative would facilitate development throughout Petaluma, which could potentially result in a substantial adverse change to a historic resource. Development under this alternative would continue to be subject to existing General Plan policies and local, state, and federal regulations that pertain to protection and preservation of historic resources. Impacts would remain significant and unavoidable even with Mitigation Measure CUL-1, but impacts would be reduced under this alternative.

As discussed in Section 4.5, *Cultural Resources,* there are several recorded archaeological sites, archaeological resources, and prehistoric burials within the Plan Area. This alternative would facilitate development in previously undeveloped areas, which may contain previously undiscovered archaeological resources and burials. Development under this alternative would have an increased chance of causing an adverse change in the significance of an archaeological resource or human

remains. Impacts would be greater under this alternative but would remain less than significant with Mitigation Measure CUL-2.

Overall, because this alternative has greater potential to impact archaeological resources and human remains, impacts to cultural resources would be greater than the proposed project.

f. Geology and Soils

As discussed in Section 4.6, *Geology and Soils,* there are several faults in the vicinity of the Plan Area and the city is located in a seismically active area of California. Similar to the proposed project, development that occurs under this alternative would be required to adhere to the California Building Code and the Petaluma Municipal Code, which establish design and construction measures and requirements for structures to resist damage from an earthquake to the extent feasible. Further, as required by Title 17 within the Petaluma Municipal Code, which adopts the current California Building Code, site-specific geotechnical investigations would identify liquefaction and landslide potential areas within individual development sites and include recommendations to reduce hazards associated with liquefaction and/or landslide. Accordingly, impacts would be less than significant and similar to the proposed project.

Similar to the proposed project, development under this alternative could result in soil erosion or the loss of topsoil. As under the proposed project, development under this alternative would be required to comply with Petaluma Municipal Code Chapter 17.31, which regulates grading to control erosion. Development under this alternative could also be located in areas with unstable soil, which are known to be located in the central and southwestern portions of the city. With compliance with the California Building Code and local modifications outlined in the Petaluma Municipal Code, would reduce risks associated with on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, as well as impacts related to expansive soils. Impacts would be less than significant and similar to the proposed project.

As under the proposed project, new development under this alternative would be required to connect to the City's existing sewer system and no impacts related to septic tanks or alternative wastewater disposal would occur.

As discussed in Section 4.6, *Geology and Soils,* development in the Plan Area could be located on soils with paleontological sensitivity. Because the Corridor Growth Alternative would facilitate some development in previously undeveloped areas, the potential for development to encounter and disturb paleontological resources would be greater under this alternative. Impacts would remain less than significant with implementation of Mitigation Measures GEO-1 and GEO-2.

Because this alternative has greater potential to encounter and disturb paleontological resources, impacts related to geology and soils would be greater than the proposed project.

g. Greenhouse Gas Emissions

As discussed in Section 4.7, *Greenhouse Gas Emissions*, development facilitated by the project would be consistent with the City's Blueprint for Climate Action. However, due to the current regulatory environment the Blueprint is not yet qualified and there are a number of Actions identified within it that are not yet fully enforceable or implementable due to circumstances outside the City's control. Accordingly the project would potentially conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and could generate substantial GHG emissions. Project impacts would be significant and unavoidable. However, this alternative would include development in less developed areas near the city limits that may not be

as well served by existing or planned transit infrastructure. As a result, this alternative would be less effective in meeting Blueprint goals related to transportation demand management and transit-oriented development. Development in these locations would likely result in increased vehicle dependence and higher vehicle miles traveled compared to the proposed project. As with the proposed project, the Blueprint would not function as a qualified Climate Action Plan at this time, , and therefore the Corridor Growth Alternative would potentially conflict with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This alternative would generate substantial GHG emissions, and impacts would be greater than those of the proposed project, and would be significant and unavoidable.

h. Hazards and Hazardous Materials

As discussed in Section 4.8, *Hazards and Hazardous Materials,* there are several active hazardous materials sites throughout the Plan Area. Future development that is proposed to occur within these sites would remediated with regulatory agency oversight as required, and construction activities would be required to comply with federal and state regulations (discussed in detail in Section 4.8) pertaining to the handling, removal, and disposal of hazardous materials. With compliance with applicable regulations and Mitigation Measure HAZ-1 which requires a Phase I Environmental Site Assessment, the proposed project's impacts related to hazardous materials sites would be less than significant. As under the proposed project, the Corridor Growth Alternative would facilitate development throughout the city, potentially within or near other hazardous materials sites. The potential to create a significant hazard to the public would be similar. Impacts would be less than significant with MM HAZ-1 and similar to the proposed project.

As discussed in Section 4.8, *Hazards and Hazardous Materials,* there are several schools within 0.25-mile of hazardous materials sites. Compliance with existing federal and state regulations, discussed in detail in Section 4.8, would prevent the release of hazardous emissions to the extent feasible and would reduce the potential for hazardous emissions to occur near schools. Development under this alternative would be subject to the same regulations and impacts would be less than significant, similar to the proposed project.

Most development under this alternative would occur throughout the city and outside of the Petaluma Municipal Airport's referral area boundary and safety zones, similar to the proposed project. However, several areas along the city's eastern limits are within the airport's Outer Safety Zone and Traffic Pattern Zone, and could be subject to greater amounts of aircraft noise. Any potential development in this area would occur pursuant to height limits and noise reduction measures associated with the airport. While impacts would be greater than the proposed project, they would be less than significant.

Similar to the proposed project, this alternative would involve updating the City's Safety Element pursuant to Assembly Bill 747 and Senate Bill 99, which have mandated the inclusion of additional assessments and measures associated with emergency evacuation, including identification of emergency evacuation routes and capacity. Accordingly, this alternative would not impair implementation of emergency response or evacuation plans and impacts would be less than significant, similar to the proposed project.

As discussed in Section 4.8, *Hazards and Hazardous Materials,* and further in Section 4.17, *Wildfire,* the Plan Area is located adjacent to a fire hazard severity zone and there is existing risk of loss, injury, or death involving wildland fires. Development closer to the edges of city limits may locate more residents near fire hazard severity zones and State Responsibility Areas. However, through compliance with state and federal regulations discussed in detail in Section 4.17, *Wildfire,* risks

associated with wildland fires would be reduced to a less than significant level. Impacts would be less than significant and similar to the proposed project.

Overall, impacts related to hazards and hazardous materials under this alternative would be similar to the proposed project.

i. Hydrology and Water Quality

Similar to the proposed project, development under the Corridor Growth Alternative would involve construction activities which may include excavation, grading, soil compaction and moving, and soil stockpiling. Future development would be required to comply with state and local water quality regulations designed to control erosion and protect water quality, such as the National Pollutant Discharge Elimination System Construction General Permit. Future development would also be required to comply with Chapter 17.31 of the Petaluma Municipal Code, which regulates earth-moving activities and requires an erosion control plan. Impacts would be less than significant and similar to the proposed project.

As discussed in Section 4.9, *Hydrology and Water Quality,* the City's water supply is not dependent on groundwater and the proposed project would not substantially decrease groundwater supplies or recharge. Because this alternative would involve generally the same level of buildout compared to the proposed project, it would result in similar impacts to groundwater supplies and recharge. Impacts would be less than significant and similar to the proposed project.

As under the proposed project, development under this alternative may alter drainage patterns within individual sites and incrementally increase overall runoff volumes in the Plan Area. This alternative would involve development in previously undeveloped areas, and may result in greater changes to existing drainage patterns. Development under this alternative would be required to comply with the City's and Sonoma Water's low impact development requirements to ensure that existing drainage on an individual site is not substantially altered. Impacts would be less than significant and similar to the proposed project.

Similar to the proposed project, this alternative would not include installation of new groundwater wells, substantially decrease groundwater supply, or interfere with groundwater recharge such that the project would impede sustainable groundwater management of the Petaluma Valley Basin. Further, operations of future development under this alternative would comply with the Municipal Separate Storm Sewer System Permit, the Industrial General Permit, and the Petaluma Municipal Code requirements for post-construction stormwater control to comply with the San Francisco Regional Water Quality Control Board's Basin Plan for water quality. Impacts related to implementation of a water quality control plan or sustainable groundwater management plan would be less than significant and similar to the proposed project.

Overall, impacts related to hydrology and water quality under this alternative would be similar to the proposed project.

j. Land Use and Planning

Land use under the Corridor Growth Alternative would focus higher-density residential development in decentralized areas, near the edges of city limits, and within the UGB. These areas are undeveloped or underutilized, and development within these areas would not physically divide an established community. Impacts would be less than significant and similar to the proposed project.

This alternative would generally involve the same updates to the General Plan as the proposed project, other than the higher-density residential land uses in more peripheral areas of the city. Accordingly, similar to the proposed project, this alternative would be consistent with regionally and locally adopted land use plans, policies, and regulations, such as Plan Bay Area 2050 and the 2017 Clean Air Plan. This alternative would not conflict with plans that intend to mitigate an environmental effect and impacts would be less than significant, similar to the proposed project.

Overall, land use impacts under this alternative would be similar to the proposed project.

k. Noise

As discussed in Section 4.11, *Noise,* construction of individual development facilitated by the proposed project would temporarily produce high noise levels and vibration, which could affect nearby noise-sensitive land uses. Because the Corridor Growth Alternative would concentrate higher-density residential development in less-developed areas along major corridors within the UGB, construction noise could affect fewer noise-sensitive land uses such as residences and schools. This analysis conservatively assumes that noise and vibration impacts would remain significant and unavoidable under this alternative, even with implementation of Mitigation Measures NOI-1(a) and NOI-1(b). However, impacts would be reduced compared to the proposed project.

Most development under this alternative would occur throughout the city and outside of the Petaluma Municipal Airport's referral area boundary and safety zones, similar to the proposed project. However, several areas along the city's eastern limits are within the airport's Outer Safety Zone and Traffic Pattern Zone, and could be subject to greater amounts of aircraft noise. Any potential development in this area would occur pursuant to height limits and noise reduction measures associated with the airport. While impacts would be greater than the proposed project, they would be less than significant.

Overall, noise impacts under this alternative would be similar to the proposed project.

l. Population and Housing

The Corridor Growth Alternative would facilitate a similar level of growth and buildout to the proposed project, although more of this buildout would be located in areas near the edges of city limits, within the UGB. As discussed in Section 4.12, *Population and Housing*, the total population increase associated with the proposed project would align with the growth assumptions outlined in Plan Bay Area 2050, which projects regional population growth. Therefore, growth under this alternative would also be within projections in Plan Bay Area 2050, and would not induce substantial unplanned population growth. Impacts would be less than significant and similar to the proposed project.

This alternative would direct higher-density residential development into undeveloped sites along major corridors and distributed throughout the City and the UGB. As discussed in Section 4.12, *Population and Housing,* substantial displacement of existing residences would occur if allowed land uses would displace more residences than would be accommodated through growth facilitated by the project. This alternative would facilitate the same level of development as the proposed project and would distribute development throughout the city. The proposed residential units would provide additional housing opportunities for residents if any are displaced during buildout of the proposed project. In addition, as under the proposed project, future development facilitated under this alternative would be required to comply with Policy 6.1 of the City's 2023-2031 Housing Element, which requires compliance with Fair Housing and anti-discrimination laws and

affirmatively further fair housing for all; and Policy 6.3, which protects tenants from discriminatory housing practices and displacement. Impacts would be less than significant and similar to the proposed project.

Overall, impacts related to population and housing under this alternative would be similar to the proposed project.

m. Public Services and Recreation

The Corridor Growth Alternative would facilitate a similar level of growth and buildout as the proposed project, although more of this buildout would be dispersed throughout the City. Therefore, this alternative would result in a similar increase in demand for fire and police protection services, and other public services and facilities, as the proposed project. As under the proposed project, development under this alternative would be required to meet the standard fire code safety and access requirements administered by the City of Petaluma and California Building Code. As future buildout occurs under this alternative, the City would evaluate operations and deployment of fire and police protection services. Because this alternative would increase the population of Petaluma incrementally, growth and development under this alternative would be adequately served by the City's fire and police departments. Impacts would be similar to the proposed project and would be less than significant.

As under the proposed project, development under this alternative would also be required to pay impact fees that would provide funding for the provision or expansion of new school facilities, pursuant to Government Code Section 65995(b). Impacts from the project would be offset by the payment of impact fees, and impacts would be less than significant. Impacts would be similar to the proposed project.

As discussed in Section 4.13, implementation of the proposed project would result in a parkland to resident ratio of approximately 8.67 acres per 1,000 residents, which exceeds both the Quimby Act and Petaluma Municipal Code Chapter 20.34 standard of 5 acres per 1,000 residents. Because this alternative would result in a similar level of growth as the project, this alternative would also result in a parkland to resident ratio of approximately 8.67 acres per 1,000 residents. This alternative would not result in substantial deterioration of recreational facilities and would not require new or expanded facilities. Impacts to recreational facilities would be less than significant and similar to the proposed project.

Overall, impacts related to public services and recreation under this alternative would be similar to the proposed project.

n. Transportation

Residential development under the Corridor Growth Alternative would be dispersed throughout the City and within the UBG, potentially in areas that lack convenient access to high quality transit services and other alternative transportation options. As a result, residents would likely rely on more frequent and longer vehicle trips to reach daily destinations. Consequently, this alternative would be less effective at supporting existing goals and policies that promote alternative transportation and reduced vehicle travel. Although transportation impacts would remain less than significant, they would be greater than those associated with the proposed project.

As discussed in Section 4.14, *Transportation*, the proposed project would increase per capita VMT in Petaluma. With implementation of the proposed project, VMT per person is estimated to be 32.3, which exceeds the threshold of 29.6 VMT per person. Under the Corridor Growth Alternative,

higher-density residential development would be dispersed throughout the City, and farther from jobs, schools, and services. This pattern would increase the number and length of vehicle trips residents must make, resulting in a higher VMT per capita than the proposed project. Therefore, transportation impacts under this alternative would be significant and unavoidable and would be greater than those of the proposed project, even with implementation of Mitigation Measures TRA-1 through TRA-3.

Future development under this alternative could modify the existing transportation network, but any changes would be required to meet applicable design standards in the California Manual on Uniform Traffic Control Devices and the California Highway Design Manual, minimizing potential conflicts. As with the proposed project, new development would also be required to comply with the California Fire Code. The Petaluma Fire Department would review and approve individual project designs during the building permit process to ensure adequate emergency access and ingress/egress. Therefore, impacts related to geometric design features and emergency access would be less than significant and similar to the proposed project.

Overall, because this alternative would result in greater impacts related to consistency with alternative transportation goals and policies and VMT, transportation impacts would be greater than the proposed project.

o. Tribal Cultural Resources

As discussed in Section 4.15, *Tribal Cultural Resources,* development facilitated by the proposed project would involve land disturbance, which has the potential to expose buried cultural resources and by extension impact tribal cultural resources. This alternative would facilitate development in less-developed areas. Accordingly, the potential to encounter tribal cultural resources would be greater than the proposed project. Mitigation Measures TCR-1 through TCR-4 would be required and impacts would be less than significant with mitigation.

p. Utilities and Service Systems

Development facilitated by the proposed project would increase demand for utility services and infrastructure. As discussed in Section 4.16, *Utilities and Service Systems,* there are several locations in the Plan Area that could experience sewer capacity deficiencies, including pipelines near the core of the city in downtown. By dispersing development throughout the city, this alternative would alleviate potential sewer capacity deficiencies. Similar to the proposed project, buildout facilitated by this alternative would be required to pay wastewater impact fees to offset costs associated with expansion of the city's sewer system. New or expanded wastewater infrastructure would also be required to comply with other applicable regulations of Petaluma Municipal Code that pertain to design and capacity. Since the Corridor Growth Alternative would result in generally the same level of growth and buildout as the proposed project, existing utility infrastructure and wastewater capacity would be sufficient to accommodate this alternative. Impacts would be less than significant and similar to the proposed project.

As discussed in Section 4.16, *Utilities and Service Systems,* there is adequate water supply for development facilitated by the project during normal years and multiple dry years, but a water supply shortfall would occur during a single-dry year. As under the proposed project, Implementation of the Water Shortage Contingency Plan, if necessary, would facilitate the provision of water to new development in Petaluma. Further, applicable policies in the General Plan Update would assist the City in maintaining the water supply and water service for future use and development through managing the City's water supply sources, promoting efficient water use, and

promoting recycled water use. Accordingly, there would be sufficient water supply for this alternative. Impacts to water supply would be less than significant and similar to the proposed project.

As discussed in Section 4.16, there is adequate solid waste infrastructure serving Petaluma and the proposed project would not generate waste in excess of existing capacity. This alternative would generate a similar amount of solid waste as the proposed project, and existing capacity of local infrastructure would continue to be sufficient. Impacts would be less than significant and similar to the proposed project.

Overall, impacts related to utilities and service systems under this alternative would be similar to the proposed project.

q. Wildfire

As discussed in 4.17, *Wildfire,* the Plan Area is located adjacent to a fire hazard severity zone. Areas along the city's eastern limits are located adjacent to a High Fire Hazard Severity Zone within a State Responsibility Area, and development located closer to city limits could be subject to increased wildfire risk. The proposed project would involve updating the City's Safety Element pursuant to Assembly Bill 747 and Senate Bill 99, which have mandated the inclusion of additional assessments and measures associated with emergency evacuation, including identification of emergency evacuation routes and capacity. The Corridor Growth Alternative would also incorporate these updates, and impacts related to emergency response and evacuation would be similar under this alternative. Impacts would be less than significant.

As under the proposed project, development under this alternative would adhere to the California Fire Code and would be reviewed by the Petaluma Fire Department. Compliance with existing regulations and review by the fire department would minimize wildfire risks, including risks related to slope, prevailing winds, flooding, landslides, and other factors, to the extent feasible. Growth under this alternative would not require the installation of substantial infrastructure that may exacerbate fire risk. However, development under this alternative would be dispersed in less-developed parts of the Plan Area, and would be subject to greater fire risk than development located in more urbanized areas of Petaluma. Impacts would be less than significant, but would be slightly greater than the proposed project.

Overall, wildfire impacts would be greater under this alternative compared to the proposed project.

6.5 Environmentally Superior Alternative

Table 6-1 indicates whether each alternative's environmental impact is greater than, less than, or similar to that of the proposed project for each of the issue areas studied. Based on the alternatives analysis provided above, the No Project Alternative, would be the environmentally superior alternative.

The No Project Alternative assumes that the proposed General Plan Update would not be implemented. Future development would follow the existing 2025 General Plan, adopted in 2008, and no land use changes would occur. The No Project Alternative would result in less overall development compared to the proposed project, which would generally reduce environmental impacts. Significant and unavoidable impacts from historical resources, construction noise and vibration, and VMT would remain. Further, impacts to greenhouse gas emissions, land use and planning, transportation, and wildfire would be greater because the General Plan Update would not

be implemented with changes to address the requirements of Assembly Bill 747 and Senate Bill 99 and to address consistency with the 2017 Clean Air Plan and Plan Bay Area 2050, and the GHG Reduction Checklist would not be adopted.

Pursuant to CEQA Guidelines Section 15126.6(e)(2), if the No Project Alternative is identified as the environmentally superior alternative, the EIR must also identify the environmentally superior alternative among the remaining build alternatives. Accordingly, although the No Project Alternative would result in the least overall environmental impact, the Focus on the Core Alternative is identified as the environmentally superior "build" alternative.

The Focus on the Core Alternative assumes that the proposed General Plan Update would be implemented, with additional land use changes to concentrate higher-density, mixed use development in the core of Petaluma. Although impacts related to VMT would remain significant and unavoidable under this alternative, they would be reduced compared to the proposed project as more buildout would be located near existing transit and alternative transportation. However, this alternative would result in greater impacts to air quality and historic resources as development would be concentrated in the city's core, near sensitive receptors and known historic resources. This alternative would be consistent with several project objectives, including: reducing Petaluma's vulnerability to sea level rise and flooding (Objective 3); advancing social and economic justice (Objective 4); supporting community health (Objective 5); improving connectivity (Objective 6); providing affordable and diverse housing options (Objective 8); prioritizing infill development (Objective 9); and providing opportunities for economic development (Objective 11). Further, compared to the project, this alternative would be consistent with the City's objective to achieve carbon neutrality (Objective 13), and to protect natural systems and promote biodiversity (Objective 1).

The Corridor Growth Alternative assumes that the proposed General Plan Update would be implemented, with additional land use changes to disperse higher-density residential development throughout the city and within the UGB. Although impacts related to historic resources would remain significant and unavoidable under this alternative, they would be reduced compared to the proposed project as more buildout would be located away from known resources. However, this alternative would result in greater impacts to agricultural resources, biological resources, greenhouse gas emissions, paleontological resources, VMT, tribal cultural resources, and wildfire. This alternative would be consistent with several project objectives, but would not achieve the project's objectives to protect and enhance natural systems (Objective 1), increase connectivity (Objective 6), and prioritize infill development (Objective 9).

As such, the Corridor Growth Alternative would not be the environmentally superior alternative.

Table 6-1 Impact Comparison of Alternatives

Impacts	Proposed Project[1]	Alternative 1: No Project Alternative	Alternative 2: Focus on the Core	Alternative 3: Corridor Growth
Aesthetics	LTS	<	=	=
Agricultural and Forestry Resources	LTS	=	=	>
Air Quality	LTSM	<	>	<
Biological Resources	LTSM	<	=	>
Cultural Resources	SU	<	>	>
Geology and Soils	LTSM	<	=	>
Greenhouse Gas Emissions	SU	>	=	>
Hazards and Hazardous Materials	LTS	<	=	=
Hydrology and Water Quality	LTS	<	=	=
Land Use and Planning	LTS	>	=	=
Noise	SU	<	=	=
Population and Housing	LTS	=	=	=
Public Services	LTS	<	=	=
Transportation	SU	>	<	>
Tribal Cultural Resources	LTS	=	=	>
Utilities and Service Systems	LTS	<	=	=
Wildfire	LTS	>	<	>
Impact Summary		**10 <**	**2 <**	**1 <**
		3 =	**13 =**	**8 =**
		4 >	**2 >**	**8 >**

Where multiple impact determinations are identified, the highest level (or most severe) impact determination is listed.

Note: Comparison of impacts is based on the overall impact of the alternative on the resource or issue.

< Alternative impacts would be less than those of the proposed project , = Alternative would result in impacts similar to the proposed project, > Alternative impacts would be greater than those of the proposed project

NI = no impact, LTS = less than significant, LTSM = less than significant with mitigation, SU = significant and unavoidable

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7.2 List of Preparers

This EIR was prepared by the City of Petaluma, with the assistance of Rincon Consultants, Inc. Consultant staff involved in the preparation of the EIR are listed below.

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Appendix A

Notice of Preparation Comments

PETALUMA VALLEY
GROUNDWATER
SUSTAINABILITY AGENCY

September 9, 2025

Heather Gurewitz, AICP
City of Petaluma Community Development Department
11 English Street
Petaluma CA 94952

RE: City of Petaluma General Plan Update Notice of Preparation

Board of Directors

David Rabbitt
County of Sonoma,
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Bruce Abelli-Amen
Sonoma RCD,
Vice-Chair

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Janice Cader
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Carolyn Wasem
North Bay Water
District

Thank you for the opportunity to provide input on the Notice of Preparation (NOP) on the City of Petaluma's General Plan Update, in accordance with the California Environmental Quality Act (CEQA).

Groundwater Sustainability Agencies (GSAs), formed under California's Sustainable Groundwater Management Act (SGMA), play a crucial role in managing local groundwater resources. The Petaluma Valley basin is a medium priority basin and is regulated by SGMA. The Petaluma Valley GSA was established in 2017 and the City is a member agency of the GSA through a Joint Powers Agreement. Since the GSA's establishment, the City and GSA have had a positive and close working relationship, collaborating on a number of projects together including current expansion of the City's recycled water system and aquifer storage and recovery testing. Together with our member agencies and partners, the GSA is dedicated to managing the groundwater basin for sustainably. Land use policies and zoning designations will influence land use decisions and future growth and are therefore interconnected with overall water demand and groundwater management.

Commented [IB1]: IB to add sentence around partnership.

The Department of Water Resources has approved a Groundwater Sustainability Plan (GSP) for the Petaluma Valley basin. The GSP can be accessed here www.petalumavalleygroundwater.org/gsp, and should be reviewed to ensure the city's General Plan update aligns with the goals and objectives of the GSP. The most recent groundwater conditions and a status summary of the GSA's programs and initiatives are described in the Water Year 2024 Annual Report, which can be accessed here: www.petalumavalleygroundwater.org/annual-reports.

The Petaluma Valley Groundwater Sustainability Agency (GSA) has the following comments for the City's consideration in preparation of the EIR for the General Plan:

- The General Plan update should be consistent with the adopted GSP for the basin. Proposed land use designations should be compatible with groundwater management strategies. The environmental document should address any potential conflicts or inconsistencies that might arise from the plan update.

- The General Plan policies and projected growth should be compatible with the adopted GSP and not result in, or contribute to, undesirable results as defined by SGMA, including decline in groundwater levels, water quality, and other sustainability indicators identified in the GSP.

- The GSP 50-year growth projections contained in the GSP reflect water use projections outlined in the 2020 Urban Water Management Plan (GSP Appendix 3-D). GSP growth projections detail the projected changes in 1) land use for agriculture, 2) new housing units requiring groundwater for supply, and 3) municipal groundwater demand projections. The municipal groundwater demand projections should be consistent with the General Plan Update assumptions and projections. Please review the GSP growth projections to ensure the General Plan update addresses potential impacts on groundwater resources and promotes sustainable water management practices.

    - Appendix 3-D municipal groundwater demand projections are reported as:
        - 2020-2025 minimum zero AFY, maximum 300 AFY
        - 2026-2072 minimum zero AFY, maximum 600 AFY

- The GSA encourages mitigation measures or policy provisions be included in the General Plan update to minimize or avoid potential adverse impacts on groundwater resources. These might include water conservation measures, limitations on new groundwater pumping, promoting conjunctive use projects, or protecting groundwater recharge areas.

- The GSA requests that the city incorporate data collection and monitoring provisions into the General Plan to track the effectiveness of mitigation measures and ensure long-term groundwater sustainability.

We appreciate the City's close collaboration on planning and implementing groundwater sustainability programs. Continued coordination helps ensure that local land-use planning decisions support groundwater sustainability goals and minimizes potential conflicts. Thank you for the opportunity to provide input on the General Plan Update process to ensure that the Plan and the CEQA document adequately considers and addresses groundwater resource management and move us towards sustainable water management.

Sincerely,



Sandi Potter, Administrator
Petaluma Valley Groundwater Sustainability Agency

Hello,
I am in the Riverfront area (near the Courtyard Marriott). There are 100+ residences here, with more townhomes (Riverscape) and condos (Spirit Living) coming soon.
We request the city to please do the process to make this a quiet zone for SMART trains.

Thanks,
Ashmi

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road, Suite 100
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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

September 9, 2025

Heather Gurewitz
City of Petaluma
11 English Street
Petaluma, CA 94952
PlanPetaluma@cityofpetaluma.org

Subject: City of Petaluma General Plan Update, Notice of Preparation of a Draft Program Environmental Impact Report, SCH No. 2025080378, City of Petaluma, Sonoma County

Dear Heather Gurewitz:

The California Department of Fish and Wildlife (CDFW) reviewed the Notice of Preparation (NOP) of a Draft Program Environmental Impact Report (EIR) for the City of Petaluma General Plan Update (Project).

CDFW is providing the City of Petaluma (City or Lead Agency), with specific detail about the scope and content of the environmental information related to CDFW's area of statutory responsibility that must be included in the EIR (Cal. Code Regs., tit. 14, § 15082, subd. (b)).

CDFW ROLE

CDFW is a **Trustee Agency** with responsibility under the California Environmental Quality Act (CEQA) for commenting on projects that could impact fish, plant, and wildlife resources (Pub. Resources Code, § 21000 et seq.; Cal. Code Regs., tit. 14, § 15386). CDFW is also considered a **Responsible Agency** if a project would require discretionary approval, such as a permit pursuant to the California Endangered Species Act (CESA) or Native Plant Protection Act (NPPA), the Lake and Streambed Alteration (LSA) Program, and other provisions of the Fish and Game Code that afford protection to the State's fish and wildlife trust resources. Pursuant to our authority, CDFW has the following concerns, comments, and recommendations regarding the Project.

PROJECT DESCRIPTION AND LOCATION

The proposed Project consists of a comprehensive update to the City's General Plan. The General Plan Update will equip the City with a policy framework to responsibly manage future projects and accommodate the growth and development anticipated to occur in the City over the next 25 years. The General Plan Update will be the City's updated long-term framework for future growth and development and represents the

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community's view of its future and contains the goals and policies upon which the City will base decisions in the future. The Project identifies and prioritizes opportunities to preserve the character of the community, conserve natural resources, and direct land use policies that enable sustainable growth and employment opportunities in the City. The Project area includes the entirety of the City of Petaluma, California and the Urban Growth Boundary surrounding the City.

The CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.) require that the EIR incorporate a full Project description, including reasonably foreseeable future phases of the Project, that contains sufficient information to evaluate and review the Project's environmental impact (CEQA Guidelines, §§ 15124 & 15378). Please include a complete description of the following Project components in the Project description:

- Land use changes resulting from, for example, rezoning certain areas;
- Footprints of permanent Project features and temporarily impacted areas, such as staging areas and access routes;
- Area and plans for any proposed buildings/structures, ground-disturbing activities, fencing, paving, stationary machinery, landscaping, and stormwater systems;
- Operational features of the Project, including level of anticipated human presence (describe seasonal or daily peaks in activity, if relevant), artificial lighting/light reflection, noise, traffic generation, and other features; and
- Construction schedule, activities, equipment, and crew sizes.

The NOP identifies that the EIR will be a **Program EIR**. While Program EIRs have a necessarily broad scope, CDFW recommends providing as much information related to anticipated future activities as possible. CDFW recognizes that, pursuant to CEQA Guidelines section 15152, subdivision (c), if a Lead Agency is using the tiering process in connection with an EIR or large-scale planning approval, the development of detailed, site-specific information may not be feasible and can be deferred, in many instances, until such time as the Lead Agency prepares a future environmental document. This future environmental document would cover a project of a more limited geographical scale and is appropriate if the deferred information does not prevent adequate identification of significant effects of the planning approval at hand. The CEQA Guidelines section 15168, subdivision (c)(4) states, "Where the later activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were within the scope of the program EIR." Based on CEQA Guidelines section 15183.3 and associated Appendix N Checklist, and consistent with other program EIRs, CDFW recommends creating a procedure or

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checklist for evaluating subsequent project impacts on biological resources to determine if they are within the scope of the Program EIR or if an additional environmental document is warranted. This checklist should be included as an attachment to the EIR. Future analysis should include all special-status species and sensitive habitat including, but not limited to species considered rare, threatened, or endangered species pursuant to CEQA Guidelines, section 15380.

When used appropriately, the checklist should be accompanied by enough relevant information and reasonable inferences to support a “within the scope” of the EIR conclusion. For subsequent Project activities that may affect sensitive biological resources, a site-specific analysis should be prepared by a qualified biologist to provide the necessary supporting information. In addition, the checklist should cite the specific portions of the EIR, including page and section references, containing the analysis of the subsequent Project activities’ significant effects and indicate whether it incorporates all applicable mitigation measures from the EIR.

REGULATORY REQUIREMENTS

California Endangered Species Act

A CESA Incidental Take Permit (ITP) must be obtained from CDFW if the Project has the potential to result in “take” of plants or animals listed or candidate species under CESA, either during construction or over the life of the Project. Under CESA, “take” means “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” (Fish & G. Code, § 86.) CDFW’s issuance of an ITP is subject to CEQA and to facilitate permit issuance, any project modifications and mitigation measures must be incorporated into the CEQA document analysis, discussion, and mitigation monitoring and reporting program. If the Project will impact CESA listed or candidate species, such as those in **Attachment 1**, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain an ITP.

CEQA requires a mandatory finding of significance if a project is likely to substantially impact threatened or endangered species. Pub. Resources Code, §§ 21001, subd. (c) & 21083; CEQA Guidelines, §§ 15380, 15064 & 15065.) In addition, pursuant to CEQA, the Lead Agency cannot approve a project unless all impacts to the environment are avoided or mitigated to less-than-significant levels, or the Lead Agency makes and supports Findings of Overriding Consideration (FOC) for impacts that remain significant despite the implementation of all feasible mitigation. FOC under CEQA, however, do not eliminate the Project proponent’s obligation to comply with the Fish and Game Code.

Lake and Streambed Alteration

An LSA Notification is required, pursuant to Fish and Game Code sections 1600 et. seq., for Project activities affecting lakes or streams and associated riparian habitat. Notification is required for any activity that will substantially divert or obstruct the natural

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flow; change or use material from the bed, channel, or bank including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake or stream. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are subject to notification requirements. **The Project may impact the Petaluma River and other named and unnamed streams. Impacts to any stream would likely require an LSA Notification. If an LSA Notification is required, CDFW recommends that the EIR include a mitigation measure requiring the Project to submit an LSA Notification and compliance with the LSA Agreement, if issued.** CDFW, as a Responsible Agency under CEQA, will consider the CEQA document for the Project. CDFW may not execute the final LSA Agreement until it has complied with CEQA as a Responsible Agency.

California Fully Protected Species

Fully Protected species, such as those listed in **Attachment 1**, may not be taken or possessed at any time and no licenses or permits may be issued for their take except as follows:

- Take is for necessary scientific research,
- Efforts to recover a fully protected, endangered, or threatened species, live capture and relocation of a bird species for the protection of livestock; or
- They are a covered species whose conservation and management is provided for in a Natural Community Conservation Plan (Fish & G. Code, §§ 3511, 4700, 5050, & 5515).

Specified types of infrastructure projects may be eligible for an ITP for unavoidable impacts to fully protected species if certain conditions are met (Fish & G. Code § 2081.15). Project proponents should consult with CDFW early in the project planning process.

Raptors and Other Nesting Birds

CDFW also has authority over actions that may disturb or destroy active nest sites or take birds. Fish and Game Code sections 3503, 3503.5, and 3513 protect birds, their eggs, and nests. Migratory birds are also protected under the federal Migratory Bird Treaty Act.

ENVIRONMENTAL SETTING

The EIR should provide sufficient information regarding the environmental setting (“baseline”) to understand the Project’s, and its alternative’s (if applicable), potentially significant impacts on the environment (CEQA Guidelines, §§ 15125 & 15360).

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CDFW recommends that the CEQA document prepared for the Project provide baseline habitat assessments for special-status plant, fish and wildlife species located and potentially located within the Project area and surrounding lands, including, but not limited to all rare, threatened, or endangered species (CEQA Guidelines, § 15380). The EIR should describe aquatic habitats, such as wetlands or waters of the U.S. or State, and any sensitive natural communities or riparian habitat occurring on or adjacent to the Project site (for sensitive natural communities see:https://wildlife.ca.gov/Data/VegCAMP/NaturalCommunities#sensitive%20natural%20communities), and any stream or wetland set back distances that Sonoma County or the City may require. Fully protected, threatened or endangered, candidate, and other special-status species and sensitive natural communities that are known to occur, or have the potential to occur in or near the Project site, include but are not limited to those listed in **Attachment 1**.

Habitat descriptions and the potential for species occurrence should include information from multiple sources: aerial imagery, historical and recent survey data, field reconnaissance, scientific literature and reports, U.S. Fish and Wildlife Service's (USFWS) Information, Planning, and Consultation System, and findings from "positive occurrence" databases such as California Natural Diversity Database (CNDDB) and California Aquatic Resources Inventory (CARI). Based on the data and information from the habitat assessment, the EIR should adequately assess which special-status species are likely to occur on or near the Project site, and whether they could be impacted by the Project.

CDFW recommends that prior to Project implementation, surveys be conducted for special-status species with potential to occur, following recommended survey protocols if available. Survey and monitoring protocols and guidelines are available at: https://www.wildlife.ca.gov/Conservation/Survey-Protocol.

Botanical surveys for special-status plant species, including, but not limited to those with a California Rare Plant Rank (http://www.cnps.org/cnps/rareplants/inventory/), should be conducted during the blooming period within the Project area and adjacent habitats that may be indirectly impacted by, for example, changes to hydrological conditions, and include the identification of reference populations.[1] More than one year of surveys may be necessary based on environmental conditions. Please refer to CDFW protocols for surveying and evaluating impacts to special-status plants available at: https://www.wildlife.ca.gov/Conservation/Plants.

IMPACT ANALYSIS AND MITIGATION MEASURES

The EIR should discuss all direct and indirect impacts (temporary and permanent) that

[1] Further information on CRPR ranks is available in CDFW's Special Vascular Plants, Bryophytes, and Lichens List (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383&inline) and on the California Native Plant Society website (https://www.cnps.org/rare-plants/california-rare-plant-ranks).

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may occur with implementation of the Project (CEQA Guidelines, § 15126.2). This includes evaluating and describing impacts such as:

- Land use changes that would reduce open space or agricultural land uses and increase residential or other land use involving increased development;
- Encroachments into riparian habitats, wetlands or other sensitive areas;
- Impacts to the bed, channel, and bank, in the streams and rivers downstream of the Project;
- Impacts to bed, channel, bank, and riparian habitat, and the direct and indirect effects to fish, wildlife, and their habitat;
- Changes in hydrological conditions that could alter the timing and magnitude of stream flows both during construction and operation of the Project;
- Potential for impacts to special-status species;
- Loss or modification of breeding, nesting, dispersal and foraging habitat, including vegetation removal, alternation of soils and hydrology, and removal of habitat structural features (e.g., snags, roosts, vegetation overhanging banks);
- Permanent and temporary habitat disturbances associated with ground disturbance, noise, lighting, reflection, air pollution, traffic or human presence;
- Obstruction of movement corridors, fish passage, or access to water sources and other core habitat features;
- Water quality impacts resulting from construction and operation of the Project; and
- Impacts both from construction and operation of the Project.

The CEQA document should also identify reasonably foreseeable future projects in the Project vicinity, disclose any cumulative impacts associated with these projects, determine the significance of each cumulative impact, and assess the significance of the Project's contribution to the impact (CEQA Guidelines, § 15355). Although a project's impacts may be insignificant individually, its contributions to a cumulative impact may be considerable; a contribution to a significant cumulative impact – e.g., reduction of available habitat for a special-status species – should be considered cumulatively considerable without mitigation to minimize or avoid the impact.

Based on the comprehensive analysis of the direct, indirect, and cumulative impacts of the Project, the CEQA Guidelines direct the Lead Agency to consider and describe all

Docusign Envelope ID: 66F72D46-25F5-4833-A6DC-AA0540C7EEE0

feasible mitigation measures to avoid potentially significant impacts in the EIR, and/or mitigate significant impacts of the Project on the environment (CEQA Guidelines, §§ 15021, 15063, 15071, 15126.2, 15126.4 & 15370). This includes a discussion of impact avoidance and minimization measures for special-status species, which are recommended to be developed in early consultation with CDFW, USFWS, and the National Marine Fisheries Service. These measures can then be incorporated as enforceable Project conditions to reduce potential impacts to biological resources to less-than-significant levels.

ENVIRONMENTAL DATA

CEQA requires that information developed in EIRs and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e).). Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDB. The CNDDB online field survey form and other methods for submitting data can be found at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://wildlife.ca.gov/Data/CNDDB/Plantsand-Animals.

FILING FEES

CDFW anticipates that the Project will have an impact on fish and/or wildlife, and assessment of filing fees is necessary (Fish & G. Code, § 711.4; Pub. Resources Code, § 21089). Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW.

If you have any questions, please contact James Hansen, Environmental Scientist, at (707) 576-2869 or James.Hansen@wildlife.ca.gov; or Melanie Day, Senior Environmental Scientist (Supervisory), at (707) 210-4415 or Melanie.Day@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Erin Chappell
B77E9A6211EF486...

Erin Chappell
Regional Manager
Bay Delta Region

Attachment 1: Special-Status Species

ec: Office of Land Use and Climate Innovation, SCH No. 2025080378

Docusign Envelope ID: 66F72D46-25F5-4833-A6DC-AA0540C7EEE0

ATTACHMENT 1: Special-Status Species

Scientific Name	Common Name	Status
Fish		
Oncorhynchus tshawytscha	Chinook salmon – central Valley late fall run evolutionarily significant unit	SSC
Oncorhynchus mykiss irideus pop. 8	Steelhead – central California coast distinct population segment	SSC, FT
Spirinchus thaleichthys pop. 2	Longfin smelt	ST, FE
Acipenser transmontanus	White sturgeon	SC
Acienser medirostris pop. 1	Green sturgeon – southern distinct population segment	FT
Pogonichthys macrolepidotus	Sacramento splittail	SSC
Amphibians		
Rana boylii pop. 1	Foothill yellow-legged frog – North Coast distinct population segment	SSC
Rana draytonii	California red-legged frog	SSC, FT
Dicamptodon ensatus	California giant salamander	SSC
Taricha rivularis	Red-bellied newt	SSC
Reptiles		
Actinemys marmorata	Northwestern pond turtle	SSC, FC
Plants		
Plueropogon hooverianus	North Coast semaphore grass	ST, CRPR 1B.1
Chorizanthe valida	Sonoma spineflower	SE, FE, CRPR 1B.1
Hemizonia congesta ssp. *congesta*	Congested-headed hayfield tarplant	CRPR 1B.2
Centromadia parryi ssp. *parryi*	Pappose tarplant	CRPR 1B.2
Amorpha California var. *napensis*	Napa false indigo	CRPR 1B.2

Docusign Envelope ID: 66F72D46-25F5-4833-A6DC-AA0540C7EEE0

Trifolium polyodont	Pacific Grove clover	CRPR 1B.1
Plagiobothrys mollis var. *vestitus*	Petaluma popcorn flower	CRPR 1A
Brodiaea leptandra	Narrow-anthered brodiaea	CRPR 1B.2
Mammals		
Reithrodontomys raviventris	Salt-marsh harvest mouse	FP, SE, FE
Taxidea taxus	American badger	SSC
Antrozous pallidus	Pallid bat	SSC
Corynorhinus townsendii	Townsend's big-eared bat	SSC
Birds		
Rallus obsoletus obsoletus	California Ridgeway's rail	FP, SE, FE
Laterallus jamaicensis coturniculus	California black rail	FP, ST
Athene cunicularia	Burrowing owl	SC, SSC
Elanus leucurus	White-tailed kite	FP
Melospiza melodia samuerlis	San Pablo song sparrow	SSC
Geothlypis trichas sinuosa	Saltmarsh common yellowthroat	SSC

SE = state endangered species under CESA; SC = state candidate under CESA; ST = state threatened species under CESA; FP = state fully protected; FE = federally endangered species under the Endangered Species Act (ESA); FT = federally listed as threatened under ESA; FC = federally listed as a candidate species under ESA; SSC = state Species of Special Concern; CRPR = California Rare Plant Rank

Outlook

GP EIR Scoping

From Kevin McDonnell <kmcdonnell@cityofpetaluma.org>
Date Mon 8/18/2025 11:04 AM
To General Plan Update <planpetaluma@cityofpetaluma.org>
Cc Peggy Flynn <PFlynn@cityofpetaluma.org>; Drew Halter <DHalter@cityofpetaluma.org>

A little note, sharing one hope that I wanted to advocate for in the GP Update. If not already so, I'd love the City Hall Green to be a listed park.

I get folks saying that there is not a park close to them when in fact they live close to City Hall "park". Agreed, not all parks have the same amenities but I first started putting kids out there for soccer in the 1990's. It should get recognition as a park.

Alas I cannot make the EIR Scoping. Good luck with the event.

Kevin McDonnell

Gianna Meschi

From: Heather Gurewitz <hgurewitz@cityofpetaluma.org>
Sent: Friday, September 5, 2025 8:19 AM
To: Gianna Meschi
Subject: [EXT] FW: Public Comment General Plan Draft EIR

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

Hi Gianna,
This is the only one received during the week. I haven't checked my email today, but we'll if we get more.
-HG

Heather Gurewitz, AICP, MCRP
Senior Planner, M-Group Consulting Planner
serving the City of Petaluma
City of Petaluma | Community Development
Schedule a Virtual Counter Appointment
hgurewitz@cityofpetaluma.org

Report issues through our new service request app! Download engagEPetaluma on Google or Apple.

From: Katherine J. Rinehart <Katherine@kjrinehart.com>
Sent: Monday, September 1, 2025 2:11 PM
To: General Plan Update <planpetaluma@cityofpetaluma.org>
Cc: Kevin McDonnell <kmcdonnell@cityofpetaluma.org>; Karen Nau <knau@cityofpetaluma.org>; John Shribbs <jshribbs@cityofpetaluma.org>; Quint, Frank <fquint@cityofpetaluma.org>; Janice Cader-Thompson <jcaderthompson@cityofpetaluma.org>; DeCarli, Alex <adecarli@cityofpetaluma.org>; Barnacle, Brian <bbarnacle@cityofpetaluma.org>
Subject: Public Comment General Plan Draft EIR

---Warning: Use caution before clicking any attachments. THIS EMAIL IS FROM OUTSIDE OUR EMAIL SYSTEM.---
Hello:

Please accept the following public comment related to the draft EIR for the General Plan:

The implementation of the General Plan will clearly impact Petaluma's known and potential historic resources, since the plan emphasizes infill development and increased density within the Urban Growth Boundary. Therefore, it is crucial that an updated and expanded historic resources survey, which includes context statements and a detailed "boots on the ground" inventory of the city, be conducted before the General Plan is adopted. The last citywide survey was conducted in 1977. This survey was not comprehensive and is nearly 50 years old. The survey of the downtown core, completed in the mid-1990s and which led to the creation of the Petaluma Historic Commercial National Register District, is also outdated. Several buildings that were previously recorded as non-contributors are now recognized as contributors and may qualify for Federal and State Historic Preservation Tax credits and other financial incentives. Additionally, properties that were not evaluated in 1993 because they were not yet 50 years old are now eligible for consideration.

Thank you,

Katherine J. Rinehart
Historian
P O Box 163
Petaluma, CA 94953
(707) 775-8843
katherine@kjrinehart.com
kjrinehart.com

Outlook

Noise issues

From Julie Mills <bigwaveju@gmail.com>
Date Tue 8/19/2025 11:25 AM
To General Plan Update <planpetaluma@cityofpetaluma.org>

Some people who received this message don't often get email from bigwaveju@gmail.com. Learn why this is important

---Warning: Use caution before clicking any attachments. THIS EMAIL IS FROM OUTSIDE OUR EMAIL SYSTEM.---
To whom it may concern,
Hoping there can be a way to resolve noise created by businesses to close to neighborhoods.
My neighbors and I would like to see a crack down on excessive noise created by our neighboring Whole Foods Market.
Their business buts up to our housing which is senior apartments. There is steady banging of doors, and loud rolling carts that continues throughout the day from 7am until 10 pm each and everyday.
We all enjoy our neighborhood, but not this very unharmonious noise which is a constant disturbance to our community. Whole Foods should be held accountable, and make changes to accommodate their neighbors to create a more harmonious environment for their neighborhood.
Please help us,
Thank you

Outlook

NOTICE OF PUBLIC SCOPING MEETING (08/21/2025) - will this be recorded or available for live viewing?

From Wayne Leach <waynel@cswst2.com>
Date Thu 8/21/2025 3:48 PM
To General Plan Update <planpetaluma@cityofpetaluma.org>

1 attachment (1 MB)
Petaluma GPU NOP_FINAL.pdf;

Some people who received this message don't often get email from waynel@cswst2.com. Learn why this is important

---Warning: Use caution before clicking any attachments. THIS EMAIL IS FROM OUTSIDE OUR EMAIL SYSTEM.---

Lead Agency Contact:
Heather Gurewitz, AICP
City of Petaluma Community Development Department
11 English Street
Petaluma, California 94952
planpetaluma@cityofpetaluma.org

Heather,

Does the City and GP team have a link to the Notice of Preparation Meeting tonight 08/21/2025 or will it be recorded and made available for the public to view?

WAYNE LEACH
Senior Project Manager

CSWST2 **Adaptive Solutions. Innovative Designs.**
d 415.884.6460 m 707.799.2466 WayneL@cswst2.com

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Engineering • Urban Planning • Land Surveying • Landscape Architecture

Id	Start time	Completion time	Email	Name	First and Last Name	Organization (if you are	Email Address	Physical/Mailing Addres	Please enter your comments on the preparation of the environ
1	8/12/2025 11:30	8/12/2025 11:32	anonymous		Martha Ezell		martha.ezell@gmail.com	629 C St	Please address the TRUSSEL removal and replacement. I have lived here 25 years and i can't believe nothing has been done with it. It is a horrible eye-sore and danger in the middle of this beautiful city.
2	8/12/2025 11:34	8/12/2025 11:37	anonymous		Joan Cooper	Friends of Shollenberger	Joancooper115@gmail.c	333 Pleasant St. Petalum	Will be forthcoming
3	8/13/2025 17:26	8/13/2025 17:35	anonymous		Sandra Messer		sandra@fullmeasure.cor	402 Marylyn Circle	Since some of your "potential environmental effect areas" are too categorically broad and you don't provide definitions ... if WILDLIFE HABITATS is not covered under "biological resources" (what does that even mean?), please add as a separate "potential environmental effect areas." Also, please consider adding "AIR RIGHTS;" that is, other people's or entities air space rights. And lastly, consider adding "LIGHT POLLUTION."
4	9/1/2025 13:40	9/1/2025 14:03	anonymous		Katherine Rinehart		katherine@kjrinehart.co	118 English Street, Petalu	The implementation of the General Plan will clearly impact Petaluma's known and potential historic resources, since the plan emphasizes infill development and increased density within the Urban Growth Boundary. Therefore, it is crucial that an updated and expanded historic resources survey, which includes context statements and a detailed “boots on the ground” inventory of the city, be conducted before the General Plan is adopted. The last citywide survey was conducted in 1977. This survey was not comprehensive and is nearly 50 years old. The survey of the downtown core, completed in the mid-1990s and which led to the creation of the Petaluma Historic Commercial National Register District, is also outdated. Several buildings that were previously recorded as non-contributors are now recognized as contributors and may qualify for Federal and State Historic Preservation Tax credits and other financial incentives. Additionally, properties that were not evaluated in 1993 because they were not yet 50 years old are now eligible for consideration.

CITY OF PETALUMA

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT
AND
NOTICE OF PUBLIC SCOPING MEETING
City of Petaluma General Plan Update

Date: August 8, 2025
To: State Clearinghouse
Responsible Agencies, Trustee Agencies
Interested Parties
Project Name: City of Petaluma General Plan Update
Project Address: Citywide and within the planning area
Lead Agency: City of Petaluma
Subject: Notice of Preparation of a Draft Environmental Impact Report for the City of Petaluma General Plan Update

Comment Period: August 8, 2025 to September 8, 2025
Written comments should be submitted at the earliest possible date, but not later than 5:00 pm on September 8, 2025 .

In addition to the opportunity to submit written comments, a scoping meeting will be held to inform interested parties about the project, and to provide agencies and the public with an opportunity to comment on the scope and content of the EIR.

NOP Scoping Meeting: August 21, 2025 at 6:00 PM
Petaluma Community Center Activity Room
320 North McDowell Boulevard, Petaluma, CA 94954

Notice of Preparation

Notice is hereby given that the City of Petaluma (City), as the Lead Agency, is preparing a programmatic Environmental Impact Report (EIR) for the Petaluma General Plan Update pursuant to and in accordance with Title 14, Section 15060(d) of the California Code of Regulations, the California Environmental Quality Act (CEQA), and the State of California CEQA Guidelines.

The purpose of the Notice of Preparation (NOP) is to solicit input and feedback from the public and regulatory agencies on the project, including project alternatives, and environmental impacts. The intent of the NOP is to provide sufficient information in order to enable meaningful comments regarding the scope and content of the EIR.

This NOP and the background documents associated with the General Plan Update (the "project" under CEQA) are available for review on the City's General Plan Update webpage at: https://www.planpetaluma.org/. This NOP has been issued to provide an opportunity for responsible and trustee agencies and interested parties to submit comments on the scope of the EIR, relative to the project description. Agencies should comment on such information as it relates to their statutory responsibilities in connection with the proposed project.

The City has determined that the proposed project may have a significant effect on the environment; therefore, an EIR is being prepared.

The EIR is intended to be a program-level document that will analyze the effects of the proposed General Plan Update. Program EIRs generally analyze broad environmental effects of the program, with the acknowledgment that site-specific environmental review may be required for future actions (14 CCR 15168(a)). The purpose of a Program EIR is to allow the lead agency to consider broad policy alternatives and program-wide mitigation measures at a time when the agency has greater flexibility to deal with basic problems or cumulative impacts. Because no specific development projects are being proposed as part of the updates to the General Plan, the analysis will not be parcel-specific. Rather, the analysis will focus on the reasonably foreseeable direct and indirect physical environmental effects that could result from the updates to the General Plan, including proposed land use designation changes. The analysis will compare the net change of impacts as a result of the General Plan Update compared to existing conditions. Following adoption of the updated General Plan, subsequent projects that are consistent with the General Plan would undergo a streamlined CEQA environmental review and approval process.

Notice of Preparation Public Review Period: August 8, 2025 to September 8, 2025

The City requests your careful review and consideration of this notice, and it invites any and all input and comments from interested agencies, persons, and organizations regarding the preparation of the Program EIR. Comments and responses to this notice must be in writing and submitted to the Lead Agency Contact through September 8, 2025 at 5:00 p.m. If applicable, please indicate a contact person for your agency or organization. If your agency is a responsible agency as defined by CEQA Guidelines Section 15381, your agency may use the environmental documents prepared by the City when considering permits or approvals for action regarding the proposed project.

Lead Agency Contact:

Heather Gurewitz, AICP, MCRP
City of Petaluma Community Development Department
11 English Street
Petaluma, CA 94952
planpetaluma@cityofpetaluma.org

INSTRUCTIONS FOR PUBLIC COMMENTS: Comment may be provided in person at the scoping meeting on August 21, 2025 at 6:00 PM, or as follows by 5:00 pm on September 8, 2025:

- Email: planpetaluma@cityofpetaluma.org
- Regular Mail: City of Petaluma, Planning Division, 11 English Street, Petaluma, CA 94952

Public Scoping Meeting: A scoping meeting will be conducted on August 21, 2025 beginning at 6:00 pm at the Petaluma Community Center Activity Room, at 320 N. McDowell Boulevard in Petaluma.

General Plan Update Project Background: The objective of a General Plan is to provide the City with a roadmap for the future. The City of Petaluma is currently operating under the City of Petaluma: General Plan 2025, which was written in 2006-2007, adopted in 2008, and subsequently updated. The General Plan serves as the guiding vision document and provides policies and implementation programs to achieve the City's goals. There are eight mandatory topical areas, referred to as Elements, that must be included in a General Plan including Land Use, Open Space, Conservation, Housing, Circulation, Noise, Safety, and Environmental Justice. The Housing Element was recently updated and adopted by the City Council in March 2023.

Developed through a community-based process, the General Plan Update will provide goals, policies, and programs to guide the future of Petaluma based on the community's values and aspirations for the future. Additionally, the update will equip Petaluma with a policy framework to responsibly manage future projects and accommodate the growth and development anticipated to occur in the City of Petaluma over the next 25 years.

Project Location: The Plan Area includes the entirety of the City of Petaluma, California and the urban growth boundary (UGB) surrounding the City. Figure 1 shows the regional location of the Plan Area and Figure 2 shows an aerial image of the City of Petaluma Planning Area, the Sphere of Influence, and Urban Growth Boundary. Figure 3 shows the current land use designations in the General Plan.

Proposed Project: The proposed project consists of a comprehensive update to the City's 2025 General Plan. The General Plan Update will be Petaluma's updated long-term framework for future growth and development. The General Plan Update represents the community's view of its future and contains the goals and policies upon which the City Council and Planning Commission will base their decisions in the future. To provide a contemporary plan that will guide the community, the General Plan is being updated to reflect changes in the community, new issues and opportunities (as identified from community input), changes in State law (such as reducing greenhouse gas emissions), and new trends (autonomous cars, impacts of online shopping, and so forth). The Petaluma General Plan Update serves several purposes:

- Express the community's vision for Petaluma's future
- Provide a balance between growth and conservation that meets community needs and protects Petaluma's quality of life
- Inform residents, developers, and decision makers of the policies that guide development
- Ensure that development occurs in an efficient, orderly manner that minimizes costs to taxpayers
- Engage in a comprehensive and inclusive outreach process

The General Plan Update identifies and prioritizes opportunities to preserve the character of the community, conserve natural resources, and direct land use policies that enable sustainable growth and employment opportunities in Petaluma. The Draft Land Use Framework defines how and where the city will evolve over the next 20 years including the following strategies:

- Expand open space and access to the Petaluma River
- Reimagine a land use pattern that prioritizes active transportation
- Support new and innovative housing types within city limits and near transit hubs
- Enhance existing neighborhoods by increasing access to daily needs
- Revitalize commercial corridors
- Accommodate Petaluma's growing needs for a thriving local economy, community gathering space, and high quality housing that is affordable
- Preserve Petaluma's historic, agricultural, river-oriented identity

Project Alternatives: The EIR will evaluate a reasonable range of project alternatives that, consistent with CEQA, meet most of the proposed project objectives and reduce or avoid potential environmental effects, including a required No Project Alternative.

Potential Environmental Effect Areas: The EIR for the proposed project will focus on the resource areas/issues applicable to this project. The EIR will evaluate the potentially significant environmental impacts of the proposed project and will evaluate whether there are feasible mitigation measures that may lessen or avoid such impacts. As the proposed project does not include any specific construction or development, but rather the potential for land use changes or development to be constructed in the future, the impact analysis will be programmatic and cumulative in nature. The EIR will also identify and evaluate alternatives to the proposed project. The EIR will evaluate potentially significant environmental effects related to the following environmental issues:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy

- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- Cumulative Effects
- Growth Inducing Effects

When the Draft EIR is completed, it will be available for review at the City's offices located at 11 English Street, Petaluma, California 94952 and online at: https://www.planpetaluma.org/documents. The City will issue a Notice of Availability of a Draft EIR at that time to inform the public and interested agencies, groups, and individuals of how to access the Draft EIR and provide comments.

If you have questions regarding this NOP or the scoping meeting, please contact Heather Gurewitz at (707) 294-1697 or via email at planpetaluma@cityofpetaluma.org.



ACCESSIBILITY: Any member of the public who needs accommodations should email the Commission Clerk, Uriel Orozco, at uorozco@cityofpetaluma.org, or by calling 707-778-4319. The Commission Clerk will use their best efforts to provide reasonable accommodations to provide as much accessibility as possible while also maintaining public safety in accordance with the City procedure for resolving reasonable accommodation requests.

Attachments

Figure 1 Regional Location

Figure 2 Project Location

Figure 3 Current General Plan Land Use Designations

Figure 1 Regional Location

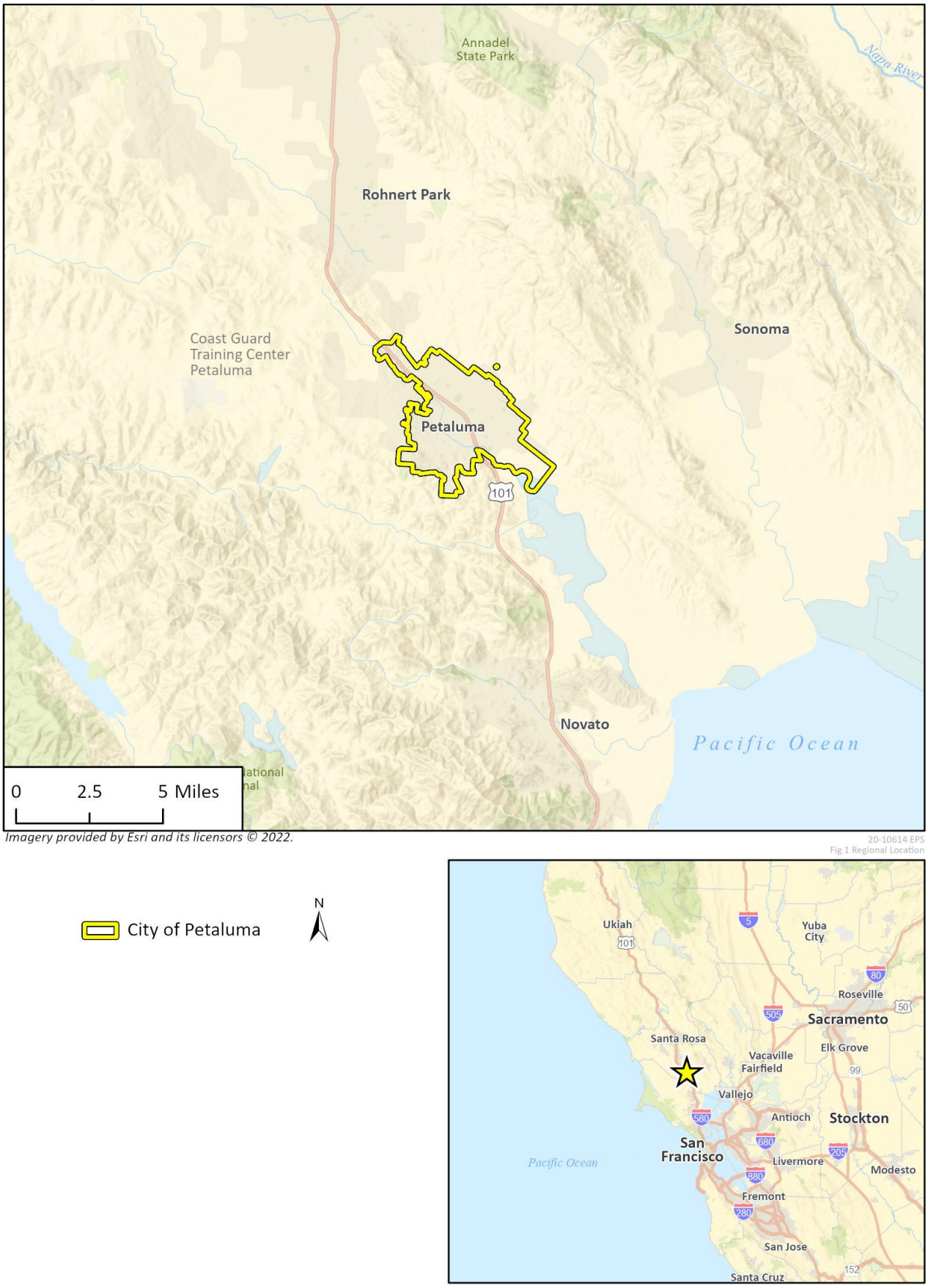
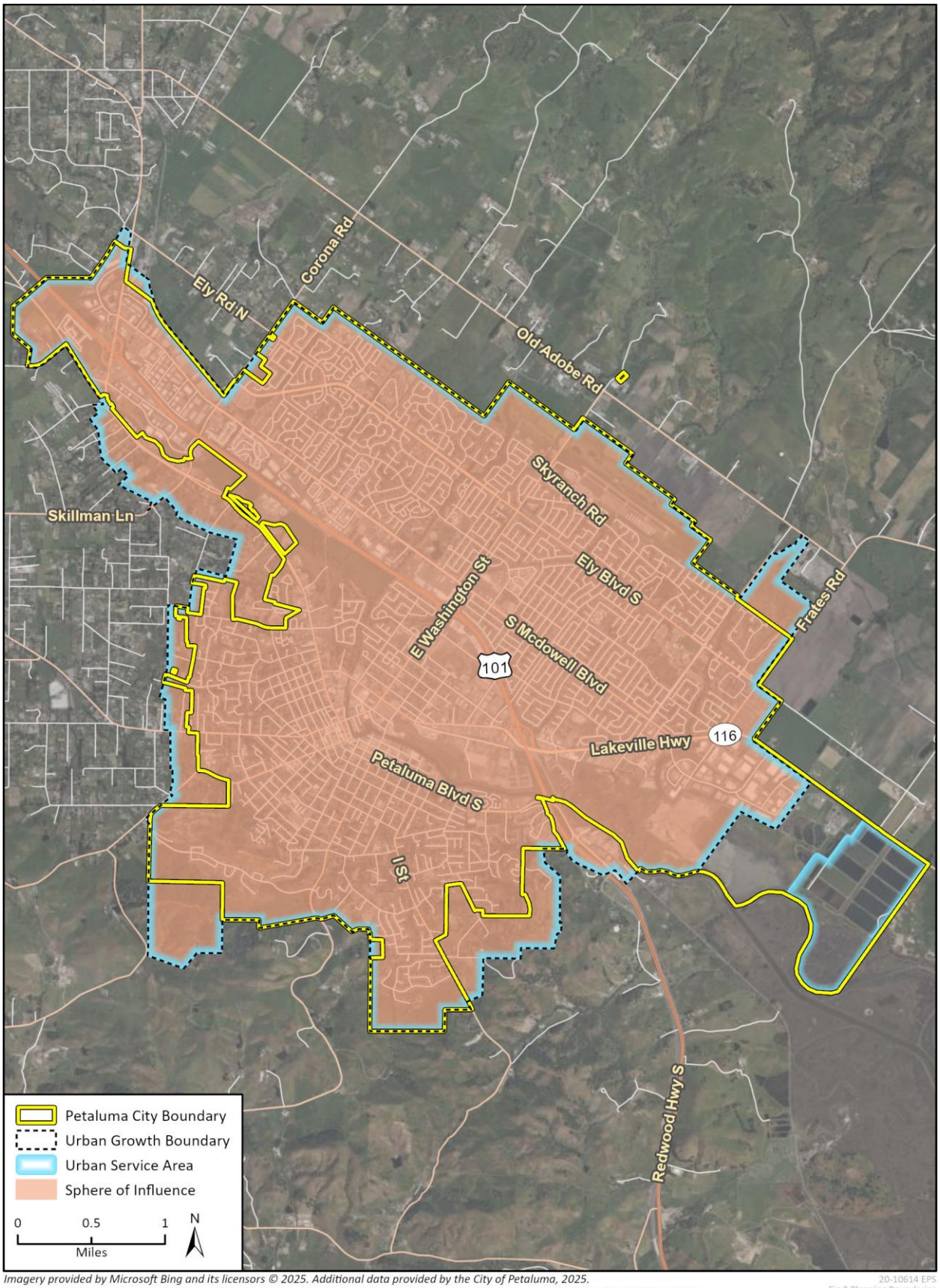


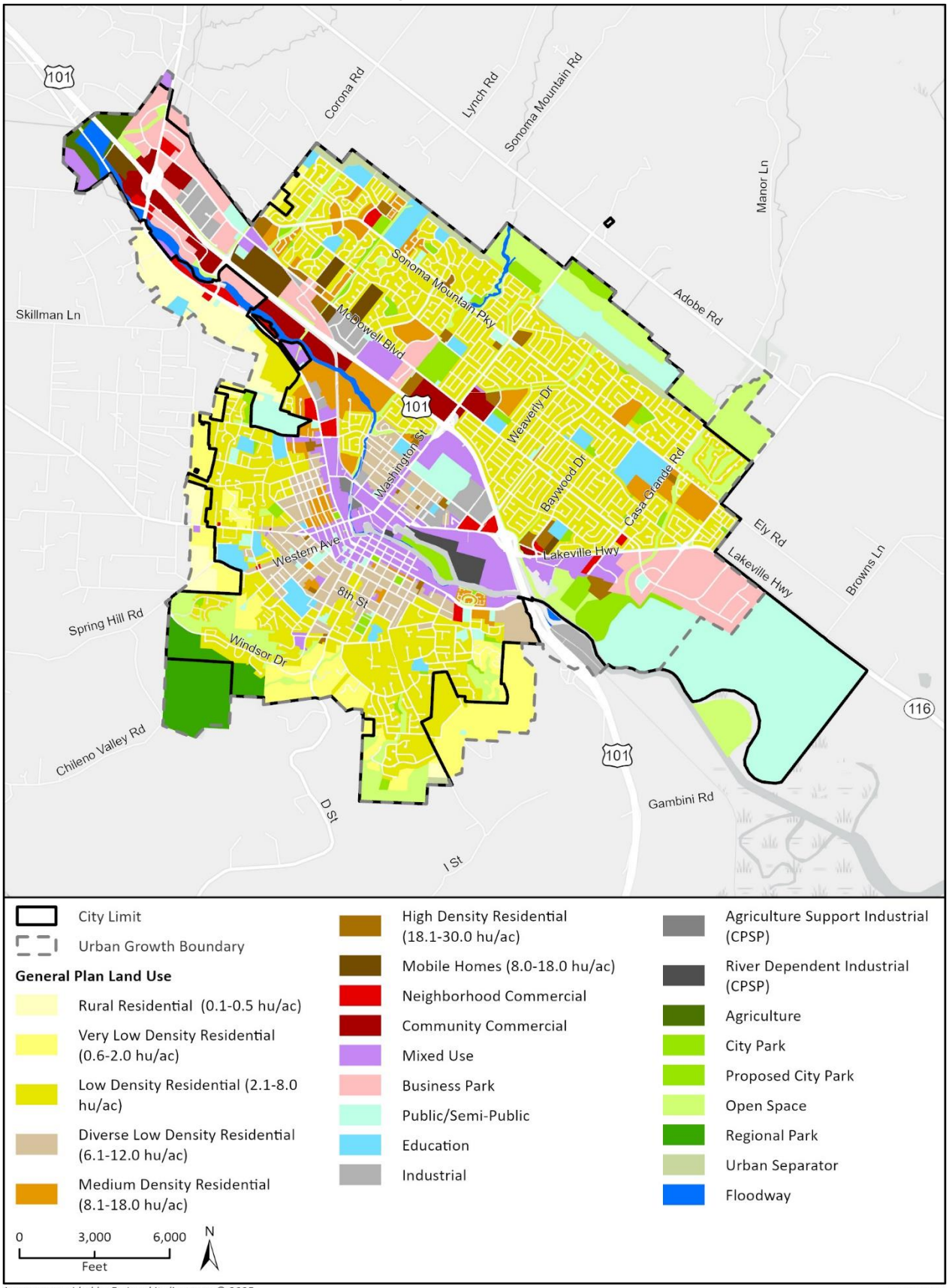
Figure 2 Project Location



Imagery provided by Microsoft Bing and its licensors © 2025. Additional data provided by the City of Petaluma, 2025.
The Urban Service Area was created based from the Urban Growth Boundary and also digitized in some areas from the General Plan Update.

20-10614 EPS
Fig 2 Planning Boundaries

Figure 3 Current General Plan Land Use Designations



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Additional data provided by City of Petaluma, 2021.

20-10614 EPS

Holland & Knight

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+1 415-743-6990
Genna.Yarkin@hklaw.com

Tamsen Plume
+1 415-743-6941
tamsen.plume@hklaw.com

September 8, 2025

City of Petaluma – Community Development
Dept.
ATTN: Heather Gurewitz, Senior Planner
11 English Street
Petaluma, CA 94952

Re: **Stakeholder Public Comment – Scope of Environmental Review for the General Plan Update, Specifically Regarding APNs 136-100-025 and 007-391-005**

Dear All:

On behalf of J. Cyril Johnson Investment Corp., the owners ("Owners") of the property with APNs 136-100-025 and 007-391-005 in Petaluma, we submit the following stakeholder public comments on the scope of the Environmental Impact Report (EIR) that is being prepared to comply with the California Environmental Quality Act (CEQA) for the City of Petaluma (the City)'s General Plan Update.

The APNs we list above are the subject of two separate, in-process planning applications for housing development, which the General Plan Update and therefore the EIR, will affect. Both projects have obtained vested rights to proceed under existing regulatory requirements pursuant to the Housing Crisis Act of 2019 (SB 330) and are further protected by the requirements of the Housing Accountability Act (the HAA).

The Owners' Affected Properties and Projects Protected by State Housing Law

The following provides a brief overview of the Owners' affected projects and the state housing laws that are at play in their processing and approval, including as related to the pending General Plan Update.

Deer Creek 1

- The Deer Creek 1 Residential Subdivision project (Deer Creek 1) would include 217 single family residences on approximately 21.686 net acres of undeveloped land with APN 136-100-025 (the Deer Creek 1 Site)

- On July 24, 2025, applicant Regis Homes Bay Area (Regis Homes) submitted a qualifying SB 330 preliminary application for development, vesting the Deer Creek 1 project to then-existing regulatory requirements including those of the City's existing General Plan, which contemplates residential development on the Deer Creek 1 Site

- Regis Homes is working on a formal application for development, which it will be submitting within 180 days of its preliminary application in compliance with SB 330

- Importantly, the Deer Creek 1 project's right to proceed with this development is vested by SB 330 and the HAA, *regardless of any changes to permitted uses or development standards for the Deer Creek I Site in the City's pending General Plan Update*

Deer Creek 2

- The Deer Creek 2 Apartments project (Deer Creek 2) would include 80 apartments on approximately 6.7 acres of undeveloped land with APN 007-391-005 (the Deer Creek 2 Site)

- In February, 2023 the Owners submitted a qualifying SB 330 preliminary application for development, vesting the Deer Creek 2 project to then-existing regulatory requirements. The application is also subject to the Builder's Remedy provision of the HAA because the Deer Creek 2 project includes 20% low income units and we submitted the preliminary application when the City did not have a compliant Housing Element – for this reason, the Project is able to proceed with residential development despite the existing General Plan not allowing such use

- On February 20, 2025, the City determined the application complete for processing

- On March 24, 2025, the City provided "consistency" comments pursuant to the Housing Accountability Act (the HAA)

- On July 1, 2025, the Owners submitted responses addressing the "consistency" comments

- This application is still in process, pending CEQA review and further work with City staff to prepare it for hearings

- Importantly, the Deer Creek 2 project's right to proceed with this development is vested by SB 330 and the HAA including the Builder's Remedy provision, *regardless of any changes to permitted uses or development standards for the Deer Creek 2 Site in the City's pending General Plan Update*

Both projects are realistic, reasonably foreseeable, and *in process with vested rights to proceed*. Both projects also play an important role in the City reaching its Regional Housing Needs Assessment (RHNA) targets for the 6th Cycle Housing Element, bringing 38 low income units, 11

moderate income units, and 248 above moderate income units. Data through 2024 indicates that in this cycle, Petaluma has entitled only 69 new housing units, consisting of 31 low income units and 38 above moderate income units.[1] This represents only 3.6% progress in overall required units, 10.8% progress in the low income category, 4.7% progress in the above moderate income category.[2]

Stakeholder Comments on the Scope of Environmental Review Relative to the Deer Creek 1 and Deer Creek 2 Projects and Sites

Given that the above-listed Deer Creek 1 and Deer Creek 2 projects are currently in process and subject to housing law protections including those of SB 330, the HAA, and the State Density Bonus Law, we request that the City take the following into account in preparation of the General Plan Update and the accompanying EIR:

- CEQA requires the General Plan Update EIR to take account of all "reasonably foreseeable" development in the City's pipeline – this *must* include both Deer Creek 1 and Deer Creek 2 due to their vested status, and we request that the EIR assume the full scope of both projects in all relevant analysis

- While we understand that the current request is for commenters to provide input only on the scope of environmental review for the General Plan Update, it is worth noting here that we are confused by the downzoning of the Deer Creek 1 and Deer Creek 2 Sites that the General Plan Update appears to contemplate, by designating both Sites as areas "proposed for de-intensification and/or fewer uses"[3] and in Alternative 2 of the Land Use Policy Framework, as sites that would be designated for Open Space (Deer Creek 2 Site) and Parks (Deer Creek 1 Site) – we request that the General Plan Update (and therefore its EIR) take appropriate account of the in-process, realistic, and vested Deer Creek 1 and Deer Creek 2 projects and study the full scope of their development (further noting that downzoning the Sites in a way that would prohibit development without proper compensation may violate the law and that the Owners may separately pursue remedies under the law if the City does so)

- We request that the City carefully consider, in particular, the impacts of all pending projects including Deer Creek 1 and Deer Creek 2 in the section of the EIR that addresses Housing and Population, and that the projects must also be accurately accounted for in the Growth Inducement analysis (since studying parks or open space on the Sites would not be realistic and would therefore skew both analyses)

- In 1995, the City adopted the precise plan line for the Rainier Cross Town Connector and Interchange (Ordinance No.1992 N.C.S). The City's Zoning Code Section 4.050 purports

[1] See https://www.hcd.ca.gov/housing-open-data-tools/apr-dashboard, data selected for Petaluma in 2023 and 2024.
[2] See Petaluma 2023-2031 Housing Element, Table 1.
[3] Land Use Policy Framework, Figure 5.

to require dedication of all future right-of-way plan for plan line areas, and Municipal Code Section 13.20.170 prohibits any structures from being built in these areas. In both cases, the projects have asserted that they cannot be legally required to dedicate these areas and/or keep structures out of them. Please see our previous communication related to the Deer Creek 1 and Deer Creek 2 projects for further discussion. In the context of the EIR and the General Plan Update, we note that the General Plan Update should accurately reflect that this infrastructure project has long been ***abandoned***, that the discussion in Existing Conditions Report[4] about the unrealistic nature of it proceeding be carried forward, and that an ordinance be adopted to remove the dedication requirement and development prohibition related to the Rainier Cross Town Connector and Interchange. We see no mention of the Rainier Cross Town Connector and Interchange in the Transportation Policy Framework dated January 2024, but note that the General Plan Update and the EIR should accurately reflect that:

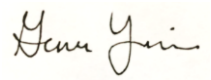
- 1) The Deer Creek 1 and Deer Creek 2 projects will be proceeding without dedicating or avoiding the plan line area; and

- 2) The Rainier Cross Town Connector and Interchange is ***not*** proceeding (Caltrans considered the potential ramp component of the Rainier Extension as suspended indefinitely in their written comments on the EIR for that project, and we are unaware of any planned, imminent transportation project that includes the ramps)

We sincerely appreciate the opportunity to provide feedback to the City ahead of its preparation of the General Plan Update EIR, and we plan to remain active participants throughout this vital public process. The Owners remain excited about the future of both Deer Creek 1 and Deer Creek 2. If helpful to discuss, please let us know.

Sincerely,

HOLLAND & KNIGHT LLP



Genna Yarkin
Tamsen Plume

[4] See Existing Conditions Report – Transportation, September 2022.

Outlook

Quiet Zone Enforcement – Riverfront Neighborhood

From Braeden and Jon <braedenandjon@gmail.com>
Date Tue 8/12/2025 1:58 PM
To General Plan Update <planpetaluma@cityofpetaluma.org>

Some people who received this message don't often get email from braedenandjon@gmail.com. Learn why this is important

---Warning: Use caution before clicking any attachments. THIS EMAIL IS FROM OUTSIDE OUR EMAIL SYSTEM.---

Dear City Official,

I am writing as a resident of the Riverfront community to express my strong support for ensuring our homes are included in a functioning Quiet Zone. The early morning train horn, often around 5:00 AM, wakes me up daily and also disturbs our two-year-old child.

There are Quiet Zone signs posted by the train tracks near our neighborhood, but the horn use continues as if the designation is not being observed. If these signs are meant to indicate a Quiet Zone, it's unclear why trains are still using their horns at these hours.

The noise is disruptive to residents' sleep and quality of life. I urge the city to address this issue with the relevant rail authorities to ensure the Quiet Zone is enforced as intended, especially during early morning hours. Please also provide a clear timeline for when residents can expect enforcement to begin.

Thank you for your attention to this matter. I appreciate any updates or clarification you can provide on enforcement and next steps.

Sincerely,

Braeden Sparks

314 Caulfield Ln, Petaluma, CA 94952

208-521-2428

Outlook

Quiet Zone Riverfront & Riverscape communities

From Elodie Redikas <elodie.redikas@yahoo.com>
Date Tue 8/12/2025 11:30 AM
To General Plan Update <planpetaluma@cityofpetaluma.org>

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---Warning: Use caution before clicking any attachments. THIS EMAIL IS FROM OUTSIDE OUR EMAIL SYSTEM.---
Good morning,

Are there plans similar to what happened in Windsor to reclassify our neighborhoods as a Quiet Zone, now that more than one community will be built by the train tracks next to the Marriott hotel on hopper?
At the moment, the train honks multiple times a day, as early as 5AM causing noise disruptions.

This request has been sent out multiple times, the latest being March 2024.

What can be done to become a Quiet Zone?

Thanks
Elodie Redikas
Riverfront resident.

Outlook

RE: NOTICE OF PUBLIC SCOPING MEETING (08/21/2025) - will this be recorded or available for live viewing?

From Wayne Leach <waynel@cswst2.com>
Date Thu 8/21/2025 3:58 PM
To Heather Gurewitz <hgurewitz@cityofpetaluma.org>; General Plan Update <planpetaluma@cityofpetaluma.org>
Cc Orozco, Uriel <uorozco@cityofpetaluma.org>

---Warning: Use caution before clicking any attachments. THIS EMAIL IS FROM OUTSIDE OUR EMAIL SYSTEM.---
Ok, thanks Heather. Appreciate the quick response.

If there are any published minutes of the meeting with a summary of public comments please share or let me know how to obtain a copy.

Wayne

From: Heather Gurewitz <hgurewitz@cityofpetaluma.org>
Sent: Thursday, August 21, 2025 3:54 PM
To: Wayne Leach <waynel@cswst2.com>; General Plan Update <planpetaluma@cityofpetaluma.org>
Subject: RE: NOTICE OF PUBLIC SCOPING MEETING (08/21/2025) - will this be recorded or available for live viewing?

Hello Wayne,
Thank you for your email. The meeting is in-person at the community center which does not have video conferencing capabilities and the meeting will not be recorded. The purpose of the meeting is to accept public comments to inform the draft of the environmental impact report. We will not be responding to comments at the meeting as they will be addressed in the draft EIR. If you are unable to attend, comments can also be submitted via email or via our website at planpetaluma.org.
Thank you,
Heather

Heather Gurewitz, AICP, MCRP
Senior Planner, M-Group Consulting
Planner serving the City of Petaluma
City of Petaluma | Community Development
Schedule a Virtual Counter Appointment
hgurewitz@cityofpetaluma.org

CLIMATE READY PETALUMA 2030

Report issues through our new service request app! Download engagEPetaluma on Google or Apple.

From: Wayne Leach <waynel@cswst2.com>
Sent: Thursday, August 21, 2025 3:48 PM
To: General Plan Update <planpetaluma@cityofpetaluma.org>
Subject: NOTICE OF PUBLIC SCOPING MEETING (08/21/2025) - will this be recorded or available for live viewing?

Some people who received this message don't often get email from waynel@cswst2.com. Learn why this is important

---Warning: Use caution before clicking any attachments. THIS EMAIL IS FROM OUTSIDE OUR EMAIL SYSTEM.---

Lead Agency Contact:
Heather Gurewitz, AICP
City of Petaluma Community Development Department
11 English Street
Petaluma, California 94952
planpetaluma@cityofpetaluma.org

Heather,

Does the City and GP team have a link to the Notice of Preparation Meeting tonight 08/21/2025 or will it be recorded and made available for the public to view?

WAYNE LEACH
Senior Project Manager

CSWST2 **Adaptive Solutions. Innovative Designs.**
d 415.884.6460 m 707.799.2466 WayneL@cswst2.com

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Hello Heather & Team,

Petaluma must stop allowing construction on the bad the Petaluma Slough / River. Look at the flood maps and it is clear that areas built recently will flood including Haystack.
Petaluma will likely have to pay for allowing these river developments in the past.

Now is the time to be smart and plan for all future climate impacts.

Thank you,

Tom Bornheimer

Outlook

Tripoint Riverside request

From Mila Ribando <mila.ribando@gmail.com>
Date Tue 8/12/2025 8:31 PM
To General Plan Update <planpetaluma@cityofpetaluma.org>

[Some people who received this message don't often get email from mila.ribando@gmail.com. Learn why this is important at https://aka.ms/LearnAboutSenderIdentification]

---Warning: Use caution before clicking any attachments. THIS EMAIL IS FROM OUTSIDE OUR EMAIL SYSTEM.---

Hi there,

Please protect those who had faith in Petaluma and moved here for a small down peaceful community. I understand those before me may have said the same thing before our development came in but we showed up in a place that wasn't surrounded by much. I'd love to see our views not blocked (2-3 story growth) and quiet time during the hours of 10-7. Thanks for giving a place to place our wishes.

Mila Ribando

Appendix B

Transportation Impact Analysis prepared by Fehr & Peers in March 2026

Fehr & Peers

Petaluma General Plan

Transportation Impact Analysis

Prepared for:
City of Petaluma

Submitted on:
March 18th, 2026

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Introduction

This transportation impact assessment (TIA) reviews transportation conditions within the City of Petaluma associated with the buildout of the General Plan Update. The topics presented herein are based on the City of Petaluma's Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines (July 2021) and Appendix G of the CEQA Guidelines and are intended to disclose the local transportation effects of the project. These topics include the existing and regulatory setting, methodology for evaluation, and an assessment of vehicle miles traveled (VMT), access and circulation, roadway safety, and emergency vehicle access for consistency CEQA requirements. Non-CEQA metrics such as accessibility, roadway volume to capacity ratios, and miles of transportation facilities are presented to inform decision makers on how well the preferred alternative achieves the transportation goals and policies set forth in the General Plan Update. The study area for the TIA includes the extents of the City of Petaluma, although some topics such as emergency access include discussions of the General Plan Update's effect on adjacent unincorporated county.

Project Description

This section summarizes the land use growth and policy direction established in the General Plan that forms the basis for the transportation impact analysis. The General Plan sets both the scale of development anticipated through the horizon year and the strategies that will shape travel behavior and system performance.

Land Use Growth

The General Plan land use forecast anticipates growth in housing and employment. As presented in Table 2-1 of the EIR project description, the projected year 2050 buildout includes 6,449 additional residential units and 1.4 million square feet of non-residential land uses. This includes cumulative no project growth that are anticipated under the current General Plan and the additional growth anticipated under the General Plan Update. **Appendix B** of this document describes the methodology for translating this growth into the SCTCA model including a breakdown by land use type included in the transportation impact analysis.

Policy and Program Direction

In addition to land use growth, the General Plan establishes transportation policies and programs that will shape travel behavior and system performance. Key policies and programs incorporated into this assessment include:

- **Blueprint for Carbon Neutrality:** Strategies to reduce transportation related greenhouse gas emissions, the largest source of communitywide emissions in Petaluma, in support of the City's adopted goal of achieving carbon neutrality by 2030.
- **Active Transportation Plan (ATP) buildout**: Implementation of the full bicycle and pedestrian network identified in the City's ATP.
- **Complete Streets improvements**: Reimaging the City's street network in alignment with the Draft Street Typology Framework presented in **Appendix A** focused on reallocating of roadway space to enhance multimodal safety and accessibility. Action TP-1.1.3 includes

developing the final Street Typology Framework as a follow-up General Plan implementation action to formalize the street typology framework.

- **Vision Zero and safety strategies**: Policy framework and projects to reduce traffic collisions and improve safety for all modes.
- **Transit-supportive actions**: Investments to expand Petaluma Transit and SMART service and regional transit connectivity.
- **Transit fleet and facility electrification and modernization:** Convert the Petaluma Transit vehicle fleet to zero emission vehicles by 2030 and implement near term facility electrification improvements at the Petaluma Transit yard needed to support electric bus operations, while evaluating long term facility needs to accommodate future transit service expansion.
- **Transit service planning:** Update the Petaluma Transit Short Range Transit Plan and participating in long range transit visioning and regional transit studies to guide future transit service improvements.
- **Transportation demand management (TDM) measures**: Strategies to reduce single-occupant vehicle trips, including parking management, carpool programs, and employer-based programs.
- **Regional coordination**: Continued participation in regional efforts such as the Sonoma County Transportation Authority's travel demand management programs and integration with Plan Bay Area 2050 goals.

Figure 1 presents a map of the street classifications that will support the General Plan Update based on the Draft Street Typology Framework and Caltrans current functional classifications as of October 2025 presented in **Appendix A**. **Figure 2** presents ATP bikeway map adopted in September 2025.

Additional Policies

The General Plan includes many policies that are qualitative in nature and not quantified in this analysis. Examples include actions to improve equity in transportation access, promote emerging mobility options, integrate green infrastructure into street design, and coordinate land use and transportation to reduce vehicle miles traveled. While these policies are not directly modeled within the SCTCA Travel Model, they provide important support for the City's multimodal and sustainability goals and are included in the assessment of the policies of the General Plan Update herein.

Figure 1. Street Classification Map

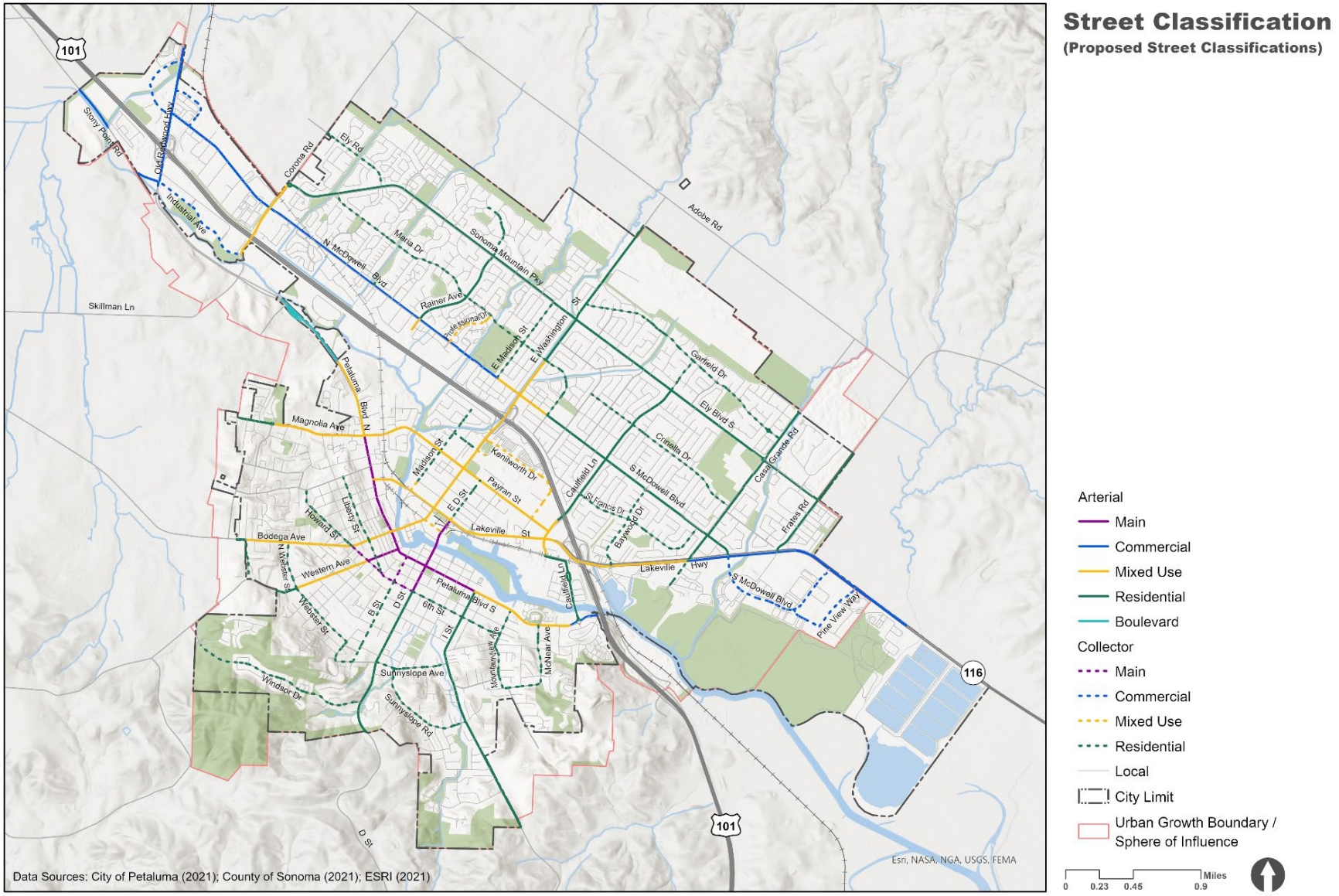
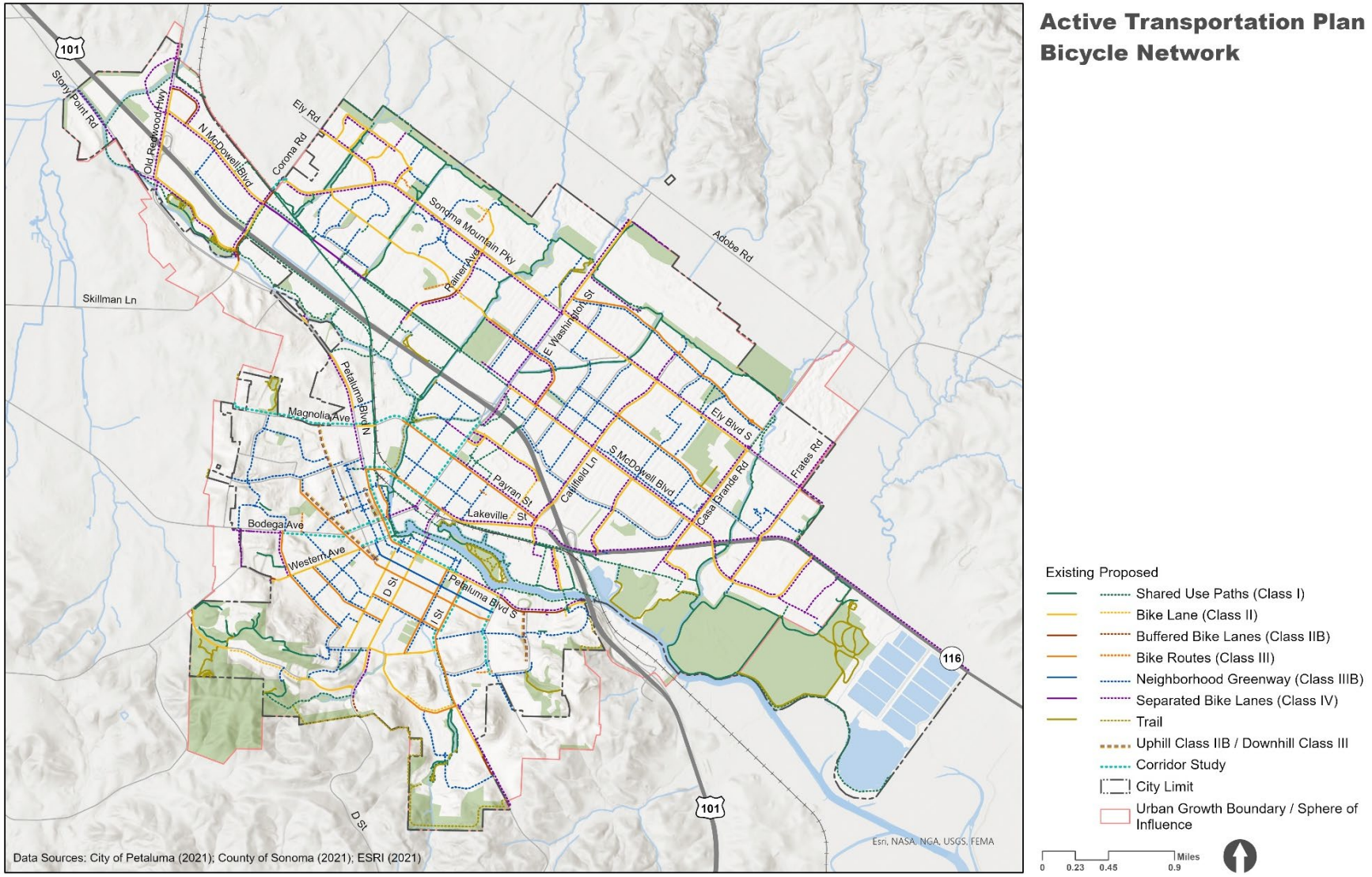


Figure 2. Active Transportation Plan Bicycle Network



Environmental Setting

The environmental setting for this TIA is primarily based on 2019 traffic counts and the 2019 base year Sonoma County Transportation and Climate Authorities (SCTCA) model documented in the General Plan Update's 2022 Existing Conditions Report. The 2019 base year SCTCA model is the latest model file available to use for estimating future year traffic conditions. SCTCA is currently exploring updating the base year model to post-COVID pandemic conditions, however this initiative has not started as of fall of 2025. Given the Notice of Preparation (NOP) for the EIR was in August 2025, the environmental setting also presents the following information available from the city as of August 2025, where available:

- Roadway changes between 2019 and 2025
- Bike routes and other facility data
- Transit services and passenger data
- Population and employment changes since 2019

Roadway Network

This section describes the existing regional highway system and the local street circulation system for Petaluma. The regional highway system and roadway classifications described in this section are illustrated in **Figure 3** below.

Regional Facilities

U.S. Highway 101 (U.S. 101) is a major north-south freeway that extends northward from San Francisco and the Golden Gate Bridge as a four-to-eight lane divided freeway through Marin County, reducing to four lanes with alternating freeway and highway segments through northern Marin County and into Sonoma County before continuing to the North Coast counties of Mendocino, Humboldt, and Del Norte. Access to Petaluma from U.S. 101 is provided via interchanges at the Lakeville Highway Interchange (State Route 116), East Washington Street, and Petaluma Boulevard. In Petaluma, U.S. 101 is now a six-lane freeway (two mixed-flow lanes and one high-occupancy vehicle [HOV] lane in each direction) that bifurcates the City, following the Marin-Sonoma Narrows Project improvements completed in 2022. The final stage south of Petaluma was completed in Fall 2025, creating a continuous six-lane freeway to Marin County. The data used in this assessment was collected before these project segments were complete.

State Route 116 (SR 116) is an east-west highway that orients northwest-southeast through Petaluma. The route runs from State Route 1 on the coast near Jenner to State Route 121 south of Sonoma, connecting with U.S. 101 at Lakeville Street, to the east of downtown Petaluma, and running concurrently with U.S. 101 throughout most of central and northern Petaluma. To the east of U.S. 101, SR 116 is Lakeville Highway, a four-lane road with additional storage lanes for turning movements. West of U.S. 101, Lakeville Highway continues as a City-maintained (non-Caltrans) roadway named Lakeville Street.

Local Facilities

Petaluma's local road network includes approximately 177 miles of streets, 12 bridges, 53 signalized intersections, and 5,458 streetlights.[1] Petaluma uses both functional classifications and street typologies to describe its streets. This chapter describes Petaluma's roadway network based on classifications in the 2025 General Plan and how the street classifications were updated to reflect the General Plan Update's policies, such as Policy TP-1.1 to "Develop a reliable and connected transportation network that fulfills the City's Vision".

The following roadway functional classifications categorize streets by purpose, location, and typical land uses to which they provide access. Each of these roadway types is described in more detail below and existing roadway classifications are mapped on **Figure 3** as designated in the 2025 General Plan. FHWA and Caltrans Functional Classification Systems include additional subcategories of roadways such as principal and minor arterials, as shown in **Appendix A,** that were not included in the 2025 General Plan. Further, Caltrans does not identify a connector as a functional classification.

- Arterials
- Collectors
- Connector
- Local streets

This functional classification system is centered on the movement of automobiles and does not typically consider the surrounding build environment, travel characteristics, and multimodal priorities. Petaluma's 2025 General Plan also defines street typologies that extend the existing functional roadway classifications to consider the street's relation to surrounding land uses, travel speeds, and multiple modes of transportation. These include the following:

- Residential Streets
- Main Streets
- Mixed-Use Streets
- Commercial Streets
- Industrial Streets
- Boulevards
- Private Streets

The General Plan Update's street classifications were refined to implement Action TP-1.1.3, which directs the City to develop a street typology framework that "ensures modal priorities, the Safe, Equitable, and Inclusive framework, and All Ages and Abilities Bikeway Design are accounted for in transportation planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities and products." Consistent with this direction, the General Plan Update emphasizes the built environment and surrounding land use context in the naming and definition of street typologies, reinforcing that streets are designed not solely for vehicle movement, but for safe, context-appropriate access for all users. The resulting street classifications are shown in **Figure 1**.

Since adoption of the 2025 General Plan, Caltrans has updated the functional classifications within Petaluma. The current Caltrans functional classifications are shown in **Figure A-1** in **Appendix A.**

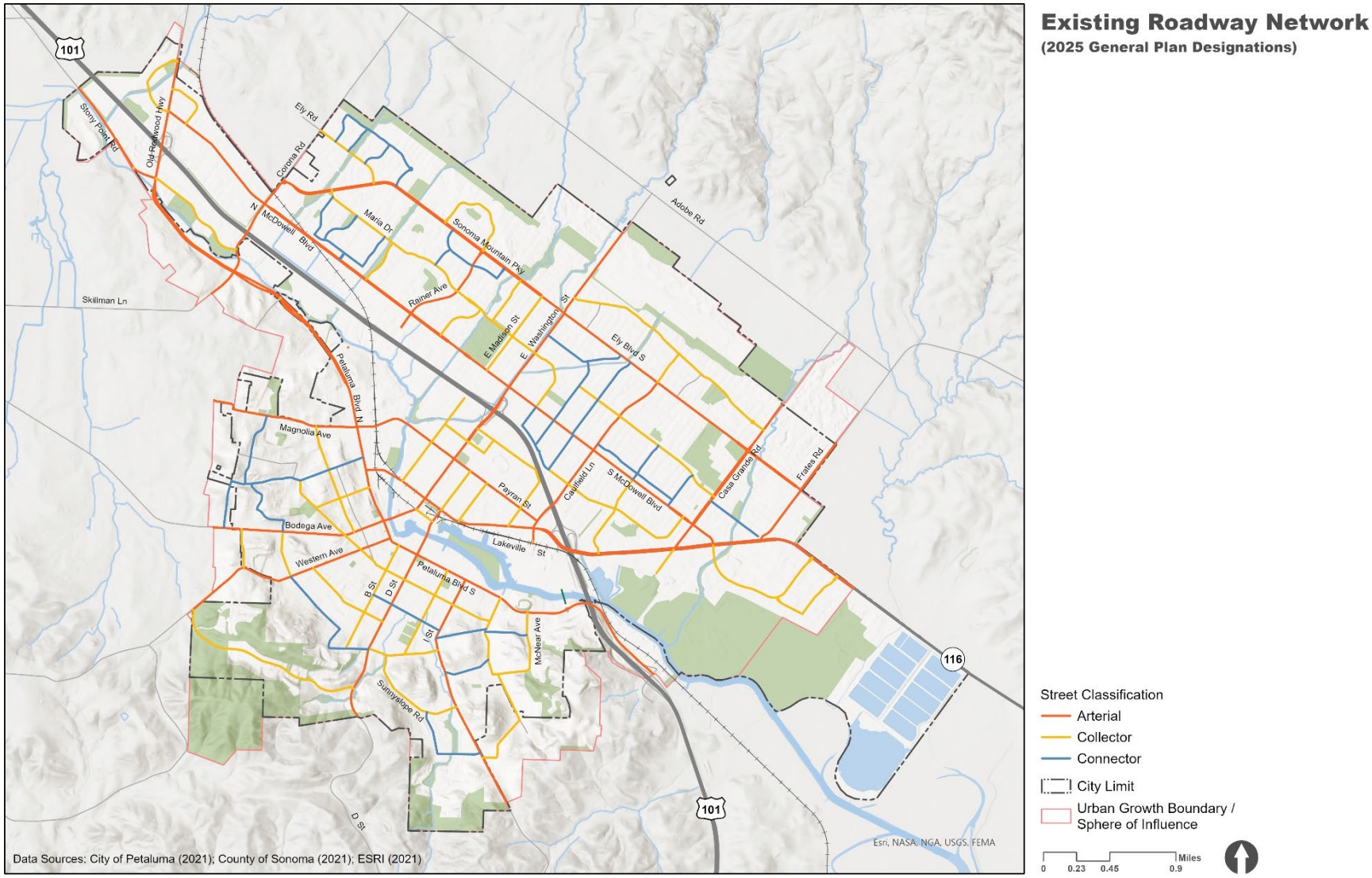
[1] City of Petaluma (2021). "Infrastructure Presentation." Measure U Workshop Meeting, Petaluma City Council, March 8, 2021. Accessed at https://petaluma.granicus.com/GeneratedAgendaViewer.php?view_id=31&event_id=45335

Table A-1 presents proposed refinements to Caltrans functional classifications where necessary to align with the General Plan Update's street classifications shown in **Figure 1**. These refinements are intended to improve consistency between the City's design-oriented street typologies and the functional classification system used by Caltrans and FHWA for funding, eligibility, and system planning purposes.

A change from the 2025 General Plan is the removal of the "connector" roadway classification. "Connector" is not a recognized functional classification under FHWA or Caltrans guidance, and its use created ambiguity regarding design intent and safety expectations. Under the General Plan Update, roadways previously classified as connectors are redesignated as local streets, consistent with their function, context, and surrounding land uses. This change aligns Petaluma's classifications with state and federal practice while supporting Action TP-1.1.3 and Action TP-4.1.1 to apply the Safe Systems Approach and Vision Zero principles by prioritizing safety, access, and multimodal comfort over automobile speed, capacity, and delay.

Since the street network in Petaluma does not consistently align with cardinal directions (e.g., North, South, etc.), those that generally run parallel with U.S. 101 are generally described with a north-south orientation for simplicity, and streets running perpendicular to U.S. 101 are described with an east-west orientation. **Appendix B** presents the existing average daily traffic volumes for study roadway segments. These traffic counts are the most recent citywide traffic counts available from 2019 and are representative of the existing conditions at the initiation of the General Plan Update process. Given that these counts were prior to the COVID pandemic and recent roadway changes such as the addition of the HOV lanes through Petaluma on U.S. 101, additional supplemental travel patten data was collected as described in the Methodology chapter of this study.

Figure 3. Existing Roadway Network



Arterials

According to FHWA and Caltrans, arterials are typically higher-volume, higher-speed roadways with limited access to adjacent parcels. The primary function of arterials in the movement of vehicles is to connect regional highways with the local roadway network. The following roadways are defined in the 2025 General Plan as arterials:

- Lakeville Street / Lakeville Highway
- Payran Street
- McDowell Boulevard
- Petaluma Boulevard
- Sonoma Mountain Parkway / Ely Boulevard South
- Stony Point Road
- Casa Grande Road
- Caulfield Lane
- Corona Road
- D Street
- Frates Road
- I Street
- Magnolia Avenue
- Old Redwood Highway
- Rainier Avenue
- Washington Street / Bodega Avenue
- Western Avenue

Collectors

According to FHWA and Caltrans, collector streets serve as principal traffic arteries within residential and commercial areas. The following roadways are defined as collector streets in the 2025 General Plan:

- 6th Street
- B Street
- Bantam Way
- Crinella Drive
- East D Street
- East Madison Street
- Ellis Street
- Ely Road
- Fair Street
- G Street
- Garfield Drive
- Howard Street
- Industrial Avenue
- Keokuk Street
- Madison Street
- Maria Drive
- McNear Avenue
- Mountain View Avenue
- Monroe Street
- North Webster Street
- Oak Street
- Pine View Way
- Purrington Road
- Rainier Circle
- St. Francis Drive
- Sunnyslope Avenue
- Sunnyslope Road
- Windsor Drive

Connectors

The 2025 General Plan classifies collector streets as those that provide low-speed, medium-volume access within and between neighborhoods and nearby collector and arterial streets. As noted above, "Connector" is not a recognized functional classification under FHWA or Caltrans guidance and thus this category was removed from the General Plan Update.

Local Streets

The 2025 General Plan classifies local streets as those that provide direct connections to residences and businesses. They are typically designed as lower-speed streets and typically allow on-street parking.

Motor Vehicle Constraints

Figure 4 presents how motor vehicle and multimodal travel in Petaluma is constrained by physical barriers such as the Petaluma River, the SMART right-of-way, and U.S. 101. Washington Street, Payran Street, and D Street are the key routes across the Petaluma River between the east and west sides of the City. Similarly, Old Redwood Highway, Corona Road, East Washington Street, Caulfield Lane, and Lakeville Street/Highway are the key routes for travel across U.S. 101.

Because there are limited opportunities to cross these linear features, congestion "hot spots" can form during peak commute or school periods, generally between 7:00 to 9:00 am and 4:00 to 6:00 pm. Congestion is most pronounced on East Washington Street, Lakeville Street, and East D Street that provide access to and through downtown. School assignment policies and transportation to/from schools are important considerations for future transportation planning. The City's 2025 General Plan identified additional "crosstown connectors" and bridges over the Petaluma River at Rainier Avenue and Caulfield Lane, with the goal of providing additional opportunities for travel across these barriers. The Caulfield Lane extension has continued through environmental review and design phases and would support many of the General Plan Update policies to improve accessibility and cross-town connections.[2] The need and opportunities for additional new or enhanced crosstown connections have been completed in 2019, 2022, and 2025. Rainier Avenue was reviewed as a part of council sessions in 2019 and 2022, which identified how conditions have changed since adoption of the City's 2025 General Plan.[3] The Highway 101 Pedestrian & Bicycle Crossing Study (October 2025) identified a range of accessibility improvements to Corona Road, Rainier Avenue, Lynch Creek, Washington Street, and McKenzie Avenue that would enhance travel for people across the barriers to multi-modal travel. [4]

In addition to these barriers, the bottleneck created when U.S. 101 went from six to four lanes historically contributed to congestion on U.S. 101 through Petaluma, particularly during peak commute periods and on weekends. The completion of the Marin-Sonoma Narrows Project in Fall 2025 has removed this bottleneck.

[2] https://cityofpetaluma.org/caulfieldbridge/

[3] The staff report for the October 10, 2022 City Council workshop "Crosstown Connector Workshop: Exploring Petaluma's Options for Enhancing Community Mobility, Safety, and Connectedness" describes the changing circumstances for Rainier Avenue since completion of the 2025 General Plan.

[4] https://cityofpetaluma.org/101crossings/

Figure 4. Roadway Network Constraints

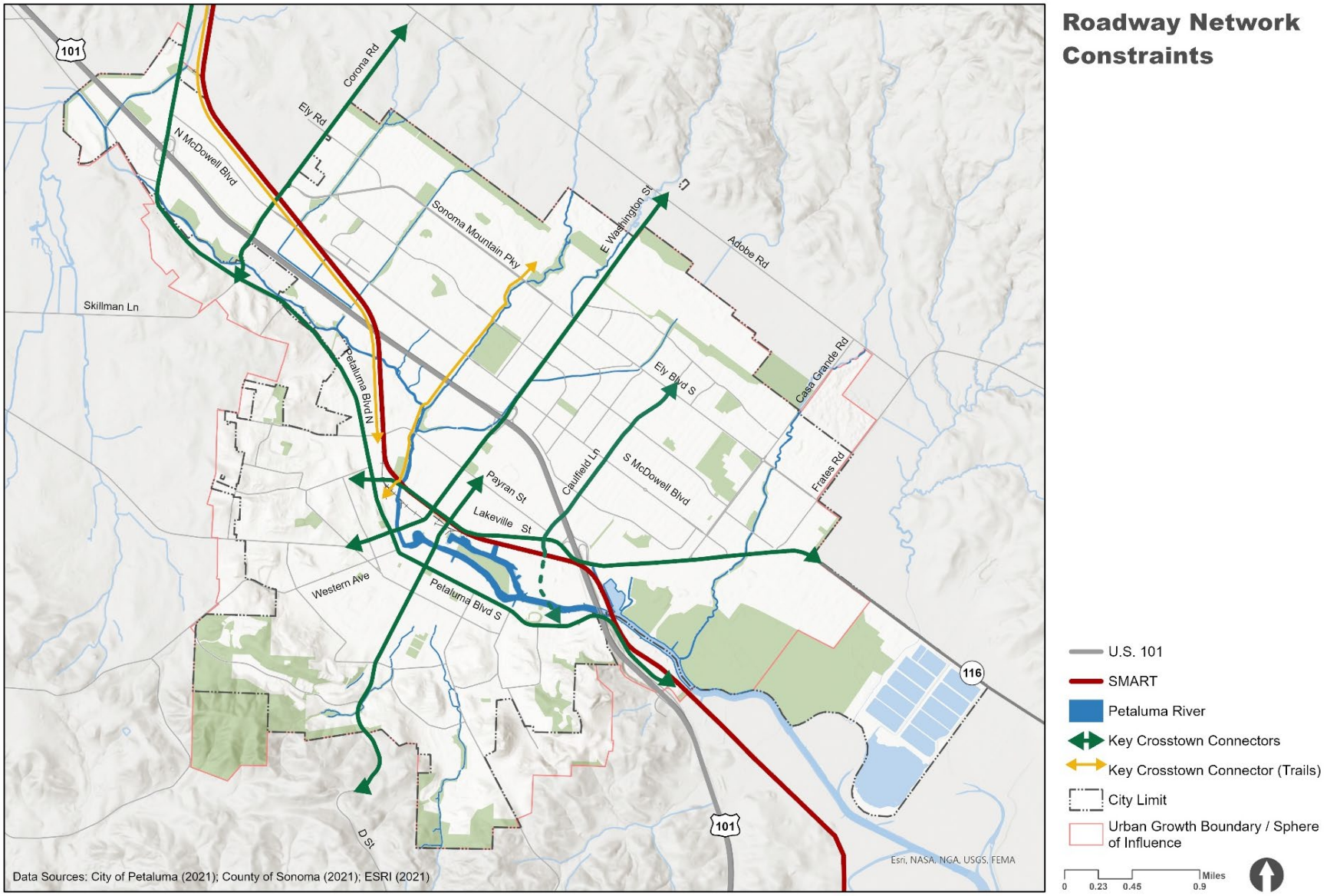
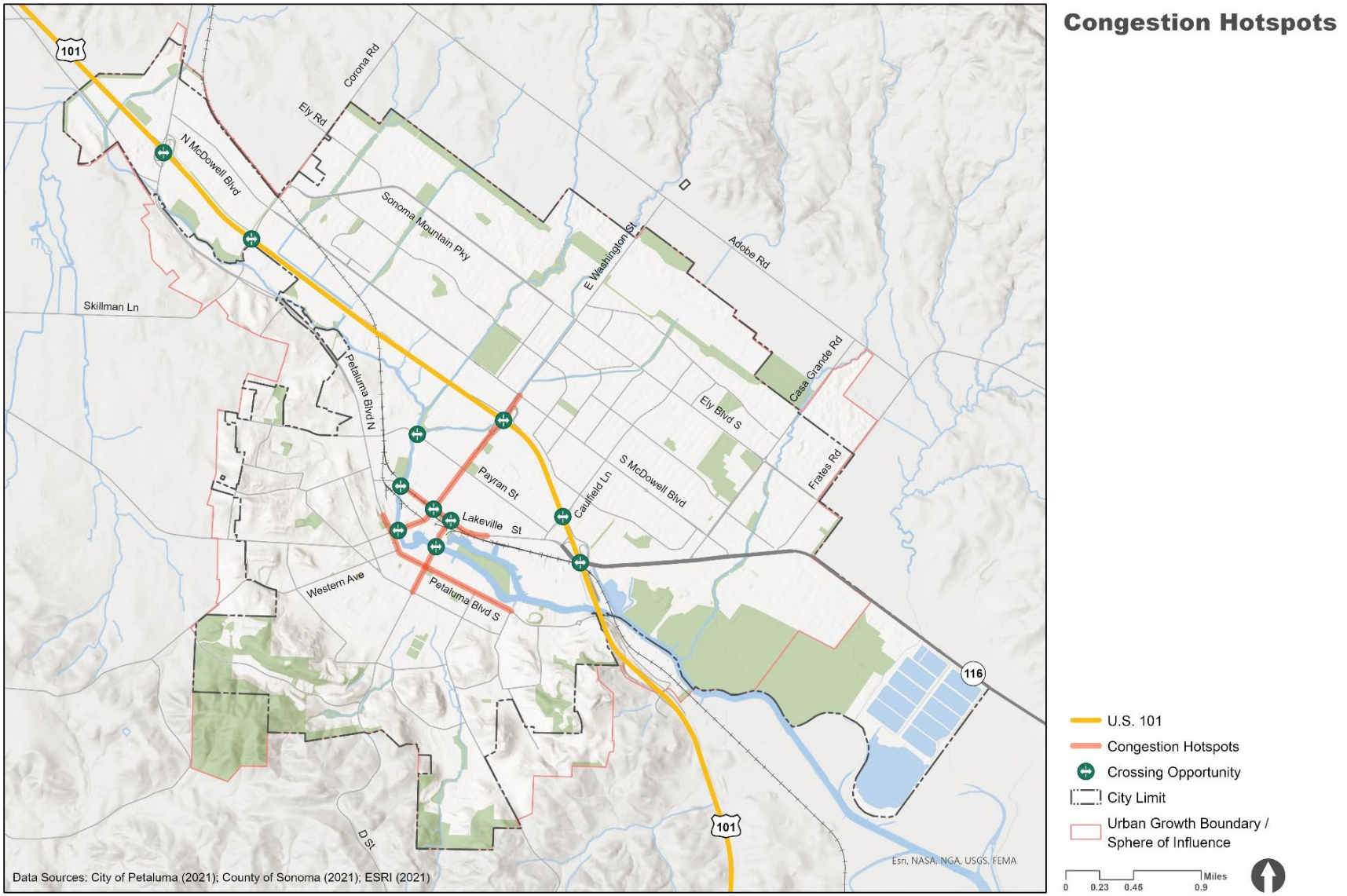


Figure 5. Congestion Hotspots



Bicycle Network

The 2025 General Plan and the 2008 Bicycle and Pedestrian Master Plan (BPMP) both support the development of a citywide network of bikeways and bicycle support facilities to meet transportation and recreational needs. Caltrans identifies four classifications of bicycle facilities:

- **Class I** facilities, or shared-use paths, are paved off-street pathways of at least 8' in width that accommodate people walking, bicycling, and rolling. Shared-use pathways should provide safe and convenient trail crossings where they intersect streets.
- **Class II** facilities, or bike lanes, are on-street bike lanes that are immediately adjacent to vehicle traffic, separated by a painted line.
- **Class IIB** facilities, or buffered bike lanes, are on-street bike lanes that are separated from vehicle traffic by a painted buffer of at least 1.5' wide, but with no vertical elements.
- **Class III** facilities, or bike routes, are shared on-street routes where bicycles and vehicles travel together.
- **Class IIIB** facilities, or neighborhood greenways, are low traffic, low speed streets that have been enhanced for use by people walking, bicycling, and rolling. Due to the low level of traffic stress, bike lanes are not considered necessary and people bicycling are empowered to share the street with slow moving vehicle traffic.
- **Class IV** facilities, or separated bike lanes, are on-street bike lanes that are physically protected or separated from vehicle traffic by some sort of vertical element, such as parked cars, curbs, or bollards.
- **Trail** facilities, are off-street, typically unpaved pathways that are separated from automobile traffic and intended for non-motorized use such as walking, bicycling, and rolling.



Figure 6: Class I



Figure 7: Class II



Figure 8: Class IIB



Figure 9: Class III/Class IIIB



Figure 10: Class IV

Petaluma's existing bicycle network, shown in **Figure 11** below, includes a wide coverage of Class II and Class III facilities. However, many of these are located on streets with high traffic volumes and speeds, which can be uncomfortable for many bicyclists. The Active Transportation Plan (ATP), which was adopted in September 2025 as an update to the 2008 BPMP, envisions a shift toward separated and "low-stress" bikeways that appeal to people of all ages and ability levels. Since the 2022 Existing Conditions Report, Petaluma has added Class IIB buffered bike lanes along Petaluma Boulevard South (completed 2022), Class IV protected bike lanes on sections of North McDowell Boulevard (completed 2023), and its first Class IIIB "Neighborhood Greenway" on

5th Street (completed 2024). The City plans to construct protected bike lanes on Rainier Avenue, Caulfield Lane, and Casa Grande Road in the coming years.

The Lynch Creek Trail is a key east-west corridor for walking and biking. It connects downtown Petaluma with neighborhoods, schools, parks, commercial areas, and transit services including bus stops and SMART stations. Some segments of the trail are in poor condition, and crossings at major roads such as McDowell Boulevard are difficult to navigate due to their offset from signalized intersections. That said, numerous improvements have been made to the trail in recent years since completion of the 2022 Existing Conditions Report, including repaving, removal of unnecessary bollards, installation of lighting, and public art. The crossing at McDowell Boulevard is currently being studied as part of the Pedestrian and Bicycle 101 Crossings Study.

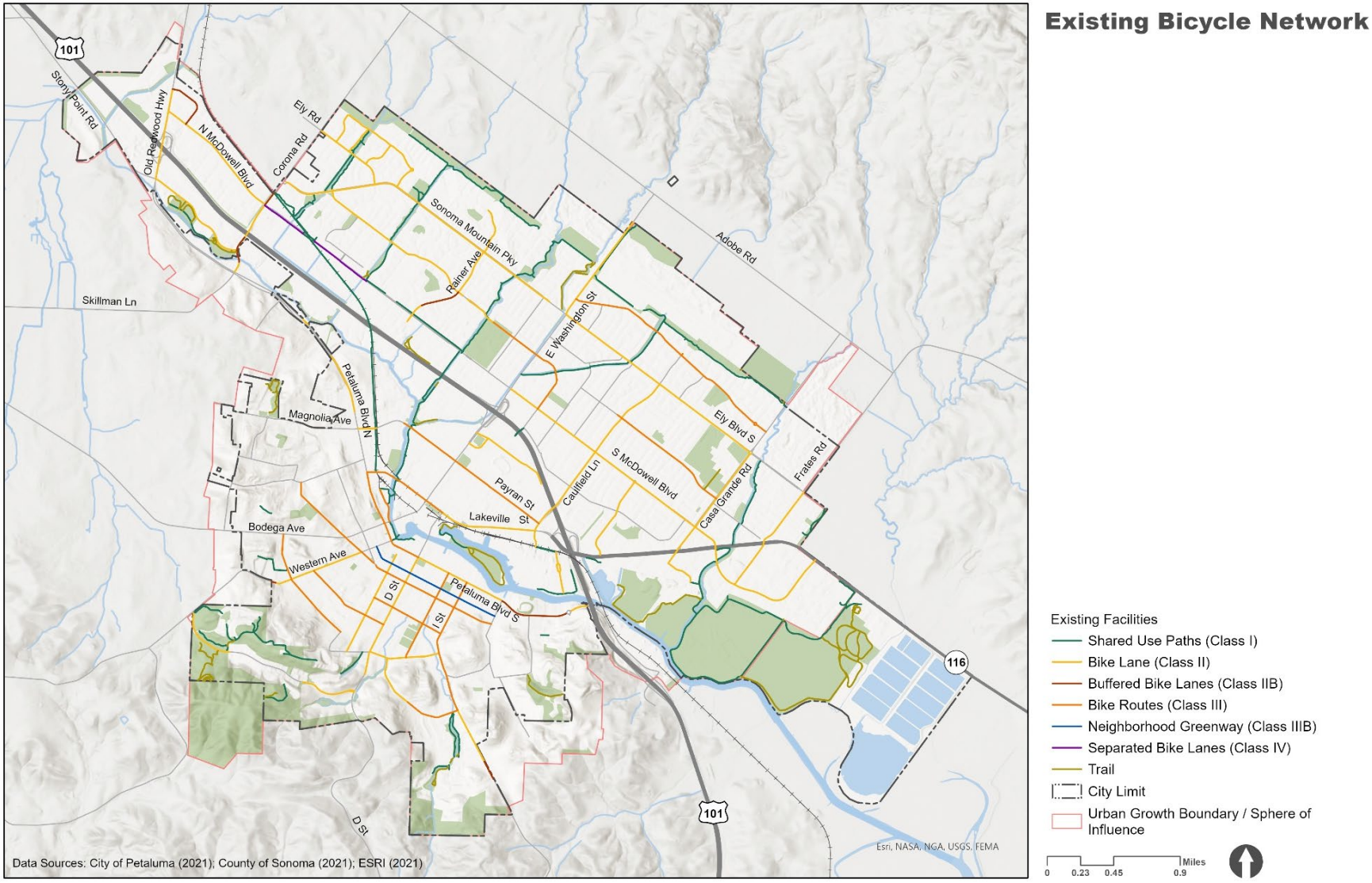
The SMART multi-use pathway is a major north-south corridor for walking and biking in Petaluma. It parallels the SMART rail line and connects neighborhoods, schools, parks, commercial areas, and downtown, while also providing access to both Petaluma SMART stations and regional trail systems. Recent improvements have extended the pathway and enhanced access at key crossings, and additional segments are planned to close existing gaps. One key gap near downtown remains between Lakeville Street and Water Street. Some crossings along the pathway remain challenging for bicyclists and would benefit from improvements to support a safe, direct, and comfortable riding experience. As the network builds out, the SMART pathway will play an increasingly important role in both local mobility and regional connectivity to communities in Sonoma and Marin Counties.

Petaluma is participating in Redwood Bikeshare, a regional pilot bikeshare program that has deployed approximately 300 e-bikes at SMART stations, downtowns, and other key destinations across Sonoma and Marin counties.

Chapter 11 of Petaluma's zoning code requires new developments to provide bicycle parking equal to 10 percent of vehicle parking, and 25 percent for commercial recreation and community facilities. Of this, 60 percent should be long-term parking and 40 percent short-term parking such as bike racks. While bike racks are available at some businesses and transit stops, the city does not maintain a complete inventory of all bicycle parking. The city has compiled location data for recently installed racks including new bicycle corrals, but older installations and legacy rack types are not yet fully documented.

Additional information on bicycle safety is provided in the Bicycle Safety subsection of the Safety section.

Figure 11. Existing Bicycle Network



Pedestrian Network

Pedestrian facilities in Petaluma include sidewalks, trails, crosswalks, curb ramps, and signals. The City generally requires sidewalks along public roadways, and most streets have sidewalks on both sides. However, many sidewalks were constructed before the 2025 General Plan and do not meet current standards, such as those described in *Design Information Bulletin 94 Complete Streets: Contextual Design Guidance* Caltrans' (Caltrans 2024), further referred to as "DIB-94. Pedestrian-oriented land uses, street widths, lighting, and landscaping contribute to the quality of the pedestrian environment, particularly in downtown Petaluma and the West Side neighborhood, where a grid street pattern and a well-developed sidewalk network support walkability.

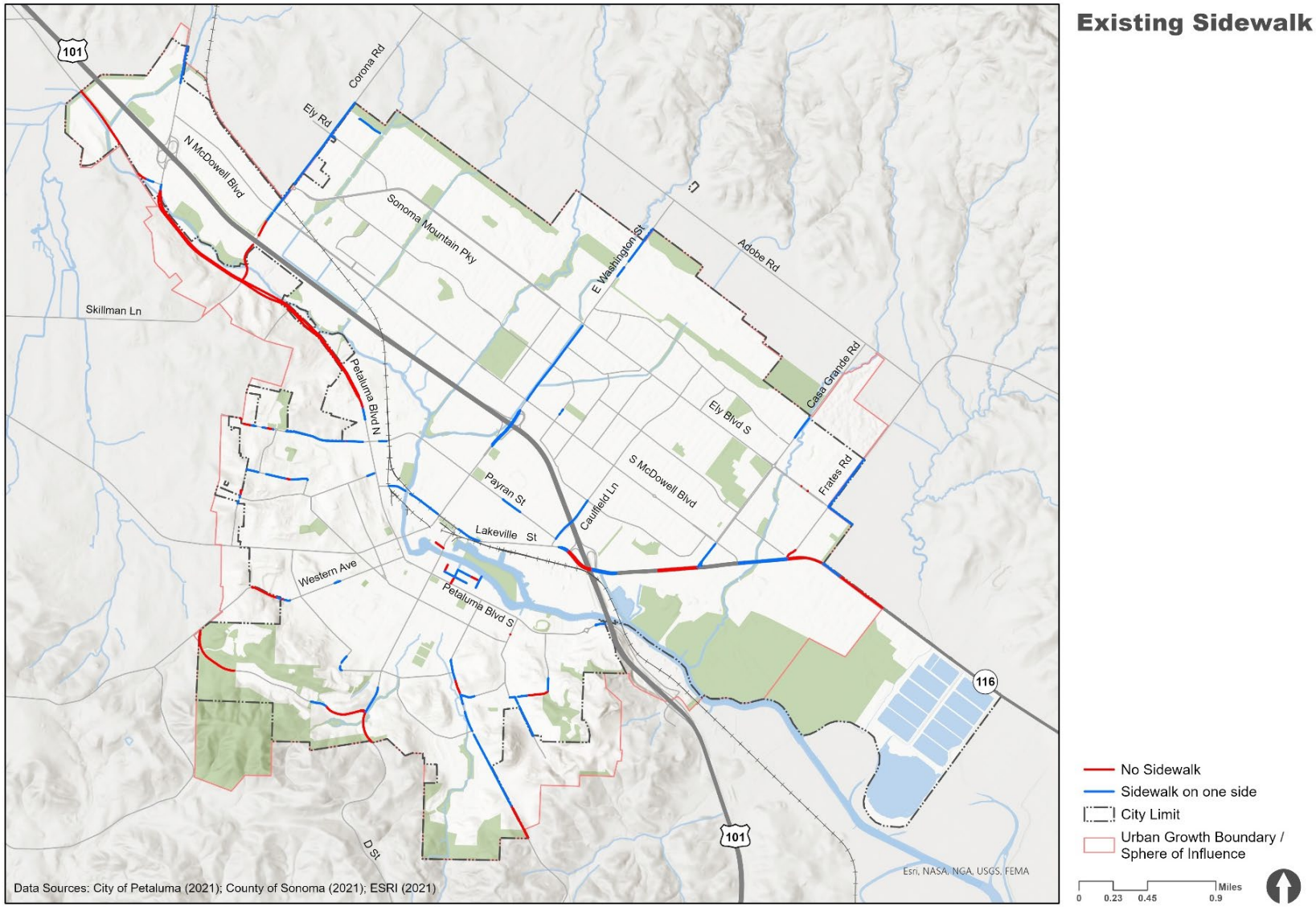
Most signalized intersections in Petaluma include pedestrian signals and marked crossings, but sidewalk gaps remain in several areas. Notable examples include Hopper Street between East D Street and Caulfield Lane in Central Petaluma, and streets such as D Street and Western Avenue that connect outlying western neighborhoods to downtown. **Figure 12** identifies locations where sidewalks are currently missing throughout the City. The map includes gaps along Petaluma Boulevard North in the adjacent unincorporated county area outside city limits to help illustrate broader system connectivity and context along this important corridor.

The City's sidewalk conditions are generally described as poor. Petaluma operates a complaint-based sidewalk maintenance program in which adjacent property owners are responsible for repairing and maintaining the sidewalk when issues are reported. The City completes approximately 30 sidewalk-related repairs each year. The most common issues include damage from tree roots, water intrusion, and general wear and tear.

Petaluma's suburban land use patterns and automobile-oriented street designs, such as cul-de-sacs in residential neighborhoods, limit pedestrian connectivity. Physical barriers like the Petaluma River, U.S. 101, SMART railroad tracks, and large arterial roadways further restrict pedestrian movement and create gaps in the network. The General Plan Update will incorporate ongoing efforts to identify and prioritize these network gaps and barriers to walking, including work from Sonoma County's Vision Zero project and the City's Local Road Safety Plan (LRSP) and Active Transportation Plan (ATP) updates.

Additional information on pedestrian safety is provided in the Pedestrian Safety subsection of the Safety section.

Figure 12. Existing Sidewalk Gaps



Transit Network

Transit providers serving Petaluma include local and intercity buses as well as passenger rail. The existing transit network within Petaluma is shown in **Figure 13.**

The service levels and schedules described below reflect conditions as of the time of writing (Fall 2025). Ridership data available at the time of writing is presented for Petaluma Transit and LumaGo microtransit service.

SMART

Sonoma-Marin Area Rail Transit (SMART) is a commuter rail line serving Sonoma and Marin Counties. The existing SMART line serves 14 stations between the Town of Windsor and the Larkspur Ferry Terminal; several additional stations are planned – including north of the current terminus to Healdsburg and Cloverdale. Petaluma is currently served by the Downtown Petaluma station and transit center on Copeland St and the Petaluma North/Corona Station, located on the north side of the City at McDowell Boulevard and Corona Road. SMART also plans to construct a rail-side trail system along the length of the tracks, which has been partially completed, including several segments within Petaluma and more recently a segment connecting north to Penngrove. Current weekday service operates at 30- to 90-minute headways with more frequent service focused on the peak periods and direction of commute travel. SMART is funded through a dedicated ¼ cent sales tax that currently runs through 2029.

SMART will be expanding service through the Marin-Sonoma Coordinated Transit Service Plan (MASCOTS). On weekdays, SMART will be adding trips during midday gaps and later in the evening to provide a longer span of service. On weekends, SMART will be adding additional trips throughout the day to reduce headways. The exact schedule changes are being finalized, but service changes will go into effect in early 2026.

Petaluma Transit

Petaluma Transit is a local, public bus service serving commuter and community routes in Petaluma. Petaluma Transit currently offers service for six routes:[5]

- **Route 2** runs from the Safeway Eastside Transit Center to Old Redwood Highway east of North McDowell Boulevard. Route 2 operates on weekdays every 15 to 30 minutes between 6:30 AM to 8:00 PM. On Saturdays this route runs every 60 minutes between 7:30 AM to 7:30 PM, and on Sundays every 60 minutes between 8:30 AM to 4:30 PM.
- **Route 3** loops from the Safeway Eastside Transit Center along Maria Drive, Sonoma Mountain Parkway, Ely Boulevard, Frates Road, and South McDowell Boulevard. Route 3 operates every 60-90 minutes on weekdays between 6:30 AM to 7:30 PM.

[5] The information in this Petaluma Transit section comes from publicly available data and conversations with Petaluma Transit's Transit Manager, Jared Hall.

Route 10 runs from the downtown SMART Station to the Gossage Park & Ride and the Petaluma Village Premium Outlets. The route also stops in downtown Petaluma. Route 10 operates at hourly headways on weekdays from 7:32 AM to 6:15 PM.

Route 11 runs east-west from the Safeway Eastside Transit Center to Petaluma Market Station, to the Copeland Transit Mall. Route 11 operates on between a 15 to 30-minute headway on weekdays from 6:30 AM to 8:00 PM and a 30-minute headway on weekends from 7:30 AM to 8:00 PM.

Route 24 runs from the D Street SMART Station to Lakeville and then Kaiser Hospital. Route 24 operates on 30 to 60-minute headways on weekdays from 6:16 AM to 6:46 PM.

Route 33 runs in a loop from the Safeway Eastside Transit Center along South McDowell Boulevard, Sonoma Mountain Parkway, and Maria Drive. This route operates on 60 to 75-minute headways on weekdays from 7:00 AM to 8:00 PM and 60-minute headways on weekends and holidays from 8:00 AM to 8:00 PM.

Routes 301, 302, 303, 311, and 501 provide limited AM and PM school trip service when Petaluma City Schools are in service.

Prior to the COVID-19 pandemic, Petaluma Transit served approximately 320,000-360,000 passenger trips per year. Since 2020, there has been a dip in ridership due to shelter-in-place policies, shifting travel patterns, and reduced service levels although Petaluma Transit anticipates seeing 350,000 riders in FY2025-26 equaling pre-pandemic readership levels. As of July 2024, Petaluma Transit implemented fare-free service on all of its services (fixed route, paratransit and microtransit) as part of the K–12 and Citywide Fare-Free programs.

In June 2025, Petaluma Transit introduced 15-minute peak-period service on Routes 2 and 11. This service enhancement is funded through the Go Sonoma Move Traffic and Improve Safety (MTIS) competitive grant program for fiscal years 2025 through 2027. Additional funding will be needed to continue the expanded service beyond that period. The City's long-term goal is to operate 15-minute service on these routes for most of the day (7 a.m. to 6 p.m.) and to explore opportunities to expand frequent service to additional routes.

LumaGo

LumaGo is an on-demand microtransit service operated by Petaluma Transit. The program launched in August 2024 as a pilot to provide flexible, app-based transportation within a defined service zone covering key destinations such as downtown, the downtown SMART station, schools, shopping centers, and residential neighborhoods. The service operates seven days per week, with one vehicle available during off-peak hours and two vehicles during peak periods. In its first year, LumaGo completed more than 23,500 rides, serving over 3,400 unique riders, with average daily ridership increasing to more than 100 trips by mid-2025. The service has proven highly popular, with 86 percent of trips shared among multiple riders and customer feedback averaging 4.9 out of 5 stars. LumaGo is currently funded through a combination of grants including Transportation Development Act (TDA) funds and a Go Sonoma Move Traffic and Improve Safety (MTIS) grant, which also supports other Petaluma Transit enhancements. Looking forward, the City is evaluating options to

continue and potentially expand the service, including consideration of additional service zones, extended hours, and integration with paratransit.

Sonoma County Transit

Sonoma County Transit (SCT) is the primary inter-city transit provider in Sonoma County. SCT provides local transit services in the City of Petaluma along with services to the City of Santa Rosa and other areas of Sonoma County. There are three SCT routes that operate within Petaluma: Route 40, Route 44, and Route 48.

Route 40 provides service between Downtown Petaluma and Sonoma. The line travels along Lakeville Street and terminates at the Copeland Street Transit Mall. Routes 44 and 48 provide service between Downtown Petaluma and Santa Rosa. Route 44 travels along McDowell Boulevard, East Washington Street, and Sonoma Mountain Parkway. Route 48 travels along Old Redwood Highway, Petaluma Boulevard, and East Washington Street. Sonoma County Transit is evaluating opportunities to improve bus connections to SMART stations as recommended by MASCOTS. Service changes will go into effect in early 2026.

Golden Gate Transit

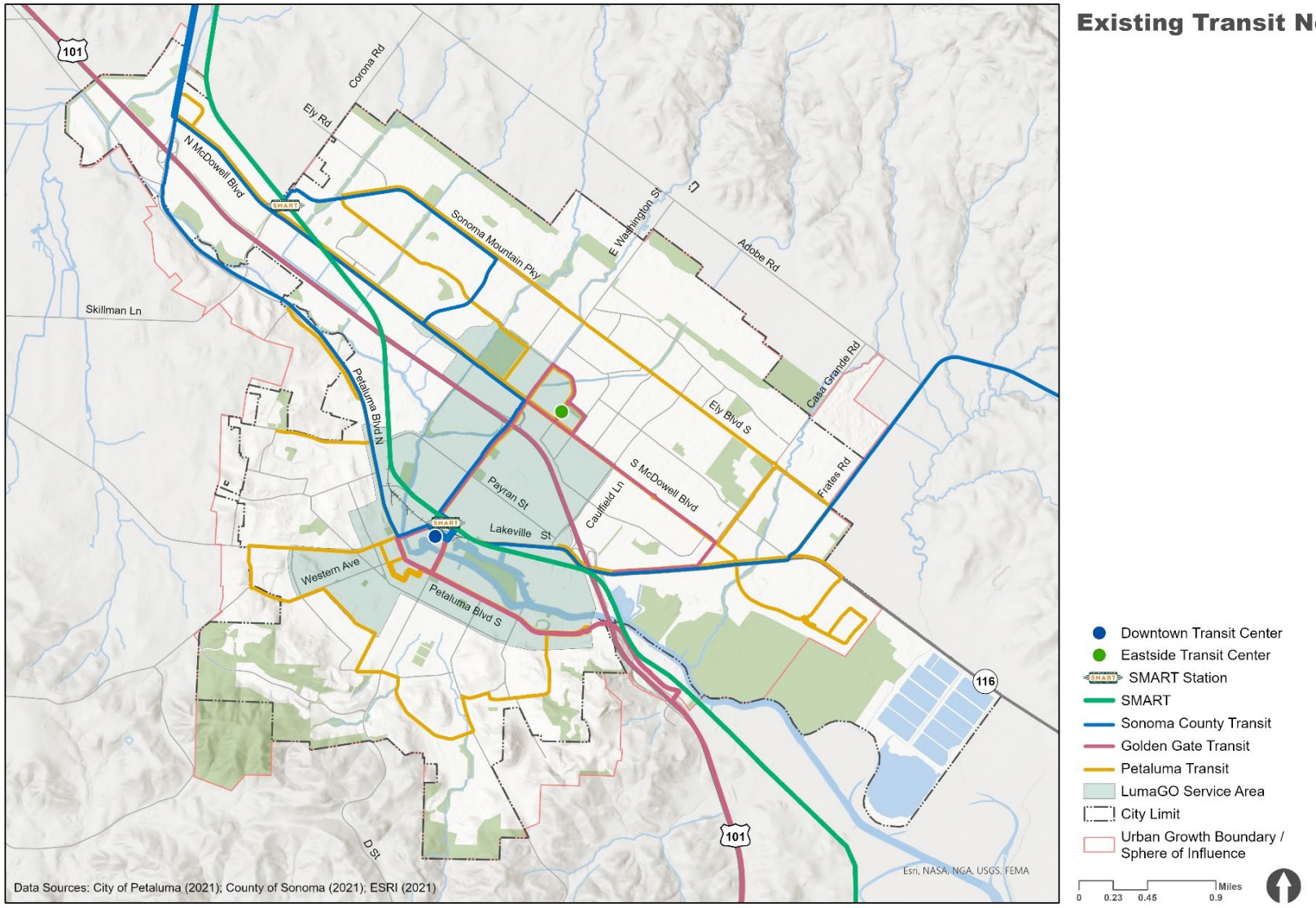
Golden Gate Transit (GGT) is the primary long-distance regional transit provider in Sonoma County. GGT routes are focused to provide peak period, peak direction bus service to destinations in Marin County and San Francisco. GGT bus routes currently serve Petaluma are Route 101, 164, and 172. Route 101 operates on both weekdays and weekends, stopping approximately every hour at each of the nine Petaluma stops. Route 164 stops only in Petaluma and San Francisco and operates during the weekdays. It stops twice in the morning and twice in the evening during commute hours. There are 17 stops in Petaluma mainly along South McDowell Boulevard, East Washington Street, and Petaluma Boulevard South. Route 172 operates during the weekdays, stopping at eight locations in Petaluma mainly along East Washington Street, and Petaluma Boulevard South. It runs during commute hours, with bus service every 30 to 60 minutes. While this route provides service further north, when heading south after Petaluma there are no stops until reaching San Franscisco.

The MASCOTS plan recommends simplifying GGT Routes in Sonoma by increasing services to San Francisco and considering the discontinuation of routes that have low ridership. Service changes will go into effect in early 2026. GGT Route 101 will be discontinued between Novato and Santa Rosa and for all communities in between, to be replaced by increased SMART train service. GGT Route 164 and Route 172X will be discontinued, with Route 172 continuing to serve the west side of Petaluma. Route 172 will have increased frequencies and trips, maintaining the current combined service hours among the three routes – 164, 172X, and 172.

Other Transit Services

Petaluma Transit and SCT also provide ADA paratransit services within their respective service areas for riders who are unable to use the fixed-route services. In addition, Petaluma People Service Center operates a volunteer driver program (iRIDE) that serves seniors who are unable to drive but who may not qualify for paratransit services.

Figure 13. Existing Transit Network



Private Transit Services

Groome Transportation serves Petaluma at the Petaluma Fairgrounds on Fairgrounds Drive. From this stop, riders can travel north to Charles M. Schulz–Sonoma County Airport and south to the San Rafael Transit Center, San Francisco International Airport, and Oakland International Airport. Petaluma also receives limited service on the Amtrak Gold Runner Thruway Bus Route 7 connecting Humboldt County down to Martinez with service at the Copeland Transit Mall.

Major Transit Stations

Petaluma Downtown / Copeland Street Transit Mall: Located at the edge of the downtown area, this facility functions as the city's primary transit hub. It is served by Sonoma–Marin Area Rail Transit (SMART), Petaluma Transit, Sonoma County Transit, Golden Gate Transit, the LumaGo shuttle, and Amtrak Thruway bus services.

Petaluma North Station: Located in north Petaluma near the intersection of McDowell Boulevard and Corona Road, this station is served by SMART and provides a transfer point to Petaluma Transit buses.

Eastside Transit Center: Situated within a commercial center on the east side of the city at Maria Drive & S. McDowell Blvd, this transit center serves as a principal boarding location for several Petaluma Transit routes.

Petaluma Fairgrounds: Located at the Sonoma-Marin Fairgrounds near Washington Street, this location is served by multiple Petaluma Transit and Sonoma County Transit routes, making it an important public transit connection point within the city. The site is also served by Groome Transportation's Sonoma County Airport Express, which provides scheduled private shuttle service to Charles M. Schulz–Sonoma County Airport, the San Rafael Transit Center, San Francisco International Airport, and Oakland International Airport.

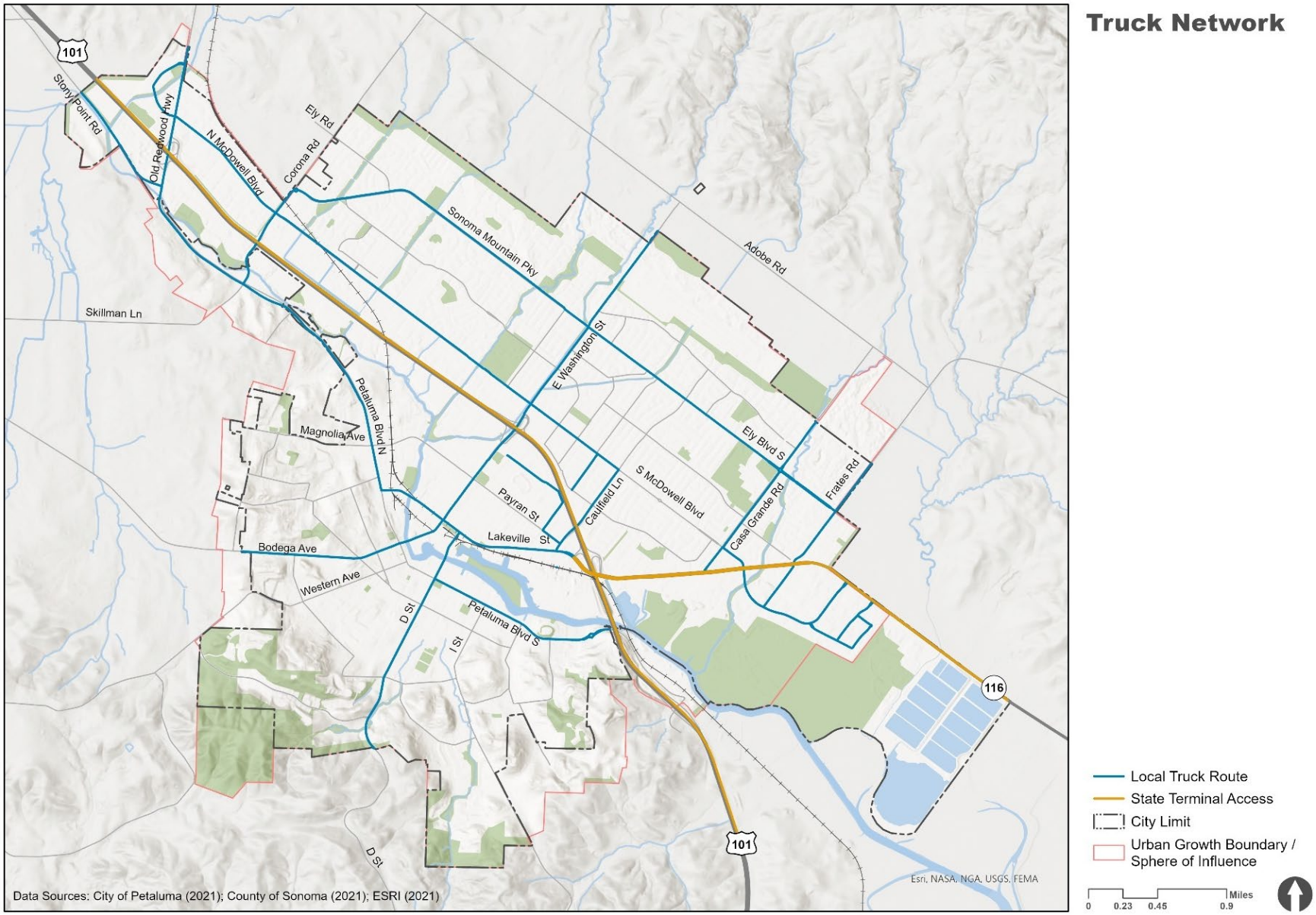
Rail and Goods Movement

This section briefly describes truck, freight, and airport travel networks in Petaluma.

Truck Routes

Trucks and other heavy vehicles frequently travel through Petaluma, particularly on regional highways and major arterials such as Petaluma Boulevard, East Washington Street, Lakeville Street, Ely Boulevard, and McDowell Boulevard. In particular, trucks are critical for supporting the agricultural industries in and around Petaluma. The City has designated official truck routes, as shown below on **Figure 14**, to ensure that truck traffic minimally impacts residential neighborhoods and main streets where possible. The 2025 General Plan Update also recommended enforcing truck parking restrictions.

Figure 14. Truck Routes



Freight

Freight service on the Northwestern Pacific Railroad has decreased significantly in the last fifty years. Operations were halted after devastating floods in the late 1990s. In 2021, SMART requested $1.45 million from the California Transportation Commission to help fund a $2.9 million freight rail investment package that is part of the State's Short Line Railroad Improvement Program, which supports investments in smaller freight railroad systems. Rehabilitating the tracks and increasing freight traffic between Sonoma and Marin counties has the potential to shift substantial truck traffic off U.S. 101.

Airport

Aircraft operations at Petaluma's Municipal Airport are estimated to total roughly 50,000 operations per year, which equates to about 135 flights per day on average. According to the Airport Manager, annual operations are typically projected by increasing the prior year's estimate by about 1 to 2 percent annually, although exact totals are difficult to confirm because not all aircraft are captured by flight tracking systems, particularly those without transponders.

The airport is home to over 200 locally-based aircraft and is a convenient access point for tourist travel into wine country and corporate travel to North Bay businesses. Petaluma's Municipal Airport is also a hub in FedEx's freight hauling business and home to the Magnon Aircraft's Petaluma Pilot training center and aircraft maintenance operation. During recent wildfire events in neighboring communities, the airport has also served as a base for aircraft involved in firefighting efforts.

Travel Characteristics

Since 2019, Petaluma has experienced a modest decline in population despite the addition of new housing units.[6] This trend reflects a combination of factors, including housing affordability constraints, demographic shifts, fewer people per household with more home offices, and post-pandemic migration patterns. Employment levels have remained relatively stable,[7] but changes in commute behavior, such as increased remote and hybrid work, have contributed to lower overall trip generation and vehicle miles traveled. This context supports the continued use of 2019 traffic count data used for the General Plan traffic analysis (initiated in 2021 and conducted through 2025) rather than conducting new traffic counts for the EIR's noise and air quality analyses.

The majority of Petaluma residents commute by automobile, with 73 percent driving alone and 12 percent carpooling. Public transit accounts for 3 percent of commute trips, a slightly higher share than the Sonoma County average, while walking and bicycling represent relatively small proportions of trips at 2 percent and less than 1 percent, respectively. Approximately 9 percent of residents work from home. Petaluma functions as a net employment center, with approximately 22,400 workers commuting into the city each day and 18,800 residents commuting out. Only about 6,000 residents both live and work within Petaluma, meaning that 76 percent of employed residents travel to jobs outside the city. These outbound commuters most frequently travel to destinations within Sonoma

[6] State of California, Department of Finance, E-4 Population Estimates for Cities, Counties, and the State, 2021-2025, with 2020 Census Benchmark. Sacramento, California, May 2025. Accessed by Fehr & Peers on 12/5/2025 at https://dof.ca.gov/forecasting/demographics/estimates/e-4-population-estimates-for-cities-counties-and-the-state-2021-2025-with-2020-census-benchmark/

[7] According to the U.S. Bureau of Labor Statistics, the average employment in the Santa Rosa-Petaluma, CA Metropolitan Statistical Area for the first six months of 2025 was 238,742 compared to 246,376 in 2019.

County and Marin County, with smaller shares traveling to San Francisco, Alameda, Contra Costa, Napa, and Santa Clara counties. Conversely, most inbound workers originate from elsewhere in Sonoma County, with notable concentrations from Rohnert Park. Within Petaluma, major trip generators include the East Washington commercial corridor and the downtown area.

Mode Share

Residents of the City of Petaluma use many different modes of transportation for daily trips. The proportion of travelers taking different transportation modes (e.g., driving alone, riding transit, biking, walking) is referred to as "mode share." The U.S. Census *American Community Survey* (ACS) includes data on commute mode share patterns. Commute mode shares for Petaluma and Sonoma County residents are summarized in **Table 1.** In both Petaluma and Sonoma County, most commuters (approximately 85%) either drive alone or carpool to work.

Table 1. Primary Mode Share for Commute Trips

	Petaluma	Sonoma County
Population	60,767	499,772
Mode	***Mode Share***	***Mode Share***
Drive Alone	73%	75%
Carpool	12%	11%
Public Transit	3%	2%
Walk	2%	3%
Bicycle	<1%	1%
Work From Home	9%	7%
Other	1%	<1%

Sources: 2019 American Community Survey 5-Year estimates, Tables A00001 and A09005, 2014-2019, Retrieved by Fehr & Peers, 2021.

Table 2 presents additional data from the California Household Travel Survey Data which includes additional data for the following four trip purposes – Home-Based Work (HBW), Home-Based School (HBS), Home-Based Other (HBO), and Non-Home Based (NHB). HBW trips represent travel between a household and a place of work. HBS trips represent travel between a household and an educational institution, including elementary, middle, high school, and college or university destinations. HBO trips include discretionary non-work travel between a household and destinations such as shopping or recreation. NHB trips represent travel between two non-home locations, such as a trip from work to lunch. While this is a different data set from **Table 1** (e.g., the total driving rate is 91% from CHTS versus 85% from ACS data), the overall conclusion is the same that most people currently drive for most trips. However, the HBO and NHB trips, which represent a majority of the total trips that people make on a daily basis, indicate that over 30-40 percent of these trips are by walking, bicycling, or transit modes. Further, according to SCTCA model, approximately 1/3 of all trips are less than two miles and two-thirds of all trips are less than five miles. This indicates that Petaluma residents already use a variety of different modes to get around town and could increase their walking, bicycling, and transit trips if the General Plan Update increases the convenience of these modes for short trips.

Table 2: Petaluma's Mode Share for All Trip Purposes

Trip Purpose	Driving Alone	Carpool	Walk, Bike, Transit, and Other
Total Trips	49%	16%	35%
Home-Based Work Trips	82%	9%	9%
Home Based School Trips	70%	18%	12%
Home-Based Other Trips	39%	18%	43%
Non-Home-Based Trips	46%	17%	37%

Sources: 2017 California Household Travel Survey Data, Retrieved by Fehr & Peers, 2025.

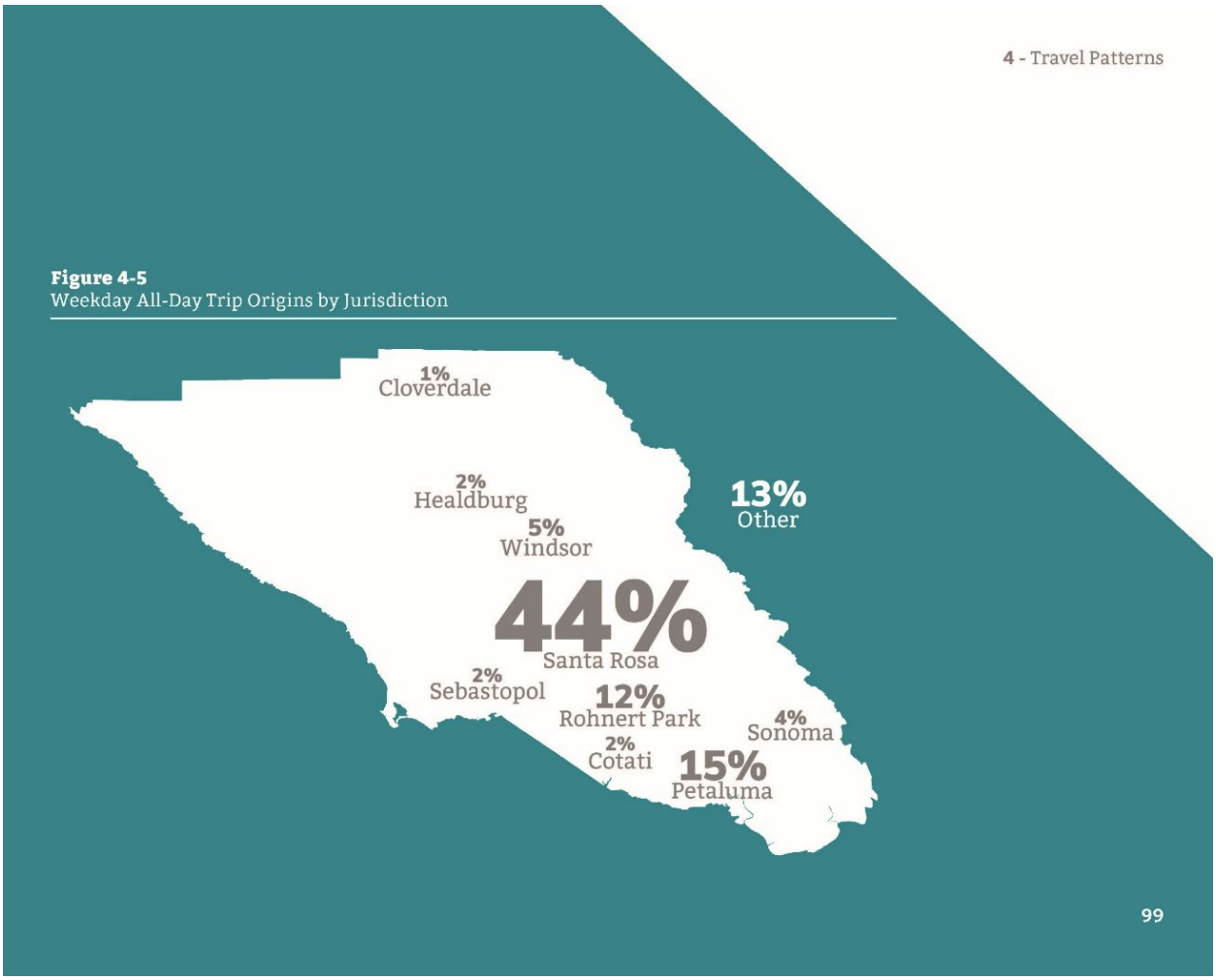
The following sections present additional information on commute and school travel patterns.

Commute Distribution

According to a SCTCA study[8] on countywide travel patterns, approximately 15% of vehicle trips within Sonoma County either start or end in Petaluma as shown in **Figure 15**. Commute patterns into and out of Petaluma, based on Longitudinal Employer-Household Dynamics (LEHD) data for 2018, are shown below in **Table 3**. Petaluma experiences a net influx of workers each day, with approximately 18,800 residents commuting out of Petaluma and approximately 22,400 workers commuting into Petaluma. In comparison, 6,000 workers both live and work in Petaluma. Of the 24,800 employed Petaluma residents, approximately 76% are employed outside of Petaluma. Approximately 48% commute to other locations within Sonoma County, 17% to Marin County, 7% to San Francisco, and 3-5% to Alameda, Contra Costa, Santa Clara, and Napa counties. Of the approximately 28,400 workers employed in Petaluma, approximately 20% live in Petaluma. Of the 80% of workers who commute from outside Petaluma, 15% live in Rohnert Park, 60% live elsewhere in Sonoma County, and 5% live in Marin or Solano counties.

[8] Sonoma County Travel Behavior Study, 2020. https://scta.ca.gov/wp-content/uploads/2020/02/Sonoma_TBS_2-7-2020_web.pdf

Figure 15: Weekday All-Day Trip Origins by Jurisdiction



Source: Sonoma County Travel Behavior Study, February,2020

Table 3. Petaluma Commute Flows

County	Home Locations of Petaluma Workers	Work Locations of Petaluma Residents
Sonoma County	61%	48%
City of Petaluma	21%	24%
Marin County	5%	17%
San Francisco County	2%	7%
Alameda County	3%	5%
Solano County	5%	<2%
Contra Costa County	3%	3%
Napa County	3%	3%
Santa Clara County	<2%	3%
All Other Locations	17%	14%

Sources: Longitudinal Employer-Household Dynamics (LEHD), 2018 Retrieved by Strategic Economics, 2021.

School Travel Patterns

School-related travel represents one of the most significant contributors to local traffic patterns and plays a central role in understanding city-wide mobility and safety outcomes. Students and parents navigate the Petaluma's streets walking, biking, driving, riding transit or a combination of modes to go to school. These trips usually occur during peak hours, often along the same corridors and involve the most vulnerable roadway users – children. Understanding how students currently travel, where they live relative to their schools and how existing roadway conditions affect their travel choices is essential for planning a safer and efficient multimodal system. School travel patterns help evaluate transportation challenges including congestion around school campuses, gaps in pedestrian and bicycle facilities, and interaction with high-stress and high-injury corridors, especially for students living within a walkable or bikeable distance from school.

Proximity to School

Safe routes to school data show that a large share of students in Petaluma live within a typical walking and biking distance of their schools (as shown in **Table 4** below). Elementary schools have the highest share of students living close to school, with roughly 12% living within a quarter mile and 28% within half a mile of school. On average, about 50% of elementary students live within one mile and more than 70% within two miles of elementary schools. However, fewer students are attending their neighborhood schools due to more lenient transfer policies. An estimate provided by Petaluma City Schools last year indicated that approximately one fifth of elementary students enrolled in the district were not attending their neighborhood school.

Middle schools serve dispersed student populations but still show notable proximity with 20% of students living within a mile and 44% within two miles of campus. High schools have approximately 27% of its students living within one mile and just over 54% within two miles. Older students may be more comfortable with bicycle routes of 2 miles or longer, particularly if the bicycle network provides a bicycle network that feels safe for people of all ages and abilities to travel.

Table 4. Student Proximity to School

School Type	Number of Schools	Percentage of Students living within			
		1/4 mile	1/2 mile	1 mile	2 miles
Elementary School	15	12	28	50	72
Middle School	2	2	7	20	44
High School	2	2	10	27	54

Source: Safe Routes to School Travel Plans

Mode Share for School Travel

Mode share data shows that private vehicles are the primary way students travel to school (as shown in **Table 5** below). At elementary schools, an average of 75 percent of students arrive by private vehicle, while 15 percent walk and 4 percent bike. Other modes such as carpooling, taking the school bus, and using transit account for only a small share of total trips. Middle schools show a similar distribution with 57 percent of students arriving by private vehicle and comparatively higher rates of active transportation, including 13 percent walking and 8 percent bicycling. The Safe Routes to School studies did not include mode share data for high school students.

Table 5. Student Mode Share Data

School Type[1]	Number of Schools	Percentage of Travel Mode						
		Walk	Bike	Other	Carpool	School Bus	Transit	Single Family Vehicle
Elementary School	15	15	4	1	4	1	0	75
Middle School	2	13	8	2	9	7	6	57

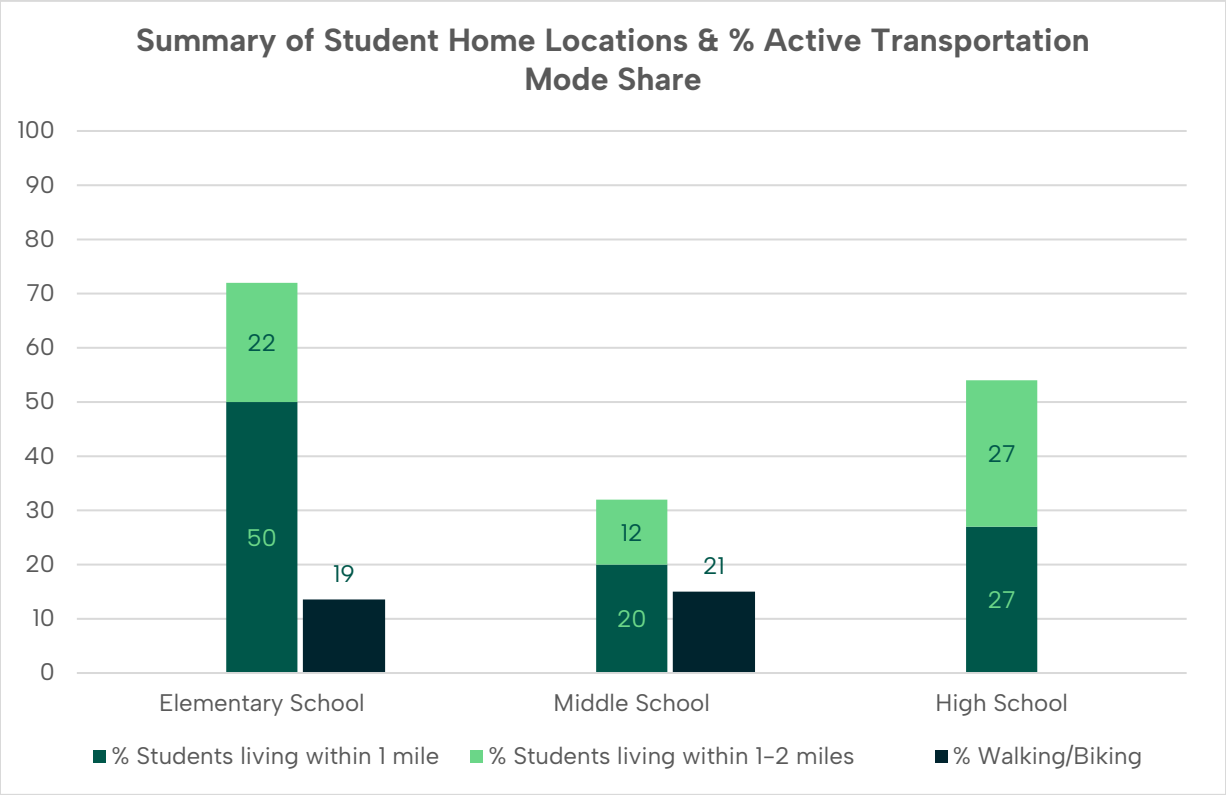
Note:
1. Mode share data was not available for High Schools.

Source: Safe Routes to School Travel Plans

These mode share patterns show a continued reliance on vehicle travel for school trips, even in neighborhoods where many students live within walking or biking distance as summarized in **Figure 16.** The findings point to a significant opportunity for shifting more trips to active modes, especially at the elementary level where proximity data suggests strong potential for increased walking and bicycling. Middle schools currently have walk/bike rates approximately matching the share of students living within one mile, which highlights the importance of focusing efforts on high stress routes outside of this radius to encourage longer bicycling trips. Similar trends are likely for

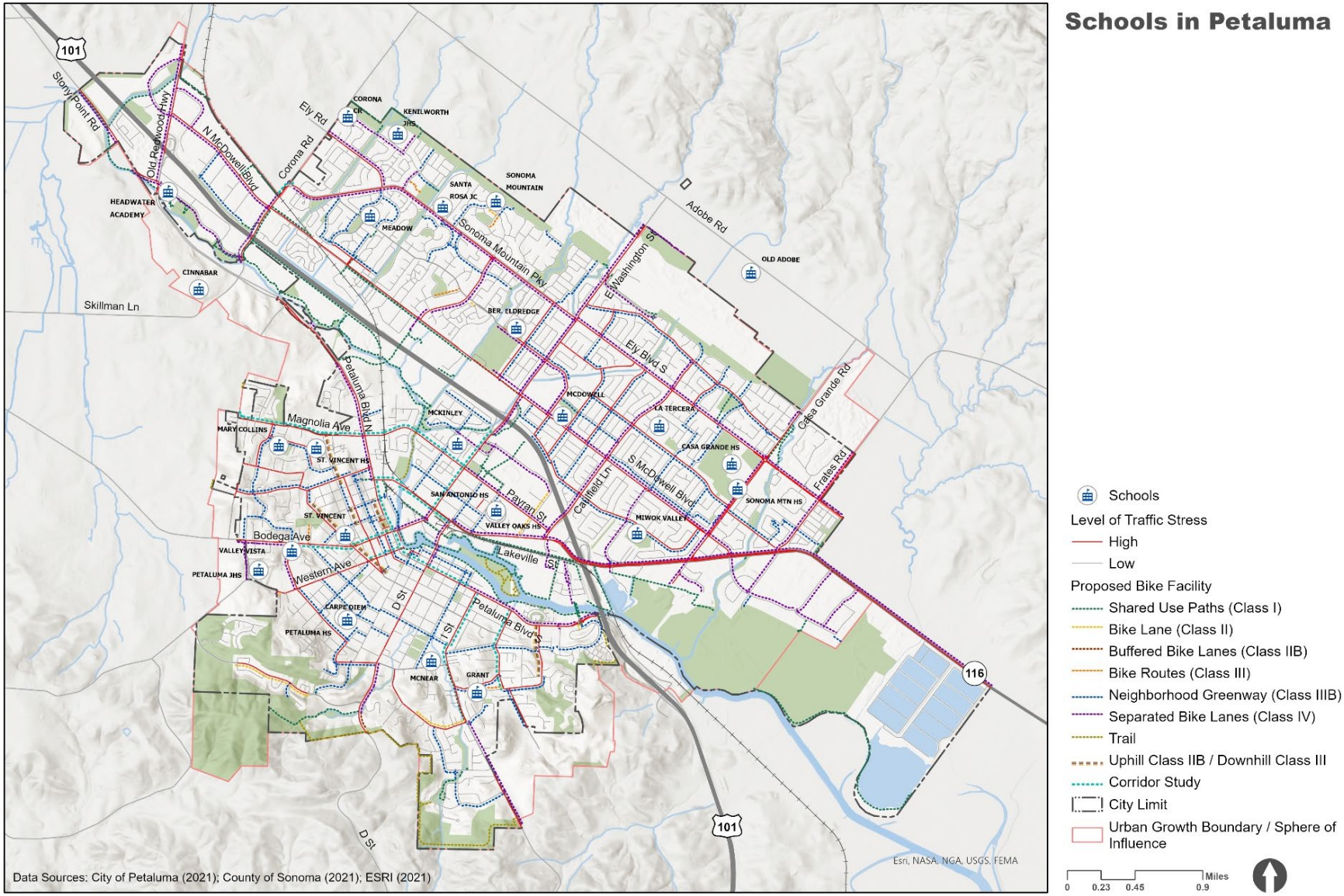
high school students. The results also underscore the importance of the Active Transportation Plan in supporting safer and more comfortable travel options for students and to support mode shift to walking and bicycling trips. This could help reduce school generated vehicle traffic and align school transportation behavior with the city's safety, mobility and sustainability goals. **Figure 17** shows the location of schools within Petaluma in relation to the proposed active transportation network. Cinnabar Elementary School and Old Adobe Elementary Charter School are shown in **Figure 11**. While both schools are located outside city limits, they serve Petaluma residents and therefore improving access to these schools is important.

Figure 16. Schools in Petaluma – Students within Walking or Biking Distance



Petaluma Transit provides several "school tripper" bus routes focused on providing service to major middle and high schools throughout Petaluma. As of 2018, these services are all funded entirely by the City of Petaluma. Future funding partnerships for these services should be considered in coordination with the local Petaluma school districts.

Figure 17. Schools in Petaluma & Proposed Active Transportation Network



Safety

As described in the "Safe Systems Pyramid" by UC Davis, reducing kinetic energy at the system level through land use and roadway design is the most durable approach to reducing the potential for severe and fatal physical injuries on the roadway network.[9] The California State Transportation Agency's Joint Secretary's Policy on Road Safety (2025) reinforces the Safe System Approach by focusing on reducing exposure, crash likelihood, and injury severity through system-level design and planning.[10] Safety within this TIA focuses on the three steps from the Safe Systems Pyramid:

1. **Reducing Exposure through Land Use and VMT Reduction** – As described in Appendix B of OPR's General Plan Guidelines, communities that generate lower VMT levels lead to reduced exposure to severe and fatal crash risks due to the built environment and socioeconomic factors at the base of the Safe Systems Pyramid.[11]

2. **Reducing Likelihood of Collisions through Conflict Point Minimization and Design** – The roadway network should reduce conflicts between roadway users and include roadway designs to manage conflicts when they occur.

3. **Reducing Severity of Collisions through Speed Management and User Separation** – The roadway network should separate users traveling and different speeds and manage speeds through design to limit the potential kinetic energy in collisions.

The Local Roadway Safety Plan (LRSP, 2022) and the Active Transportation Plan, (ATP 2025) identify where and how severe crashes occur and sheds light on the importance of addressing high-injury corridors and intersections.

Motor Vehicle Safety

The City's Local Roadway Safety Plan (LRSP), completed in 2022 addresses motor vehicle safety on local streets through a structured, data-driven framework and identifies priority locations for improvements and a variety of safety measures. The plan analyzed five years of collision data (2016-2020) and combined results with stakeholder input to identify safety hazards, high-risk locations and effective countermeasures.

During the five-year analysis period, a total of 2,501 collisions were reported in the City of Petaluma. Approximately one-third of these crashes resulted in injuries, including a small number of fatalities. The majority of collisions occur at intersections, with rear-end and broadside collisions representing the most common crash types. The most frequently cited primary violation was improper turning, followed by unsafe speed and right-of-way violations. **Table 6** shows top intersections, per collision analysis (EPDO using the LRSM methodology) that were identified as high-priority intersections.

[9] The Safe Systems Pyramid Policy Brief, UC Davis, March 2025, accessed by Fehr & Peers on September 2, 2025 at https://ncst.ucdavis.edu/research-product/safe-systems-pyramid

[10] California State Transportation Agency (CalSTA) (2025) Joint Secretary's Policy on Road Safety (SP 01-2025), Sacramento, CA.

[11] General Plan Guidelines and Technical Advisory, Appendix B Transportation Safety; OPR; 2017; accessed by Fehr & Peers on September 2, 2025 at https://lci.ca.gov/docs/OPR_Appendix_B_final.pdf

Table 6. Top Intersections Per Collision Analysis

Primary Road	Secondary Road	Severity Ranking (EPDO) LRSM	Total Collisions
S McDowell Ave	Caulfield Ln	440	25
McDowell Blvd	E Washington St	166	51
N McDowell Blvd	Professional Dr	432	12
Petaluma Blvd N	Sycamore Ln/Shasta Ave	418	13
Ely Blvd	Caulfield Ln	292	17
Washington St	Keller St	288	23
E Washington St	Lakeville St	138	48
E D St	Lakeville St	76	31
E Washington St	Ellis St/Johnson St	70	25

Source: Petaluma Local Road Safety Plan 2022

The LRSP also highlights the vulnerability of other mode users, especially pedestrians and bicycle collisions clustered along major corridors. Stakeholder engagement supported these findings by emphasizing more support for safety improvements at intersections and for pedestrians and bicyclists. These inputs put together resulted in recommendations that balance engineering strategies such as traffic control changes, with education and enforcement programs targeting driver behavior.

The crash data used in the LRSP provides a valuable baseline for identifying trends and prioritizing improvements, but it also has limitations. Near misses and minor crashes often go unreported, and police reports can contain inconsistent or incomplete information that makes it difficult to calculate accurate crash rates. In addition, the five-year dataset may not reflect more recent changes in land use, traffic volumes, or roadway conditions. To address these limitations, the City of Petaluma supplements collision data with stakeholders and public input to capture community safety concerns and commits to monitoring progress and updating the plan every five years.

Across all modes, severe crashes in Petaluma are concentrated where high speeds, multilane arterials and complex intersections overlap with pedestrian and bicycle activities. By prioritizing improvements along the HIN, including protected bikeways, enhanced crossings, sidewalk and trail upgrades and modernized signal operations, the city can reduce both the frequency and the severity of crashes and thereby create a safer, comfortable and more accessible transportation network for all mode users.

Bicycle Safety

Although Petaluma's bicycle network offers broad coverage, safety remains a concern for many users. Analyses from Local Roadway Safety Plan (LRSP, 2022) and Active Transportation Plan (ATP, 2025) show that most serious crashes in Petaluma occur on wide high-traffic streets and busy intersections.

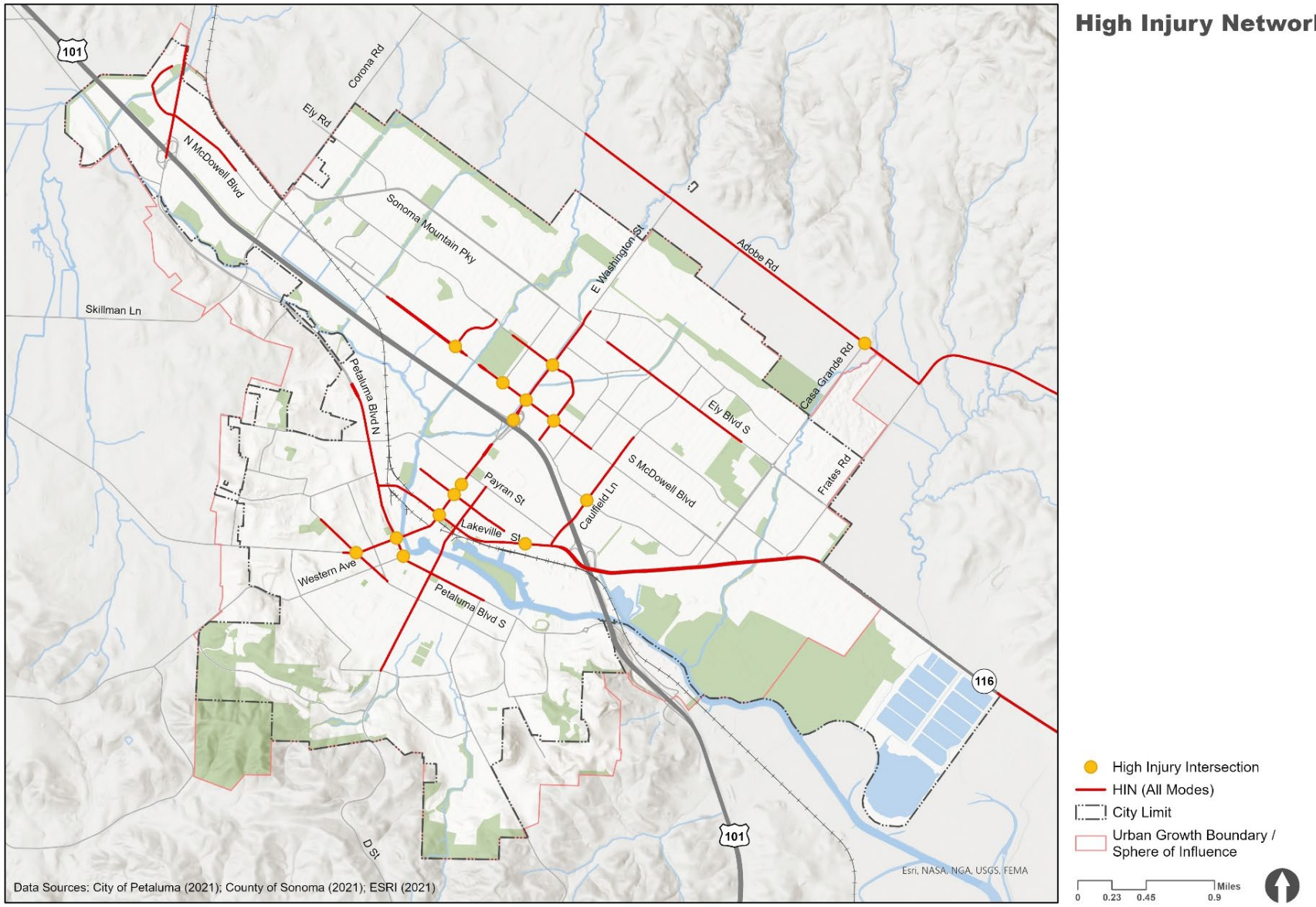
Between 2016 and 2020, the LRSP documented about 110 collisions on City roadways, with bicyclist-vehicle crashes accounting for five percent and resulting in 19 severe injuries and two fatalities. The

ATP's 2012 to 2023 analysis found an average of 33 collisions involving vulnerable users. Most of those occurred on multilane high-speed high-volume roadways and at intersections, often due to turning movement conflicts. The High Injury Network (HIN), **Figure 18**, highlights the corridors such as McDowell Boulevard and East Washington Street as high crash hotspots. The LRSP identified McDowell Boulevard between Old Redwood Highway and Lynch Creek Way as the most severe segment. Trail Crossings, including Lynch Creek Trail at North McDowell & Sonoma Mountain Parkway present safety risks due to offset alignments and limited visibility.

In addition to collision patterns, a facility's condition also plays a major role in determining user comfort and confidence. The Lynch Creek Trail, while an important connector, presents safety challenges due to poor pavement conditions in certain locations and offset crossings at busy roads. These issues can increase the risk of accidents and reduce accessibility for less confident riders.

Petaluma currently offers limited initiatives that focus on safe bicycling behavior and awareness. Expanding these programs could help improve rider confidence, reduce conflicts between bicyclists-vehicle, and encourage more people to choose bicycling as a safe and viable mode of transportation.

Figure 18. High Injury Network



Pedestrian Safety

Pedestrian safety in Petaluma is affected by several factors, including sidewalk conditions, crossing infrastructure, and traffic stress. While many intersections offer signalized pedestrian crossings, gaps in the sidewalk network and missing curb ramps can make walking difficult, especially for people with disabilities. Major arterial roads present significant challenges for pedestrians, as they often lack adequate crossing opportunities and can be intimidating due to high vehicle speeds and volumes. High automobile speeds are especially dangerous for pedestrians as the likelihood that a pedestrian survives a collision worsens as speeds increase above 20 miles per hour as shown in **Figure 19**. In areas where pedestrian facilities are missing or narrow, walking becomes less safe and less accessible.

Figure 19. Pedestrian Fatality Risk in Car Collisions

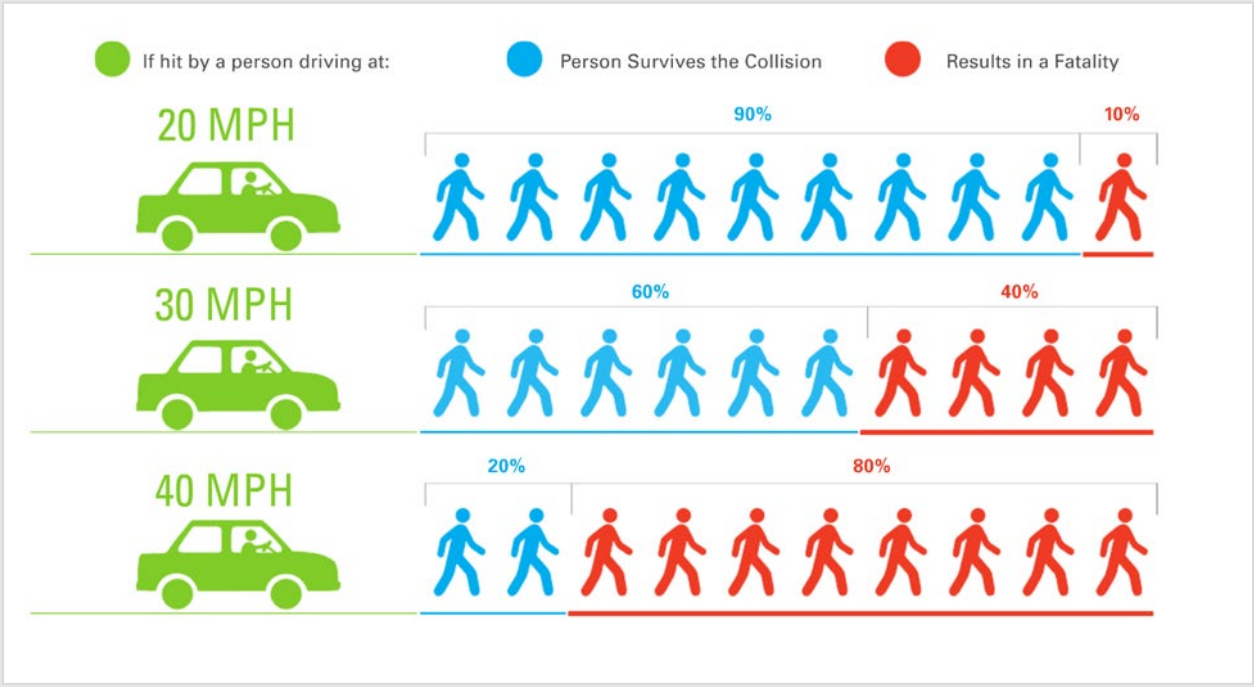


Image Source: San Francisco Municipal Transportation Agency

Barriers such as rivers, highways, and railroads not only disrupt connectivity but also increase exposure to unsafe conditions when pedestrians must navigate around or across them. These barriers contribute to missing links in the pedestrian network and reduce the overall comfort and safety of walking in Petaluma. The City's sidewalk maintenance program is reactive rather than proactive, relying on complaints to identify repair needs. This approach can delay improvements and leave hazardous conditions unaddressed for extended periods.

The ATP analysis indicates that pedestrians represent roughly half of all vulnerable-user collisions and are disproportionately affected by severe crashes. Fatal and serious injury crashes are concentrated along East Washington Street, Lakeville Street, and McDowell Boulevard, where high speeds and long crossing distances increase risk. Intersections such as East Washington & Lakeville and East Washington & Edith have high concentration of pedestrian crashes. Both plans recommend refuge

islands, high-visibility crosswalks, pedestrian-scale lighting, curb extensions, and signal improvements such as leading pedestrian intervals and restricted right turns on red.

The General Plan Update, along with the recommendations from LRSP and ATP, aims to address these safety concerns by identifying critical gaps and barriers and prioritizing improvements. These efforts are aligned with broader initiatives like Vision Zero, which seeks to eliminate traffic-related fatalities and serious injuries.

Regulatory Setting

The purpose of this section is to provide background on the state, regional, and local plans and policies related to mobility and the transportation network in the City of Petaluma.

Federal

Federal Highway Administration

The Federal Highway Administration (FHWA) is the agency of the United States Department of Transportation (U.S. DOT) responsible for the federally-funded roadway system, including the interstate highway network and portions of the primary state highway network, such as U.S. 101. FHWA funding is currently provided through the INVEST in America Act, passed by Congress in 2021 to replace Fixing America's Surface Transportation (FAST) Act funding. INVEST Act funding can be used to fund local transportation improvements in Petaluma, such as projects to improve the efficiency of existing roadways, traffic signal coordination, bikeways, and transit system upgrades.

Americans with Disabilities Act

The Americans with Disabilities Act (ADA) of 1990 provides comprehensive rights and protections to individuals with disabilities. The goal of the ADA is to assure equality of opportunity, full participation, independent living, and economic self-sufficiency for people with disabilities. To implement this goal, the United States Access Board, an independent federal agency created in 1973 to ensure accessibility for people with disabilities, has created accessibility guidelines for public rights-of-way. While these guidelines have not yet been formally adopted, they have been widely followed by jurisdictions and agencies nationwide in the last decade. The guidelines, last revised in July 2011, address issues including roadway design practices, slope and terrain issues, pedestrian access to streets, sidewalks, curb ramps, street furnishings, pedestrian signals, parking, and other components of public rights-of-way. The guidelines apply to all proposed transportation facilities (e.g., new roadways, sidewalks) in the City of Petaluma.

Federal Transit Administration

The Federal Transit Administration (FTA) is the agency within the U.S. DOT that provides funding and technical assistance to public transit systems. Petaluma Transit receives funding directly from the FTA: Section 5307 and 5339 funding is used to replace buses and paratransit vans and to support preventative maintenance and paratransit provision, and Section 5310 funds services such as travel training for the elderly or for people with disabilities.

State

California Department of Transportation

The California Department of Transportation (Caltrans) builds, operates, and maintains the State highway system, including the interstate highway system. Caltrans' mission is to improve mobility Statewide. Caltrans operates under strategic goals to provide a safe transportation system, optimize throughput, and ensure reliable travel times, improve the delivery of State highway projects, provide

transportation choices, and improve and enhance the State's investments and resources. Caltrans controls the planning of the State highway system and accessibility to the system. Caltrans establishes Level of Service (LOS) goals for highways and works with local and regional agencies to assess impacts and develop funding sources for improvements to the State highway system. Caltrans requires encroachment permits from agencies or new development before any construction work may be undertaken within the State's right-of-way. For projects that would impact traffic flow and levels of services on State highways, Caltrans would review measures to mitigate the traffic impacts.

In Petaluma, U.S. Highway 101 (U.S. 101) and State Route 116 (SR 116) are state-owned and maintained by Caltrans. The U.S. 101 runs north-south through the center of the city, serving as the primary regional freeway connecting Marin and Sonoma Counties. SR 116, also known as Lakeville Highway, enters the city from the southeast and connects to U.S. 101 near the southern end.

Caltrans is a part of the California State Transportation Agency (CalSTA) which maintains the state transportation plans. This includes the Blueprint for Climate Action for Transportation Infrastructure (CAPTI), published in July 2021 and updated via CAPTI 2.0 in February 2025. This builds on executive orders EO N-19-19 and EO N-79-20 and establishes a framework for aligning state transportation investments to achieve the state's ambitious climate, health, and social equity goals. Caltrans also maintains a variety of guidance documents related to complete streets and safety. Additional Caltrans guidance and standards referred to within this TIA are described below.

Caltrans LDR Safety Review Practitioner's Guidance

The *Local Development Review (LDR) Safety Review Practitioner's Guidance* (Caltrans 2024), further referred to as "Caltrans Safety Impact Guidance," provides methods for how Caltrans and lead agencies can review the potential safety impacts of land use development projects affecting the state highway system. Caltrans Safety Impact Guidance includes implementing the Safe Systems Approach, which recognizes that severe and fatal outcomes on a roadway network are the result of kinetic energy in a crash that exceeds a human body's tolerance levels (the "humans are vulnerable" principle). Caltrans acknowledges the guidance may also be used to evaluate local roadways at the discretion of the lead agency. As explained in the document, "This Guidance prioritizes vulnerable road users (VRU) and underserved communities; enhances safety for pedestrians, bicyclists, transit, and vehicular modes; and applies both reactive and systemic perspectives. This Guidance supports the shift away from using Highway Capacity Manual Level of Service (LOS) as a metric of analysis under the California Environmental Quality Act (CEQA), in accordance with implementing Senate Bill 743, and complements the 'Vehicle Miles Traveled-Focused Transportation Impact Study Guide' (TISG) (dated May 20, 2020)."

Caltrans HDM

The *Highway Design Manual, Seventh Edition* (Caltrans 2020), further referred to as "Caltrans HDM," establishes uniform policies and procedures to carry out the state highway design functions of Caltrans. Various design standards and policies including basic design policies (i.e., design speed, capacity and level of service, access control, etc.), geometric design and structure standards, geometric cross sections, at-grade intersections, interchanges (including interchange spacing) and more are included in the HDM (Caltrans 2020). Any proposed modifications to the State Highway System by the project will require compliance with HDM standards.

Caltrans DIB-94

The Design Information Bulletin 94 Complete Streets: Contextual Design Guidance Caltrans' (Caltrans 2024), further referred to as "DIB-94," provides guidance and establishes standards for Complete Streets for the state highway system. DIB-94 follows *Complete Streets Director's Policy 37* (Caltrans 2021), which emphasized that "…all transportation projects funded or overseen by Caltrans will provide comfortable, convenient, and connected Complete Streets facilities for people walking, biking, and taking transit or passenger rail unless an exception is documented and approved." The DIB-94 identifies standards for the development of Complete Streets facilities to support the design of comfortable and convenient streetscapes and provides minimum expectations based on land use context. DIB-94 includes standards that supersede those in the Caltrans' Highway Design Manual (Caltrans 2024b).

California Air Resources Board

The California Air Resources Board (CARB) coordinates the response to comply with AB 32 Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, which commits the State of California to reduce greenhouse gas (GHG) emissions to 1990 levels by 2020. The state followed up AB 32 with Senate Bill (SB) 375, the Sustainable Communities and Climate Protection Act of 2008 (Chapter 728, Statutes of 2008), which is the primary mechanism for achieving regional transportation-related GHG targets. SB 375 provides guidance on how curbing emissions from cars and light trucks can help the state comply with AB 32. Since the passage of AB 32 and SB 375, several executive orders have updated statewide GHG emissions targets. The latest, EO B-55-18, signed in September 2018, sets the goal of achieving carbon neutrality no later than 2045.

Additional CARB guidance referred to within this TIA are described below.

2022 Scoping Plan for Achieving Carbon Neutrality

CARB released the *2022 Scoping Plan for Achieving Carbon Neutrality* (Scoping Plan) in December 2022 includes an action to reduce vehicles miles of travel (VMT) per capita. Statewide, CARB recommends reducing VMT per capita to 25% below 2019 levels by 2030 and 30% below 2019 levels by 2045. This target, among many others, was designed to achieve statewide carbon neutral emissions by 2045 per EO B-55-18. The CARB recommendation does not impose a specific regulation on local agencies or their land use development decisions but can be used by CARB and Caltrans when evaluating the VMT and greenhouse gas (GHG) effects of land use and transportation decisions as explained in more detail below.

Innovative Clean Transit

CARB's Innovative Clean Transit (ICT) regulation, adopted December 2018, requires that public transit agencies gradually transition to zero-emission bus fleets and encourages improved mobility and connectivity for transit riders. Petaluma Transit is required to operate a 100% zero-emission fixed route fleet by 2040 through this regulation.

California Public Utilities Commission

The California Public Utilities Commission (CPUC) sets guidelines for interactions between railroad facilities and ground transportation facilities. This includes location and type of crossing guards, design of railroad crossings, and other design criteria in and around railroad facilities. The guidelines

come in the form of general orders. General Order NO. 75-D: Regulations Governing Standards for Warning Devices for At-Grade Highway-Rail Crossings in the State of California, provides regulations that govern the standards for warning devices for at-grade highway-rail crossings for motor vehicles, pedestrians, and/or bicycles. All warning devices shall be in substantial conformance with the applicable Standards, Guidance and Options set forth in the Manual on Uniform Traffic Control Devices adopted by Caltrans.

California Statutes

California Complete Streets Act Of 2008 (Assembly Bill 1358)

Assembly Bill 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include "complete street" policies in their general plans. These policies address the safe accommodation of all users, including bicyclists, pedestrians, motorists, freight, public transit vehicles and riders, children, the elderly, and the disabled. These policies can apply to new streets as well as the redesign of existing corridors.

California Air Resources Board (CARB) 2022 Scoping Plan

The California Air Resources Board (CARB) 2022 Scoping Plan for Achieving Carbon Neutrality complementing Assembly Bill 1279, outlines the State's strategy to reduce greenhouse gas emissions and reach carbon neutrality by 2045. The statewide modeling assumption includes a 25 percent reduction in per-capita vehicle miles travelled (VMT) by 2030 and 30 percent reduction by 2045 relative to 2019 levels. The plan identifies actions across multiple sectors and emphasizes both vehicle electrification and reductions in vehicle travel.

Transit Oriented Development and Transportation Impacts (Senate Bill 743)

Senate Bill 743 (Stats. 2013, Ch. 386) creates several statewide CEQA changes that are relevant to the project. CEQA refers to the California Environmental Quality Act. This statute requires identification of any significant environmental impacts of state or local action including approval of new development or infrastructure projects. The process of identifying these impacts is typically referred to as the environmental review process.

First, SB 743 requires 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 vehicle miles traveled (VMT) as the preferred transportation impact metric and applied their discretion to require its use statewide. Second, this legislation establishes that aesthetic and parking impacts of a residential, mixed-use residential, or employment center projects on an infill site within a TPA shall not be considered significant impacts on the environment. Third, the new CEQA Guidelines that implement this legislation, state that vehicle LOS and similar measures related to vehicle delay shall not be used as the sole basis for determining the significance of transportation impacts, and that as of July 1, 2020, this requirement shall apply statewide.

To aid in SB 743 implementation, the following non-binding state guidance has been produced:

Technical Advisory on Evaluating Transportation Impacts in CEQA, California Governor's Office of Planning and Research, December 2018[12]

California Air Resources Board 2022 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals, California Air Resources Board, 2022[13]

Draft VMT-Focused Transportation Impact Study Guide, Caltrans, May 20, 2020[14]

The *California Air Resources Board 2022 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* provides recommendations for VMT reduction thresholds that would be necessary to achieve the State's GHG reduction goals.

In the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018), OPR provides additional information on assessing VMT and setting significance thresholds. Caltrans' *Draft VMT-Focused Transportation Impact Study Guide* supports the use of the OPR recommendations for land use projects and plans. As described under **Local Plans and Policies**, Petaluma has recently adopted local SB 743 VMT implementation guidelines and thresholds.

Bicycle And Pedestrian Plans and Traffic Calming Plans (Senate Bill 932)

California Senate Bill 932 (2022) requires cities and counties to update the circulation element of their general plans, no later than June 30, 2024, to include bicycle and pedestrian plans as well as traffic calming strategies for urbanized areas. Jurisdictions must begin implementing these elements within two years of adoption and complete them within 20 years, with progress tied to reducing traffic violence. This builds on prior legislation, such as the California Bicycle Transportation Act (1994) requires all cities and counties to have an adopted bicycle master plan to apply for Bicycle Transportation Account funding source. By accelerating the integration of green and complete streets into local planning, SB 932 is intended to make streets safer, encourage walking and biking, and help communities meet climate and equity goals.

Traffic Safety: Speed Limits (Assembly Bill 43)

Assembly Bill 43, passed in October 2021, amends the California Vehicle Code to give local jurisdictions more control over setting speed limits, particularly in areas that may have greater roadway safety concerns, such as in business districts or near schools. Related Assembly Bill 1014, passed in October 2025, would apply to Lakeville Highway.

CEQA Streamlining for Infill Projects (Senate Bill 226)

CEQA Streamlining for Infill Projects (SB 226) sets forth a streamlined review process for infill projects and includes performance standards that will be used to determine an infill project's

[12] Technical Advisory on Evaluating Transportation Impacts in CEQA http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

[13] California Air Resources Board 2017 Scoping Plan https://ww2.arb.ca.gov/sites/default/files/2019-01/2017_sp_vmt_reductions_jan19.pdf

[14] Caltrans Transportation Impact Study Guide https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-05-20-approved-vmt-focused-tisg-a11y.pdf).

eligibility for streamlined review. The purpose of SB 226 and updated CEQA Guideline Section 15183.3 is to streamline the environmental review process by "limiting the topics subject to review at the project level where the effects of infill development have been addressed in a planning level decision or by uniformly applicable development policies." Residential, commercial and retail, public office buildings, transit stations, and schools are eligible for this streamlining provided they: (1) are located in an urban area on a site that has been previously developed or adjoins existing qualified urban uses on at least 75 percent of the site's perimeter; (2) satisfy the performance standards provided in Appendix M [of CEQA]; and, (3) are consistent with the general land use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy, with some exceptions.

Under SB 226, some development and transportation projects assumed as a part of the proposed Plan may be eligible to use a streamlined version of the environmental review process. Among other criteria, these projects must be consistent with the land use designation, density, intensity, and policies of Plan Bay Area, and fall within the identified criteria for development and transportation projects. Many other laws have been passed in recent years that further streamline the CEQA analysis for infill development, such as AB 130 and AB 131, which were signed into in 2025 and substantially increased CEQA exemptions for infill housing and other land uses.

Evacuation Routes (Assembly Bill 747)

Assembly Bill 747 requires local governments, on or after January 1, 2022, to review and update their safety element to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios. A county or city that has adopted a local hazard mitigation plan, emergency operations plan, or other document that fulfills commensurate goals and objectives may use that information in the safety element to comply with this section and, in that event, shall summarize and incorporate into the safety element that other plan or document.

Residential Emergency Evacuation Routes (Senate Bill 99)

SB 99 requires all cities and counties, upon the next revision of the housing element on or after January 1, 2020, to update the safety element to include information identifying residential developments in any hazard area identified in the safety element that do not have at least two emergency evacuation routes.

Planning and Zoning Logistics Use Truck Routes (Assembly Bill 98 and Senate Bill 415)

California Assembly Bill (AB) 98, adopted in 2024, requires cities and counties to consider the impacts of logistics-related truck traffic when designating or updating truck routes in their general plans or zoning ordinances to better manage heavy vehicle traffic on local roads. The law focuses on large warehouse facilities over 100,000 square feet and aims to mitigate environmental and health impacts on nearby communities, especially sensitive receptors such as schools, daycare centers, and residential areas.

Senate Bill 415 (SB 415), signed into law in October 2025, modifies AB 98 requirements for jurisdictions like Petaluma by providing additional flexibility in truck route planning. Under SB 415, Petaluma is no longer required to update the circulation element of its General Plan to comply with AB 98. Instead, the City may satisfy the requirements through adoption of a stand-alone ordinance that designates truck routes and incorporates mitigation strategies. This ordinance must address the

same objectives as AB 98—avoiding sensitive receptors, reducing environmental and health impacts, and improving freight efficiency—while also integrating zero-emission freight corridors, electrification infrastructure, and Blueprint for Climate Action goals. SB 415 further requires Petaluma to coordinate with regional freight planning efforts and report annually on implementation progress.

Residential, Commercial, or Other Development Types: Parking Requirements (Assembly Bill 2097)

AB 2097 prohibits California cities and counties from requiring minimum off-street parking for most new developments located within one half mile of a major transit stop. The law is intended to reduce development costs, support transit-oriented growth, and encourage more sustainable travel, while still allowing local agencies to impose parking requirements only in limited circumstances supported by substantial evidence.

Regional

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area (Bay Area). It is responsible for developing the regional transportation plan and prioritizing regional transportation projects for state and federal funding. MTC is designated a regional transportation planning agency (RTPA) by the State of California and a metropolitan planning organization (MPO) by the federal government. MTC plays a key role in coordinating transportation investments in the Bay Area, and distributes FHWA and FTA funding to county and local jurisdictions, including emergency relief funds such as CARES, CRRSSA, and ARP.

Plan Bay Area 2050: A Vision for the Future is the Bay Area's RTP/ SCS. Plan Bay Area 2050, adopted jointly by the ABAG and MTC on October 21, 2021, is the current version of the plan. Defined by 35 strategies for housing, transportation, economic vitality and the environment, Plan Bay Area 2050 lays out a $1.4 trillion vision for policies and investments to make the nine-county region more affordable, connected, diverse, healthy, and economically vibrant for all its residents through 2050 and beyond. The transportation strategies in Plan Bay Area 2050 fall into three categories:

1. Maintain and Optimize the Existing System
2. Create Healthy and Safe Streets
3. Build a Next-Generation Transit System

As part of the implementing framework for Plan Bay Area, local governments have identified Priority Development Areas (PDAs) and Transit-Rich Areas (TRAs) to focus growth. PDAs are transit-oriented, infill development opportunity areas within existing communities. TRAs are areas near rail, ferry or frequent bus service that were not already identified as PDAs. Specifically, these are areas where at least 50 percent of the area is within 0.5 mile of either an existing rail station or ferry terminal (with bus or rail service), a bus stop with peak service frequency of 15 minutes or less, or a planned rail station or planned ferry terminal (with bus or rail service). In Petaluma, there are two Priority Development Areas (PDAs). The first includes the Central Petaluma Specific Plan area and a quarter-mile radius around the Downtown SMART Station, which serves as the city's main focus for growth and transit-oriented development. The second covers the Petaluma North Specific Plan area and a quarter-mile radius around the Petaluma North SMART Station. A planning effort is currently

underway to develop the Petaluma North Specific Plan, which will guide future land use and transit-oriented development in that area.

The SCTCA model has yet to be updated to reflect Plan Bay Area 2050 so modeling work for this transportation impact analysis relies on the previous RTP, Plan Bay Area 2040, as described further in the Methodology section below.

MTC Resolution 3765 (Complete Streets Policy) was adopted in 2006 to ensure all projects funded with regional funds consider the accommodation of pedestrians, cyclists, public transit users and drivers as part of project planning, design, funding and construction. MTC's Complete Streets Checklist, established through this resolution, works in conjunction with One Bay Area Grants (OBAG) and the Active Transportation Program (ATP) to utilize funding to support MTC's regional transportation priorities, which include improvements for people walking and biking, and Safe Routes to School projects.

Sonoma County Transportation and Climate Authorities

The Sonoma County Transportation and Climate Authorities (SCTCA) is the county's Congestion Management Agency. SCTCA works with local jurisdictions to provide countywide transportation planning to help meet demands and improve Sonoma County's transportation system. SCTCA developed and maintains the countywide travel model used to estimate future year traffic volumes and calculate VMT in a manner consistent with SB 743 throughout the County.

Countywide Active Transportation Plan, adopted in 2025, identifies key bicycle and pedestrian connections in unincorporated Sonoma County, and provides guidance on connectivity between cities in Sonoma County. Six of the nine incorporated cities in Sonoma County created updated active transportation plans as part of the countywide effort. The City of Petaluma, City of Santa Rosa, and Town of Windsor chose to create updated plans through a separate effort.

Shift Sonoma County – Low Carbon Transportation Action Plan is a low carbon transportation plan adopted by SCTCA in 2018. Shift Sonoma County identifies key mode shift and fuel shift (i.e., carbon-based fuels to electric) opportunities and provides a framework for interagency coordination. This plan also includes a model TDM ordinance for local jurisdictions to consider.

Sonoma County Vision Zero is the county's strategy to eliminate all traffic fatalities and injuries, while increasing safe, equitable, and health mobility options for all. SCTCA launched the Sonoma County Vision Zero Data Dashboard, which shows major patterns in crash data from around the county, and provides the ability to overlay other relevant data layers to contextualize crash data. The dashboard currently presents data from 2015 to 2023, however years 2022 and 2023 are provisional.

Bay Area Commuter Benefits Program

Under Air District Regulation 14-1-102, Model Source Emissions Reduction Measures, Rule 1, Bay Area Commuter Benefits Program, employers with 50 or more full-time employees within the Bay Area Air Quality Management District (BAAQMD) are required to register and offer commuter benefits to employees. In partnership with the BAAQMD and the MTC, the rule's purpose is to improve air quality, reduce GHG emissions, and decrease the Bay Area's traffic congestion by encouraging employees to use alternative commute modes, such as transit, vanpool, carpool, bicycling, and walking. The benefits program allows employees to choose from one of four commuter benefit

options including a pre-tax benefit, employer-provided subsidy, employer-provided transit, and alternative commute benefit.

Local

The following section is a summary of the local plans and policies related to transportation and mobility, both approved and in progress, which could help inform the City's General Plan Update.

SB 743 Implementation Program

The City of Petaluma adopted *Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines Final*, July 2021 by Fehr & Peers (2021 VMT Guidelines) through City Council Resolution No. 2021-112 and replaced automobile delay with vehicle miles traveled (VMT) analysis as the City's California Environmental Quality Act (CEQA) Transportation analysis metric, pursuant to Senate Bill 743 (Steinberg, 2013). The 2021 VMT Guidelines shifts the focus away from vehicle delays on local roadways to regional traffic patterns and reducing GHG emissions and establishes the methods, VMT metrics, thresholds of significance, screening criteria, and mitigation strategies for CEQA evaluation of discretionary projects. Given the City's commitment to climate resilience, City Council adopted a significance threshold in alignment with CARB's identified reduction at 16.8% below baseline VMT levels. The 2021 VMT Guidelines noted that this threshold will be revisited and updated as appropriate through the General Plan Update process to establish a threshold level that best aligns with the City's commitment to the climate emergency and reflective of the Blueprint for Climate Action.

Petaluma Blueprint for Climate Action

The City of Petaluma adopted the Blueprint for Climate Action in 2024 as its comprehensive Blueprint for Climate Action, superseding the 2021 Climate Emergency Framework. The Blueprint establishes a target of achieving carbon neutrality by 2030 and identifies transportation as the largest source of communitywide greenhouse gas emissions (approximately 67 percent). To address this, the Blueprint identifies how the City would need to achieve 50 percent or 75 percent of all travel occurring in modes other than single-occupancy vehicles for the "Ambitious Climate Action" and "What Does it Take?" scenarios. Key transportation-related actions include implementing TDM programs, expanding active transportation and transit networks, prioritizing 15-minute neighborhoods and transit-oriented development, and transitioning municipal and transit fleets to zero-emission vehicles. The Blueprint also calls for comprehensive EV charging infrastructure, parking reform to discourage single-occupancy vehicle use, and integration of mobility hubs to support mode shift. These measures form the basis for local consistency with state climate mandates and provide a CEQA-qualified plan under Guidelines §15183.5(b) for streamlining GHG analysis for projects consistent with its strategies.

Petaluma Active Transportation Plan

The City of Petaluma's 2025 Active Transportation Plan (ATP) provides a roadmap for creating a safe, connected, and equitable network for walking, biking, rolling, and other self-powered modes of travel. Building on the 2008 Bicycle and Pedestrian Master Plan, the ATP identifies infrastructure projects, policy initiatives, and educational programs that enhance mobility for people of all ages and abilities while reducing greenhouse gas emissions and traffic-related injuries. Developed through extensive community engagement with partners including CityThread, the Petaluma Equitable

Climate Action Coalition, and Safe Streets Petaluma, the plan addresses existing challenges such as sidewalk gaps, fragmented bikeways, and accessibility barriers, and proposes solutions such as lane conversions, neighborhood greenways, and improved crossings.

Petaluma Local Roadway Safety Plan

The City of Petaluma adopted a Local Roadway Safety Plan (LRSP) in 2022, which took a data-driven approach to safety planning in coordination with local stakeholders in order to reduce traffic fatalities and serious injuries on public roadways. Starting in 2022, having an adopted LRSP was required for jurisdictions to be eligible for Highway Safety Improvement Program (HSIP) grant funding. This study included stakeholder and public outreach, collision data analysis to identify key risk factors, countermeasure selection, and priority project identification.[15]

Petaluma Transit Short Range Transit Plan

MTC requires that transit operators develop a Short Range Transit Plan (SRTP) in order to receive federal funding through the regional Transportation Improvement Program (TIP). SRTPs provide an overview of the transit system, goals and performance measures, system evaluation, and operating and capital improvement plants. The Short Range Transit Plan (SRTP), last updated in 2016, will be updated beginning in 2026. The updated SRTP will assess system performance and recommend service and capital improvements. The following paragraphs highlight service and infrastructure changes since the 2016 SRTP per conversations with the Petaluma Transit – Transit Manager, Jared Hall.

In June 2025, Petaluma Transit introduced 15-minute peak-period service on Routes 2 and 11. This service enhancement is funded through the Go Sonoma Move Traffic and Improve Safety (MTIS) competitive grant program for fiscal years 2025 through 2027. Additional funding will be needed to continue the expanded service beyond that period. The City's long-term goal is to operate 15-minute service on these routes for most of the day (7 a.m. to 6 p.m.) and to explore opportunities to expand frequent service to additional routes. Expanding service on Routes 2 and 11 also enables these corridors to qualify as "major transit stops" under AB 2097, improving eligibility for planning and funding opportunities.

The City has installed Transit Signal Priority (TSP) at several dozen intersections, including along Washington Street and North McDowell Boulevard. While no additional TSP installations are currently planned, the City remains open to expanding the network. The City is also considering Bus Rapid Transit (BRT) service along Washington Street as a potential long-term concept pending further study.

To support a better rider experience, in 2024 Petaluma Transit installed new bus shelters with benches and trash receptacles at ten bus stops. The City maintains a GIS database of all bus stop locations, which tracks approximately 30 criteria per site, including ADA accessibility, existing amenities (such as shelters, benches, and bike racks), and condition ratings. This data informs the annual prioritization of stop improvements.

[15] https://cityofpetaluma.org/lrsp/

Central Petaluma Specific Plan

The 2003 Central Petaluma Specific Plan (CPSP) intended to redirect growth in Central Petaluma with a specific emphasis on the Petaluma River as a source of connectivity and identity. It seeks to promote sustainable and mixed-use development, historic preservation, and multimodal transportation to facilitate this growth. The plan calls for an expansion of employment, mixed uses and region-serving commercial activity in the area generally bounded by Petaluma Boulevard, Lakeville Street/Highway, and U.S. 101, while maintaining river-dependent industrial uses. The CPSP also encourages transit use and pedestrian and bicycle circulation by creating new local streets to improve access. The CPSP also introduced the adoption of the SmartCode.

The SmartCode is a form-based regulatory code that implements the objectives of the CPSP. It prescribes not only allowed uses, but also development standards for both the public and private realm. The SmartCode is based on the Transect, a method of organizing land usage along a spectrum of rural to urban. The SmartCode aims to shape Central Petaluma's sense of place by specifying standards for building functions, thoroughfares, parking, and historic preservation.

SMART Station Area Master Plan

The 2013 SMART Station Area Master Plan (SAMP) provides a framework to guide future development around Petaluma's existing and proposed Sonoma-Marin Area Rail Transit (SMART) stations and to support and increase transit ridership. The SAMP encourages the development and redevelopment of the Petaluma Downtown Station Area and Petaluma North/Corona Station Area into a pedestrian-oriented, livable, mixed-use environment that both capitalizes on and supports SMART train ridership. This vision of transit-oriented development (TOD) aims to attract people and create vibrant neighborhoods near transit. Key objectives of the SAMP include improving connectivity, developing urban design standards, identifying infrastructure needs, and providing a financing plan.

Transportation Demand Management

TDM refers to a set of strategies intended to reduce the demand for private automobile travel. Petaluma's Trip Reduction Ordinance,[16] originally adopted in 1992 and most recently updated in 1996, requires all Petaluma employers with over one hundred employees to designate a transportation coordinator, provide information about commute alternatives to employees, and administer annual commute surveys. In addition, the City would designate a transportation administrator to coordinate the distribution of commute alternatives information and annual employee commute surveys. The City does not currently mandate specific TDM strategies for most projects except for large employers; however, qualifying projects that are not screened out from VMT analysis (e.g., outside of a ½ mile radius of SMART stations) must include TDM strategies to mitigate VMT in a manner consistent with the City's SB 743 guidelines. Regionally, SCTA's *Shift Sonoma County* effort provides countywide coordination and support on TDM.

With the City's recent adoption of SB 743 guidelines and Climate Emergency Framework, which place importance on VMT as a key transportation metric that influences GHGs, implementing and monitoring the performance of TDM strategies will be increasingly important for both existing and new employers, residential developments, and other projects.

[16] Petaluma Municipal Code, Chapter 11.90, Trip Reduction Ordinance Program https://petaluma.municipal.codes/Code/11.90.010

Development Impact Fees

The City of Petaluma assesses transportation impact fees through Development Impact Fee program, which was initially adopted on May 19, 2008, to implement the policies of the 2025 General Plan. The purpose of the traffic development impact fee is to provide funds for the construction and implementation of improvements to key elements of the citywide transportation system sufficient to accommodate the development's share of traffic volumes generated by the new development. Fees are based on a "per unit" or "per square foot basis," depending on the land use. The traffic impact fee was last updated in 2012 and will be updated to reflect the City's future transportation needs based on the updated land use plan.

Methodology

Impacts related to transportation resulting from implementation of the General Plan Update are discussed below. The impact analysis is based on travel demand forecasts prepared using the SCTCA Travel Demand Model and review of published information and reports regarding local and regional transportation trends and changes.

This evaluation of transportation impacts assumes that construction and development under the proposed Plan would adhere to applicable federal, State, and local regulations and would conform to appropriate standards in the industry, as relevant for individual projects. Where existing regulatory requirements or permitting requirements exist that are law and binding on responsible agencies and project sponsors, it is reasonable to assume that they would be implemented, thereby reducing impacts.

Analysis Scenarios

2019 Existing Conditions

As discussed in the existing conditions section, existing conditions are defined as the physical environmental conditions as they exist at the time the EIR Notice of Preparation (NOP) is published. The NOP for this EIR was published on August 8, 2025. However, because of the effects of the COVID-19 pandemic on travel (i.e., temporarily reduced travel), Existing Conditions are based on traffic count data collected in 2019 and information on travel patterns and regulations benchmarked in the same year. This analysis uses 2019 Existing Conditions as the environmental baseline from which to assess impacts caused by the General Plan Update. This is a more conservative analysis and hinges on the assumption that travel patterns will return to pre-pandemic levels over time. The 2019 Existing Conditions network and travel patterns are described above under Environmental Setting.

General Plan 2025 (adopted 2008)

The Current General Plan buildout scenario reflects the full development potential envisioned under the City's existing General Plan, adopted in 2008. This scenario assumes that all land use designations, densities, intensities, and policies contained in the 2008 General Plan are fully realized, regardless of current market conditions or the pace of development to date. This analysis provides a comprehensive evaluation of potential environmental impacts associated with complete buildout, serving as a baseline for comparing the proposed General Plan Update.

Proposed General Plan Update

For the analysis contained within the Transportation section, implementation of the General Plan Update is projected to add approximately 16,445 residents and a total of 1,414,741 square feet of non-residential space to the City of Petaluma at buildout (per Table 2-1 of the EIR's Project Description). The General Plan Update includes the following to improve components to enhance citywide accessibility and travel:

- Update to the roadway network to meet the General Plan Update policies as shown in **Figure 1**. This includes the Caulfield Lane Extension across the Petaluma River to improve accessibility between the east and west sides of the city and redesigned arterial and collector

streets to reduce excessive vehicle speeds while reallocating space for safer multimodal travel.

- Full implementation of the ATP as shown in **Figure 2**. This includes expansion of Class I (off-street), Class IV (protected), and other bicycle facilities to create a citywide network suitable for all ages and abilities and closure of gaps in the sidewalk network to support walkability and ADA accessibility.
- Improved accessibility to daily needs through the implementation of 15-minute neighborhoods.
- Other transportation improvements to support improved accessibility and multi-modal travel, such as improved transit services, new and upgraded transit shelters, mobility hubs at major destinations, and other supportive infrastructure and programs designated in the General Plan policies and actions.

These changes are added on top of background transportation projects slated for completion before the 2050 horizon year. This includes planned and funded projects within the city as well as major projects funded elsewhere in the County and region included within Plan Bay Area 2040 as described further in **Appendix D**. The SCTCA model has yet to be updated to reflect Plan Bay Area 2050 so modeling work for this transportation impact analysis relies on the previous RTP, Plan Bay Area 2040.

General Plan Evaluation Metrics

The evaluation for the preferred alternative includes the following five metrics documented in this TIA report in coordination with the required CEQA environmental assessment:

- Vehicle Miles Traveled (VMT)
- Mode Share
- Miles of facilities (auto, bike, ped)
- Accessibility to destinations that support daily life
- Average daily traffic (ADT) volumes and volume to capacity ratios of Petaluma roadways

These metrics were selected to address the City's adopted VMT threshold for CEQA compliance and to measure the desired outcomes identified in the General Plan, such as creating a safer, more equitable, and sustainable transportation system that supports carbon neutrality, integrates land use and mobility, and can be implemented efficiently. While not every desired outcome listed in the General Plan can be measured in an efficient and reliable manner when forecasting years forward into the future to represent General Plan Update conditions, these five metrics were identified as the most critical for understanding how the General Plan Update policies would make progress towards these outcomes. For example, while quantifying the citywide change to roadway safety outcomes is not feasible in a General Plan, reductions in VMT per capita and increased low stress access (e.g., via protected bicycle facilities or improved walking network) would reduce the exposure to high-speed collisions and improve overall roadway safety. Below is a summary of how these metrics can measure reducing the City's reliance on vehicle travel to get around, integrating land use and roadway safety, and increasing access to economic opportunity:

- **Reducing Vehicle Miles Traveled and Expanding Travel Choices**
  The General Plan Update identifies transportation and land use strategies to achieve the City's climate goals by reducing VMT and increasing access to low carbon, space efficient travel modes. Concentrating new growth in compact 15-minute neighborhoods near transit, jobs, and daily needs encourages walking, bicycling, and transit use while shortening

necessary vehicle trips. These strategies reduce per capita travel emissions and improve roadway safety by lowering overall exposure to high-speed vehicle travel. Estimating VMT and mode share for the General Plan Update will help evaluate progress toward the City's climate, safety, and mode shift goals.

- **Integrating Land Use and Roadway Safety**
  The General Plan incorporates the Safe Systems Approach to proactively eliminate severe and fatal collisions while designing a transportation network that balances mobility and safety for all users. Land use and roadway design decisions will be guided by Complete and Green Streets principles to ensure that new development supports safer travel speeds, reduces conflict points, and enhances connectivity across the city. Tracking implementation of safety focused infrastructure such as facilities that manage speeds, mitigate conflicts, and improve access to daily needs will help demonstrate progress toward a comprehensive, low stress network.
- **Advancing Equitable Access and Economic Opportunity**
  The General Plan's Safe, Equitable, and Inclusive Mobility framework seeks to ensure that all Petaluma residents, regardless of age, income, ability, or neighborhood, have safe, reliable, and affordable access to employment, education, services, and community destinations. Prioritizing equity in transportation planning ensures that investments in multimodal infrastructure and compact, mixed use development benefit those who have historically faced barriers to mobility. Expanding equitable access through connected 15-minute communities will improve opportunities for all residents, particularly in underserved areas, while supporting local businesses and fostering vibrant, resilient neighborhoods. These strategies reduce per capita infrastructure costs and promote fiscal sustainability, enabling reinvestment in transportation improvements that advance both equity and economic vitality. Performance measures such as multimodal accessibility, roadway volumes, and volume to capacity ratios will be used to assess how effectively these policies create a more inclusive and accessible transportation system for all.

Existing General Plan Metrics

Citywide transportation metrics that will be used to evaluate the General Plan preferred alternative include VMT, roadway volume to capacity ratios, citywide miles of automobile lanes, bicycle facilities, and sidewalks, and low-stress walking and biking accessibility to key destinations, such as commercial areas, schools, parks, and transit stops. Automobile metrics such as VMT and roadway volume to capacity ratios will be based on the calibrated SCTCA model, while the other metrics are based on GIS based analyses of the land use map and transportation network. A comparison of these metrics between scenarios will allow the City to evaluate whether the preferred alternative supports progress towards the City's goals.

VMT Results

Table 7 presents the existing VMT results from the calibrated travel model. These metrics represent pre-pandemic travel conditions, which may have changed due to changes to migration and telecommuting patterns. This metric will allow the City to track progress on the City's climate goals per the City of Petaluma's adopted *Climate Emergency Framework* and *SB 743 Vehicle Miles Traveled Implementation Guidelines*.

Table 7. VMT Results

	Service Population[1]	Total VMT[2]	Residential VMT per capita	Employment VMT per capita	Total VMT per Service Population
Total VMT	106,126	3,776,785	17.6	18.1	35.6

Notes:
1. The service population includes the total number of residents and employees within Petaluma.
2. These VMT estimates include all VMT generated by people starting or ending their trip in Petaluma, including residents, employees, and visitors. This accounts for the full length of their trip throughout the region.

Source: SCTCA Travel Model, Fehr & Peers, 2022

All travel models have limitations, including the SCTCA Model. The SCTCA and MTC's model are the only travel demand models available to evaluate Petaluma's General Plan Update. As a regional model, MTC's Model is very coarse as it consolidates all of Petaluma into a few zones and only includes the City's arterial roadway network. The SCTCA model includes additional details in Petaluma and therefore was recommended for use in the City's adopted SB 743 Guidelines.

While the SCTCA model is the is the most appropriate model for this study, it is primarily used to analyze vehicular travel and takes a very high-level approach to walking, bicycling, and transit travel. For example, the model network only includes highways, arterials, and collector streets and does not take into account the quality or comfort of on-street bicycle and pedestrian facilities, transit-only facilities, or general walkability. Consequently, the model is less sensitive to many of the road network improvements proposed in the General Plan Update which have been found in other contexts to promote mode shift from driving to walking, biking, and transit. The model was last updated in 2019 and therefore does not account for post-COVID changes to travel patterns (e.g., increased work from home). Finally, the model is not sensitive to the ways that increased residential density and affordable housing or other programmatic components proposed in the General Plan Update can induce mode shift and reduce vehicle usage.

All the above factors result in an overestimation in the number of vehicles that would be generated on the City's roadway network in the future due to local and regional growth. Relying on these results to size roadway facilities could lead to overstating the impacts of vehicle travel and overbuilt roadways to accommodate traffic growth that would not result. Therefore, in combination with the SCTCA Model, Fehr & Peers incorporated the latest guidance provided by the California Air Pollution Control Officers (CAPCOA) through the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (CAPCOA 2021)[17] about the effect of different measures that the City could take as a part of the General Plan preferred alternative to change travel behaviors and reduce VMT. The research and the calculations supporting these off-model adjustments to account for the General Plan policies are presented in **Appendix C**.

[17] California Air Pollution Control Officers Association, *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, December 2021. https://www.caleemod.com/handbook/index.html

Roadway Volume to Capacity Ratios

Citywide roadway volume to capacity ratios from the SCTCA model are presented in **Appendix D.** Most roadways in Petaluma currently operate at less than 60 percent of the roadway capacity, which represents general free flow conditions of traffic and excess roadway capacity. High-speed roadways with excess capacity can lead to excessive vehicle travel speeds that can create adverse roadway safety conditions as described under the Existing Conditions section. Roadway capacity and level of service (LOS) are not used for evaluation of environmental impacts consistent with SB 743 and City Council Resolution No. 2021-112. **Appendix B** presents more information about roadway capacity guidance in the City's existing General Plan and the City's high-injury network.

A citywide assessment of roadway volume to capacity ratios is used to identify where excess roadway capacity on four lane roadways could lead to adverse safety conditions by encouraging excessive speeds and therefore this roadway space that could be reallocated to other uses consistent with General Plan policies.

Transportation Facilities

As one of the City's largest assets, with approximately 20 percent of the city dedicated to roadway space, reimagining Petaluma's transportation network represents one of the greatest opportunities to embody the General Plan's guiding principles. **Table 8** presents the existing miles by category of transportation facility type. This metric will allow the city to track progress over time of completion of the desired citywide transportation facilities. **Table 9** presents the automobile lanes by speed limits based on the roadway data provided by the City of Petaluma. As described above, roadway safety is directly linked to roadway speeds, particularly for the most vulnerable roadway users. This metric will allow the city to track progress over time of managing speeds to reduce the severity of collisions and kinetic energy in the transportation network.

Table 8. Existing Miles of Transportation Facilities

Facility Type		Existing Miles
Automobile Lanes[1]	Local	322.3
	Collector	47.2
	Arterial	96.8
	Total	466.3
Bicycle Facilities	Class I	22.8
	Class II	25.3
	Class IIB	1.5
	Class III	12.1
	Class IIIB	1.0
	Class IV	0.8
	Trail/Recreational[2]	9.3
Pedestrian Facilities	Sidewalks	354.5[3]

Notes:
1. Includes Lakeville Highway but does not include U.S. 101.
2. Includes a mix of paved and unpaved pathways that are accessible by people walking and bicycling.
3. A sidewalk gap analysis conducted in 2022 indicates that 164 miles of streets have sidewalks on both sides of the street, 26 miles of roadways have sidewalks on one side of the street, and 34 miles of streets have no sidewalks on the street. The value presented includes one mile of sidewalk on one side of the street.

Source: City of Petaluma, Fehr & Peers, 2025

Table 9. Existing Automobile Lane Miles by Speed Limits

Facility Type		Existing Miles	Existing Miles with Posted Speeds ≤25 mph	Existing Miles with Posted Speeds 26–35 mph	Existing Miles with Posted Speeds >35 mph
Automobile Lanes[1]	Local	3,563.9	3,540.9	22.9	0.0
	Collector	520.0	19.4	500.6	0.0
	Arterial	853.6	23.3	105.3	725.1
	Total	4,937.5	3,583.6	628.8	725.1

Notes:
1. Includes Lakeville Highway but does not include U.S. 101.
2. Miles are determined by summing the length of every lane (bidirectional).

Source: City of Petaluma, Fehr & Peers, 2025

Accessibility

Accessibility is a measure of how easy and safe it is to travel within a city. Places with higher levels of accessibility mean that there are more jobs, services, shopping opportunities, schools, and amenities with a close distance that result in shorter and more convenient trips. Accessibility is closely linked to many other outcomes, such as VMT, public health, and economic vitality. For example, the Mobility-Productivity Paradox" by Todd Litman (Victoria Transport Policy Institute, 2025) describes how economic productivity is more closely linked to accessibility (i.e., the ability to reach desired services and jobs) than to mobility (i.e., the speed or distance of travel). While this measure is not used directly to evaluate the environmental impacts, it can be used to help evaluate the alignment of the outcomes of proposed General Plan with the policies related to improved accessibility and travel within the City.

Accessibility improvements in the General Plan Update are driven by the combination of (1) land use changes that create more accessible activity centers distributed across the city and (2) buildout of the active transportation network described above. The 15-minute activity centers are the most significant driver of improved accessibility as they bring jobs, retail, schools, parks, and services closer to where people live, which reduces travel distances and makes walking, biking, and transit more practical for daily trips. In addition to the buildout of the "all ages and abilities" active transportation network, targeted network changes make a notable difference in specific locations. For example, the planned Caulfield Bridge will create a critical new connection across the river, significantly improving east-west mobility and reducing barriers that currently limit non-automobile travel. The accessibility analysis includes bus stops as key destinations but does not explicitly account for planned transit service enhancements as part of the General Plan Update, such as improved transit frequencies which would decrease overall travel times and make transit a more competitive travel option. These improvements are incorporated into the vehicle trip and VMT analyses as documented in **Appendix C**.

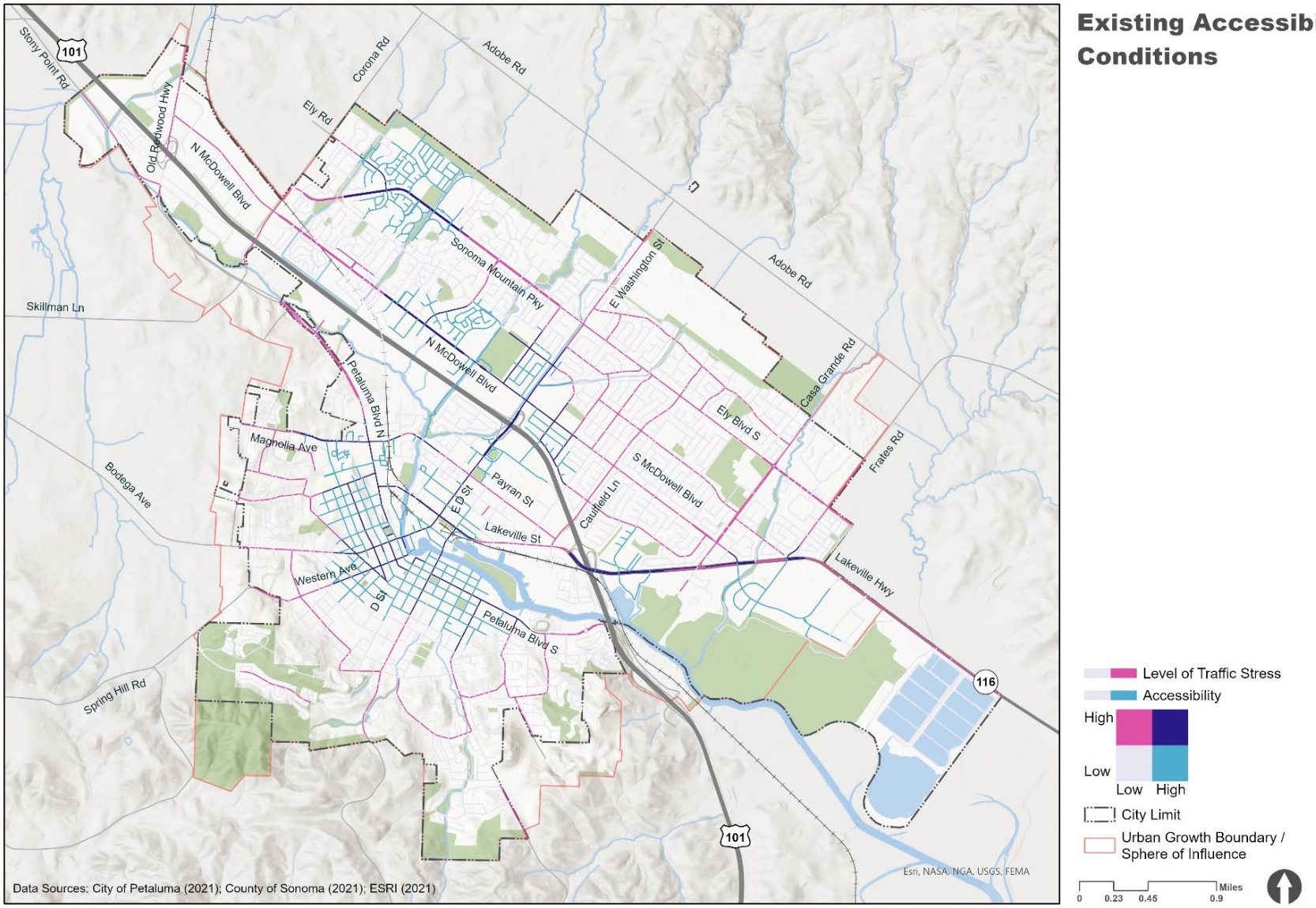
The accessibility analysis focuses on the ability of people walking, rolling, and bicycling to reach key destinations via lower stress routes. Access This analysis was conducted using a network analysis in GIS to assign an accessibility score to each roadway in Petaluma based on its proximity to identified destinations:

- Schools
- Parks
- Bus & Rail Stops
- Activity Centers

Activity centers were identified as key commercial and cultural centers in one of four "tiers", with larger centers, such as Downtown Petaluma, being weighted more highly than smaller centers, such as Arroyo Center at McDowell Blvd & Casa Grande Rd. A half mile network distance was used for all destinations except bus stops, for which a quarter mile network distance was used.

Additionally, the analysis considers the level of traffic stress (LTS) of each roadway calculated for the Petaluma Active Transportation Plan. LTS is a measure of roadway comfort for people walking, rolling, and bicycling. **Figure 20** presents the accessibility score and LTS for every roadway in Petaluma under existing conditions. Light blue represents streets which have high accessibility and low LTS, while pink represents streets which have low accessibility and high LTS. This metric will track the City's progress towards an extensive low-stress network that provides accessibility to key destinations throughout Petaluma.

Figure 20. Existing Accessibility Conditions



Future Year General Plan Buildout Metrics

Citywide transportation metrics for the General Plan preferred alternative include VMT, roadway volume to capacity (V/C) ratios, future miles of automobile lanes, bicycle facilities and sidewalks and metrics of accessibility such as walk and bike travel sheds across major barriers. These metrics are derived from a combination of travel demand forecasting and GIS-based analyses using the adopted land use growth assumptions and the preferred alternative transportation network.

2050 VMT Results

Table 10 presents the future VMT results generated by the SCTCA travel model using the preferred alternative land use pattern and transportation network assumptions. These results reflect estimated travel behavior under anticipated 2050 conditions. The VMT estimates provide a key performance measure enabling the City to track progress and to support the EIR evaluation. As with all travel forecasts, these estimates rely on the assumptions on future demographic and economic trends outlined for existing VMT conditions and reflect the limitations of the SCTCA model. To supplement model outputs, CAPCOA (2024) Handbook methodology is incorporated to assess the VMT-reducing potential of General Plan policies and programs presented in **Appendix C**.

Table 10. VMT Results

	Service Population[1]	Total VMT[2]	Residential VMT per capita	Employment VMT per capita	Total VMT per Service Population
Total VMT	126,298	4,082,045.1	18.2	15.6	32.3

Notes:
1. The service population includes the total number of residents and employees within Petaluma.
2. These VMT estimates include all VMT generated by people starting or ending their trip in Petaluma, including residents, employees, and visitors. This accounts for the full length of their trip throughout the region.

Source: SCTCA Model, 2025

The 2050 VMT results shown in **Table 10** are based on the land use assumptions and Citywide Land Use Map that were in effect at the time the NOP was published in August 2025. Subsequent refinements to the preferred land use pattern directed by City Council in December 2025 were not incorporated into the travel demand modeling, as the modeling effort had already been completed and calibrated consistent with CEQA requirements to reflect conditions at the time of the NOP.

While the City Council–directed refinements would result in a modest redistribution of growth (150 to 300 multi-family units)—shifting some development from lower-VMT locations near the center of Petaluma, which have greater access to amenities and transit within close proximity, to areas characterized by moderate VMT on the edge of the City with lower accessibility for walking and bicycling trips. However, these changes do not represent a substantial change in the overall scale or intensity of growth within the City as development would continue occur within the overall envelope of what is anticipated for Petaluma through the General Plan Buildout. As such, the refined land use pattern would not materially alter the citywide VMT conclusions presented herein. The implications of this potential redistribution are addressed in the VMT impact analysis below, where the General Plan Update's adaptive mitigation framework and adopted thresholds remain applicable to address VMT impacts.

2050 Roadway Volume-to-Capacity Ratios

By 2050, roadway utilization increases across much of the network as regional growth and changes in roadway configurations to improve roadway safety, address excessive vehicle speeds, and provide more roadway space for transit, walking, and bicycling. The resulting 2050 volume to capacity ratios are presented in **Appendix D**.

Subsequent City Council–directed refinements to the preferred land use pattern would shift a portion of future development from higher-accessibility areas in central Petaluma toward lower-accessibility locations near the edge of the City, which could modestly redistribute future traffic patterns but would not result in a substantial change to the overall roadway volume-to-capacity conclusions presented herein.

2050 Transportation Facilities

Table 11 presents the projected miles of transportation facilities under the preferred alternative, including roadway segments, bikeway classes and sidewalks. These estimates reflect completion of high priority multimodal corridors, implementation of Active Transportation Plan recommendations and other planned updates by the City, such as the Caulfield Extension.

Table 11. Future Miles of Transportation Facilities

Facility Type		Existing Miles	Future Miles
Automobile Lanes[1]	Local	322.3	319.9
	Collector	47.2	44.6
	Arterial	96.8	84.3
	Total	466.3	448.8
Bicycle Facilities	Class I	22.8	46.9
	Class II	25.3	7.6
	Class IIB	1.5	0.1
	Class III	12.1	0.7
	Class IIIB	1.0	35.3
	Class IV	0.8	34.7
	Trail/Recreational[2]	9.3	10.7
	Uphill Class IIB/Downhill Class III	-	2.3
Pedestrian Facilities	Sidewalks	354.5	372.3

Notes:
1. Includes Lakeville Highway but does not include U.S. 101.
2. Includes a mix of paved and unpaved pathways that are accessible by people walking and bicycling.

Source: City of Petaluma, 2023

Table 12. Future Automobile Lane Miles by Speed Limits

Facility Type		Future Miles	Future Miles with Posted Speeds ≤25mph	Future Miles with Posted Speeds 26–35mph	Future Miles with Posted Speeds >35mph
Automobile Lanes[1]	Local	3,561.1	3,538.2	22.9	0.0
	Collector	514.6	19.4	495.3	0.0
	Arterial	684.9	23.9	61.2	599.8
	Total	4,760.7	3,581.5	579.4	599.8

Notes:
1. Includes Lakeville Highway but does not include U.S. 101.
2. Miles are determined by summing the length of every lane (bidirectional).

Source: City of Petaluma, 2023

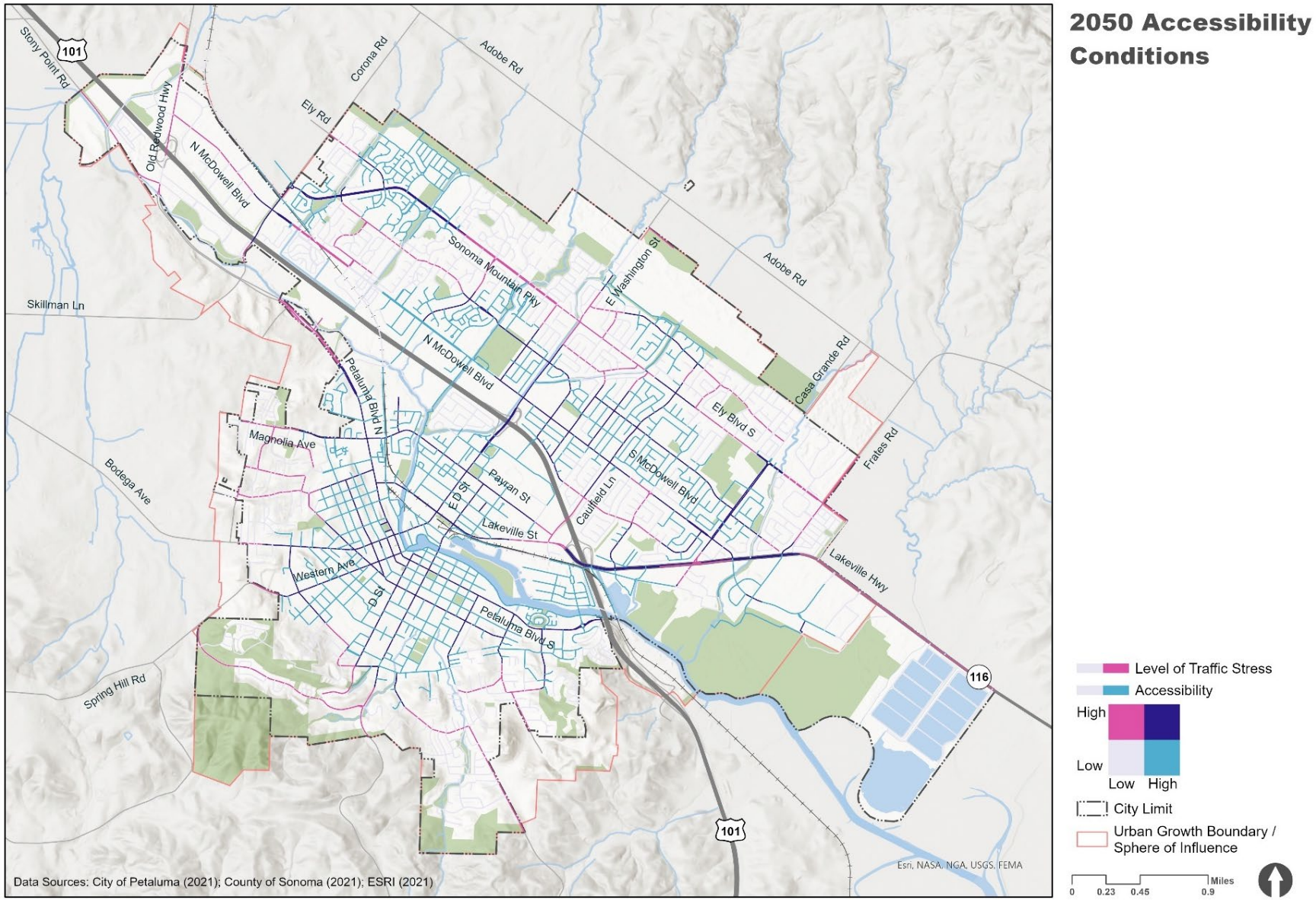
Planned updates to the roadway network including road diets, implementation of multimodal corridors such as the Caulfield Lane bridge and other planned updates results in a measurable reduction in total automobile lanes across the system. Overall, the network decreases from approximately 4938 existing miles to 4760 future miles. Most of these changes occur on the arterial collector streets as these high-speed corridors are redesigned to have fewer lanes and lower speeds to dedicate space for walking, biking or transit.

2050 Accessibility

Figure 21 displays the accessibility analysis under the preferred alternative, incorporating both new key destinations and reduction in traffic stress as a result of proposed land use and transportation network improvements. Reduction in level of traffic stress (LTS) is the result of road diets and implementation of the Active Transportation Plan; the analysis also takes into account new roads and active transportation paths proposed by 2050. The analysis indicates a substantial expansion in high accessibility, low LTS roadways throughout the city under 2050 conditions.

While City Council–directed land use refinements would shift some development from highly accessible areas in central Petaluma to locations with comparatively lower accessibility near the City's edge, these changes do not alter the overall finding that the General Plan Update substantially expands access to key destinations through multimodal network improvements and policy-driven accessibility gains.

Figure 21. 2050 Accessibility Conditions



Thresholds of Significance

The significance thresholds used to evaluate the project's transportation impacts under CEQA are based *Appendix G, subsection XVIII*, and City of Petaluma's adopted VMT thresholds through City Council Resolution No. 2021-112.

a. Per Petaluma's adopted VMT thresholds, the General Plan Update would result in a significant impact under the following circumstances:
    i. **For residential growth:** Total home-based VMT per resident exceeds 16.8 percent below the citywide average. The citywide average baseline value applies until such time that the City of Petaluma exceeds the housing allocation for the City as identified in the Sustainable Communities Strategy (SCS) for the Bay Area region; if the City exceeds the SCS housing allocation, the nine-county Bay Area regional average applies. The SCS housing allocation limit is suggested by the California State Office of Planning and Research (OPR) in the *Technical Advisory on Evaluating Transportation Impacts in CEQA* as when the use of a citywide average becomes inappropriate for the evaluation of CEQA VMT impacts (in favor of the Bay Area regional average).
    ii. **For office and other employment-focused growth:** Project total home-based work VMT per employee exceeds 16.8 percent below the nine-county Bay Area regional average.
    iii. **For retail and other commercial service growth:** Project results in a net increase in VMT over the geographic area that the project influences.
    iv. **For mixed-use and other growth:** Project components should be analyzed using the relevant thresholds for residential, office/employment-focus, or retail/commercial service projects. The benefits of a mix of uses on-site can and should be included in the analysis.
    v. **For transportation growth:** Project results in induced travel and an increase in citywide VMT.
    vi. **For redevelopment growth:** Project results in increased VMT versus current land uses. City staff retain discretion to identify the baseline VMT for use in the calculation (i.e. based on current uses or permitted uses).
b. Per CEQA Appendix G, XVIII(a), the General Plan Update would result in a significant impact if it conflicts with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities
c. Per CEQA Appendix G, XVIII(c), the General Plan Update would result in a significant impact if it substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
d. Per CEQA Appendix G, XVIII(d), the General Plan Update would result in a significant impact if it results in inadequate emergency access.

Project Impacts and Mitigation Measures

This section discusses potential impacts associated with the General Plan Update and proposes mitigation measures where necessary.

Vehicle Miles Traveled

Development under the General Plan Update would result in additional vehicle travel generated by residential and non-residential throughout the City of Petaluma. Transportation projects could also result in increased levels of vehicle travel if they substantially expand roadway capacity and induce additional vehicle travel. The impacts associated with the land use changes and the transportation projects are evaluated separately below.

Land Use VMT Impact Analysis

Impact TRANS-1: Implementation of the General Plan Update would conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) because VMT per capita levels would remain above the City's established VMT threshold.

The City's primary approach to accommodating growth is to locate new housing and jobs on vacant and underdeveloped lots near high-quality transit and within 15-minute communities that have good access to opportunity, such as jobs, neighborhood amenities, and recreational amenities.

CARB concluded in the 2022 Scoping Plan that reducing VMT is a key objective to meeting California's GHG emission reduction goals. The City's Blueprint for Climate Action indicates that approximately 67 percent of GHG emissions in Petaluma under Existing Conditions came from vehicle trips. Future potential development under the General Plan Update would contribute to an increase in VMT in Petaluma.

Table 13 presents a comparison of the VMT results to the City's adopted threshold of 16.8% below the existing baseline values. Overall, all VMT results would remain above the corresponding significance threshold. Employment VMT per capita and Total VMT per Service Population and are forecast to decrease from the Existing baseline to 2050 conditions with the General Plan Update. The SCTCA model indicates the residential VMT per capita would increase in the future; however, this is the result of the limitations of the SCTCA model related to the model's ability to match regional jobs and housing based on the Plan Bay Area 2040 regional land use patterns. VMT associated with travel within the City of Petaluma would decrease for residents due to the incremental densification of residential land uses and the increased convenience of active transportation travel and transit. Further, the VMT results do not account for changes due to post-COVID travel patterns nor other VMT reduction actions that are called for in the 2025 General Plan policies that require follow up implementation plans to ensure they result in a baseline level of service and VMT reduction.

Table 13. VMT Impact Analysis Based on City's Existing Threshold

	Residential VMT per capita	Employment VMT per capita	Total VMT per Service Population
Existing VMT	17.6	18.1	35.6
Existing City Threshold 16.8% Below Average	14.6	15.1	29.6
2025 General Plan Update VMT	18.2	15.6	32.3
Exceeds threshold?	**Yes**	**Yes**	**Yes**

Source: Fehr & Peers, 2025

As described in the City's VMT adoption Resolution No. 2021-112, the City's adopted VMT threshold was based on the 2017 Scoping Plan. This has been superseded by CARB's 2022 Scoping Plan, which recommends reducing VMT per capita to 25% below 2019 levels by 2030 and 30% below 2019 levels by 2045. This target, among many others, was designed to achieve statewide carbon neutral emissions. The Blueprint for Climate Action identifies how the City would need to achieve 50 percent or 75 percent of all travel occurring in modes other than single-occupancy vehicles for the "Ambitious Climate Action" and "What Does it Take?" scenarios. The "Ambitious Climate Action" scenario target of 50 percent of all travel occurring in modes other than single-occupancy vehicles correlates with CARB's VMT statewide reduction target, by reducing auto mode share from approximately 70 to 75 percent to 50 percent. Therefore, the 2025 General Plan Update and Blueprint for Climate Action would require updating the City's threshold to reflect CARB's latest guidance that the City of Petaluma would need to reduce VMT by 30 percent compared to existing conditions.

Table 14 presents the results of the VMT analysis compared to CARB's 2022 Scoping Plan target. As presented above for the City's existing threshold, the 2025 General Plan Update VMT would remain above CARB's 2022 Scoping Plan Target.

Table 14. VMT Impact Analysis Based on CARB's 2022 Scoping Plan

	Residential VMT per capita	Employment VMT per capita	Total VMT per Service Population
Existing VMT	17.6	18.1	35.6
CARB 2022 Scoping Plan Target 30% Below Average	12.3	12.7	24.9
2025 General Plan Update VMT	18.2	15.6	32.3
Exceeds threshold?	**Yes**	**Yes**	**Yes**

Source: Fehr & Peers, 2025

While the citywide per capita and service population values would remain over the thresholds, this is primarily the result of the existing low density and spread-out land use patterns and the limited change to these patterns associated with the 2025 General Plan. The General Plan would support the reduction of VMT for existing residents through implementation of complete active transportation

and transit networks and 15-minute neighborhoods; however, the effectiveness of these strategies is limited for low-density land uses.

The General Plan Update concentrates future development within existing developed areas and along planned transit corridors and also includes minimum residential densities that are higher than historic patterns. For example, Low-Density Residential areas increase from 8 units per acre to 12 units per acre, while Medium-Density Residential and Mixed-Use designations allow up to 45 units per acre, supporting compact, walkable neighborhoods. These changes represent a substantial shift from the predominantly single-family, high VMT development patterns of the existing areas of Petaluma. By increasing residential densities, planning for affordable housing, and focusing growth near transit, schools, and employment centers, the General Plan Update ensures that future development is consistent with the General Plan Update reliance on single-occupancy vehicles. Below is a summary of the effectiveness of these strategies presented in the CAPCOA (2024) Handbook for these strategies:

- **T-1: Increasing Residential Density** of future land uses consistent with the General Plan can reduce up to 30 percent of VMT generated by a project compared to the surrounding land uses. The elasticity of VMT with respect to residential density is -0.22, meaning that a 1 percent increase in development density would reduce VMT by about 0.22 percent.
- **Strategy T-4: Integrating Affordable and Below Market Rate Housing** can reduce "up to 28.6 percent of GHG emissions from project/site multifamily residential VMT based on lower vehicle trip generation rates for lower income households. Multifamily residential units must be permanently dedicated as affordable for lower-income families."

In addition to incremental increases in densities, the General Plan includes the following complementary policies that are described in more detail in the subsequent section:

- Locating transit-supportive land uses densities in a well-connected street grid to support walking, bicycling, and riding transit.
- Transit service and a network of mobility hubs to provide more complete network coverage.
- 15-minute neighborhoods to create complete communities with residents near jobs, grocery stores, parks, schools, libraries, healthcare, and other daily necessities.
- Complete Streets policies to prioritize walking, biking, and transit over automobile travel.
- Transportation Demand Management (TDM) requirements for new development.
- Parking reforms to discourage excess vehicle use.
- Active Transportation Plan implementation, creating a citywide low-stress bike and pedestrian network.
- Integration of zero-emission vehicle infrastructure and incentives for micromobility.

By including the above features within the General Plan Update, the General Plan Update incentivizes development that would fall below the City's adopted threshold and CARB's 2022 Scoping Plan target. Further, this development would be consistent by design with state and regional guidance for creating low-VMT communities that align with state and regional climate goals.[18,19] Together, these

[18] California Air Resources Board (CARB) 2022 Scoping Plan, Appendix D, Table 3. Accessed here by Fehr & Peers on July 14, 2025: https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp-appendix-d-local-actions.pdf

[19] MTC, SB 743 Policy Adoption Technical Assistance Program: Establishing an Infill and Affordable Housing Screen (April 2024). Accessed here by Fehr & Peers on July 14, 2025: https://abag.ca.gov/tools-resources/digital-library/mtcinfillhousingvmtwhitepaperpdf

strategies align land use and transportation planning to ensure new development achieves the City's climate and mobility goals while minimizing VMT-related impacts.

Although the City Council–directed refinements to the preferred land use pattern would modestly shift development toward areas with moderate VMT characteristics and lower rates of accessibility (see **Figure 21**), these changes do not fundamentally alter the General Plan Update's overall growth assumptions or its conclusion that citywide VMT would remain above adopted thresholds as described above.

General Plan Update Policies and Actions

While the General Plan Update's land use program would contribute to VMT impacts, the proposed policy framework includes goals, policies, and actions to reduce VMT. The General Plan Update and Blueprint for Climate Action include numerous policies and actions to contribute to reducing GHG emissions, but do not include quantified VMT reduction programs. As the transportation sector is the largest source of GHG emissions, many of the GHG reduction policies in the General Plan Update would also result in VMT reductions. The following list of policies and actions from the Transportation Policy Framework would directly and indirectly result in the reduction of VMT by managing vehicle trips and incentivizing use of transit and active transportation.

Policy TP-1.1 Develop a reliable and connected transportation network that fulfills the City's Vision

Action TP-1.1.1 Prioritize citywide mobility of people rather than single-occupancy vehicles in transportation and land-use based planning and decision-making. Develop a modal priority map that prioritizes travel modes and their interconnectivity in the following order to reflect their vulnerability while traveling: 1) walk (walking and persons with disabilities); 2) micromobility (bicycles [standard and e-bikes] and scooters); 3) transit and shuttle; 4) drop-off and pick-up (ride share and taxi); and 5) auto (motorcycle, carpool/vanpool, electric vehicle carshare, and SOV). Modal priority should focus on safety and reflect the surrounding land use, intensity of activity, and the street's role in the transportation network—placing greater emphasis on walking and biking in areas with high pedestrian activity, and on transit and goods movement along key regional corridors.

Action TP-1.1.2 Adopt Complete Streets roadway design standards to ensure modal priorities, the Safe, Equitable, and Inclusive framework, and All Ages and Abilities Bikeway Design are accounted for in transportation planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities and products. Standards should allow for flexibility given existing constraints, costs, and input from emergency service providers. Street design should be scaled to the level of surrounding activity and mobility demands. This approach ensures that safety and comfort are prioritized in areas with high pedestrian activity, while still accommodating access and throughput on streets serving essential travel and emergency functions.

Action TP-1.1.3 Develop a Street Typology Framework with right-of-way allocation priorities that recognize that street design (including sidewalks, bikeways, transit facilities, landscaping, and vehicle space) must prioritize safety, while considering the mobility needs and economic development opportunities of adjacent land uses and the street's role in the citywide network, providing sufficient emergency

access. This framework should allow individual streets to be clearly evaluated based on their role in connecting people and goods, as well as their importance as a destination or gathering space.

Action TP-1.1.4 Adopt seamless transit policies and integrate transportation services, in alignment with Plan Bay Area 2050+, across operators, geographies, and complementary modes via physical connections, interoperable payments, Mobility as a Service, and combined information resources.

Action TP-1.1.5 Develop mobility hubs consistent with MTC guidance tailored to the surrounding land use context that support last- and first-mile connections and reliable access to low carbon mobility, including through shared public micromobility of bikeshare and/or scooter share programs. Hubs should incorporate a variety of short- and long-term bike parking options.

Action TP-1.1.6 Evaluate the relationship of traffic flow on safety, accessibility, livability, economy, and the climate when assessing driver delay and traffic congestion.

Policy TP-5.1 Integrate Development and Transportation Policies

Action TP-5.1.1 Integrate 15-minute Neighborhood objectives into land use and transportation planning to ensure all Petaluma residents have access to essential services within a 15-minute walk of their home.

Action TP-5.1.2 Prioritize new and infill development along existing transit corridors and within proximity to major mobility hubs through zoning code, specific plans, and other land use plans.

Action TP-5.1.3 Require that active transportation be an integral part of land use-based planning processes and decisions from inception.

Policy TP-5.2 Align Land Use and Building Codes with Modal Priorities

Action TP-5.2.1 Require dedication of needed right-of-way for transportation improvements identified in adopted City plans, including pedestrian facilities, bikeways, and trails.

Action TP-5.2.2 Create guidelines that outline under what circumstances level of service calculations will be required for discretionary non-transit-oriented land use projects in the context of Policy 3.2.

Action TP-5.2.3 Update and/or create new impact fees to ensure new land uses pay their fair share for roadway use, congestion, pollution, and use of curb space of the vehicle trips generated by the project, accounting for transportation system operations, maintenance, and social costs through a VMT or other similar fee program.

While implementation of these policies and actions in the General Plan Update would support VMT reduction for new and future residents, employees, and visitors, the forecast VMT reduction would not be sufficient to meet the City's adopted VMT thresholds nor CARB's 2022 Scoping Plan Target as presented in **Table 13** and **Table 14**.

Level of Significance Before Mitigation

While the future land use development and policies associated with the General Plan Update would reduce VMT generated by Petaluma, they would not be sufficient to reduce VMT to levels below City's adopted VMT thresholds nor CARB's 2022 Scoping Plan Target. This would result in a significant impact related to VMT.

Mitigation Measures

Three mitigation measures are identified below that the City could use to reduce VMT to less-than-significant levels.

MITIGATION MEASURE TRANS-1: COMMUNITY-BASED VMT REDUCTION PROGRAM

Purpose: Reduce communitywide VMT consistent with the Blueprint for Climate Action goals.

Actions:

- **15-Minute Neighborhoods:** Implement actions that integrate transportation and land use that allows everyone, in every neighborhood, to meet most of their daily needs within close proximity to their home. This means creating a human-scale city composed of vibrant, people-friendly, and complete neighborhoods, connected by quality public transport and pedestrian and bicycle infrastructure and amenities that residents want or need to access commercial, recreational, and community opportunities and resources. Success requires achieving safe, comfortable connections that facilitate travel by people of all ages and abilities in a manner that garners near-term physical and mental health benefits and longer-term public health and economic benefits via reduced carbon emissions.
- **VMT reduction and banking:** Per action TDM-3 of the Blueprint for Climate Action, adopt a VMT-based development impact fee program in coordination with SCTCA.
- **Universal Basic Mobility Program:** Per action TDM-4 of the Blueprint for Climate Action, evaluate the feasibility of funding a transportation benefits program, e.g. Universal Basic Mobility Program, for existing low-income residents in disadvantaged neighborhoods. Conduct a survey of low-income residents in disadvantaged communities to understand financial, logistical, and informational barriers to transportation to inform a Universal Basic Mobility program.
- **Parking Reform:** Per actions PM-1 through PM-3 of the Blueprint for Climate Action, establish parking management policies and standards to balance supply and demand, to reduce demand for parking and single-occupancy vehicle use, and to meet target utilization rates at key destinations through the use of dynamic pricing.
- **Active Transportation Network Completion:** Per action AT-1 of the Blueprint for Climate Action, implement a citywide low-stress bicycle and pedestrian network, including connections to SMART stations, schools, and neighborhood hubs.
- **Mobility Hubs:** Per actions TLUC-4: General Plan implementation of the Blueprint for Climate Action, construct multimodal hubs at transit nodes integrating bike share, scooter share, EV car share, EV and e-bike charging, and real-time transit information.
- **Transit Enhancements:** Per Actions TS-1 through TS-6 of the Blueprint for Climate Action, expand Petaluma Transit service frequency and coverage and provide enhanced connections to transit stops.

- **Neighborhood-Level Incentives:** Provide e-bike rebates, subsidized regional transit passes, and car-share credits to residents.

Performance Standard:

- Achieve measurable reductions in per capita VMT consistent with the City's adopted VMT thresholds and 2022 CARB Scoping Plan (30% reduction).

Monitoring and Reporting:
The City shall:

- Prepare an annual VMT monitoring report based on observed data.
- Document implementation status of each action and progress toward VMT reduction goals.
- Submit the report to the City Council and include it in the General Plan Annual Progress Report.

MITIGATION MEASURE TRANS-2: EMPLOYER-BASED VMT REDUCTION PROGRAM

Purpose: Reduce commute-related VMT through employer-focused TDM strategies.

Actions:

- **City employee Transportation Demand Management Program.** Per action ETDM 1 through ETDM 3 of the Blueprint for Climate Action, establish a plan to reduce employee single-occupancy vehicle trips, engage with employees, and adapt the program based on surveys.
- **Employer TDM Policy.** Per TDM-1 of the Blueprint for Climate Action, adopt a modern TDM policy for employers that requires employers to submit an emission reduction plan to the City to meet the City's greenhouse gas reduction targets as outlined in the Blueprint for Climate Action. This should include a range of strategies listed in the Blueprint such as transit and micromobility subsidies, and on-site secure bicycle parking and parking management strategies.

Performance Standard:

- Employers shall demonstrate reductions in home-based work VMT per employee consistent with City thresholds.

Monitoring and Reporting:

- Qualifying employers must submit an annual Transportation Management Plan (TMP) to the City detailing implemented measures and performance on standards.
- The City shall maintain a compliance database and include summary results in its annual mobility report.

MITIGATION MEASURE TRANS-3: SAFE ROUTES TO SCHOOL PROGRAM IMPLEMENTATION AND MONITORING

Purpose: Increase walking and bicycling for school-related trips, reduce school-related VMT, and align programs with the buildout of the ATP network.

Actions:

- **Implement TDM in schools:** Per action TDM-6 of the Blueprint for Climate Action, partner with Petaluma schools to voluntarily implement TDM plans and parking management strategies.
- **Ongoing Program Updates:** Implement a Safe Routes to School (SR2S) monitoring and update process every five to ten years or following completion of major ATP corridors or school-area improvements consistent with action AT-4 of the Blueprint for Climate Action. Updates shall incorporate the most recent network buildout, confirm new walking and bicycling catchment areas for each campus, and identify remaining gaps or emerging safety issues.
- **Annual Monitoring:** Review SR2S participation levels, mode share, travel patterns, and safety outcomes annually. Monitoring shall include coordination with schools, parent groups, and partner agencies to collect information on student travel, identify barriers, and confirm where new ATP projects or safety treatments may change access patterns.
- **Safety Data Tracking:** Track school-related collision data and traffic stress conditions for walking and bicycling routes.
- **Program Enhancements:** Updated SR2S guidance shall include strategies such as enhanced crossing treatments, traffic calming around schools, expanded education and encouragement programs, and targeted enforcement measures that support safe travel.
- **School Reporting:** Require participating schools to submit annual summaries documenting program activities, changes in mode share, and operational issues affecting student travel.
- **Corrective Actions:** If performance targets are not met, the City shall consider corrective actions such as prioritizing new ATP projects near schools, adjusting program resources, expanding education efforts, or modifying school arrival and dismissal traffic management plans.
- **Funding Allocation:** Apply available program funds toward improvements and activities that support SR2S goals of increasing safety, expanding equitable access, and promoting active travel for students.

Performance Standard: Demonstrate measurable progress toward increased active mode share for school trips and reduced school-related VMT, consistent with City mobility and climate goals.

Monitoring and Reporting:

- The City shall prepare an annual SR2S monitoring report summarizing participation, mode share, safety outcomes, and program effectiveness.
- Every five to ten years, the City shall update SR2S program guidance and priority projects based on monitoring results and network changes.
- Reports shall be submitted to the City Council and included in the General Plan Annual Progress Report.

Level of Significance After Mitigation

Despite the implementation of all feasible mitigation measures—including a community-based VMT reduction program, employer-based TDM strategies, Safe Routes to School program enhancements, parking reforms, active transportation network completion, mobility hubs, transit service improvements, and ongoing monitoring—the VMT impact associated with City's VMT per capita under the General Plan Update remains significant and unavoidable.

While these measures are designed to reduce VMT by incentivizing mode shift, improving transit and active transportation options, and managing parking and travel demand, the cumulative effectiveness is limited by existing land use patterns, regional travel behavior, and uncertainties in future transit service levels and technology adoption. Some mitigation strategies primarily apply to new development, which are expected to generate less VMT than existing land uses by design, while existing land use patterns would continue to have high-VMT by design characteristics such as the low density, single-use patterns present throughout the City. Any incremental VMT effects associated with City Council–directed land use refinements would be addressed through the same adaptive mitigation program, monitoring requirements, and VMT thresholds that apply to the General Plan Update as a whole. Additional considerations and limitations related to the effectiveness of VMT mitigation measures are presented in **Appendix C**.

The City of Petaluma will be responsible for:

- Monitoring VMT conditions annually and reporting progress.
- Implementing additional mitigation measures, such as those described in the General Plan Update policies and in **Appendix C** as new strategies, technologies, or funding sources become available.
- Updating TDM programs, parking policies, and active transportation initiatives as feasible to further reduce VMT over time.

Even with robust mitigation and ongoing monitoring, the General Plan Update is not expected to achieve the VMT reduction thresholds established by the City or the California Air Resources Board's 2022 Scoping Plan. Therefore, the impact is considered **significant and unavoidable**.

Road Network VMT Impact Analysis

Impact TRANS-2: Implementation of the General Plan Update's transportation plans would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) because they would not induce additional vehicle travel.

The threshold of significance for transportation projects is no net increase in VMT. A roadway network impact would occur only if the General Plan added new arterial capacity. The 2025 General Plan Update would not result in a substantial amount of new arterial lane miles as presented in **Table 11**. This accounts for additional roadways planned through the Caulfield Lane extension and the road diets (lane reductions from four to two lanes) that would address the General Plan Update goals for roadway safety and accessibility. The primary changes to the road network focus on operational, safety, and multimodal enhancements rather than roadway widening or new arterials to help new and future residents, employees and visitors travel safely around town. Because the plan does not meaningfully expand roadway capacity, it would not induce long term additional vehicle travel. As a

result, the General Plan would not cause a net increase in citywide VMT from roadway network expansion and this impact would be less than significant.

Level of Significance Before Mitigation

Less than significant impact for road network VMT.

Mitigation Measures

None required.

Compliance with Circulation System Programs, Plans, and Policies

Table 15 below lists key state laws and guidance documents that establish requirements for General Plan's alongside the General Plan Update policies and actions that correspond to them. By pairing each statewide requirement with the relevant General Plan policy numbers, the table provides a clear snapshot of how the plan aligns with and supports implementation of state law.

Table 15. State Guidance and General Plan Policy Crosswalk

State Laws and Guidance	General Plan Policies	Would the General Plan be compliant with these state laws?
Caltrans Guidance: LDR Safety Review Practitioner's Guidance, Caltrans HDM, and Caltrans DIB-94	TP-1.1, TP-2.4, TP-3.4, TP-4.1, TP-4.2, TP-4.3	Yes. GP policies are based on the safe systems approach and establish complete street standards consistent with Caltrans guidance.
California Public Utilities Commission: General Order NO. 75-D: Regulations Governing Standards For Warning Devices For At-Grade Highway-Rail Crossings	TP-3.3	Yes. GP policies align with standards at-grade high crossings providing to provide safe crossings for all modes.
Climate: Global Warming Solutions Act Of 2006 (Assembly Bill 32), California Air Resources Board (Senate Bill 375)	TP-2.1, TP-2.2, TP-2.3	Yes. GP policies address zero-emission transportation options and green street standards that have the potential to positively impact air quality.
CEQA: Transit Oriented Development And Transportation Impacts (Senate Bill 743), Streamlining For Infill Projects (Senate Bill 226)	TP-5.1, TP-5.2	Yes. GP policies support and encourage transit-oriented development and infill projects
Traffic Safety: Speed Limits (Assembly Bill 43)	TP-4.1, TP-4.2	Yes. GP policies are based on the safe systems approach that supports setting safe speed limits.
Evacuation: Evacuation Routes (Assembly Bill 747), Residential Emergency Evacuation Routes (Senate Bill 99)	TP-4.4	Yes. GP policies provide guidance on creating and maintaining accessible evacuation for all residents and visitors. Compliance is documented in **Appendix E**.

State Laws and Guidance	General Plan Policies	Would the General Plan be compliant with these state laws?
Planning And Zoning Logistics Use Truck Routes (Assembly Bill 98 and Senate Bill 415)	TP-5.5	Yes. GP policies address monitoring of truck routes and provide guidance to structure truck routes appropriately for their surrounding land use context.
Bicycle and Pedestrian: California Bicycle Transportation Act, Bicycle and Pedestrian Plans and Traffic Calming Plans (Senate Bill 932), California Complete Streets Act Of 2008 (Assembly Bill 1358)	TP-1.1, TP-3.4, TP-4.1, TP-4.3	Yes. GP policies are based on the safe systems approach and establish complete street standards consistent with legislative recommendations.
Blueprint for Climate Action for Transportation Infrastructure	TP-5.3, TP-5.4	Yes. GP policies acknowledge climate considerations for transportation system development and reference the city's climate action plan goals for transportation.
Innovative Clean Transit	TP-2.1, TP-2.2	Yes. GP policies address the conversion of Petaluma Transit's fleet to zero-emission.
Residential, Commercial, Or Other Development Types: Parking Requirements (Assembly Bill 2097)	TP-5.4	Yes. GP policies address parking policies including on-street parking, off-street parking, priced parking, and curb management.

Source: City of Petaluma General Plan Transportation Policy Framework, 2026

The following sections describe General Plan Update policies and actions related to roadway, bicycle and pedestrian, and transit facilities and describe whether these policies and actions would conflict in a manner that would decrease the performance or safety of such facilities, that may have a significant impact on the environment.

Roadway General Plan Policies and Actions

Impact TRANS-3: Implementation of the General Plan Update would not conflict with a program, plan, ordinance, or policy of the circulation system regarding roadway facilities, or otherwise decrease the performance or safety of such facilities, that may have a significant impact on the environment.

Development under the General Plan Update would result in additional residential and non-residential development throughout the Planning Area. Future potential development under the General Plan Update would contribute to and increase use of roadway facilities in Petaluma.

General Plan Update Policies and Actions

While growth within Petaluma would cumulatively contribute to and increase use of roadway facilities, the General Plan Update includes policies and actions that directly and indirectly address roadway planning, safety, accessibility, and multimodal integration. These include:

Policy TP-1.1 Develop a reliable and connected transportation network that fulfills the City's Vision

Action TP-1.1.1 Prioritize citywide mobility of people rather than single-occupancy vehicles in transportation and land-use planning and decision-making.

Action TP-1.1.2 Adopt Complete Streets roadway design standards to ensure modal priorities, the Safe, Equitable, and Inclusive framework, and All Ages and Abilities Bikeway Design are accounted for in all transportation planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities.

Action TP-1.1.3 Develop a Street Typology Framework with right-of-way allocation priorities that recognize street design must prioritize safety, consider mobility needs, and support economic development opportunities of adjacent land uses.

Action TP-1.1.6 Evaluate the relationship of traffic flow on safety, accessibility, livability, economy, and climate when assessing driver delay and traffic congestion.

Policy TP-3.3 Connect East and West Petaluma

Action TP-3.3.3 Enhance crosstown access for emergency service providers through infrastructure and programmatic measures that maintain roadway safety for all users. Avoid solutions that create or maintain excessive roadway capacity, and instead pursue creative approaches that balance emergency response needs with the safety and comfort of people walking, biking, and using transit.

Policy TP-4.1 Apply the Safe Systems Approach

Action TP-4.1.1 Apply the Safe Systems Approach and Vision Zero principles, prioritizing safety over automobile speed, capacity, and delay in transportation planning and engineering decisions.

Action TP-4.1.9 Prioritize street design and/or traffic device changes to reduce vehicle speeds at locations where speeds exceed desired levels, using current California laws (such as Assembly Bill 43) to lower speed limits, particularly on high-injury corridors, in commercial districts, and near schools and parks.

Policy TP-4.1 Provide Multimodal Evacuation Routes

Action TP-4.4.1 Continue to ensure that all neighborhoods have access to designated evacuation routes in an emergency.

Action TP-4.4.2 Continue to ensure that all emergency access routes required of new developments provide adequate access for people walking or traveling by wheelchair, bicycle, or other micromobility device.

Policy TP-5.1 Integrate Development and Transportation Policies

Action TP-5.1.2 Prioritize new and infill development along existing transit corridors and within proximity to major mobility hubs through zoning code, specific plans, and other land use plans.

Action TP-5.1.3 Require that active transportation be an integral part of land use-based planning processes and decisions from inception.

Policy TP-5.2 Align Land Use and Building Codes with Modal Priorities

Action TP-5.2.1 Require dedication of needed right-of-way for transportation improvements identified in adopted City plans, including pedestrian facilities, bikeways, and trails.

Action TP-5.2.3 Update and/or create new impact fees to ensure new land uses pay their fair share for roadway use, congestion, pollution, and use of curb space of the vehicle trips generated by the project, accounting for transportation system operations, maintenance, and social costs through a VMT or similar fee program.

Policy TP-5.5 Responsibly Support Local Freight

Action TP-5.5.4 Periodically monitor designated truck routes and ensure they direct freight traffic away from residential areas and other sensitive land uses where possible, adhere to time-of-day restrictions, and consider prohibiting through truck traffic on streets other than identified truck routes.

Consistent with SSB 743 and City Council Resolution No. 2021-112, the City of Petaluma has replaced automobile delay and LOS analysis with VMT as the CEQA significance metric for transportation impacts. Under SB 743, delay to drivers and roadway congestion are no longer considered significant environmental impacts for CEQA purposes. Instead, the focus is on reducing VMT and supporting climate and safety goals as described under Impact TR-1 and Impact TR-4.

The above policies and actions would ensure that roadway facilities within Petaluma would be designed around the performance and safety established in state guidance related to roadway design and planning. While some roadway segments are projected to operate over capacity under future buildout scenarios as shown **Appendix D**, this does not constitute a significant impact. People who need to drive will continue to have access to destinations throughout Petaluma. At the same time, the Plan expands safe and convenient travel options for all users as shown in **Figure 21** and described further in the bicycle, pedestrian, and transit impact sections. This approach supports a balanced transportation system and aligns with the City's climate, safety, and accessibility goals.

Previously included roadway changes, such as the Rainier Avenue extension, would no longer be needed in the General Plan Update to address the above accessibility and policies related to crosstown connections. The Rainier Avenue extension was identified in the 2025 General Plan to accommodate large increases in traffic based on continuing the existing automobile dependent travel patterns and large increases in regionally serving retail. One of the largest contributors to increases in traffic volumes under the 2025 General Plan was an excessive amount of commercial space, specifically regional retail, which was forecasted to draw in traffic from around region as retail outpaced population growth. Retail trends over the past few decades in Petaluma, including since the 2025 General Plan, indicate small if any growth in non-commercial land uses given trends related to e-commerce and the lack of additional retail space. Therefore, the General Plan Update includes retail projects based on recent trends and more moderate levels of traffic growth than the General Plan. The General Plan Update focuses on enhancing existing connections and multimodal options

rather than expanding roadway capacity, while reducing the per capita kinetic energy in the roadway system through increase multi-modal travel and improved management of roadway speeds.

Based on the policies and actions outlined above, the General Plan Update would not result in a significant impact to roadway facilities. The Plan ensures continued access for drivers while prioritizing safety and expanding travel choices for all. Mitigation Measures TRANS-1 through TRANS-3 would further reduce the less than significant impact to roadway facilities by making it more convenient to travel by non-automobile modes and thus reduce the level of traffic compared to what is presented in **Appendix D**.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Bicycle and Pedestrian General Plan Policies and Actions

Impact TRANS-4: Implementation of the General Plan Update would not conflict with a program, plan, ordinance, or policy of the circulation system regarding bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities, that may have a significant impact on the environment.

Development under the General Plan Update would result in additional residential and non-residential development throughout the Planning Area. Additionally, the General Plan Update may result in other private and public improvements throughout the City that have the potential for environmental effects related to bicycle and pedestrian facilities. As shown in **Figure 11**, which illustrates school locations and the planned bikeway network, and in **Figure 21**, which presents future accessibility and level of traffic stress, the convenience and safety for people bicycling would substantially improve with implementation of the General Plan.

Future potential development under the General Plan Update would contribute to and increase use of bicycle and pedestrian facilities in Petaluma. The General Plan Update aligns with the city's Active Transportation Plan, which seeks to improve bicycle and pedestrian safety and improve mobility options in Petaluma. Future development would occur within a multimodal system that is already structured around improving safe access to key community destinations, including schools, thus supporting the most vulnerable roadway users. The proposed circulation network enhances bicycle and pedestrian facilities citywide, improves connectivity, and shortens walking and biking distances.

General Plan Update Policies and Actions

While growth within Petaluma would cumulatively contribute to and increase use of bicycle and pedestrian facilities, the General Plan Update includes policies and actions that directly and indirectly result in improving the bicycle and pedestrian network and supporting programs to increase bicycle and pedestrian travel. These include:

Policy TP-3.4 Create a Low-Stress Walking and Bicycling Network

Action TP-3.4.1 Enhance the safety, accessibility, and coverage of the low-stress bicycle and pedestrian network by fully implementing the City's Active Transportation Plan, providing safe, convenient, and ADA-compliant access to all areas of the City, particularly key community destinations and transit nodes in coordination with policies related to safety outlined in Goal 4.

Action TP-3.4.2 Prioritize enhanced amenities for people walking in Downtown, transit-oriented districts, and neighborhood hubs (including centers of 15-minute neighborhoods) that include, but are not limited to, wide sidewalks and multi-use trails, accessible crossing features, signage and wayfinding, bicycle repair stations, street furniture (e.g. benches), outdoor dining, public art, crosswalks, drinking fountains, bathrooms, waste receptables, street lighting, street trees, and gathering areas.

Action TP-3.4.3 Provide amenities throughout the low stress/all ages and abilities bicycle network including, but not limited to, wayfinding signage, public art, drinking fountains, bathrooms, service stations, and secure and convenient bicycle parking.

Action TP-3.4.4 Support economic vitality and VMT reduction goals by connecting commercial activity centers and local destinations to the citywide pedestrian and bicycle network, while raising awareness through wayfinding signage and marketing campaigns.

Action TP-3.4.5 Enhance trail and greenway connections throughout Petaluma, including working with the Bay Area Ridge Trail Council and SMART to implement a revised off-street route through the City with connections to regional destinations (e.g., Petaluma Adobe State Park, Jack London State Historic Park, Helen Putnam Regional Park, and Mt. Burdell) and completing a network of river and creek trails to expand car-free transportation and recreation opportunities along waterfronts. Create seamless connectivity between the City's trail and greenway networks by providing wayfinding signage and all ages and abilities bicycle and pedestrian connections where streets must be used to travel between trails and greenways.

Policy TP-4.1 Apply the Safe Systems Approach

Action TP-4.1.6 Prioritize bicycle facilities that offer the greatest protection from motor vehicles (e.g., Class I multiuse paths and Class IV protected cycle tracks over Class II lanes and Class III routes) over vehicle speeds on designated bikeway networks.

Action TP-4.1.7 Prioritize installing and/or upgrading appropriately designed and lit sidewalks and crosswalks for pedestrians near transit stops, schools, parks, commercial areas, and other activity centers.

Action TP-4.1.8 Develop crosswalk standards that account for paths of travel and nearby activity centers to enhance safety for people walking citywide.

Action TP-4.1.9 Prioritize street design and/or traffic device changes to reduce vehicle speeds at locations where 85th percentile and other outlier speeds are above the desired speed based on the street typology and use current California laws (such as Assembly Bill 43) to lower speed limits, particularly on high-injury corridors, in commercial districts, and near schools and parks.

Policy TP-4.2 Prioritize Roadway Safety for Vulnerable Users

Action TP-4.2.1 Enhance active transportation network connections to key community amenities and healthy spaces, particularly for groups including people who experience disabilities, children, older adults, people of color, and those in low-income communities.

Action TP-4.2.2 Engage all Petaluma schools in Safe Routes to Schools (SR2S) planning to increase school travel via active transportation and transit, reduce congestion and harmful pollutants around schools, and increase the safety and physical activity of students.

Action TP-4.2.3 Create slow zones that prioritize street design features to reduce vehicle speeds on streets adjacent to schools, parks, and areas with high concentrations of youth and older adults.

Policy TP-6.2 Employ Data-Driven Mobility Planning

Action TP-6.2.2 Conduct robust Level of Traffic Stress bicycle and pedestrian network gap analyses on a recurring basis. Update online transportation-network maps on an annual basis showing the bicycle and pedestrian network, highlighting low-stress connections that meet NACTO's All Ages & Abilities criteria, in addition to the public transit networks and other major transportation nodes. Promote the Petaluma transit app to connect residents and students to transit options.

Action TP-6.2.3 Establish protocols for collecting bicycle and pedestrian traffic counts comparable to vehicle counts.

Implementation of these policies and actions of the General Plan Update would improve the bicycle and pedestrian network and support programs to increase bicycle and pedestrian travel and ensure that the General Plan Update would not conflict with a program, plan, ordinance, or policy of the circulation system regarding bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Transit System General Plan Policies and Actions

Impact TRANS-5: Implementation of the General Plan Update would not conflict with a program, plan, ordinance, or policy of the circulation system regarding transit facilities, or otherwise decrease the performance or safety of such facilities, that may have a significant impact on the environment.

Development under the General Plan Update would result in additional residential and non-residential development throughout the City. Additionally, the General Plan Update may result in other private and public improvements throughout the City that have the potential for environmental effects related to transit facilities.

Future potential development under the General Plan Update would increase use of transit services and transit facilities in Petaluma. Adding residents and jobs near transit increases the number of destinations that can be easily served via transit. Pairing transit-oriented development with improvements to transit access and street designs supports ridership growth for train, bus, and shuttle services. Increased demand for transit is beneficial to the environment and does not constitute an impact.

General Plan Update Policies and Actions

While growth within Petaluma would cumulatively contribute to and increase use of transit, the General Plan Update includes policies and actions that directly and indirectly result in improving the transit network and supporting an increase in transit use. These include:

Policy TP-3.2 Establish Seamless Multimodal Connections

Action TP-3.2.1 Adopt seamless transit policies and integrate transportation services across operators, geographies, and complementary modes via physical connections, interoperable payments, Mobility as a Service, and combined information resources.

Policy TP-3.5 Invest in Public Transit

Action TP-3.5.1 Expand the fixed-route transit network through route additions and decreased headways as feasible to connect major destinations such as parks, schools, and 15-minute neighborhood nodes.

Action TP-3.5.2 Develop microtransit/transportation network company partnerships in a fiscally sustainable manner to enhance public access to gaps in the fixed-route transit network and areas with high parking demand (such as Downtown in coordination with 5.3 and 5.4) in a targeted manner that supports safe, equitable, and inclusive mobility options for people of all ages and abilities.

Action TP-3.5.3 Implement bus rapid transit (BRT) and bus queue jump lanes on roads and intersections where buses are stuck in traffic to enhance Petaluma transit coverage, frequency, and seasonal regularity so it is convenient, serves key destinations such as education, shopping, and employment centers, and SMART, and serves the whole public in a safe, equitable, and inclusive manner.

Action TP-3.5.4 Ensure that key transit nodes are designed as mobility hubs consistent with MTC guidance that serve the broader community by prioritizing access for people walking and bicycling.

Action TP-3.5.5 Implement the Petaluma portion of applicable local, county, and regional transit plans.

Action TP-3.5.6 Improve transit amenities throughout the system including, but not limited to, bus tracking information, ADA access, bus shelters, comfortable seating, lighting, public art, safety improvements, passenger information, bicycle racks, benches, trash receptacles, bathrooms, and path connections.

Action TP-3.5.7 Provide transit service at a nominal cost, or no cost, to riders and incentivize its use by implementing programs such as specialized fare structures or community-transit passes.

Action TP-3.5.8 Evaluate the need for a Downtown Circulator or shuttle bus for short-distance travel throughout Downtown Petaluma, providing service at a nominal or no cost. This can be implemented with Action TP-5.4.3 on parking benefit districts.

Action TP-3.5.9 Collaborate with Sonoma-Marin Area Transit Authority (SMART) to increase the frequency and capacity of SMART trains, and integrate with other transit routes, creating a reliable alternative to internal combustion engines for intercity travel.

Action TP-3.5.10 Collaborate with Sonoma-Marin Transit Authority to create a comprehensive bicycle commuting, bike storage, and bike share system, creating a reliable alternative to internal combustion engines for intracity travel.

Implementation of these policies and actions of the General Plan Update would improve the transit network and support programs to increase travel by transit and ensure the General Plan Update would not conflict with a program, plan, ordinance, or policy of the circulation system regarding transit systems, or otherwise decrease the performance or safety of such facilities. Impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Roadway Safety

Impact TRANS-6: Implementation of the General Plan Update would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Future development under the General Plan Update would modify the existing transportation network to support current and future users and may change travel patterns or traveler expectations. All modifications to existing facilities and construction of new facilities would comply with applicable design standards in the California Manual on Uniform Traffic Control Devices and the California Highway Design Manual to minimize potential conflicts and collisions. A key focus of the General Plan Update is expanding low stress walking and bicycling connections to schools and other community destinations to improve comfort and safety for students and families. These multimodal enhancements would be designed to be consistent with the California MUTCD and the City's design guidelines. The project also designates official truck routes to direct heavy vehicles to appropriate corridors and discourage their use on neighborhood streets that are not suited for such traffic.

General Plan Update Policies and Actions

While growth within Petaluma would result in changes to the existing transportation network, the General Plan Update includes goals, policies, and actions to support the design of a transportation system that is safe for all modes of travel. The following describes the policies and actions that directly and indirectly result in improving the transportation network.

Policy TP-1.1 Develop a reliable and connected transportation network that fulfills the City's Vision

Action TP-1.1.1 Prioritize citywide mobility of people rather than single-occupancy vehicles in transportation and land-use based planning and decision-making. Develop a modal priority map that prioritizes travel modes and their interconnectivity in the following order to reflect their vulnerability while traveling: 1) walk (walking and persons with disabilities); 2) micromobility (bicycles [standard and e-bikes] and scooters); 3) transit and shuttle; 4) drop-off and pick-up (ride share and taxi); and 5) auto (motorcycle, carpool/vanpool, electric vehicle carshare, and SOV). Modal priority should focus on safety and reflect the surrounding land use, intensity of activity, and the street's role in the transportation network—placing greater emphasis on walking and biking in areas with high pedestrian activity, and on transit and goods movement along key regional corridors.

Action TP-1.1.2 Adopt Complete Streets roadway design standards to ensure modal priorities, the Safe, Equitable, and Inclusive framework, and All Ages and Abilities Bikeway Design are accounted for in transportation planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities and products. Standards should allow for flexibility given existing constraints, costs, and input from emergency service providers. Street design should be scaled to the level of surrounding activity and mobility demands. This approach ensures that safety and comfort are prioritized in areas with high pedestrian activity, while still accommodating access and throughput on streets serving essential travel and emergency functions.

Action TP-1.1.3 Develop a Street Typology Framework with right-of-way allocation priorities that recognize that street design (including sidewalks, bikeways, transit facilities, landscaping, and vehicle space) must prioritize safety, while considering the mobility needs and economic development opportunities of adjacent land uses and the street's role in the citywide network, providing sufficient emergency access. This framework should allow individual streets to be clearly evaluated based on their role in connecting people and goods, as well as their importance as a destination or gathering space.

Action TP-1.1.4 Adopt seamless transit policies and integrate transportation services, in alignment with Plan Bay Area 2050+, across operators, geographies, and complementary modes via physical connections, interoperable payments, Mobility as a Service, and combined information resources.

Action TP-1.1.5 Develop mobility hubs consistent with MTC guidance tailored to the surrounding land use context that support last- and first-mile connections and reliable access to low carbon mobility, including through shared public micromobility of

bikeshare and/or scooter share programs. Hubs should incorporate a variety of short- and long-term bike parking options.

Action TP-1.1.6 Evaluate the relationship of traffic flow on safety, accessibility, livability, economy, and the climate when assessing driver delay and traffic congestion.

Action TP-1.1.7 Partner with Sonoma Water and other utilities to make maintenance roads accessible for surface access/multimodal usage.

Policy TP-5.5 Responsibly Support Local Freight

Action TP-5.5.1 Develop the facilities (such as an updated terminal building) and accessory transportation systems serving the airport/industrial zone to facilitate its role as a freight distribution center for Petaluma.

Action TP-5.5.2 Dredge the marina on a regular basis to maintain the Petaluma River as a viable route for commercial and freight transportation to/from Petaluma.

Action TP-5.5.3 Create a citywide plan for warehousing and cargo solutions that encourage electrification of the fleet and small electric vehicles and e-bike cargo solutions for residential neighborhoods.

Action TP-5.5.4 Periodically monitor designated truck routes and ensure they direct freight traffic away from residential areas and other sensitive land uses where possible, adhere to time-of-day restrictions that support the well-being of people who live on truck routes, and consider prohibiting through truck traffic on streets other than identified truck routes.

Action TP-5.5.5 Integrate the Petaluma Airport and supportive industrial uses into the low stress bicycle and pedestrian and public transit networks while supporting its continued operation as a transportation, recreation, and commercial freight asset.

Action TP-5.5.6 Evaluate opportunities to integrate advanced air mobility technologies at the Petaluma airport, such as autonomous vehicles, electric planes, autonomous aircraft, and air taxis.

Implementation of the General Plan Update would enhance safety on local streets and support reduced VMT through policies that expand low-stress walking and bicycling connections to schools and other key destinations. By creating safer, more comfortable routes for students and families, the General Plan is expected to encourage more children to walk or bike rather than be driven, decreasing school-related vehicle trips and improving overall multimodal safety. These improvements would not introduce hazards due to design features or incompatible uses. Therefore, impacts to roadway safety would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Emergency Access

Impact TRANS-6: Implementation of the General Plan Update would not result in inadequate emergency access.

Future potential development under the General Plan Update would alter land use patterns and increase travel demand on the transportation network that may influence emergency access. The proposed transportation improvements would increase citywide accessibility and connectivity, which in turn, would promote improved emergency access. Additionally, new development that occurs pursuant to the General Plan Update would be subject to the provisions of the California Fire Code including those that pertain to emergency access. Impacts would be less than significant.

The Petaluma Fire Department responds from three fire stations throughout the City. These stations are located to allow for adequate response times and overlapping coverage to multiple emergencies. Alongside fire response, the department delivers Emergency Medical Services. A large share of firefighters are trained as paramedics and the rest hold Emergency Medical Technician (EMT) certifications. The city operates three frontline ambulances that provide continuous service and most engine companies include a paramedic on duty, enabling rapid deployment of advanced medical care. A fourth ambulance, staffed part-time by EMTs, is jointly operated with the Rancho Adobe Fire Protection District. The Petaluma Police Department operates from its headquarters at 969 Petaluma Boulevard North, while emergency coordination and backup EOC services are provided by the Civic Center Campus at 11 English Street. The City of Petaluma is currently considering a public safety facility at the fairgrounds that would serve the Petaluma Police and Fire Departments and support Emergency Operations Center functions.

General Plan Update Policies and Actions

Multiple policies and actions in the Transportation Policy Framework and in other sections of the General Plan Update support the maintenance of adequate emergency access, including:

Policy TP-1.1 Develop a reliable and connected transportation network that fulfills the City's Vision.

Action TP-1.1.2 Action TP-1.1.1: Adopt Complete Streets roadway design standards to ensure modal priorities, the Safe, Equitable, and Inclusive framework, and All Ages and Abilities Bikeway Design are accounted for in transportation planning, programming, design, construction, reconstruction, retrofit, operations, and maintenance activities and products. Standards should allow for flexibility given existing constraints, costs, and input from emergency service providers. Street design should be scaled to the level of surrounding activity and mobility demands. This approach ensures that safety and comfort are prioritized in areas with high pedestrian activity, while still accommodating access and throughput on streets serving essential travel and emergency functions.

Action TP-1.1.3 Develop a Street Typology Framework with right-of-way allocation priorities that recognize that street design (including sidewalks, bikeways, transit facilities, landscaping, and vehicle space) must prioritize safety, while considering the mobility needs and economic development opportunities of adjacent land uses and the street's role in the citywide network, providing sufficient emergency

access. This framework should allow individual streets to be clearly evaluated based on their role in connecting people and goods, as well as their importance as a destination or gathering space.

Policy TP-3.3 Connect East and West Petaluma

Action TP-3.3.3 Enhance crosstown access for emergency service providers through infrastructure and programmatic measures that maintain roadway safety for all users. Avoid solutions that create or maintain excessive roadway capacity, and instead pursue creative approaches that balance emergency response needs with the safety and comfort of people walking, biking, and using transit.

Action TB-3.3.5 Implement emergency vehicle priority equipment (EVP) on crosstown connectors, especially in high traffic and high congestion areas, preferably in coordination with BRT infrastructure.

Policy TP-4.4 Provide Multimodal Evacuation Routes

Action TP-4.4.1 Continue to ensure that all neighborhoods have access to designated evacuation routes in an emergency.

Action TP-4.4.2 Continue to ensure that all emergency access routes required of new developments provide adequate access for people walking or traveling by wheelchair, bicycle, or other micromobility device.

Action TP-4.4.3 Identify new emergency evacuation routes and disaster resource access routes specifically for residents and visitors without personal motor vehicles who may be walking or traveling by wheelchair, bicycle, or other micromobility device, and provide for the installation of signage and wayfinding to support whole community use of these routes.

Action TP-4.4.4 Continue to engage with the Fire Department to ensure citywide access is provided for emergency services, and response times are monitored and maintained relative to an adopted minimum threshold.

Action TP-4.4.5 Maintain emergency vehicle access to the Petaluma Airport to support countywide public safety responses.

Implementation of these policies and actions of the General Plan Update would improve emergency access and support programs to ensure safe and reliable access for emergency services and evacuation routes. The General Plan's policies require that all new and reconstructed streets, including local, collector, and arterial roadways, meet the California Fire Code and applicable NFPA 1710 standards for emergency response. This ensures that emergency vehicles can reach any parcel efficiently.

The General Plan includes policies (e.g., TP-4.4 and related actions) to identify, maintain, and enhance multimodal evacuation routes for all neighborhoods. These routes are designed to accommodate not only vehicles, but also pedestrians, cyclists, and people with disabilities, ensuring equitable access during emergencies. Emergency vehicle priority equipment on key crosstown routes, especially in high traffic and high congestion areas, would further improve the ability for emergency vehicles to congestion associated with passenger vehicles. The City would continue to

monitor emergency management protocols that will be regularly updated in coordination with Sonoma County, neighboring jurisdictions, and local fire and police departments. This includes joint planning for special events, mutual aid, and disaster preparedness. Examples of different emergency scenarios and how the City's roadway network would function under different emergency and evacuation scenarios is presented in **Appendix E**. Therefore, the General Plan Update would not result in inadequate emergency access and impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Cumulative Impacts

The geographic scope of the cumulative impact analysis for transportation is the nine Bay Area counties (San Mateo, San Francisco, Santa Clara, Marin, Sonoma, Napa, Solano, Alameda, and Contra Costa). This analysis evaluates whether the impacts of the General Plan Update, together with the impacts of cumulative development consistent with the Plan Bay Area 2050, would result in a cumulatively significant impact related to transportation. This analysis then considers whether incremental contribution to cumulative impacts associated with the implementation of the General Plan Update would be significant. Both conditions must apply for a project's cumulative effects to rise to a level of significance.

Vehicle Miles Traveled

Impact TRANS-C.1:	**Implementation of the General Plan Update would conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) because VMT per capita levels would remain above the City's established VMT threshold under cumulative conditions.**

The cumulative analysis for VMT considers growth and development across the nine-county Bay Area region, as envisioned in Plan Bay Area 2050. Plan Bay Area 2050 establishes ambitious regional goals to reduce VMT, support climate action, promote transit-oriented development, and create more accessible, equitable communities. Key strategies include:

- Concentrating new housing and jobs near high-quality transit.
- Expanding active transportation and transit networks.
- Implementing policies to reduce reliance on single-occupancy vehicles.
- Achieving significant reductions in per capita VMT and greenhouse gas emissions over time.

As noted in the TRANS-1 VMT impact analysis, the travel demand model used for this General Plan Update analysis does not fully account for the cumulative growth and policy shifts anticipated under Plan Bay Area 2050 due to the limitations of the travel demand model. The model relies on the 2040 regional growth assumptions and does not incorporate the latest projections, land use patterns, or transportation investments that would be realized as Plan Bay Area 2050 is implemented. As a result,

the cumulative VMT estimates may overstate future vehicle travel and understate the potential benefits of regional mode shift and compact development.

The General Plan Update is designed to align with Plan Bay Area 2050's goals by prioritizing infill development, multimodal accessibility, and climate action. Over time, as regional strategies are implemented and local policies take effect, it is expected that VMT per capita will decrease, supporting both local and regional sustainability objectives.

Despite this alignment and the implementation of all feasible mitigation measures at the local level—including VMT reduction programs, TDM strategies, active transportation network completion, and ongoing monitoring—the cumulative impact of VMT remains significant and unavoidable. This is due to:

- The persistence of existing land use patterns and travel behavior.
- The limitations of the current model analysis in capturing future regional growth and mode shift.
- Uncertainties in the effectiveness and timing of regional and local mitigation measures.

The City will continue to monitor VMT conditions and pursue additional mitigation strategies as feasible, in coordination with regional partners and as new opportunities arise. However, until regional VMT reduction targets are met and the cumulative effects of growth are fully addressed, the cumulative VMT impact remains significant and unavoidable.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

To address cumulative VMT impacts associated with land use, the Petaluma General Plan Update incorporates a comprehensive suite of mitigation measures listed in MM-TRANS-1 through MM-TRANS-3, including:

MM-TRANS-1 Community-Based VMT Reduction Programs: Implementing citywide strategies such as VMT-based development impact fees, universal basic mobility programs, parking reforms, completion of a low-stress active transportation network, expanding transit service, and constructing multimodal hubs.

MM-TRANS-2 Employer-Based TDM: Requiring employers to adopt TDM plans, provide transit and micromobility subsidies, and support on-site bicycle parking and parking management strategies.

MM-TRANS-3 Safe Routes to School Program Enhancements: Partnering with schools to promote walking and bicycling, updating Safe Routes to School plans, and monitoring mode share and safety outcomes.

The City of Petaluma will be responsible for ongoing monitoring and adaptive management programs. This includes Annual tracking of VMT conditions, reporting progress, and updating mitigation strategies as new technologies, funding sources, or regional initiatives become available.

Level of Significance After Mitigation

Despite these mitigation efforts, the cumulative VMT impact remains significant and unavoidable, primarily due to existing land use patterns, regional travel behavior, and limitations in the

effectiveness and reach of mitigation measures. The City will continue to monitor VMT and pursue additional strategies as feasible to support long-term regional and local VMT reduction goals.

Road Network VMT Impact Analysis

Impact TRANS-C.2: Implementation of the General Plan Update's transportation plans would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) because they would not induce additional vehicle travel under cumulative conditions.

The cumulative analysis for Roadway Network VMT considers the effects of the Petaluma General Plan Update in combination with other planned and approved projects throughout the Bay Area region. The General Plan Update does not result in a substantial increase in arterial lane miles or expansion of roadway capacity. Instead, the Plan focuses on operational, safety, and multimodal enhancements—such as road diets, traffic calming, and improved crossings—rather than new roadway construction or widening. These changes are designed to improve safety and accessibility for all users, and do not induce additional vehicle travel.

As cumulative growth occurs across the region, the General Plan Update's approach to the roadway network ensures that Petaluma does not contribute to a net increase in citywide VMT from roadway network expansion. The primary changes to the road network are operational and multimodal in nature, supporting safer travel and improved accessibility without expanding roadway capacity in a way that would induce long-term vehicle travel. The General Plan Update, in conjunction with other planned and approved projects such as proposed through the Plan Bay Area 2050, would not result in a substantial increase in arterial lane miles or induce additional vehicle travel. Therefore, the cumulative impact to VMT from roadway network changes remains less than significant.

Level of Significance Before Mitigation

Less than significant impact for road network VMT.

Mitigation Measures

None required.

Roadway Facilities

Impact TRANS-C.3: Implementation of the General Plan Update would not conflict with a program, plan, ordinance, or policy of the circulation system regarding roadway facilities, or otherwise decrease the performance or safety of such facilities, that may have a significant impact on the environment under cumulative conditions.

The cumulative analysis for roadway facilities considers the effects of the Petaluma General Plan Update in combination with other planned and approved projects throughout the Bay Area region. As described under Impact TRANS-3, while the General Plan Update would generate new vehicle demand and that this roadway demand is expected to be less than significant.

As cumulative growth occurs across the region, the General Plan Update's approach to infill development and multi-modal travel ensures that Petaluma does not contribute to worsening the performance or safety of City's roadway facilities. The General Plan Update does not result in a

substantial increase in the total miles of automobile lanes or expansion of roadway capacity. Instead, the Plan emphasizes operational, safety, and multimodal accessibility enhancements—such as road diets, traffic calming, and improved crossings—rather than new roadway construction or widening. These changes align with Plan Bay Area 2050's goals, plans, and policies to reduce auto-dependency while improving accessibility and safety on the region's roadway networks. Therefore, the General Plan Update, in conjunction with other planned and approved projects such as through proposed through the Plan Bay Area 2050, would not result in a substantial decrease in the performance or safety of roadway facilities. Therefore, the cumulative impact to roadway facilities remains less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Bicycle and Pedestrian System

Impact TRANS-C.4: Implementation of the General Plan Update would not conflict with a program, plan, ordinance, or policy of the circulation system regarding bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities, that may have a significant impact on the environment under cumulative conditions.

Cumulative projects in the nine-county Bay Area would be required to provide adequate bicycle and pedestrian facilities and comply with the programs and policies supporting alternative transportation in planning level documents. As described under Impact TRANS-4, while the General Plan Update would generate new demand for bicycle and pedestrian facilities that serve the area, the General Plan Update aligns with the Active Transportation Plan, which seeks to improve bicycle and pedestrian safety and improve mobility options in Petaluma. The proposed circulation network enhances bicycle and pedestrian facilities citywide, improves connectivity, and shortens walking and biking distances. In addition, the policies and actions of the General Plan Update improve the bicycle and pedestrian network and support programs to increase bicycle and pedestrian travel and ensure that impacts remain less than significant. Therefore, the General Plan Update, in conjunction with other planned and approved projects such as through proposed through the Plan Bay Area 2050, would not have a cumulatively significant impact related to bicycle and pedestrian facilities.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Transit System

Impact TRANS-C.5: Implementation of the General Plan Update would not conflict with a program, plan, ordinance, or policy of the circulation system regarding transit facilities, or otherwise decrease the performance or safety of such facilities, that may have a significant impact on the environment.

Cumulative projects in the nine-county Bay Area would be required to provide appropriate public transit. All cumulative projects would be required to comply with local ordinances and General Plan policies that address potential impacts related to the transit system. As described under Impact TRANS-5, while the General Plan Update would generate new demand for the transit services and facilities that serve the area, transit system and vehicle capacities are not expected to be exceeded and impacts to transit are less than significant. Therefore, the General Plan Update, in conjunction with other planned and approved projects such as proposed through the Plan Bay Area 2050, would not have a cumulatively significant impact related to public transit.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Roadway Safety

Impact TRANS-C.6: Implementation of the General Plan Update would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) under cumulative conditions.

The cumulative analysis for roadway safety considers the effects of the Petaluma General Plan Update in combination with other planned and approved projects throughout the Bay Area region. The General Plan Update emphasizes operational, safety, and multimodal enhancements—such as road diets, traffic calming, improved crossings, and the application of the Safe Systems Approach and Vision Zero principles. These measures are designed to proactively reduce kinetic energy and reduce the risk of severe and fatal injuries by managing vehicle speeds and enhancing protection for vulnerable roadway users. The Plan does not propose new roadway expansions or modifications that would create geometric hazards, nor does it result in adverse impacts to ramp terminals or freeway interchanges.

As cumulative growth occurs across the region, the General Plan Update's approach to roadway safety ensures that Petaluma does not contribute to new or exacerbated safety hazards. The focus is on redesigning existing corridors for lower speeds, improved crossings, and multimodal safety supports safer travel for all users. There are no anticipated cumulative impacts to ramp terminals or freeway interchanges, as the Plan does not include new connections or capacity expansions that would affect these facilities. The General Plan Update, in conjunction with other planned and approved projects such as through proposed through the Plan Bay Area 2050, would not result in new or increased roadway safety hazards. Instead, the Plan's policies and actions are expected to

improve overall roadway safety and reduce risk for all users. The cumulative impact related to roadway safety is less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Emergency Access

Impact TRANS-C.7: Implementation of the General Plan Update would not result in inadequate emergency access under cumulative conditions.

Cumulative projects in the nine-county Bay Area that result in similar impacts would be required to mitigate for their impacts, as well as ensure that emergency access is maintained. Accordingly, there is a less than significant cumulative impact. As described in Impact TRANS-7, the General Plan Update would not result in inadequate emergency access. As such, the General Plan Update, in conjunction with other planned and approved projects such as proposed through the Plan Bay Area 2050, would have a less than significant cumulative impact associated with emergency access.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

None required.

Appendices

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Appendix A: Draft Street Typology Framework

Below are the street and roadway standards that will apply in Petaluma until the City adopts Complete Streets design standards consistent with Policy 1.1 of the Administrative Draft General Plan Update. These standards are based on the local context of Petaluma, the policy goals for complete streets and systemic safety outlined in the Administrative Draft General Plan Update, and roadway standards from Caltrans,[20] Federal Highway Administration (FHWA),[21] and the National Association of City Transportation Officials (NACTO).[22]

- Vehicle lanes shall not exceed 11 feet wide and the preferred width is 9 feet on local neighborhood streets, 10 and 10.5 feet elsewhere where possible except in locations with high transit or truck use. Vehicular facilities shall be designed for to match the desired vehicle speeds of the street typology and should not exceed two travel lanes (not including left turn lanes) except for arterials that exceed 18,000 vehicles per day and serve as transit and emergency service provider or evacuation access routes. The Safe Systems Approach described in Policy 4.1 shall be used when setting speed limits on roadways consistent Assembly Bill 43 (Friedman, 2021). In accordance with Policies 4.1, 4.2, and 4.3 and Assembly Bill 43, 20 or 25 mph shall be the prima facie speed limits for qualifying roadways and speed limits of 15 mph are appropriate in certain settings, such as on shared streets. Speed limits should align with both the movement function of a roadway (e.g., through movement of people and goods) and its place function (e.g., destinations where people gather, live, or engage in activity).
- Pedestrian rights of way shall be provided on both sides of all roadways and shall be a minimum of 8 to 12 feet wide, including a walking "through zone" free of obstructions (5 feet minimum; 7 feet preferred), and a furnishing and planting zone (3 feet minimum; 5 feet preferred) that includes street trees or other greenery, stormwater control measures, and furnishings such as benches, lighting, trash cans, utility boxes/cabinets, and bicycle parking (see **Figure 2** for examples of these zones and features). Use of bioswales shall be considered to address runoff locally. Sidewalks or walking areas may meander. Directional curb ramps should be implemented where possible. Curb radii shall be tightened to help slow traffic. Exceptions include industrial or alleyway contexts, where right-of-way or furnishing or

[20] For example, Caltrans' *Design Information Bulletin 94: Draft Complete Streets Contextual Design Guidance* ("DIB-94", April 2023) provides guidance and establishes standards for complete streets, which in some cases supersedes the standards in Caltrans' Highway Design Manual (HDM). The DIB-94 provides guidance and standards on the design of comfortable, convenient, and connected facilities that maximize the use of the existing right-of-way by prioritizing space-efficient forms of mobility and provides minimum expectations based on context.

[21] For example, FHWA's *Bikeway Selection Guide* provides input on appropriate types of bicycle facilities, which can be found here: https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf

[22] For example, NACTO's *Urban Street Design Guide* (accessible here: https://nacto.org/publication/urban-street-design-guide/) provides guidance on how to design lane widths and other roadway features for roadway safety.

planting zones may not be appropriate, shared streets, or existing local neighborhood streets that provide limited access (e.g., short cul-de-sacs). Wider sidewalks with "through zones" of 8 to 12 feet should be considered or in downtown or commercial areas or adjacent to schools, shopping centers, or community centers, which should include "through zones" of 8 to 12 feet per Caltrans' and NACTO guidelines. Wherever building frontages or other vertical elements (such as stairs, railings, or outdoor seating) exist directly adjacent to the sidewalk, two feet of clear space should be provided and not included in the "through zone" width described above. All intersections shall be designed with ADA access, safety, and comfort for people walking with crossings design in accordance with the future crosswalk standards identified in Policy 4.1.

- Bicycle facilities should be provided where indicated by the Active Transportation Plan and the designation of facility type should provide all ages and abilities amenities design per the FHWA Bikeway Selection Guide and NACTO Designing for All Ages & Abilities Guide. All intersections with designated bicycle facilities shall be designed for the safety and comfort for people bicycling consistent with the Active Transportation Plan. In some locations, bikeways may be recommended at sidewalk level as either Class I multi-use trails, where people walking and biking share the trail, or as Class IV protected bike lanes that provide separate spaces for people walking and biking. For Class I facilities, refer to Caltrans Highway Design Manual Chapter 1000, Topic 1003.1 for minimum and preferred widths. For Class IV facilities, refer to Caltrans Design Information Bulletin 89-01 for minimum and preferred widths.
- Transit facilities within roadways should be prioritized according to locally adopted transit plans and in accordance with Policy 3.5.
- Parking and curb policies will be consistent with the future Parking and Curb Management Plan identified in Policy 5.4.

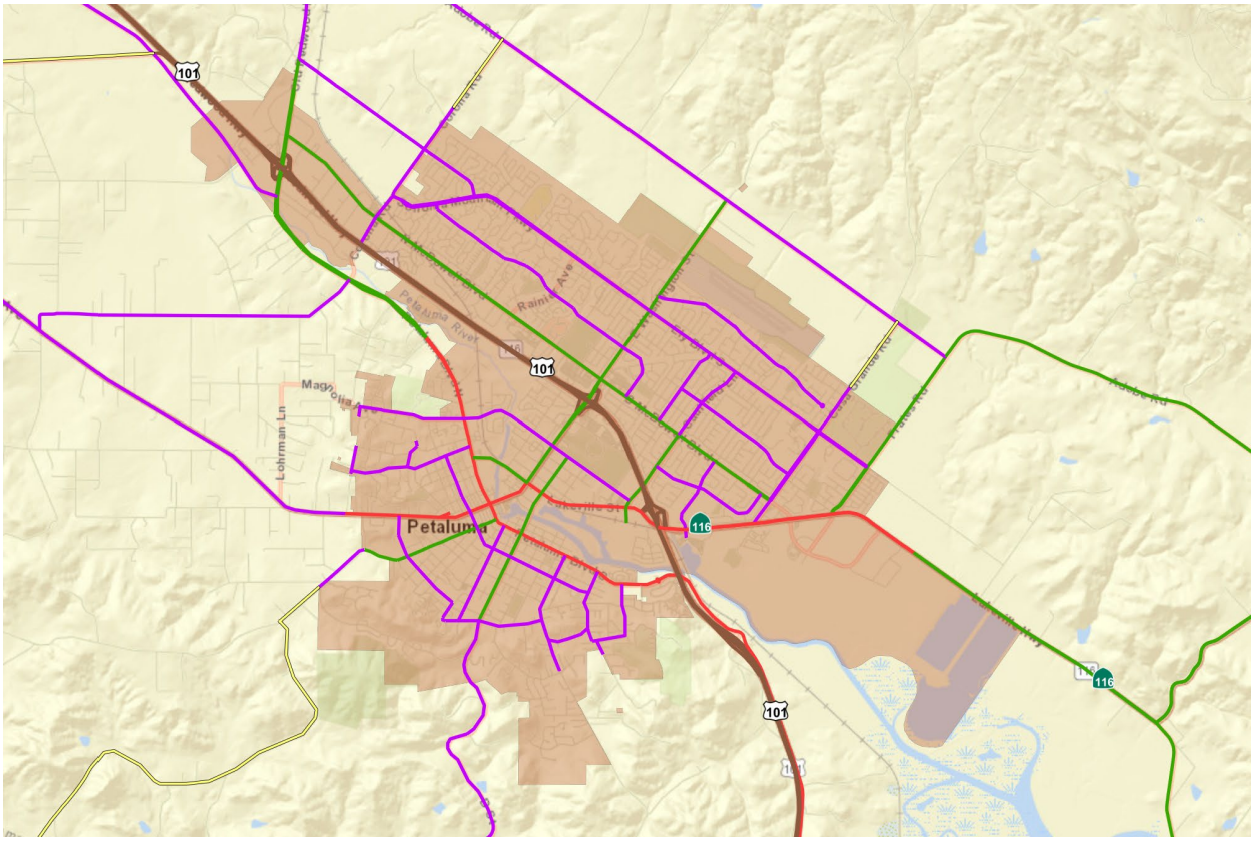
Petaluma identifies the functional classification of roadways consistent with FHWA and Caltrans guidance shown in **Figure A-1**, including arterials, collectors, and local roadways.[23,24] **Table A-1** presents the proposed changes to Caltrans' roadway classifications associated with the General Plan Update. In addition to these categories, Petaluma has identified a type of local roadway "Neighborhood Greenway" that prioritizes access for people walking and bicycling and may include shared streets features and thus should encourage low motor vehicle speeds and low motor vehicle volumes.[25] Traffic calming measures may be implemented on any Street Type based on its inclusion on the City of Petaluma High Injury Network and Local Road Safety Plan hot spot map or based on newly reported safety issues.

[23] Federal Highway Administration. "Highway Functional Classification Concepts, Criteria and Procedures, 2023 Edition." U.S. Department of Transportation: Federal Highway Administration. February 2023. https://www.fhwa.dot.gov/planning/processes/statewide/related/hwy-functional-classification-2023.pdf. Accessed 2025.

[24] California Department of Transportation. "Functional Classification (FC)." Caltrans. https://dot.ca.gov/programs/research-innovation-system-information/office-of-highway-system-information-performance/functional-classification. Accessed 2025.

[25] Federal Highway Administration. "Accessible Shared Streets." U.S. Department of Transportation: Federal Highway Administration. October 2017. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/accessible_shared_streets/. Accessed 2025.

Figure A-1. Caltrans Functional Classification System as of December 2025



FUNCTIONAL CLASSIFICATION SYSTEM

INTERSTATE	1
OTHER FWY OR EXPWY	2
OTHER PRINCIPAL ARTERIAL	3
MINOR ARTERIAL	4
MAJOR COLLECTOR	5
MINOR COLLECTOR	6
LOCAL	7

Source: Caltrans Functional Classification (FC)

Table A-1: Proposed Street Classification Changes from Caltrans

Street	Extents	Collector on Caltrans Map	Collector in General Plan Update?	Request Change from Caltrans	Reason for changing from Caltrans
Grant Avene	Between I Street and Mountain View Avenue	Yes	No	Remove	Narrow portion, no centerline, functions as a local street. Was a "connector" in current GP.
Sunnyslope Road (not Avenue)	Sunnyslope Ave to I Street	No	Yes	Add	Designed as a collector and was in current GP
Windsor Drive	D Street to Western Ave	No	Yes	Add	Designed as a collector and was in current GP
Howard Street	Bodega Ave to West St	No	Yes	Add	Designed as a collector today and was in current GP
Laurel Street	West St to Cherry St	Yes	No	Remove	Not designed like a collector. Was a "local" street in current GP.
West Street	Petaluma Blvd N to City Limits	Yes	No	Remove	Was a "connector" in current GP.
Madison St	Lakeville St to Burlington Dr	No	Yes	Add	In current GP
Payran St	Caulfield to Petaluma Blvd	Yes	No, an Arterial	Update	Designated as arterial in current GP
Rainier Ave	N McDowell Blvd to Tulare St	No	Yes (Arterial)	Add	Designated as an arterial in current GP and designed as a arterial
Professional Drive	N McDowell Blvd to Maria Dr	No	Yes	Add	Designed as a collector and was in current GP
East Madison Street	N McDowell Blvd to Sonoma Mountain Pkwy	No	Yes	Add	Designed more like a local street but was in current GP as collector and serves transit
Weaverly Dr	N McDowell Blvd to Ely Blvd South	Yes	No	Remove	Was a "connector" in current GP
Caulfield Lane	Ely Blvd South to Garfield Dr	No	Yes	Add	Designed as a collector today and was in current GP
Caulfield Lane Extension	Lakeville to Petaluma Blvd	No (new segment)	Yes (Arterial)	Add	Planned as arterial in current GP
Casa Grande	Southwest of Lakeville Street	No	Yes	Add	Designed as a collector and in current GP

Appendix B. SCTCA Travel Model Methodology

FEHR PEERS

Memorandum

Date: April 28, 2023 (Revised January 9, 2026)

To: City of Petaluma

From: Matt Goyne, Allison Quach, Emily Chen, and Kevin Zamzow-Pollock (Fehr & Peers)

Subject: Petaluma General Plan: Supplemental Transportation Information

SF21-1150

This memorandum is an interim deliverable that presents information that can be used to support the development of the Petaluma General Plan Update policies and alternatives. This includes information about the calibration of the latest Sonoma County Transportation and Climate Authorities (SCTCA)[1] travel demand model to 2019 conditions and the existing metrics that will be compared to the future year metrics with and without the General Plan preferred alternative to evaluate the ability of the General Plan preferred alternative to achieve the City's adopted policy goals. The data presented within this memorandum is from existing counts, the calibrated SCTCA Model, and an accessibility analysis prepared for the *Petaluma Crosstown Connector Assessment* (October 2022). Based on the model validation results presented below, the refined 2019 Model is suitable for use in the development of future year traffic volume and VMT forecasts for the General Plan Update EIR.

2026 Update: This memorandum was originally finalized on April 28, 2023 and shared with the City of Petaluma. While preparing the model reflecting the 2025 General Plan Update, Fehr & Peers identified several changes that would be required to the base year model. This included the addition of several network links that were not included in the SCTCA model as well as updates to speed limits and functional classifications. For more information on these model updates, see Appendix D: Petaluma General Plan Modeling Approach and Results.

Travel Model Validation and Calibration

Table 1 presents the average daily traffic volumes for Petaluma arterials and selected collectors from City counts collected in 2019, organized by roadways with the highest traffic volumes to

[1] In 2023, the model was managed by the Sonoma County Transportation Authority (SCTA), which has since become part of the Sonoma County Transportation and Climate Authorities (SCTCA). This memorandum refers to the SCTCA model, which is the same as the SCTA model referenced in the 2023 memorandum.

least. These traffic counts were collected as part of SCTCA and Fehr & Peers' *Sonoma Travel Behavior Study*[2] and by the City of Petaluma in 2019. These traffic volumes are a subset of the roadway volumes (arterial and collector roadways) that were used to determine if additional calibration or validation of the travel demand model was required for use in the Petaluma General Plan Update. Roadway segments with four lanes and less than 15,000 vehicles per day are highlighted as roadway segments that currently provide excess capacity and are candidates for road diets per the existing General Plan Policy 5-P-1. Additional information on General Plan Policies and guideance from the Federal Highway Adminstration (FHWA) related to the appropriate roadway sizing is presented in **Attachment A.**

Table 1. 2019 Average Daily Traffic Volumes

Roadway	Extents[1]	ADT	# Lanes[2 3]
Petaluma Blvd	Gossage Ave & Sycamore Ln/ Shasta Ave	27,240	4
	McDowell Blvd & Bailey Ave/City Limits	23,029	4
	Sycamore Ln/ Shasta Ave & Lakeville St	21,754	4
	Lakeville St & D St	13,373	2
	D St & I St	12,618	2
	McNear Cir & City Limits	11,348	**4**
McDowell Blvd	Lynch Creek Way & Washington St	25,564	4
	Old Redwood Hwy & Lynch Creek Way	20,118	4
	Washington St & Lakeville Hwy	9,278	**4**
Washington Street	McDowell Blvd & Lakeville St	24,049	4
	Lakeville St & Howard St	20,411	4
	Ely Blvd & McDowell Blvd	19,209	4
	Executive Dr & Ely Blvd	9,584	**4**
	Washington St Bet. City Limits & Executive Dr	8,900	2
Lakeville St / Highway	Wilson St & Caulfield Ln	19,809	4
	Petaluma Blvd & Wilson St	5,297	2
Sonoma Mountain Pkwy	Madison St & Washington St	19,052	4
	Sonoma Mountain Pkwy Bet. Corona Rd & Madison St	8,052	**4**
Old Redwood Hwy	McDowell Blvd & City Limits	18,022	4

[2] *Sonoma Travel Behavior Study*, Sonoma County Transportation Authority (February 7, 2020). https://scta.ca.gov/wp-content/uploads/2020/02/Sonoma_TBS_2-7-2020_web.pdf

Corona Rd	Industrial Ave & McDowell Blvd	14,253	2
Frates Rd	Ely Blvd & Lakeville Hwy	12,604	2
	Clubhouse Dr/City Limits & Ely Blvd	9,607	2
Caulfield Ln	McDowell Blvd & Lakeville St	11,381	**4**
	Ely Blvd & McDowell Blvd	8,090	**4**
	Crinella Dr & S McDowell Blvd	7,871	**4**
Bodega Ave	Bodega Ave Bet. Howard St & Holly Heights/City Limits	10,452	2
Stony Point Rd	Petaluma Blvd & Rainsville Rd/City Limits	10,384	2
	Rainsville Rd/City Limits & Orchard Ln/City Limit	7,878	2
D St	6th St & Sunnyslope Ave/El Rose Dr	9,450	2
	Sunnyslope Ave/El Rose Dr & Pinnacle Dr	6,078	2
	Payran St & 6th St[4]	4,006	2
Casa Grande Rd	Ely Blvd & Lakeville Hwy	8,693	**4**
	Casa Grande Rd Bet. Lakeville Hwy & Technology Ln	3,348	2
Ely Blvd	Washington St & Frates Rd	8,681	**4**
Magnolia Ave	Petaluma Blvd & Birch Dr	6,756	2
Payran St	Petaluma Blvd & Jefferson St	6,678	2
	Jefferson St & Caulfield Ln	6,140	**4**
Rainier Ave	Sonoma Mountain Pkwy & McDowell Blvd	5,473	**4**
I St	Petaluma Blvd & Sunnyslope Rd	4,647	2
Western Ave	Petaluma Blvd & Howard St	4,631	2

Notes:

1. Roadway segments are shown for all arterials, although some roadway segments where counts are available as they were nearly identical to adjacent roadway segments.
2. Roadway segments with four lanes and less than 15,000 vehicles per day are **bolded** as roadway segments that currently provide excess capacity and are candidates for road diets per General Plan Policy 5-P-1. *These roadway segments reflect road diet candidates as of 2023. For a complete list of road diets incorporated into the final analysis, see Appendix D, Table 1 and Figure 3.*
3. *The original table from the 2023 memorandum included four roadways where the number of lanes in the SCTCA model were incorrect. In 2019, the base year of the SCTCA model, Petaluma Boulevard between McNear Circle and the Petaluma city limits and Rainier Avenue between Sonoma Mountain Parkway and McDowell Boulevard were 4 lanes. While these road diets were completed between 2019 and 2025, they are included because they represent a change from the 2019 base year model. Casa Grande Road between Lakeville Highway and Technology Lane was updated to 2 lanes from 4 lanes in the 2019 SCTCA model. Ely Boulevard between Washington Street and Frates Road was updated to 4 lanes from 2 lanes in the 2019 SCTCA model. These roadways qualify as candidates for road diets.*

Source: City of Petaluma, Fehr & Peers, 2022

Fehr & Peers completed a subarea calibration and validation of the Sonoma County Travel Model (the Model), with a focus on enhancing the Base Year (2019) model's performance in replicating the traffic counts presented in **Table 1** and capturing observed local and regional travel patterns. The performance of the model was compared against validation targets in the *2017 California Regional Transportation Plan Guidelines*. The calibration process considered model land use information, roadway network connectivity, roadway capacities and speeds, travel time friction factors, turn movement penalties, and mode choice components. Having a locally valid model is an important step to ensuring a high level of confidence in the resulting forecasts.

Fehr & Peers reviewed the Petaluma area in the latest version of the Model to determine its current level of validity for the purpose of developing traffic volume and VMT forecasts for the City's General Plan Update EIR. The model land use data was compared against City parcel data and the model land use information was refined to match the existing land uses. One transportation network update included reducing three lanes to two lanes in each direction on the Old Redwood Highway segment between the US 101 Ramps.

As shown in **Table 2**, the Petaluma subarea model validation initial results show that the model does not meet all performance targets in the AM and PM peak hours. Therefore, refinements were made to calibrate and validate the subarea model.

Table 2. Initial Validation Results

Validation Measure	AM Peak Hour	PM Peak Hour	Daily	Threshold
Volume-to-Count Ratios (Sum of all Locations)[1]	1.07	1.12*	1.01	None Specified[2]
Percent of Links Within Caltrans Deviation Allowance[1]	67.6%*	68.3%*	78.2%	At Least 75%
Percent Root Mean Square Error (RMSE)[1]	37.6%	36.4%	29.0%	Below 40%
Correlation Coefficient[1]	0.91	0.92	0.97	At Least 0.88
Number of Links/Validation Locations	259	259	101	

Notes:
A value marked with * indicates performance standard not met.
[1]Static Validation Criteria and Thresholds, *2017 California Regional Transportation Plan Guidelines,* California Transportation Commission
[2]Although there is no threshold specified, Fehr & Peers uses a threshold of "within 10%" of the sum of all locations.

Due to the aggregate nature of travel demand models, validation locations with traffic counts under 100 vehicles per hour (typical of a local residential roadway) were removed after the initial validation effort. Model land use and highway network inputs were then refined to calibrate the subarea model. Highway network attribute data including roadway classification and travel speed were further modified and the model was re-run in an iterative process until the model met all of the model validation performance targets. Modifications such as these are necessary for the

model to accurately assign traffic to the roadway network as they represent a proxy for accounting for variables that are not included in the Model such as travel lane width, intersection and driveway spacing, signal timings, pavement quality, and other variables that affect route choice. The final validation results are shown in **Table 3** and indicate the subarea model met all performance targets except one in the AM Peak Hour.[3] Since no analysis relies exclusively on the AM Peak Hour and the PM Peak Hour and Daily periods meet all targets, the refined 2019 Model is considered suitable for use in the development of future year traffic volume and VMT forecasts for the General Plan Update EIR.

Table 3. Final Validation Results

Validation Measure	AM Peak Hour	PM Peak Hour	Daily	Threshold
Volume-to-Count Ratios (Sum of all Locations)[1]	1.05	1.09	1.00	None Specified[2]
Percent of Links Within Caltrans Deviation Allowance[1]	72.0%*	75.3%	84.8%	At Least 75%
Percent Root Mean Square Error (RMSE)[1]	33.8%	29.6%	24.4%	Below 40%
Correlation Coefficient[1]	0.91	0.94	0.98	At Least 0.88
Number of Links/Validation Locations	243	243	99	

Notes:
A value marked with * indicates performance standard not met.
[1]Static Validation Criteria and Thresholds, *2017 California Regional Transportation Plan Guidelines,* California Transportation Commission
[2]Although there is no threshold specified, Fehr & Peers uses a threshold of "within 10%" of the sum of all locations.

Existing Citywide Transportation Metrics

Citywide transportation metrics that will be used to evaluate the General Plan preferred alternative include vehicle miles traveled (VMT), roadway volume to capacity ratios, citywide miles of automobile lanes, bicycle facilities, and sidewalks, and metrics of accessibility such as travel sheds across key barriers for people walking and bicycling.[4] Automobile metrics such as VMT and roadway volume to capacity ratios will be based on the calibrated SCTCA model, while the other metrics are based on GIS based analyses of the land use map and transportation network. A

[3] *The original 2023 memorandum reported that all performance targets were met. However, subsequent model updates, as documented in Appendix D, resulted in the "Percent of Links Within Caltrans Deviation Allowance" in the AM Peak Hour failing to meet the threshold of at least 75%. This target was just barely met in the previous version of the model and the model still meets all other performance targets in the AM Peak Hour. The General Plan analysis focuses on daily metrics and citywide findings and does not use the AM peak hour information for conclusions.*

[4] *This initial approach was not used as the final General Plan accessibility analysis. See note in the Accessibility section for more details.*

comparison of these metrics between scenarios will allow the City to evaluate whether the preferred alternative supports progress towards the City's goals.

VMT Results

Table 4 presents the existing VMT results from the calibrated travel model. These metrics represent pre-pandemic travel conditions, which may have changed due to changes to migration and telecommuting patterns. This metric will allow the City to track progress on the City's climate goals per the City of Petaluma's adopted *Climate Emergency Framework* and *SB 743 Vehicle Miles Traveled Implementation Guidelines*.

Table 4. VMT Results[5]

	Service Population[1]	Total VMT[2]	VMT per capita
Total VMT	106,126	3,797,183	35.8

Notes:
1. The service population includes the total number of residents and employees within Petaluma model zones (TAZs).
2. These VMT estimates include all VMT generated by people starting or ending their trip in Petaluma model zones (TAZs), including residents, employees, and visitors. This accounts for the full length of their trip throughout the region.

Source: SCTCA Travel Model, Fehr & Peers, 2022

All travel models have limitations, including the SCTCA Model. Therefore, in combination with the SCTCA Model, Fehr & Peers will incorporate the latest guideance provided by the California Air Pollution Control Officers (CAPCOA) through the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (CAPCOA 2021)[6] about the effect of different measures that the City could take as a part of the General Plan preferred alternative to change travel behaviors and reduce VMT.

Roadway Volume to Capacity Ratios

Citywide roadway volume to capacity ratios from the SCTCA model are presented in **Attachment B**. As shown in these model plots, most roadways in Petaluma currently operate at less than 60

[5] *These VMT results differ from those originally presented in the 2023 memorandum. That memorandum reported a service population of 119,605, total VMT of 4,389,978, and a total VMT per capita of 36.7. The new numbers are largely the result of the aforementioned model updates and a slightly different definition of the extent of Petaluma designed to align with other General Plan analyses. This new definition includes all model zones (TAZs) identified as being part of Petaluma in the SCTCA mode. These TAZs are at least partly within the city limits of Petaluma (but may include some unincorporated land outside the city limits). The one exception to this is TAZ 239, which is not considered a Petaluma zone but includes a portion of undeveloped wetland and a water treatment facility that are within the Petaluma city limits.*

[6] California Air Pollution Control Officers Association, *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, December 2021. https://www.caleemod.com/handbook/index.html

percent of the roadway capacity, which is representative of level of service (LOS) A conditions.[7] Several roadway segments of Lakeville Highway, Petaluma Boulevard, Washington Street, McDowell Boulevard, and D Street operate at greater than 60 percent of the roadway's capacity. While LOS A conditions represent a general free flow of traffic, roadways with excess capacity can lead to excessive vehicle travel speeds that can create roadway safety issues for other roadway users as noted in General Plan Policy 5-P-1. **Attachment A** presents more information about roadway capacity guidance in the City's existing General Plan and the City's high-injury network.

A citywide assessment of roadway volume to capacity ratios will be used to identify roadways space that could be reallocated to other uses and inform decision makers about the effect of different General Plan policies on automobile travel.

Transportation Facilities

Table 5 presents the existing lane miles by category of transportation facility type. This metric will allow the City to track progress on completion of the desired citywide transportation metric.

Table 5. Existing Miles of Transportation Facilities

Facility Type		Existing Miles
Automobile Lanes[1]	Local	322
	Collector	47
	Arterial	97
	Total	466
Bicycle Facilities[2]	Class 1 / Recreational[3]	32
	Class II	27
	Class III	13
	Class IV	1
Pedestrian Facilities	Sidewalks	354[4]

Notes: All

1. Includes Lakeville Highway but does not include U.S. 101. *Mileage has been updated to align with the final General Plan document.*
2. *Bicycle facility mileage has been updated to align with the final General Plan document.*
3. Includes a mix of paved and unpaved pathways that are accessible by people walking and bicycling.
4. A sidewalk gap analysis conducted in 2022 indicates that 164 miles of streets have sidewalks on both sides of the street, 26 miles of roadways have sidewalks on one side of the street, and 34 miles of streets have no sidewalks on the street. The value presented includes one mile of sidewalk on one side of the street.

Source: City of Petaluma, Fehr & Peers, 2023

[7] Arterial volume to capacity based on the Highway Capacity Manuel.

Accessibility

2026 Update: This initial approach deviates from the final General Plan accessibility analysis which used a combination of proximity to key destinations and level of traffic stress (LTS) for active transportation modes to evaluate citywide multimodal accessibility, rather than connectivity across key barriers used for this preliminary evaluation for the Crosstown Connectors project. The final General Plan analysis captures the citywide accessibility changes due to transportation improvements and land use changes.

An evaluation of connectivity across key barriers was prepared for the *Petaluma Crosstown Connector Assessment* (October 2022). This evaluation focused on people who live or work near crosstown connectors (defined in this study as transportation connections across U.S. 101, the Petaluma River, and SMART) to illustrate the potential demand for walking and bicycling at each crosstown connector. **Attachment C** presents the 10 minute (½ mile) and 20 minute (1 mile) walksheds around each crosstown connector, and **Table 5** below summarizes the households and jobs within those travel sheds. Connectors located in the more central areas of Petaluma, such as East Washington Street, the McKenzie Avenue overcrossing, and Caulfield Lane, serve a greater number of residents and employees in Petaluma. Crosstown connectors located to the north – such as Old Redwood Highway and Corona Road – would serve a relatively high number of employees due to a concentration of job density in that area of Petaluma, but would serve relatively fewer residents.

The accessibility metrics will allow the City to evaluate progress on improving crosstown connectivity for people walking and bicycling.

Table 6. Households and Jobs

Connector	10-Minute Walk (½ Mile Radius)		20-Minute Walk (1 Mile Radius)	
	Households	Jobs	Households	Jobs
Old Redwood Hwy	100	2,680	240	5,480
Corona Road	70	1,230	1,070	4,370
SMART Trail	120	700	1,820	2,610
Rainier Ave Extension	290	990	2,520	3,350
Lynch Creek Trail	410	820	3,020	3,990
East Washington Street	650	840	4,170	4,630
McKenzie Ave Crossing	780	700	3,970	3,510
Caulfield Lane	720	1,350	4,130	4,140
Lakeville Highway	280	910	3,010	3,620
Caulfield Bridge / Southern Crossing	1,220	810	3,030	2,880

Notes: Households and jobs served within one mile of Caulfield Lane, Lakeville Highway, and Caulfield Bridge and within 1/2 mile of the Caulfield Bridge include growth from the Riverfront (under construction) and 500 Hopper (pending) developments to support the near-term test that this evaluation was conducted for the *Petaluma Crosstown Connector Assessment* (October 2022).
Sources: Petaluma Parcel data, 2019 Longitudinal Employer-Household Dynamics (LEHD), Fehr & Peers, 2022.

Attachment A: Roadway Capacity and Sizing Guidance

Below are excerpts related to the current Petaluma General Plan on roadway capacity and use of roadways space to serve vehicle movement and space for people traveling by other modes.

General Plan Policy 5-P-1:

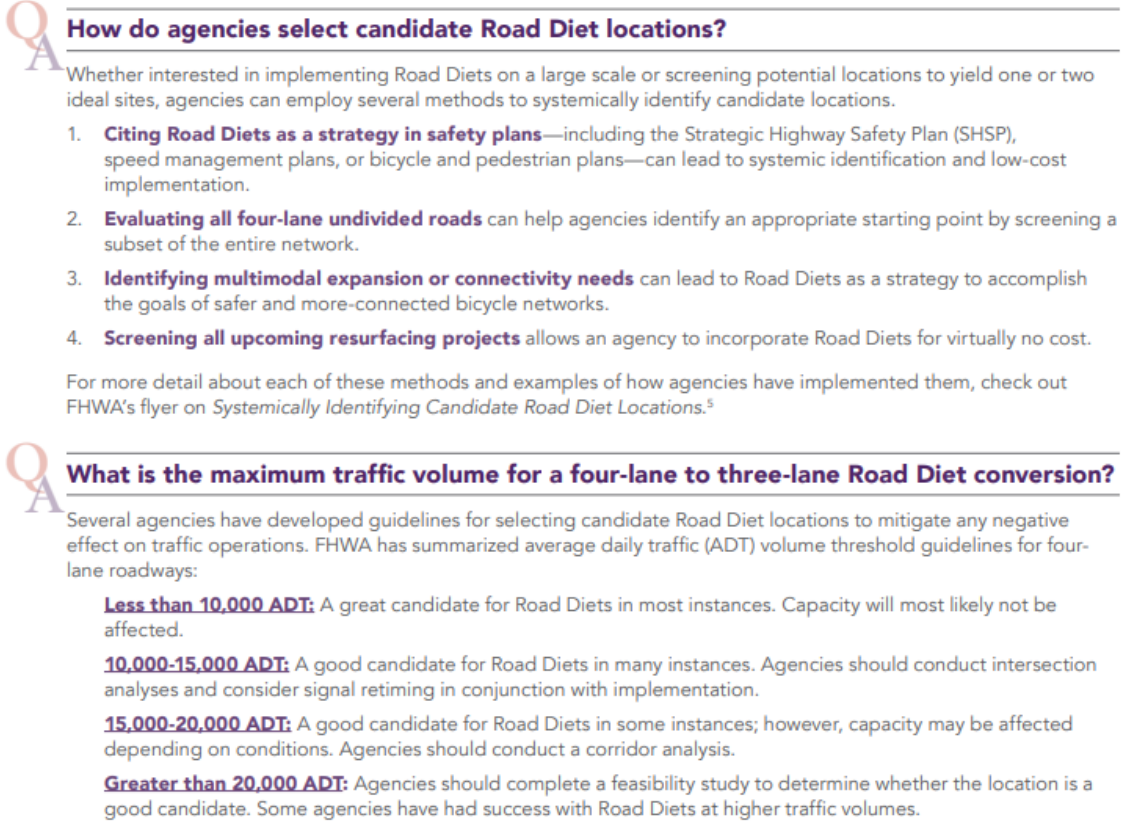
> Develop an interconnected mobility system that allows travel on multiple routes by multiple modes. Develop a network that categorizes streets according to function and type, considering the surrounding land use context. Develop a network for off-street paths and routes according to function and type, considering the intensity of use and purpose. Review and update the City's Street Design Standards to be consistent with street function and typology. Explore the redesign of existing streets to potentially reduce the width and/or number of travel lanes, improve the multimodal function of intersections and street segments, and introduce amenities such as wider sidewalks, special paving treatments, bus priority treatments, landscaped medians, and street trees within parking lanes. Evaluate the feasibility of road diets on streets with projected excess capacity at buildout (see Section 5.3).

Section 5.3 of the Mobility Element:

> While some of Petaluma's streets will substantially benefit from roadway improvements and increased capacity, many streets have excess capacity and can benefit from road "diets" or treatments to reduce speeds and make streets more livable. A "road diet" is typically the conversion of a four-lane undivided road into three lanes (one in each direction with a center turn lane) to become leaner, safer, and more efficient. A road diet can also modify driving behavior by reducing lane width, providing bulb-outs, medians and/or surface material changes which in turn reduce traffic speeds. At the same time these modifications also allow the provision of enhanced and safer facilities for pedestrians, bicyclists and transit users. Generally, streets carrying less than 15,000 vehicles per day need two lanes (one in each direction). In some cases streets with as much as 20,000 vehicles per day function well with only two lanes (one in each direction) if a median or center turn lane is provided. Several Petaluma streets with four lanes (two in each direction) are expected to continue to have excess capacity in the future. Road diets may also be applicable where policy-makers determine that there are social, aesthetic, multi-modal and/or safety benefits.
>
> Examples of streets with road diet potential include, but are not limited to the following:

- Casa Grande Road
- Ely Boulevard
- Caulfield Lane
- McDowell Boulevard
- Baywood Drive
- Petaluma Boulevard (North and South)

Roadway segments with four lanes and less than 15,000 vehicles per day are highlighted in **Table 1** as roadway segments that currently provide excess capacity and are candidates for road diets per General Plan Policy 5-P-1. Per FHWA guideance shown in **Inset 1**, roadways with between 15,000 and 20,000 vehicles per day can be considered good candidate under some circumstances while roadways over 20,000 vehicles per day may be considered with a feasibility study as some agencies have had success with road diets on roadways with these traffic volumes. Inset 2 presents the City's high-injury network, which frequently overlaps with four-lane roadways that are good candidates for road diets or other safety enhancements.



How do agencies select candidate Road Diet locations?

Whether interested in implementing Road Diets on a large scale or screening potential locations to yield one or two ideal sites, agencies can employ several methods to systemically identify candidate locations.

1. **Citing Road Diets as a strategy in safety plans**—including the Strategic Highway Safety Plan (SHSP), speed management plans, or bicycle and pedestrian plans—can lead to systemic identification and low-cost implementation.
2. **Evaluating all four-lane undivided roads** can help agencies identify an appropriate starting point by screening a subset of the entire network.
3. **Identifying multimodal expansion or connectivity needs** can lead to Road Diets as a strategy to accomplish the goals of safer and more-connected bicycle networks.
4. **Screening all upcoming resurfacing projects** allows an agency to incorporate Road Diets for virtually no cost.

For more detail about each of these methods and examples of how agencies have implemented them, check out FHWA's flyer on *Systemically Identifying Candidate Road Diet Locations*.[5]

What is the maximum traffic volume for a four-lane to three-lane Road Diet conversion?

Several agencies have developed guidelines for selecting candidate Road Diet locations to mitigate any negative effect on traffic operations. FHWA has summarized average daily traffic (ADT) volume threshold guidelines for four-lane roadways:

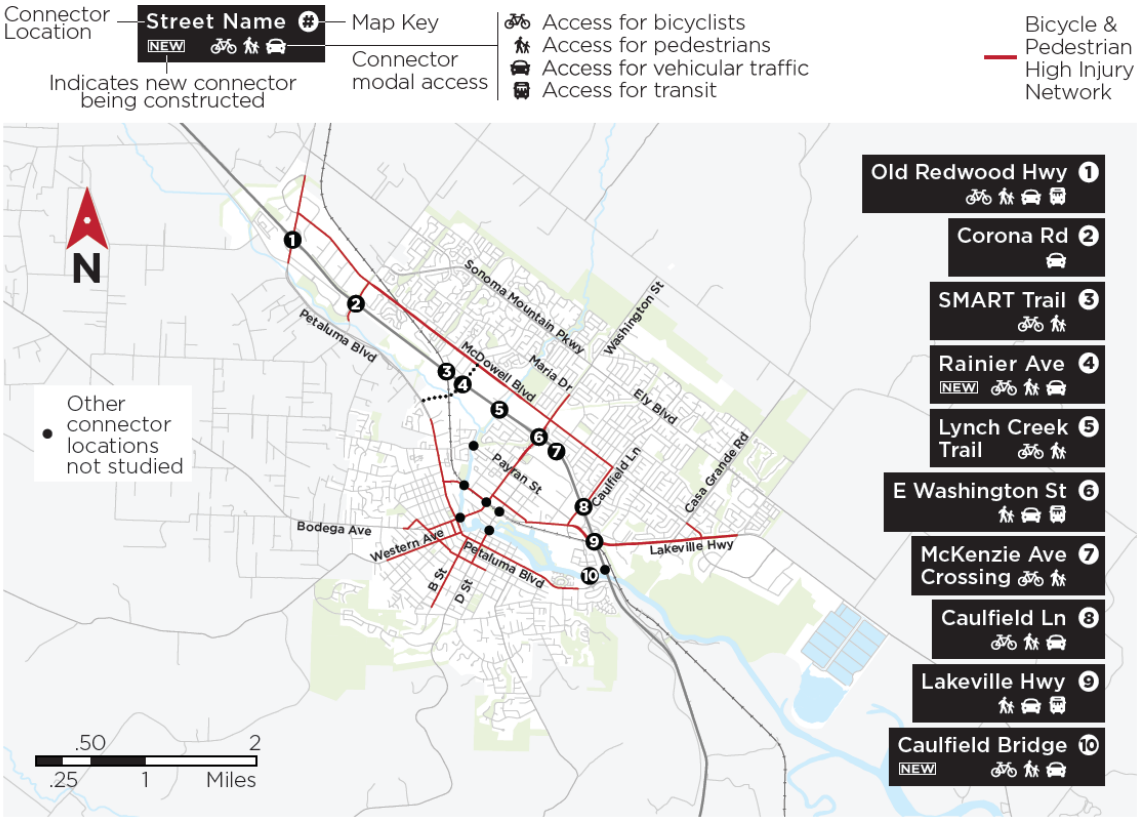
Less than 10,000 ADT: A great candidate for Road Diets in most instances. Capacity will most likely not be affected.

10,000-15,000 ADT: A good candidate for Road Diets in many instances. Agencies should conduct intersection analyses and consider signal retiming in conjunction with implementation.

15,000-20,000 ADT: A good candidate for Road Diets in some instances; however, capacity may be affected depending on conditions. Agencies should conduct a corridor analysis.

Greater than 20,000 ADT: Agencies should complete a feasibility study to determine whether the location is a good candidate. Some agencies have had success with Road Diets at higher traffic volumes.

Inset 7. Graphic is from Federal Highway Adminstration Road Diet FAQ, found here: https://safety.fhwa.dot.gov/road_diets/resources/pdf/fhwasa17021.pdf ; accessed by Fehr & Peers on October 4, 2022.



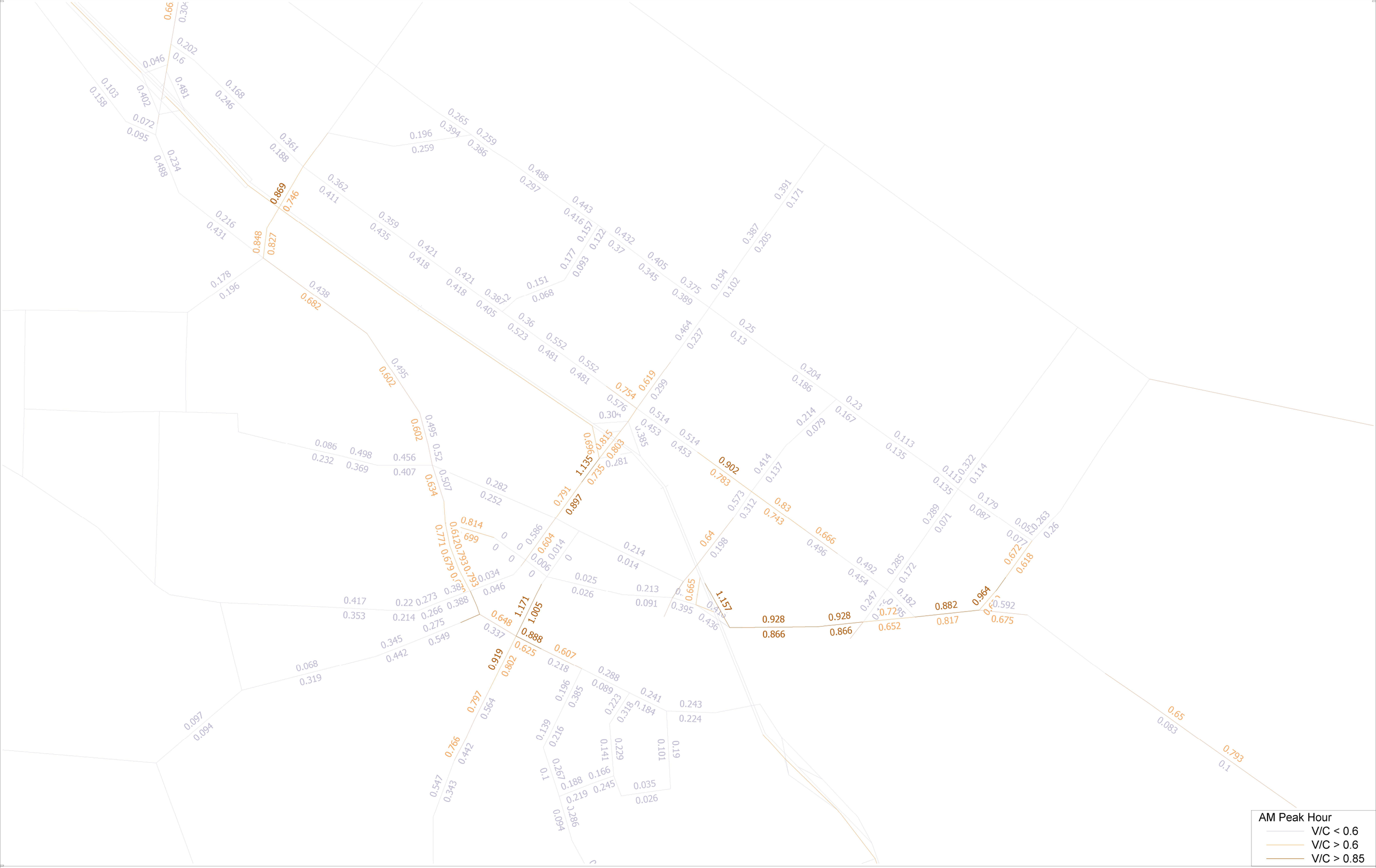
Inset 2. High injury network from *Crosstown Connector Assessment* (Fehr & Peers, October 2022)

Attachment B: SCTCA Model Plots

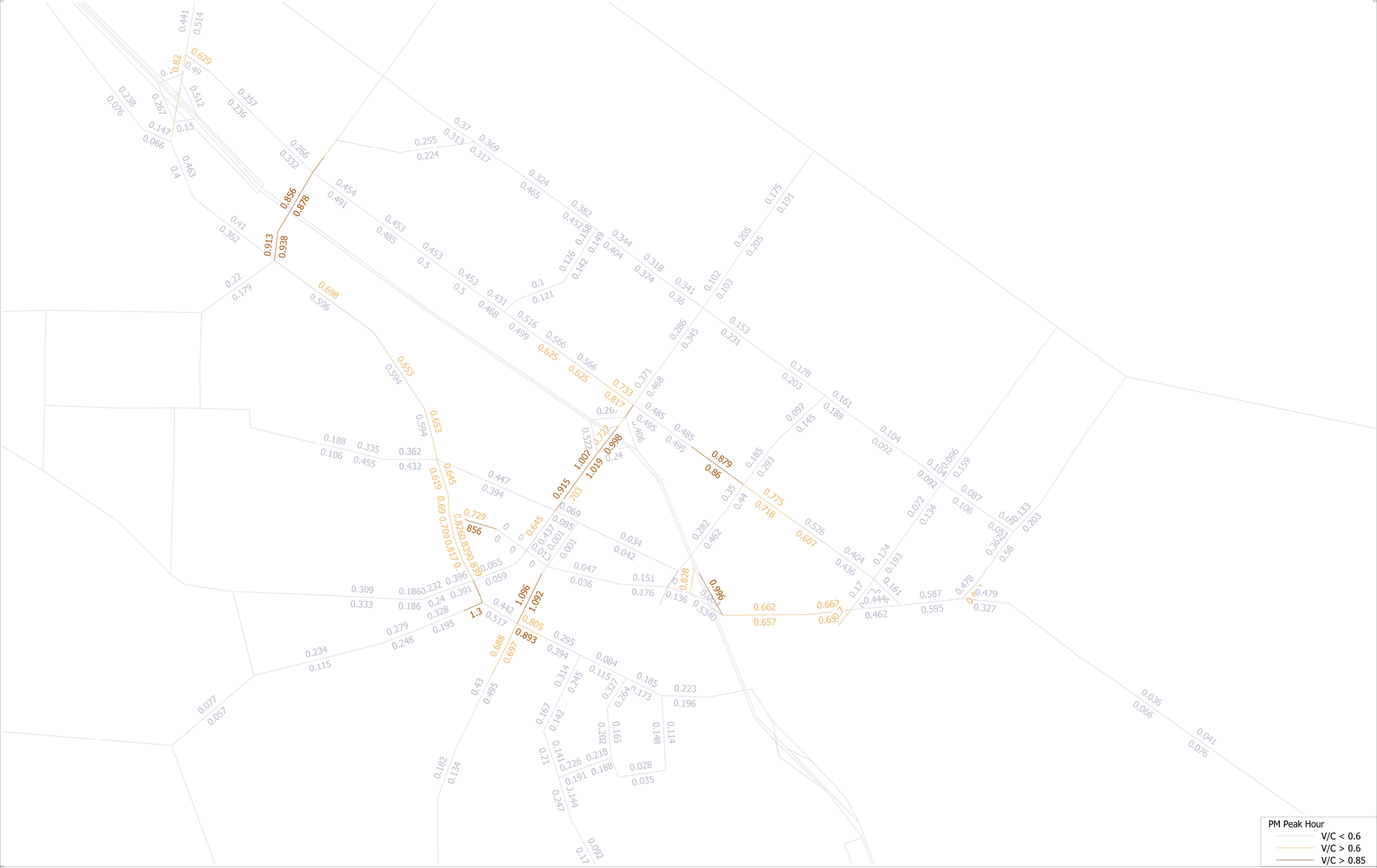
2026 Update: Model plots have been updated to reflect the updated travel demand model.



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(Licensed to Fehr Peers)



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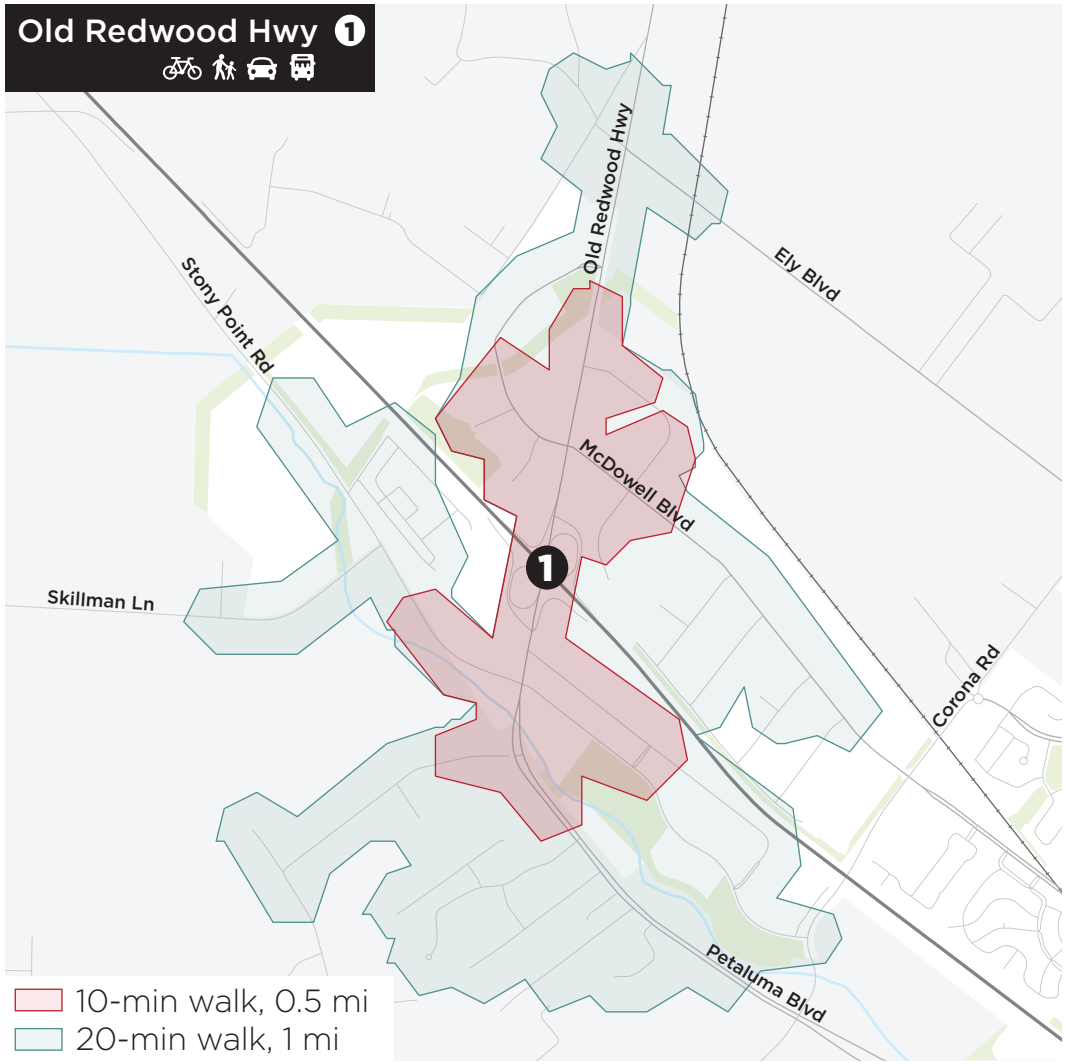


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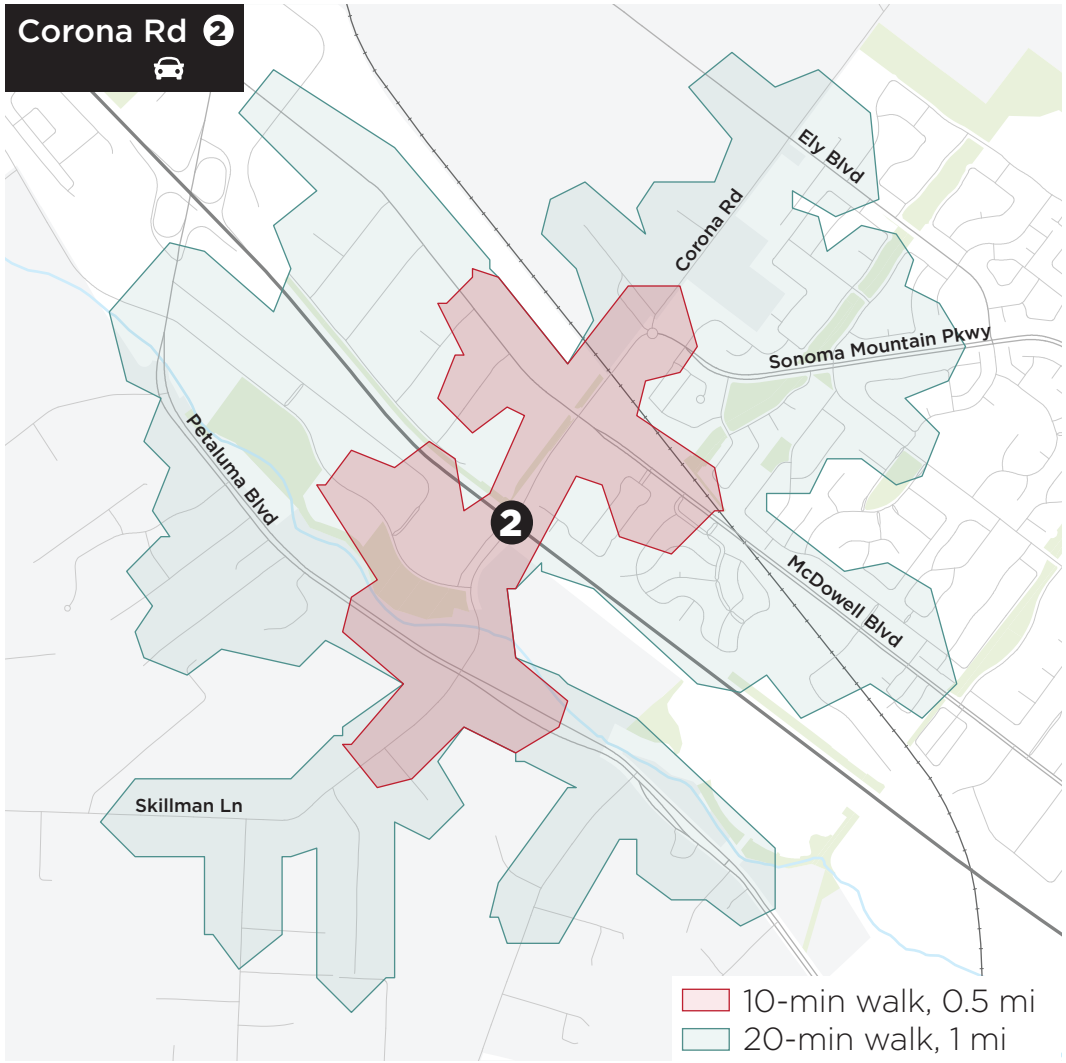
Attachment C: Accessibility Sheds

2026 Update: This initial approach deviates from the final General Plan accessibility analysis. Refer to note in the Accessibility section for more details.

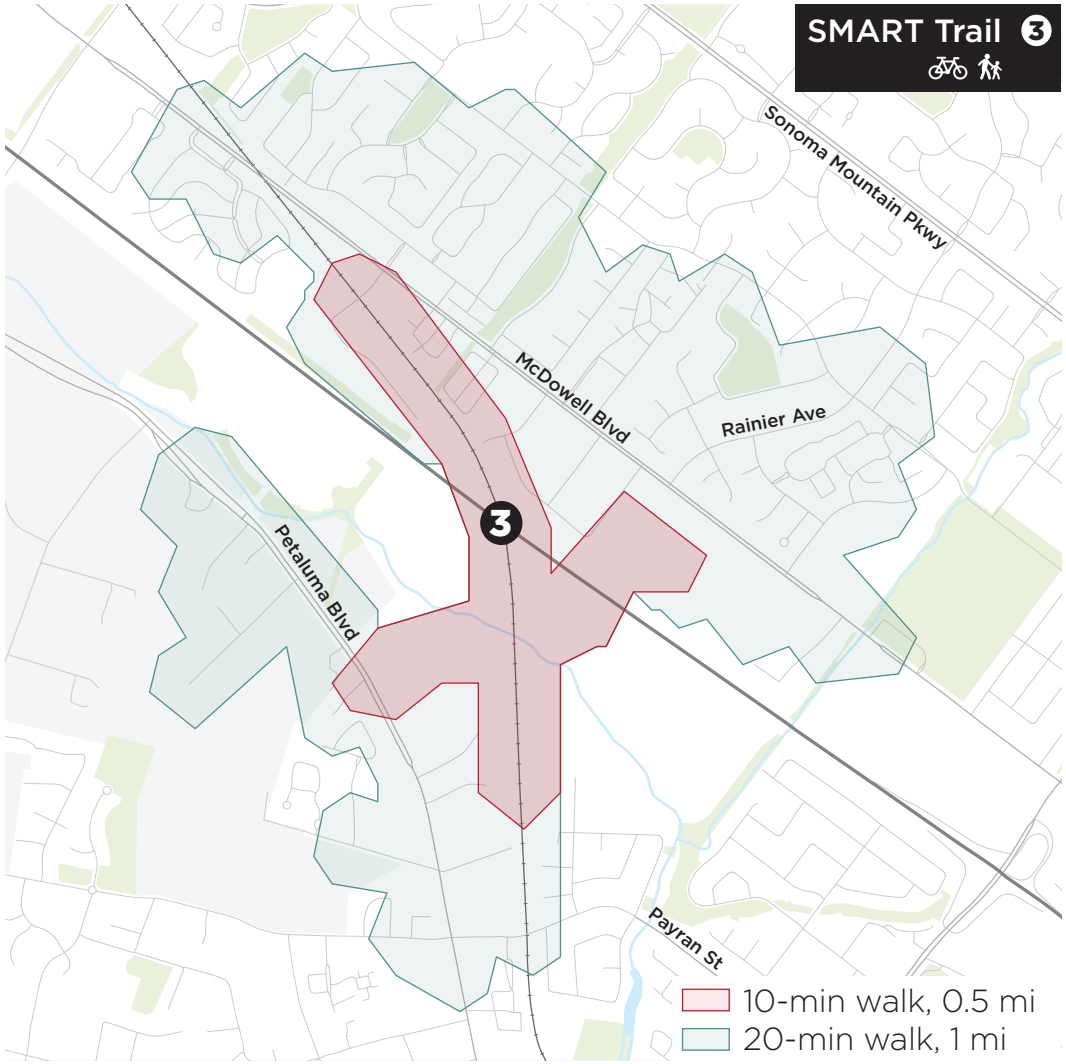
APPENDIX C: ACCESSIBILITY SHEDS



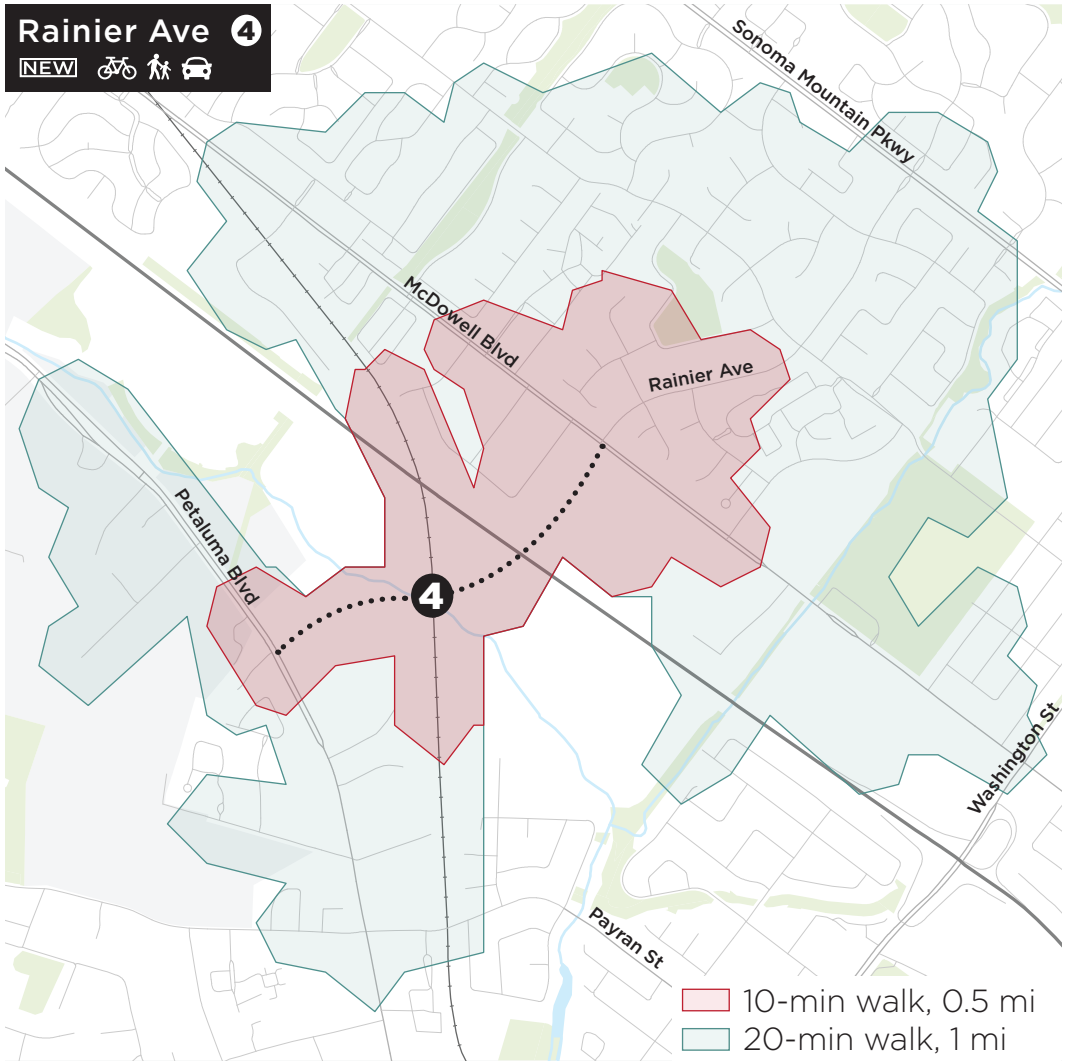
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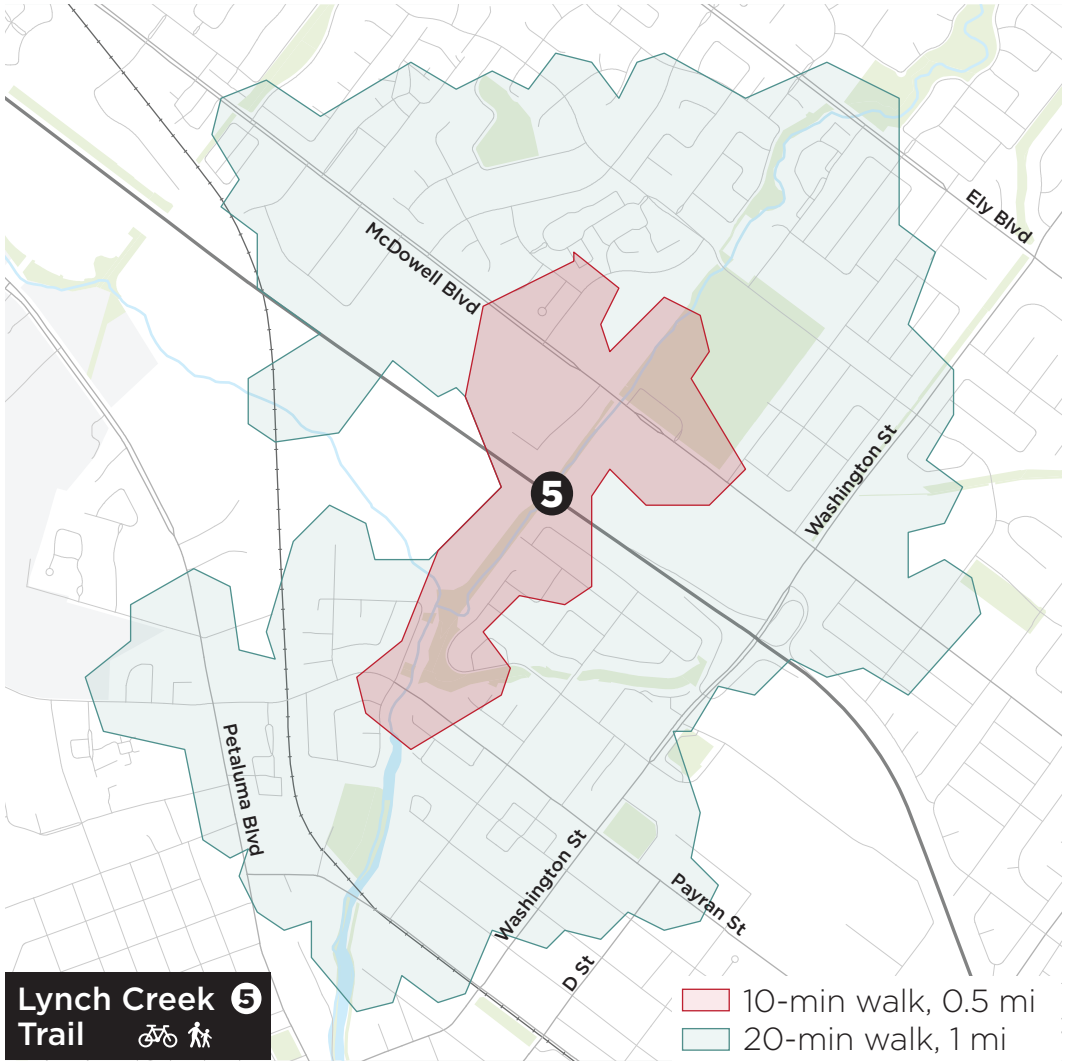
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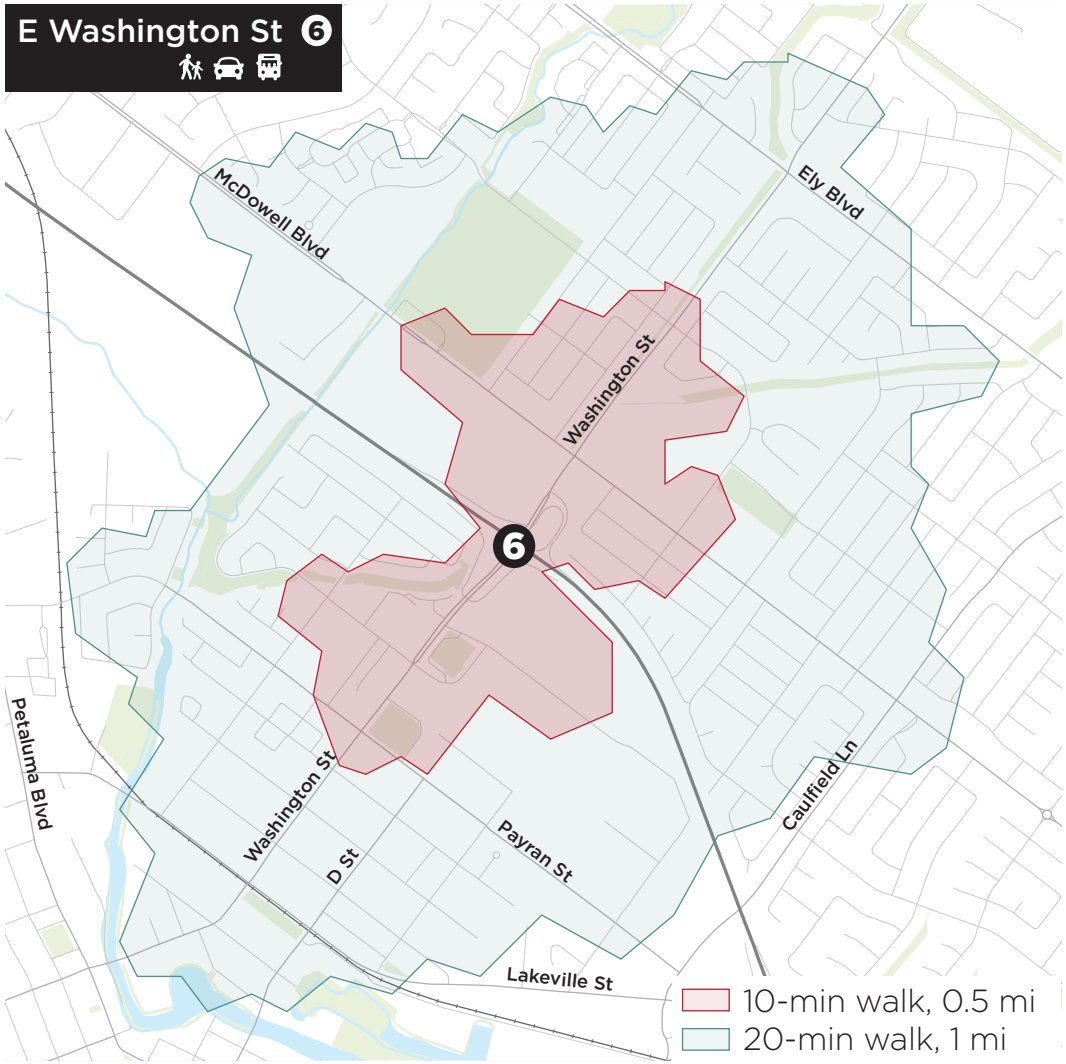
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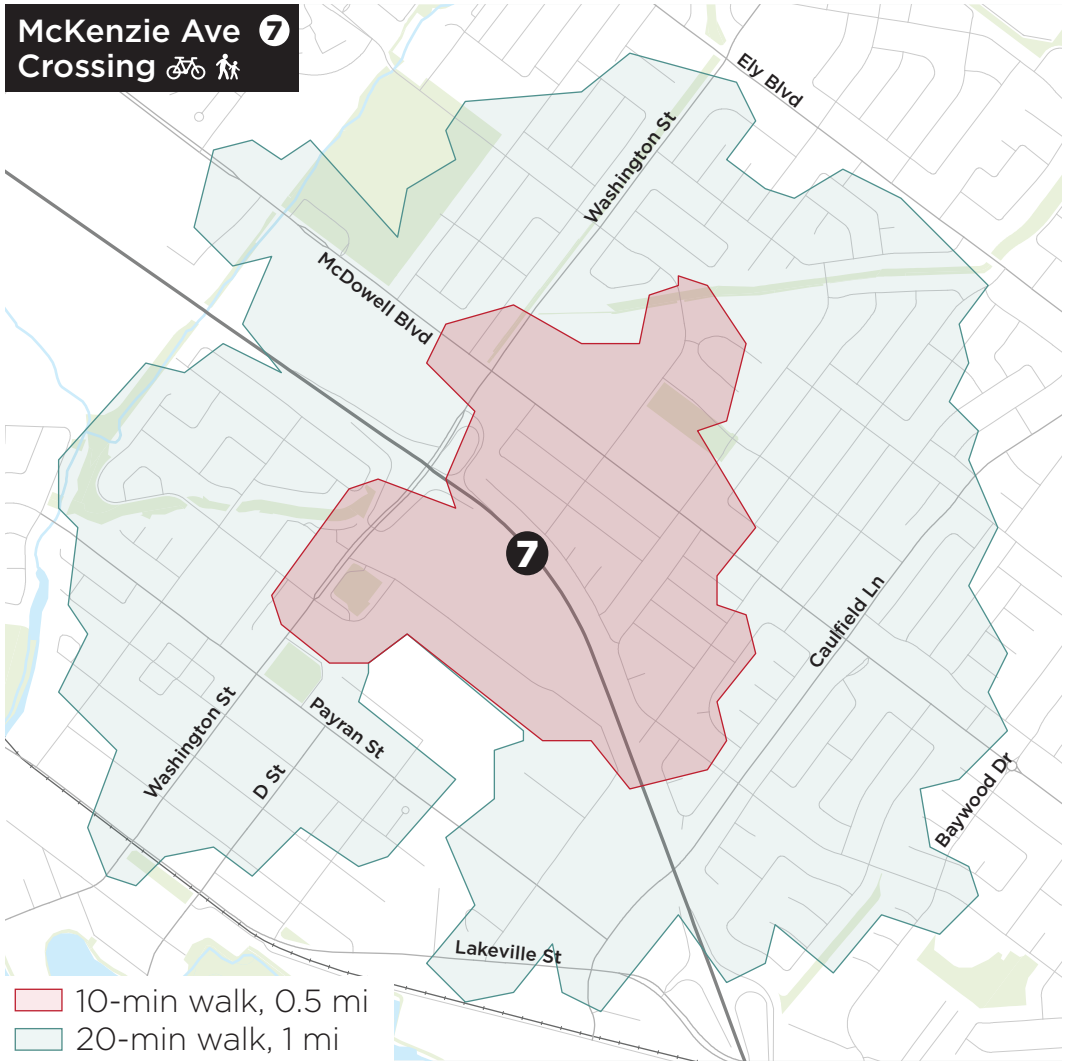
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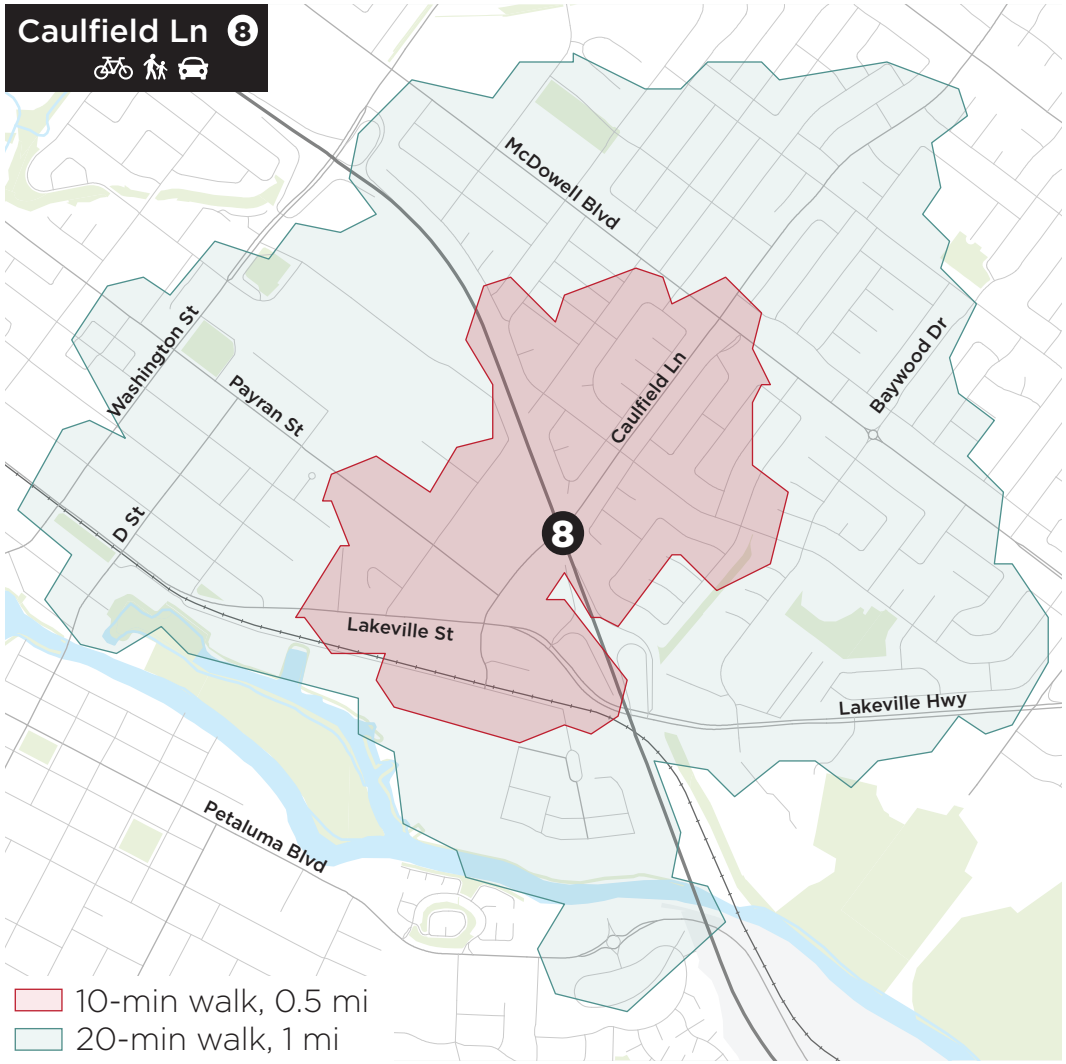
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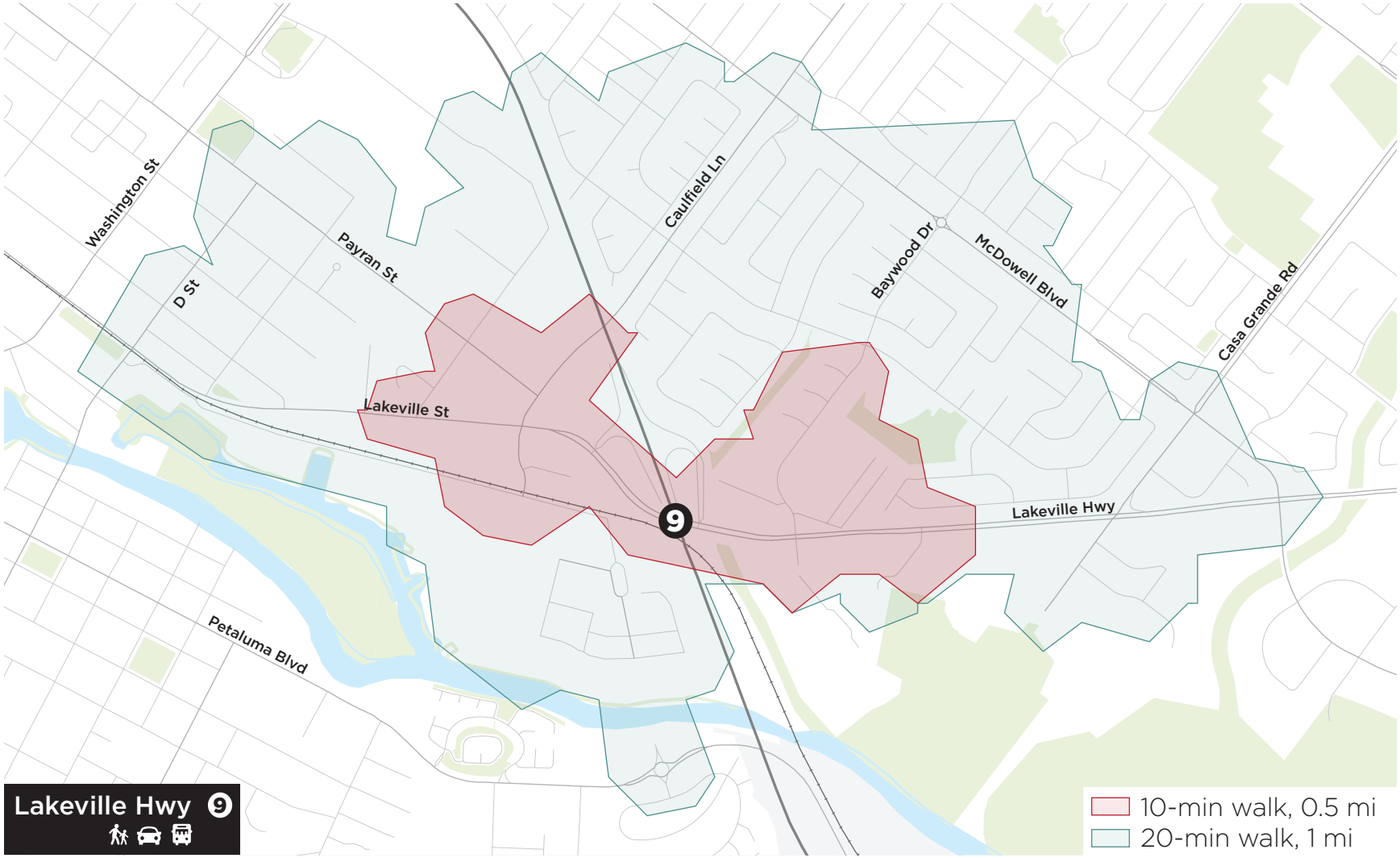
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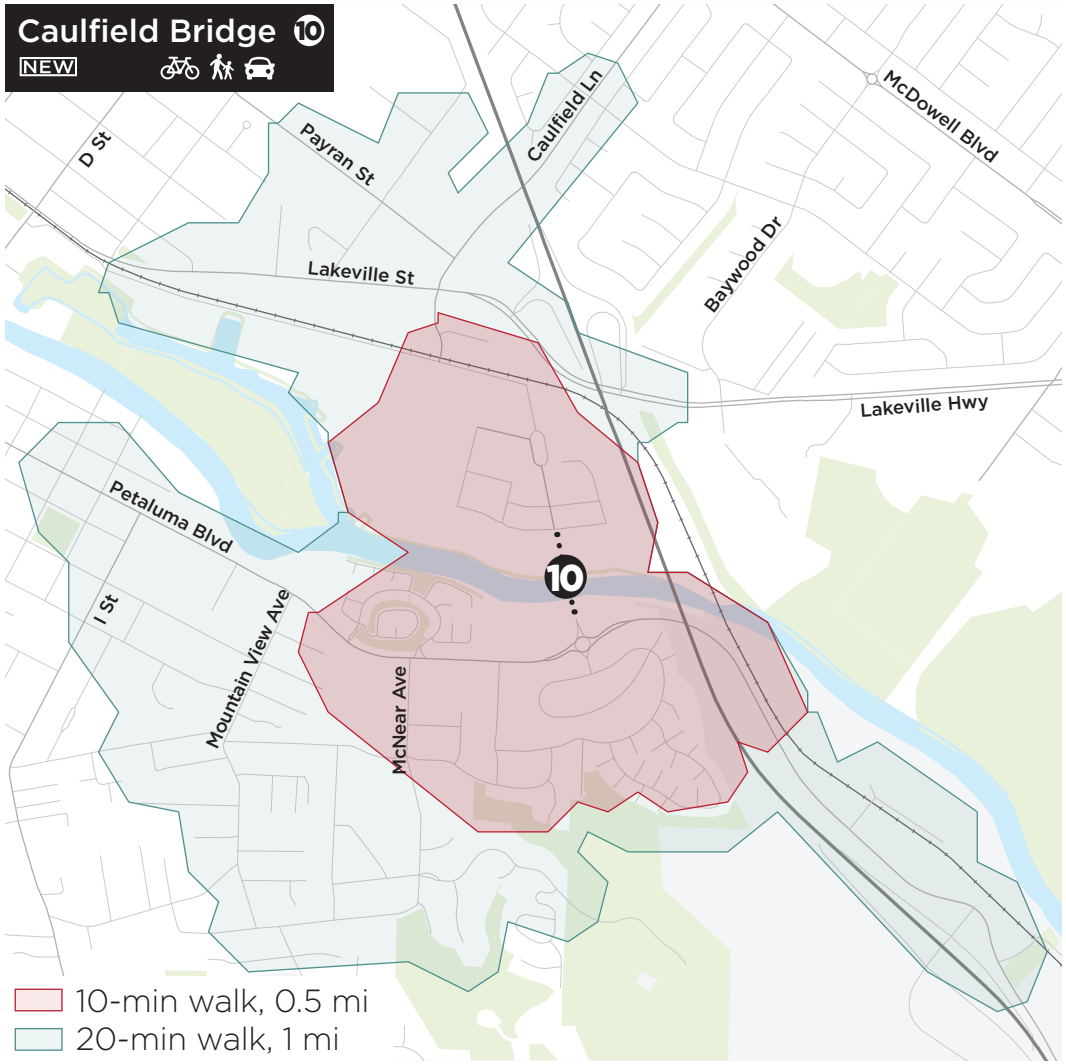
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Appendix C. VMT and Traffic Reduction Measures Quantification

Fehr & Peers

Appendix C

Date:	March 9, 2026
To:	City of Petaluma
From:	Fehr & Peers
Subject:	**Petaluma General Plan: VMT and Traffic Reduction Measures Quantification**

Introduction

This memo documents the VMT-reducing actions included within the Petaluma General Plan, the methods used to quantify their expected VMT reductions, and the data sources that inform these calculations. These VMT-reducing actions represent policies and programs that the City is formally adopting as part of the General Plan and therefore reflect changes to land use patterns, travel behavior, and multimodal accessibility that are not fully captured in the Sonoma County Transportation and Climate Authority (SCTCA) Travel Demand Model.

The primary purpose of this memorandum is to provide substantial evidence supporting the off-model VMT reductions applied in the General Plan Transportation Impact Analysis (TIA). The SCTCA model is well suited for evaluating regional travel patterns but does not directly account for General Plan policies that influence VMT, including increased residential densities, below-market-rate housing, expanded active transportation facilities, and localized travel behavior programs. As a result, off-model adjustments are required to reflect the effects of these General Plan actions.

A secondary purpose of this memorandum is to summarize additional VMT-reducing measures that are included the following mitigation measures presented in the General Plan TIA:

- Mitigation Measure TRANS-1: Community-Based VMT Reduction Program
- Mitigation Measure TRANS-2: Employer-Based VMT Reduction Program
- Mitigation Measure TRANS-3: Safe Routes to School Program and Monitoring

These present mitigation menus of actions that the City can take to reduce VMT below the City's adopted VMT thresholds and CARB's 2022 Scoping Plan Target. The effectiveness of the measures are presented at a high level because they require supplemental implementation detail or subsequent implementation that would be adapted to evolving travel conditions over the period of the General Plan buildout. For each additional measure, this memorandum summarizes applicable General Plan policies and presents ranges of potential VMT reduction effectiveness.

The VMT-reducing actions documented herein are applied at the citywide and neighborhood level because they represent broad General Plan commitments that influence land use form, network accessibility, and resident and employee travel behavior across Petaluma. The resulting VMT reductions are incorporated into the TIA's assessment of General Plan performance metrics and

inform the translation of VMT reductions into changes in daily vehicle volumes and volume to capacity ratios, as documented in **Appendix D. Petaluma General Plan Modeling Approach and Results** to the General Plan TIA. Together, this memorandum and the TIA provide a consistent, transparent methodology for assessing how the General Plan will affect future travel patterns and support the City's climate, safety, and mobility goals.

VMT Reduction Actions

The project team analyzed the amount of VMT reduced by seven actions that are included in the General Plan Update. These actions are representative of the types of one-time improvements and on-going programs that are included as actions and policies in the General Plan and are consistent with the City's adopted Housing Element, September 2025 Active Transportation Plan (ATP), or planned transit enhancements. **Table 1** presents the list of these actions. The VMT reduction actions that are analyzed in this memorandum include measures that are not accounted for in the SCTCA Travel Demand Model, as described in the Petaluma General Plan TIA.

Table 1. Applicable VMT Reduction Action List

Action	Description
Increase Residential Density and Integrate Affordable and Below Market Rate Housing	**General Plan Policy Basis:** Policy TP-5.1 (Integrate Development and Transportation Policies), Housing Element (2023–2031) **Description:** This action reflects General Plan land use policies that increase residential densities citywide and expand the supply of affordable and below-market-rate housing. Higher densities place more residents closer to daily destinations, support shorter trip lengths, and increase the viability of walking, biking, and transit. The inclusion of permanently affordable units enables more households to live closer to jobs, services, and transit, reducing long commutes associated with displacement and cost-burdened households. These combined land use changes reduce VMT per capita relative to existing development patterns.
Implement Subsidized or Discounted Transit Program	**General Plan Policy Basis:** Policy TP-3.5 (Invest in Public Transit), Action TP-3.5.7; fare-free Petaluma Transit policy (2024) **Description:** This action reflects the City's commitment to maintaining free or subsidized transit fares on Petaluma Transit service. Fare-free transit increases the competitiveness of transit relative to driving and lowers cost barriers for all residents, particularly low-income riders. The General Plan includes continued investment in local transit service and programs to expand access, and the fare-free program provides an ongoing behavioral incentive that can shift trips from automobile to transit. Although this policy is currently in place, it was not included in the base year (2019) nor future year SCTCA models.
Provide Community-Based Travel Planning	**Provide Community-Based Travel Planning (CBTP)** **General Plan Policy Basis:** Policy TP-6.3 (Engage Residents in the Transportation Planning Process), Action TP-6.3.4 **Description:** This action represents the General Plan's commitment to expanding community-focused education, outreach, and individualized support to encourage walking, bicycling, transit use, and other low-carbon travel choices. CBTP programs offer tailored information, trip planning assistance, incentives, and culturally responsive engagement to help households understand and adopt alternatives to single-occupant vehicle travel. Implemented at the citywide level, this program supports ongoing mode shift and aligns with the General Plan's emphasis on equitable engagement.

Provide Pedestrian Network Improvement	**General Plan Policy Basis:** Policies supporting the ATP buildout and citywide low-stress walking networks per Policy TP-3.4. **Description:** This action reflects planned sidewalk gap closures and upgrades included in the General Plan and the adopted ATP. Expanding the sidewalk network increases the continuity, safety, and comfort of walking routes, especially in areas with missing or inconsistent facilities. Improving walking accessibility supports mode shift for short trips and complements the General Plan's emphasis on 15-minute neighborhoods and multimodal safety.
Expand Bikeway Network	**General Plan Policy Basis:** Policy TP-3.4 (Create a Low-Stress Walking and Bicycling Network), ATP **Description:** This action captures the General Plan's commitment to building a connected, all-ages-and-abilities bikeway network, including expansions to Class I, II, and IV facilities. Improving citywide bicycle infrastructure increases access to key destinations, shortens effective travel distances, and supports a shift from driving to bicycling for local trips. The bikeway improvements are part of the citywide ATP buildout and are a core element of the General Plan's multimodal mobility strategy.
Increase Transit Service Frequency	**General Plan Policy Basis:** Policy TP-3.5 (Invest in Public Transit) **Description:** This action reflects increases in service frequency on key Petaluma Transit routes, consistent with the General Plan's transit policies. More frequent service reduces wait times, improves reliability, and expands access to destinations reachable by transit. These improvements increase the attractiveness of transit relative to driving and align with the citywide shift toward a more transit-supportive land use pattern.
Provide Transit Shelters	**General Plan Policy Basis:** Policy TP-3.5 (Invest in Public Transit) **Description:** This action represents the General Plan's commitment to improving the comfort, visibility, and safety of transit stops by adding shelters with seating, lighting, and related amenities. Enhanced amenities improve the passenger experience and reduce perceived wait time, which increases the likelihood that residents choose transit for short and medium-distance trips. Stop improvements particularly benefit vulnerable users and strengthen the multimodal network envisioned in the General Plan.

Source: Fehr & Peers, 2025.

The additional VMT-reducing measures identified in this memorandum support the mitigation program required to reduce VMT impacts under CEQA, as presented in the General Plan TIA. These additional measures represent future mitigation menu items that the City could implement through Mitigation Measures TRANS-1, TRANS-2, and TRANS-3 in the General Plan TIA. Unlike the seven VMT-reducing actions quantified in Table 1, the measures below were not included in the modeled General Plan analysis because they:

1. Require implementation details that will be developed in future policy or program work,
2. Depend on future conditions (e.g., zoning code updates, parking reforms, employer program participation), or
3. Potentially overlap with the mechanisms already captured in the seven quantified actions.

This structure provides a flexible, adaptive toolkit for reducing VMT over the life of the General Plan. To align with that structure, the additional VMT-reducing measures are reorganized below into three separate tables, each corresponding to one of the mitigation measures presented in the TIA:

- **Table 2 – Community-Based VMT Reduction Program (TRANS-1):** Includes citywide, community-serving strategies that reduce VMT for residents, visitors, and the broader traveling public. These measures address land use efficiencies, multimodal accessibility,

parking and pricing reforms, shared mobility, transit improvements, and other tools that influence everyday non-work travel.

- **Table 3 – Employer-Based VMT Reduction Program (TRANS-2):** Includes strategies implemented by employers to reduce employee commute VMT. These measures address pricing, transit subsidies, telecommuting, employer shuttles, vanpools, and other commute trip reduction programs that directly influence home-to-work travel behavior.

- **Table 4 – Safe Routes to School Program Implementation and Monitoring (TRANS-3):** Includes youth-focused programs and school-area infrastructure improvements that reduce automobile trips associated with student travel. These measures target walking and biking access, school-area traffic operations, safety improvements, and ongoing monitoring.

Each mitigation measure and corresponding table includes a menu of potential actions that the City can draw from. The TIA's adaptive mitigation framework provides flexibility to mix and match actions as the City learns the local effectiveness of menu actions and the monitoring results indicate the need for supplemental VMT reduction. The following tables present the potential actions available in each mitigation menu, the applicable General Plan policy, and an explanation of why this action is not quantified as a part of the base General Plan analysis. The potential VMT reduction associated with the menu actions and additional considerations relating to the adaptive monitoring program are presented at the end of this memorandum.

Table 2. Additional Community-Based VMT Reduction Menu

Action	Description
15-Minute cities zoning code updates	**General Plan Policy Basis:** Action TP-5.1.1. **Description:** Update the zoning code maximizes the integration of amenities and services into all neighborhoods to allow residents meet most of their daily needs within close proximity to their home. This would reduce the number and length of vehicle travel for everyday trips, such as shopping, recreation, schools, and health care. **Why Not Quantified Here:** Requires zoning code updates and could overlap with the calculations in "Increase Residential Density and Integrate Affordable and Below Market Rate Housing".
VMT reduction and banking	**General Plan Policy Basis:** Blueprint for Climate Action (TDM-3) **Description:** Establishes a VMT-based development impact fee program that incentivizes projects to reduce VMT and allows the City to "bank" VMT reductions from early actions to offset future needs. This tool provides a financial mechanism for communitywide VMT reduction by tying new development contributions to measurable travel behavior outcomes. **Why Not Quantified Here:** Requires future coordination with SCTCA and development of fee schedules and accounting procedures and would be applied only to development or transportation projects that generate VMT-impacts. The details of these specific projects are not currently known.

Universal Basic Mobility Program	**General Plan Policy Basis:** TP-1.1.4; Blueprint for Climate Action (TDM-4) **Description:** Provides flexible transportation credits ("mobility wallet") that residents can use for transit, bikeshare, micromobility, and carshare. The program reduces mobility costs for low-income residents and increases access to non-auto travel options. **Why Not Quantified Here:** Requires future program design, means-testing, funding identification, and definition of eligible services; levels of incentive and participation rates are not yet known.
Limit Residential Parking Supply and Unbundle Residential Parking Costs from Property Cost (Parking Reform)	**General Plan Policy Basis:** Policies TP-5.4.2 and TP-5.4.3 **Description:** Reduces parking oversupply and separates parking costs from housing costs, discouraging auto ownership and shifting short trips to non-auto modes. **Why Not Quantified Here:** Requires a future parking code update prior to implementation; VMT benefits vary based on location-specific parking ratios and prices.
Implement Market Price Public Parking (Parking Reform)	**General Plan Policy Basis:** Policy TP-5.4.1 **Description:** Prices curb and off-street parking to reduce cruising, rebalance supply, and discourage unnecessary driving. **Why Not Quantified Here:** Effectiveness depends on the pricing structure to be adopted through future parking management implementation.
Improve Street Connectivity (Active Transportation Network Completion)	**General Plan Policy Basis:** Policy TP-1.1.2 and TP-1.1.3 (Street Typology & Multimodal Network) **Description:** Adds connections and closes gaps in the street network to shorten travel distances and increase multimodal route directness. **Why Not Quantified Here:** Duplicative with the "Provide Pedestrian Network Improvement" and "Expand Bikeway Network" measures above. Specific future connections (e.g., local circulation changes beyond Caulfield) are conceptual and not yet designed sufficiently to estimate network benefits at a citywide scale.
Implement Pedal and Electric Bikeshare Program or Scootershare Program (Mobility Hubs)	**General Plan Policy Basis:** Policies TP-1.1.5 and TP-2.2.1 **Description:** Provides shared bicycles/e-bikes/scooters to replace short auto trips, expand access to transit, and improve last-mile mobility. **Why Not Quantified Here:** System coverage, hubs, and fleet size will be determined during implementation.
Provide End-of-Trip Bicycle Facilities (Mobility Hubs)	**General Plan Policy Basis:** Policy TP-3.4.3 (Active Transportation Amenities) **Description:** Includes secure bike parking, lockers, and showers that make bicycling more viable for work and school trips. **Why Not Quantified Here:** Effectiveness depends on design and site-level requirements to be developed during future implementation.
Implement Electric Carshare Program (Mobility Hubs)	**General Plan Policy Basis:** Policy TP-1.1.1 (Connected Multimodal Network) **Description:** Provides shared vehicles to reduce the need for private car ownership and shift some trips to active and transit modes. **Why Not Quantified Here:** Program design, fleet size, and pricing are not yet defined.

Extend Transit Network Coverage or Hours, Implement Transit-Supportive Roadway Treatments, or Provide Bus Rapid Transit (Transit Enhancements)	**General Plan Policy Basis:** Policies TP-3.5.1, TP-3.5.3, and TP-3.5.6 **Description:** Includes the expansion of transit service beyond existing routes and schedules, addition of transit-only lanes, queue jumps, and signal priority to improve transit reliability, or higher-capacity, higher-frequency transit with dedicated lanes and enhanced stations. **Why Not Quantified Here:** Additional transit service beyond those calculated for the "Increase Transit Service Frequency" action. Future coverage and service spans depend on funding availability and future Short Range Transit Plan updates and will requires corridor-level feasibility work and interagency coordination.
Provide E-Bike Rebates, Subsidized Regional Transit Passes, and Car-Share Credits (Neighborhood-Level Incentives)	**General Plan Policy Basis:** Blueprint for Climate Action (e.g., AT-2: Bike sharing) **Description:** Offers financial incentives for residents to shift from auto travel to e-bikes, transit, and shared mobility. These incentives make multimodal travel more affordable and expand access to low-carbon modes. **Why Not Quantified Here:** Effectiveness depends on rebate amounts, eligible households, and number of incentives issued; these details are not yet defined.
Provide Infill or Transit-Oriented Development (Land Use Actions)	**General Plan Policy Basis:** Policy TP-5.1 (Integrate Land Use and Transportation) **Description:** Encourages compact, mixed-use, walkable development near high-quality transit. TOD shortens trip lengths, increases multimodal access, and reduces vehicle dependency. **Why Not Quantified Here:** The General Plan already incorporates increased densities and mixed-use development patterns citywide, which are accounted for in the "Increase Residential Density and Integrate Affordable and Below Market Rate Housing" General Plan Action.
Provide Electric Vehicle Charging Infrastructure or Use Cleaner-Fuel Vehicles (Clean Vehicles and Fuels)	**General Plan Policy Basis:** Policy TP-2.2 (Encourage Electric Transportation) **Description:** Expands EV charging availability and reduces emissions by converting fleets to EV/clean-fuel vehicles. **Why Not Quantified Here:** Improves emissions, not VMT; excluded from VMT analysis.

Source: Fehr & Peers, 2025.

Table 3. Additional Employer-Based VMT Reduction Menu

Action	Description
Mandatory Employer TDM Programs	**General Plan Policy Basis:** TP-5.1 **Description:** Requires employers to implement commute-reducing measures such as commuter benefits, carpool coordination, and employee transportation coordinators. **Why Not Quantified Here:** City has not yet adopted employer thresholds, participation requirements, or enforcement mechanisms.
Employee Ridesharing (Carpool) or Vanpool Programs	**General Plan Policy Basis:** TP-5.1 **Description:** Supports shared commute trips through matching services, incentives, and priority parking for carpools. Provides vans and subsidies for shared commute travel from high-demand origin areas to major employment sites. **Why Not Quantified Here:** Requires employer participation and incentive structure that varies by worksite and route; participation rates uncertain.
Subsidized Workplace Transit Passes	**General Plan Policy Basis:** TP-3.5 **Description:** Provides discounted or free transit passes for employees, encouraging replacement of solo-driving commute trips with transit. **Why Not Quantified Here:** Requires employer adoption and funding; not mandated in the General Plan.
Priced Employee Parking	**General Plan Policy Basis:** TP-5.4 **Description:** Charges employees for on-site parking to discourage solo driving and encourage carpooling and transit use. **Why Not Quantified Here:** Requires future parking management policies and employer adoption; pricing levels are not established.
Employer Shuttles	**General Plan Policy Basis:** TP-3.5 **Description:** Provides dedicated shuttle services connecting job sites to transit stations or housing areas. **Why Not Quantified Here:** Program areas, routes, and service levels depend on employer demand; no defined service parameters in the GP.
Telecommuting and Flexible Scheduling	**General Plan Policy Basis:** Supports GP climate and mobility goals **Description:** Reduces commute VMT by allowing remote work or shifting travel outside peak periods. **Why Not Quantified Here:** Adoption levels vary by employer; not codified in General Plan policy.

Source: Fehr & Peers, 2025.

Table 4. Additional Safe Routes to School VMT Reduction Measures

Action	Description
Active Modes of Transportation for Youth	**General Plan Policy Basis:** Policy TP-4.2 **Description:** Encourages active travel for children and youth through programs and supportive infrastructure, complementing Safe Routes to School. Provides education, walk/bike events, and incentives to increase active travel for school trips. **Why Not Quantified Here:** School-area travel programs require site-specific design. Effectiveness depends on participation levels and individual school programming.
School-Area Crossing Upgrades, Circulation, and Speed Management	**General Plan Policy Basis:** TP-4.2 **Description:** Adds high-visibility crossings, curb extensions, refuge islands, signage, and school-zone speed management interventions to improve safety and encourage walking and biking. Implements improved pickup/drop-off circulation patterns to reduce queues and conflicts. **Why Not Quantified Here:** Improvements require school-specific design and coordination with Districts; location, scale, and timing are not yet defined.
Safe Routes to School Monitoring & Data Collection	**General Plan Policy Basis:** TP-6.3 **Description:** Conducts ongoing data collection on student travel modes, traffic volumes, and safety to inform adaptive SRTS improvements. **Why Not Quantified Here:** Monitoring is an enabling action that supports other measures; does not directly reduce VMT on its own.

Source: Fehr & Peers, 2025.

VMT Reduction Estimates

The VMT reduction potential for each of the seven actions presented in **Table 1** are based on the 2024 California Air Pollution Control Officers Association (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (CAPCOA 2024 Handbook).These calculations illustrate the type of data and documentation that the City will need to monitor to substantiate the VMT reductions attributed to each action. The CAPCOA 2024 Handbook provides only a percentage estimate of VMT reduction for each measure, which must then be applied to a VMT estimate for the area to determine actual reductions. The project team utilized data from the SCTCA Travel Demand Model, focusing on transportation analysis zones near each action to improve accuracy. This data includes population and travel mode share estimates, which serve as inputs for these calculations. The daily and annual VMT reduction of each action is shown in **Table 5**.

Table 5. Summary of Daily and Annual VMT Reduction by Each Action

Measure	CAPCOA Strategy	Daily VMT Reduction	Annual VMT Reduction
Increase Residential Density & Integrate Affordable and Below Market Rate Housing	T-1 & T-4	-91,091	-31,608,740
Implement Subsidized or Discounted Transit Program	T-9	-53,297	-18,494,016
Provide Community-Based Travel Planning	T-23	-15,314	-5,314,030
Provide Pedestrian Network Improvement	T-18	-406	-141,048
Expand Bikeway Network	T-20	-163	-56,694
Increase Transit Service Frequency	T-26	-16,741	-5,809,272
Provide Transit Shelters	T-46	-13,160	-4,566,377
Total		**-190,173**	**-65,990,178**

Source: Fehr & Peers, 2025.

The combined effect of the seven VMT-reducing actions results in a meaningful shift in how people travel throughout Petaluma. Together, these measures reduce total daily VMT by 190,173 miles, bringing the citywide total daily down from 4.28 million miles to just over 4.09 million miles. This reflects a 4.45% reduction in daily VMT. The VMT reduction effect of these actions is summarized in **Table 6**.

Table 6. Total VMT Reduction Effect of Seven Actions

Total Daily VMT in Petaluma	Total Daily VMT Reduction	Percent Reduction in Total Daily VMT
4,277,256	-190,173	-4.45%

Source: Fehr & Peers, 2025.

The VMT-reducing actions documented herein are applied at the citywide and neighborhood level because they represent broad General Plan commitments that influence land use form, multimodal network accessibility, and resident and employee travel behavior across Petaluma. As a result, the VMT reduction estimates presented above reflect the types of citywide reductions in traffic volumes that could reasonably be expected as these actions are implemented. These reductions are incorporated into the changes in daily vehicle volumes and volume-to-capacity ratios presented in **Appendix D, Petaluma General Plan Modeling Approach and Results** of the General Plan TIA.

Consistent with CEQA Guidelines Section 15126.4(a)(1)(D), it is important to note the limitations of VMT-reduction estimates and to acknowledge potential secondary effects of mitigation actions. The

CAPCOA methodology estimates reductions only for the directly affected population (e.g., households receiving a benefit, residents or employees within a service area). It does not account for behavioral responses from the rest of the population, including "backfilling" or induced travel effects. Research from UCLA (*Right-Sizing Transportation Infrastructure to Reduce VMT*[1]) and the peer-reviewed literature—including *The Fundamental Law of Road Congestion* (Duranton & Turner, 2011)—shows that improvements in active transportation or transit facilities can, in some cases, be partially offset as reduced congestion or improved travel times induce additional vehicle travel. These effects may dampen or, in certain contexts, fully consume the reductions estimated for specific strategies.

Because of these limitations, the General Plan's mitigation approach presented in the TIA includes a broad menu of strategies—particularly pricing-based tools (e.g., parking pricing and mobility wallet programs)—that act directly on the full traveling population, not only on a targeted subgroup. These pricing strategies are less susceptible to rebound effects and can support more durable VMT reductions.

Finally, while individual VMT-reducing actions may be subject to backfilling, the cumulative analysis framework used for the buildout of the General Plan reflects the changes to travel patterns due to the long-term land use patterns and multimodal network designs that are known to meaningfully influence VMT. Research demonstrates that households in higher-density, mixed-use, transit-rich, and walkable contexts consistently generate lower VMT per capita.[2] These built-environment effects operate at the citywide scale and are reflected in the General Plan land use pattern, active transportation network, and transit policies. Accordingly, the combined VMT reductions summarized in **Table 6** provide a reasonable representation of the long-term traffic reduction that would result from the General Plan, even while acknowledging the uncertainty and limitations described above.

Together, these considerations provide important context for interpreting the VMT reduction estimates summarized above. While the combined effect of the seven General Plan actions represents a reasonable approximation of the long-term citywide travel behavior shift enabled by Petaluma's land use pattern, transportation networks, and multimodal investments, the actual performance of individual strategies will depend on real-world conditions, implementation timing, and traveler responses over time. For this reason, the following sections present the detailed quantification methods, inputs, and assumptions used to estimate VMT reductions for each action, as well as the documentation needed to support ongoing monitoring and refinement as part of the General Plan's adaptive approach to mobility and climate goals. The methodology for each action is provided to ensure transparency, illustrate the analytical foundation for the off-model adjustments incorporated into the TIA, and clarify how specific actions contribute to the overall VMT and traffic volume reductions described in this memorandum.

More detailed Excel tables and data sources for each measure are included in **Attachment 1**.

1. Increase Residential Density and Integrate Affordable and Below Market Rate Housing

In denser, mixed-use communities than typical suburban land use patterns, trip lengths shorten, walking, biking, and short non-auto trips become dominant for daily needs while auto travel becomes

[1] https://ucits.org/projects/right-sizing-transportation-infrastructure-to-reduce-vehicle-miles-traveled/
[2] https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/09-343.pdf

more discretionary and context-dependent. SCTCA's model is calibrated largely based on existing Sonoma County travel behavior, which reflects separated land uses, longer trip lengths, and higher auto dependence than is envisioned for the future of Petaluma through the General Plan Update. This is the only land use action, which differs from the transportation focused actions that follow.

Fehr & Peers employed a custom VMT reduction formula that combines two measures from CAPCOA. This formula accounts for VMT reductions from affordable housing and increased land use density, based on CAPCOA Strategy T-1 (Increase Residential Density) and Strategy T-4 (Integrate Affordable and Below Market Rate Housing). According to the CAPCOA 2024 Handbook, these measures can be combined for greater VMT reductions. The calculations utilize VMT and population data from the SCTCA Travel Demand Model. In addition to the benefits of increased density on reducing trip lengths and making non-automobile travel more convenient, providing below market rate housing offers low-income families better opportunities to live closer to job centers and a jobs/housing match. It is also a vital strategy to address the shortage of affordable housing, which can force residents to live far from work or school, leading to longer commutes.

Description of Inputs

Below is a summary of the effectiveness and requirements presented in the CAPCOA 2024 Handbook for these strategies:

- T-1: Increasing Residential Density can reduce up to 30 percent of GHG emissions from project VMT in the study area. The elasticity of VMT with respect to residential density is -0.22, meaning that a 1 percent increase in development density would reduce VMT by about 0.22 percent.
- T-4: Integrating Affordable and Below Market Rate Housing can reduce "up to 28.6 percent of GHG emissions from project/site multifamily residential VMT based on lower vehicle trip generation rates for lower income households. Multifamily residential units must be permanently dedicated as affordable for lower-income families."

The project team used the added affordable housing value identified in the city's Housing Element. The dwelling unit numbers for the years 2019 and 2050 were calculated using the SCTCA's model runs for the corresponding years to represent residential density. **Table 7** provides the housing density, population, and VMT for Petaluma in both years.

Table 7. Petaluma Housing Density, Population, and VMT

Year	Dwelling Units per Acre	Population	Average Daily HB VMT per Resident
2019	2.19	64,332	12
2050	2.77	81,251	11

Source: Fehr & Peers, 2025.

Methods

The project team estimated the VMT reduction based on the added affordable housing units and increased residential density. **Table 8** presents the VMT reduction percentages following the increase in residential density and adding 1,000 affordable housing units. **Table 9** presents the combined VMT

reductions from both measures. While elasticities reflect average household VMT response to density and affordability, actual reductions may vary as land use and travel patterns evolve. These estimates represent directionally correct, cumulative-scale effects consistent with research on household VMT by neighborhood type.

Table 8. Increase Residential Density and Integrate Affordable and Below Market Rate Housing VMT Calculation

Added Affordable Units[1]	Percentage Increase in Land Use Density[2]	Percent Change in VMT Due to Density Increase	Percent Change in VMT for affordable vs market rate units
1,000	25.0%	-5.50%	-28.6%

Notes:

1. Per Table 1 of the City's Housing Element (2023-2031 Housing Element, May 2023) there are 499 Extremely Low / Very Low and 288 Low income units, for a total of 787 units that would qualify for this calculation by 2030. This document only covers the portion of the 2050 buildout through 2031. Given the uncertainty in what will be required in future RHNA allocations, the existing allocation was rounded up to 1,000 units for the purposes of this calculation.
2. The CAPCOA 2024 Handbook cites a study that shows that there is a 0.22 percent decrease in VMT for every 1 percent increase in residential density, capped at a 30 percent reduction. (Stevens, M. 2016. Does Compact Development Make People Drive Less? Journal of the American Planning Association 83:1(7–18), DOI: 10.1080/01944363.2016.1240044). This item is capped at 25 percent to provide a more conservative estimate

Source: Fehr & Peers, 2025.

Table 9. Affordable Housing and Residential Density Increase VMT Reduction

Daily VMT Reductions from Density Increase	Daily VMT Reductions from Affordability	Total Daily VMT Reduction	Total Annual VMT Reduction
-51,702	-39,390	-91,091	-31,608,739

Source: Fehr & Peers, 2025.

These land use strategies represent the long-term land use patterns and multimodal network designs that are known to meaningfully influence VMT. As noted above, this measure does not explicitly account for the 15-minute neighborhood strategies embedded within the General Plan Update due to the unknown related to the zoning code update. However, this provides the City additional opportunities for land use based VMT reductions compared to what is estimated within this memorandum.

2. Implement Subsidized or Discounted Transit Program

This measure provides free or discounted fares on transit services within the Petaluma transit service area. Lowering fares makes transit more competitive with driving, which can lead to higher ridership. For this analysis, the project team estimated VMT reductions by assuming a full fare discount for all

residents living within a half mile of a Petaluma Transit stop. This approach aligns with General Plan Policy TP-3.5 and reflects Petaluma Transit's decision to eliminate fares on all fixed routes as of July 2024. The effect of this policy is not incorporated within the SCTCA Travel Demand Model under existing or base future-year condition model. Therefore, the reduction associated with this program is applied to the future year with General Plan conditions model. As presented below, this program is expected to have a modest 1.2% decrease in VMT and therefore was not incorporated into the existing conditions results.

Description of Inputs

This measure reflects the already implemented fare elimination for Petaluma Transit. The percent reduction in fare is capped at 50 percent per the guidance from the CAPCOA strategy T-29. This cap ensures that the calculation does not overestimate the VMT and GHG impacts of large fare reductions or fare elimination, consistent with the elasticity assumptions and empirical studies underlying the CAPCOA methodology.

Methods

The project team used population data from the SCTCA Travel Demand Model to estimate how many residents live within a half-mile of a Petaluma Transit stop and could benefit from this fare subsidy. To estimate the potential travel impacts, transit and vehicle mode shares were calculated using model results for the TAZs within that same half-mile area. Following CAPCOA guidance, the VMT reduction is capped at 1.2%.

The variables used for this quantification process are shown in **Table 10**, and the estimated annual VMT reduction from providing transit passes to people living within one-half mile of transit stops is shown in **Table 11**.

Table 10. Reduce Transit Fares VMT Calculation

Variable	Value	Source
B – Percent reduction in transit fare with measure	50%	City of Petaluma Transit data[1]
C- Percent of plan/community transit routes that receive reduced fares	100%	City of Petaluma Transit data
D – Elasticity of transit ridership with respect to transit fare	-0.30	CAPCOA Constant Variable
E – Transit mode share in plan/community	0.49%	SCTCA Travel Demand Model
F – Vehicle mode share in plan/community	90.24%	SCTCA Travel Demand Model
G – Statewide mode shift factor	57.80	CAPCOA Constant Variable
Total Daily VMT Reduction	**-1.20%**	

Note:

1. The Petaluma Transit is already operating fare-free, but this value is set to the 50% cap in line with CAPCOA guidance.

Source: Fehr & Peers, 2025.

Table 11. Reduce Transit Fares VMT Reduction

Total Population in Service Area	Daily VMT Reduction	Annual VMT Reduction
67,863	-53,297	-18,494,016

Source: Fehr & Peers, 2025.

Given Petaluma's low existing transit mode share, the modeled reductions are lower than what would be expected for a community that grows and densifies in locations where transit is more convenient than the existing patterns. As emphasized throughout the General Plan polices (e.g., TP-5.1) and noted for the land use measures above, the City could achieve additional transit-based VMT reductions compared to what is estimated within this memorandum through coordinated land use and transit planning.

3. Provide Community-Based Travel Planning

This measure focuses on residents within the plan or community who participate in community-based travel planning (CBTP). CBTP is a neighborhood-level outreach strategy that offers households tailored information, incentives, and support to promote the use of transportation options other than single-occupancy vehicles. This approach aims to lower household VMT and greenhouse gas emissions. Unlike land use or network-based actions, CBTP reduces VMT by changing household decision-making rather than altering physical travel conditions.

Description of Inputs

This measure strengthens the community's ability to make informed, sustainable travel choices by expanding how the City engages with residents, businesses, and schools around mobility. It builds on the General Plan's focus on safe, equitable, and inclusive transportation by creating clear processes for community input, sharing low-stress travel options, and offering ongoing education and support.

Through accessible communication, culturally responsive outreach, and partnerships with local groups, this measure helps people understand their travel options and encourages walking, biking, transit, and other low-carbon modes. The project team used population data from the SCTCA Travel Demand Model to estimate the percentage of targeted residences that participate and an adjustment factor from vehicle trips to VMT.

Methods

The VMT reduction is applied citywide, and the project team analyzed a CBTP program that targets 100 percent of households in Petaluma with travel planning consistent with Action 6.3.4 of General

Plan Policy 6.3 "Engage Residents in the Transportation Planning Process". However, following the recommendation of CAPCOA strategy T-23, the calculation is based on a 19 percent participation rate reflecting the national CAPCOA research. The variables used for this quantification process are shown in **Table 12**, and the estimated annual VMT reduction from a citywide CBTP is shown in **Table 13**.

Table 12. Community-Based Travel Planning VMT Calculation

Variable	Value	Source
B – Residences in plan/community	30,777	General Plan Land Use Map
C- Residences in plan/community targeted with CBTP	30,777	100% of residences in City
D – Percent of targeted residences that participate	19%	CAPCOA Constant Variable
E – Percent vehicle trip reduction by participating residences	12%	CAPCOA Constant Variable
F – Adjustment factor from vehicle trips to VMT	90.24%	CAPCOA Constant Variable
Daily VMT Reduction Percentage	**-2.06%**	**(C/B)*D*-E*F**

Source: Fehr & Peers, 2025.

Table 13. Community-Based Travel Planning VMT Reduction

Total Residences in Plan	Total Population in Plan Targeted with CBTP	Daily VMT Reduction	Annual VMT Reduction
30,777	30,777	-15,314	-5,314,030

Source: Fehr & Peers, 2025.

Petaluma has a history of local engagement on climate related issues and could achieve higher rates of participation than the national average used in this calculation by leveraging existing local community programs and locally targeted outreach strategies. Increased participation, in combination with other land use and transit strategies listed elsewhere could lead to additional VMT reductions compared to what is estimated within this memorandum.

4. Provide Pedestrian Network Improvement

This measure aims to increase sidewalk coverage across targeted areas to enhance pedestrian accessibility and safety. Providing additional sidewalks and developing a more comprehensive and interconnected pedestrian network encourages more people to choose walking over driving. This

transition from vehicular travel to pedestrian movement not only promotes healthier lifestyles but also contributes to a reduction in VMT.

Description of Inputs

The project team analyzed the addition of 10.2 miles of sidewalks consistent with the planned sidewalk gap closures presented in the City's adopted ATP. Because the city did not have citywide, measurable sidewalk data available (including a shapefile), the project team used the cumulative roadway length from OpenStreetMap as a proxy and doubled it to estimate total sidewalk coverage. The VMT reduction is applied citywide.

Methods

Following the guidance from CAPCOA strategy T-18, the variables used for this quantification process and the estimated annual VMT reduction from providing pedestrian network improvement are shown in **Table 14** and the estimated annual VMT reduction from providing pedestrian network improvement is shown in **Table 15.**

Table 14. Pedestrian Network Improvement VMT Calculation

Variable	Value	Source
B – Existing sidewalk length in the study area	930.26	Open Street Maps[1]
C- Sidewalk length in the study area with measure	940.46	Active Transportation Plan (2025)
D – Elasticity of household VMT with respect to the ratio of sidewalk-to-streets	-0.05	CAPCOA Constant Variable
Daily VMT Reduction Percentage	**-0.05%**	**((C/B)-1)*D**

Notes:

1. Street network lengths within the City of Petaluma were pulled from Open Street Maps and doubled to approximate the total length of sidewalks in the city. Attachment 1.b includes the Open Street Maps street network.

Source: Fehr & Peers, 2025.

Table 15. Pedestrian Network Improvement VMT Reduction

Total Population in Service Area	Daily VMT Reduction	Annual VMT Reduction
81,251	-406	-141,048

Source: Fehr & Peers, 2025.

These network strategies represent the long-term land use patterns and multimodal network designs that are known to meaningfully influence VMT. This measure only accounts for pedestrian network gap closures and does not account for the design of these facilities nor the improvement of existing pedestrian facilities consistent with Policy TP-3.4 that support the type of safe and convenient

walkable communities that lead to long-term VMT reductions. This provides the City additional opportunities for network based VMT reductions compared to what is estimated within this memorandum.

5. Expand Bikeway Network

This measure aims to extend the city's bikeway network through an interconnected low-stress system of bike lanes, paths, routes, and cycle tracks to fulfill the vision of the City's adopted ATP. Adding bicycle infrastructure with appropriate markings and signage on suitable roads with safe vehicle speeds enhances biking conditions, including safety and convenience. Furthermore, expanding these networks can improve access to transit hubs, broadening the "catchment area" and potentially increasing ridership. This shift prompts more people to choose bicycles, leading to lower VMT.

Description of Inputs

The existing and planned bikeway network lengths come from the City's adopted ATP. To estimate potential travel behavior changes, the project team used the vehicle mode share outputs from the SCTCA Travel Demand Model for all Petaluma TAZs.

Methods

Using the guidance from the CAPCOA strategy T-20,**Table 16** includes the variables used for this quantification process, and the estimated annual VMT reduction from expanding the bikeway network is presented in **Table 17.**

Table 16. Bikeway Network Expansion VMT Calculation

Variable	Value	Source
B – Existing bikeway miles in plan/community	72.20	Active Transportation Plan (2025)
C- Bikeway miles in plan/community with measure	144.20	Active Transportation Plan (2025)
D – Bicycle mode share in plan/community	0.47%	San Francisco-Oakland-Hayward CBSA
E – Vehicle mode share in plan/community	90.17%	SCTCA Travel Demand Model
F – Average one-way bicycle trip length in plan/community	2.10	San Francisco-Oakland-Hayward CBSA
G – Average one-way vehicle trip length in plan/community	12.40	San Francisco-Oakland-Hayward CBSA
H – Elasticity of bike commuters with respect to bikeway miles per 10,000 population	0.25	CAPCOA Constant Variable
Daily VMT Reduction Percentage	**-0.02%**	**-1*(((C-B)/B)*D*F*H)/(E*G)**

Source: Fehr & Peers, 2025.

Table 17. Bikeway Network Expansion VMT Reduction

Total Population in Service Area	Daily VMT Reduction	Annual VMT Reduction
75,272	-163	-56,694

Source: Fehr & Peers, 2025.

These network strategies represent the long-term land use patterns and multimodal network designs that are known to meaningfully influence VMT. This measure only accounts for additional bikeway network miles and does not account for the design of these facilities. Further, given Petaluma's low existing bike mode share, the modeled reductions are lower than what would be expected for a community that grows and densifies in locations where bicycling is more convenient than the existing patterns. With the ATP's envisioned network in place as shown in the TIA, nearly every parcel in the city will be within one-eighth of a mile of a high-quality bikeway, supported by a connected system of sidewalks and trails. These investments make it even easier for residents to replace short car trips with walking or bicycling, lowering VMT and auto dependence and providing safe, healthy mobility options for all ages and abilities. This provides the City additional opportunities for network based VMT reductions compared to what is estimated within this memorandum.

6. Increase Transit Service Frequency

This action would include funding increased service frequency on Petaluma Transit routes. Increasing the frequency of bus service encourages people to ride transit by decreasing travel times, improving route reliability, and making transit a more competitive transportation option. This measure accounts for the already implemented service frequency increases for Routes 2 and 11 (not incorporated in 2019 Existing Year SCTCA Travel Demand Model), and includes further service frequency increases for Routes 3, 10, 24, and 33.

Description of Inputs

The project team estimated VMT impacts using Petaluma Transit's desired 2030 frequency tables. These projected service increases rely on identifying long-term funding sources to support this level of service and are therefore dependent on funding availability in the coming years. To understand how enhanced service could shift travel behavior, the project team used transit and vehicle mode share outputs from the SCTCA Travel Demand Model for Petaluma TAZs located within a half-mile of a bus stop along each route.

Methods

Table 18 illustrates the VMT reduction potential from improving local transit service, quantified through the CAPCOA strategy T-26, which involves increasing transit service frequency. The predicted VMT reduction resulting from this service frequency increase is detailed in **Table 19**.

Table 18. Increase Petaluma Transit Frequency VMT Calculation Inputs

Variable	Value	Source
B – Percent increase in transit frequency	46%-174%	Desired Service Levels (2030)

C – Level of implementation	50%–100%	Model data[1]
D – Elasticity of transit ridership with respect to frequency of service	0.5	CAPCOA Constant Variable
E – Transit mode share in plan/community	0.48%–0.60%	SCTCA Travel Demand Model[2]
F – Vehicle mode share in plan/community	89.54%–90.18%	SCTCA Travel Demand Model[2]
G – Statewide mode shift factor	57.8%	CAPCOA Constant Variable
Total Daily VMT Reduction	**-0.08% to -0.34%**	**-1 * C * (B * E * D * G) / F**

Notes:

1. The data used for this analysis was tailored to evaluate a single transit route, and model data was pulled for the route's service area only (defined as TAZs within 0.5 miles of a bus stop).
2. Mode share and VMT data from SCTCA Travel Demand Model 2019 baseline TAZ level data. Per CAPCOA, mode share was calculated for TAZs within ½ mile of the bus stops along the relevant route.

Source: Fehr & Peers, 2025.

Table 19. Increase Petaluma Transit Frequency: VMT Reduction Estimate

Route	Percent Increase in Transit Service Frequency	Daily VMT Reduction Percentage	Total Daily VMT Reduction	Annual VMT Reduction
2: North McDowell Blvd	46%	-0.07%	-1,435	-497,884
3: East Petaluma Clockwise	174%	-0.337%	-7,456	-2,587,398
10: Petaluma Blvd and SMART	69%	-0.05%	-1,073	-372,498
11: East-West Connector	46%	-0.04%	-841	-291,669
24: SMART-Lakeville-Kaiser	46%	-0.08%	-1,654	-573,880
33: East Petaluma Counterclockwise	100%	-0.19%	-4,282	-1,485,942
Total	**-**	**-**	**-16,741**	**-5,809,272**

Source: Fehr & Peers, 2025.

Given Petaluma's low existing transit mode share, the modeled reductions are lower than what would be expected for a community that grows and densifies in locations where transit is more convenient than the existing patterns. As emphasized throughout the General Plan polices (e.g., TP-5.1) and noted for the land use measures above, the City could achieve additional transit-based VMT reductions compared to what is estimated within this memorandum through coordinated land use and transit planning.

7. Provide Transit Shelters

This measure involves the provision of amenities designed to enhance safety and comfort while waiting for the bus. Transit shelters serve to shield passengers from adverse weather conditions, including high temperatures and heavy precipitation.

Description of Inputs

The project team calculated the average number of boardings at improved amenities and system-wide, based on data from September 2025. To understand how enhanced service could shift travel behavior, the project team calculated the transit mode share from the SCTCA model for all Petaluma TAZs. The VMT reduction was only applied to TAZs located within a half-mile of an improved bus stop.

Methods

Following the guidance from CAPCOA strategy T-46, this action accounts for the stops that have a shelter and a bench after project completion. The estimation includes the planned improvements to transit stops. The variables used for this quantification process and the estimated annual VMT reduction from providing bus shelters are shown in **Table 20**, and the estimated annual VMT reduction from providing transit shelters is presented in **Table 21**.

Table 20. Transit Shelter VMT Calculation

Variable	Value	Source
B – Number of transit stops with new bus shelters and benches	53	City of Petaluma Transit data[1]
C- Average number of boardings per day at each transit station with added amenities	3.96	City of Petaluma Transit data[1]
D – Average number of boardings per day across the transit agency	4.97	CAPCOA Constant Variable
E – Transit mode share in the plan/community	0.50%	SCTCA Travel Demand Model
F – Percent of total transit users who would otherwise drive	83.3%	CAPCOA Constant Variable
G – Average auto occupancy	1.45	CAPCOA Constant Variable

H – Percent of total travel time spent waiting (transit trips)	24.9%	CAPCOA Constant Variable
I – Percent of perceived total travel time spent waiting (transit trips with shelters)	20.3%	CAPCOA Constant Variable
J – Wait time elasticity	-0.54	CAPCOA Constant Variable
Daily VMT Reduction Percentage	-0.30%	**B*(C/D)*E*(F/G)*(H-I)*J**

Notes:
1. List of priority transit stops and Petaluma Transit ridership data included in Attachment 1.c.

Source: Fehr & Peers, 2025.

Table 21. Transit Shelter VMT Reduction

Total Population in Service Area	Daily VMT Reduction	Annual VMT Reduction
83,435	-13,160	-4,566,377

Source: Fehr & Peers, 2025.

Given Petaluma's low existing transit mode share, the modeled reductions are lower than what would be expected for a community that grows and densifies in locations where transit is more convenient than the existing patterns. Perceived wait-time reductions can influence travel behavior, but actual VMT reductions may depend on broader transit service levels and system reliability such as those analyzed above. As emphasized throughout the General Plan polices (e.g., TP-5.1) and noted for the land use measures above, the City could achieve additional transit-based VMT reductions compared to what is estimated within this memorandum through coordinated land use and transit planning.

Additional VMT Reduction Actions

The additional VMT-reducing measures presented in **Table 2, Table 3,** and **Table 4** form the foundation for the mitigation menus included in the General Plan TIA under Mitigation Measures TRANS-1, TRANS-2, and TRANS-3. While these measures were not quantified as part of the seven VMT-reducing actions incorporated into the General Plan analysis, they represent future policy and program tools that the City may implement to achieve VMT reductions consistent with the City's adopted VMT thresholds and the CARB 2022 Scoping Plan target.

Because these additional measures require further implementation detail—such as parking code updates, employer participation requirements, transit service plan adjustments, Safe Routes to School coordination, or new program funding—they are best suited to an adaptive, performance-based mitigation framework rather than actions that include implementation plans consistent with General Plan policies. As travel patterns, transit investments, and land use conditions evolve over the life of the General Plan, the City can scale these measures as needed to achieve additional VMT reductions.

The mitigation menus in the TIA are structured as follows:

- **Mitigation Measure TRANS-1 (Community-Based VMT Reduction Program):** Includes community-serving actions such as pricing strategies, parking reforms, infill and TOD implementation, bikeshare and micromobility programs, and broader multimodal incentives.

- **Mitigation Measure TRANS-2 (Employer-Based VMT Reduction Program):** Includes employer-specific actions such as employee transit pass subsidies, ridesharing and vanpool programs, workplace parking pricing, and other commute trip reduction tools.

- **Mitigation Measure TRANS-3 (Safe Routes to School Program Implementation and Monitoring):** Includes youth-focused programs such as active transportation encouragement, school-area safety enhancements, and multimodal access improvements around campuses.

The mitigation menus presented in **Table 2, Table 3,** and **Table 4** provide the actions the City may draw upon if future monitoring indicates the need for additional VMT reduction beyond the General Plan's built-in commitments. **Figure 1** presents the range of VMT reduction effectiveness in all the measures in the CAPCOA 2024 Handbook to illustrate the potential reductions of individual actions contained within the mitigation menus. Other measures such as safe routes to school programs, can be effective at reducing VMT (e.g., by replacing vehicle school drop off trips with walking or biking trips) but do not have established research that can be applied to estimate the effectiveness of a safe routes to school program given the range of implementation considerations. **Table 22** illustrates the maximum anticipated VMT reductions associated with the mitigation measures and their effect on different types of trips.[3]

Together, these additional measures and the mitigation menus allow the City to implement scalable, evidence-based VMT reductions over time, ensuring that transportation impacts can be reduced to the extent feasible as the General Plan is implemented.

Table 22: Mitigation Menu's Maximum VMT Trip Reductions

Mitigation Menu Category	Maximum VMT Reduced	Type of Trip Reduced
TRANS-1: Community-Based TDM Measures and TRANS-3: Safe Routes to School Program and Monitoring	30%[1]	Resident, Employee, and Visitor Trips (all trip purposes)
TRANS-2: Employer TDM Programs	45%[2]	Employee Trips (Home-Based Work trips)

Notes

1. The subsector maximums for vehicle trip reductions from the CAPCOA 2024 Handbook are 15% for transit services and up to 30% parking pricing in locations where transit and other modes of travel are

[3] When combining the effectiveness of multiple mitigation measures from **Figure 1**, the CAPCOA Handbook requires the use of multiplicative dampening rather than simple addition. This approach accounts for diminishing returns for measures within one category that target the same lever (e.g., transit improvements). Instead of summing individual percentage reductions, each subsequent measure is applied to the remaining trips after the previous measure's reduction. This ensures consistency with CAPCOA methodology and avoids overstating combined effectiveness.

convenient. 30% maximum is shown to reflect the maximum potential, including the most effective pricing mechanisms.

2. The subsector maximums for vehicle trip reductions from the CAPCOA 2024 Handbook.

Source: CAPCOA 2024 Handbook, Fehr & Peers, 2025.

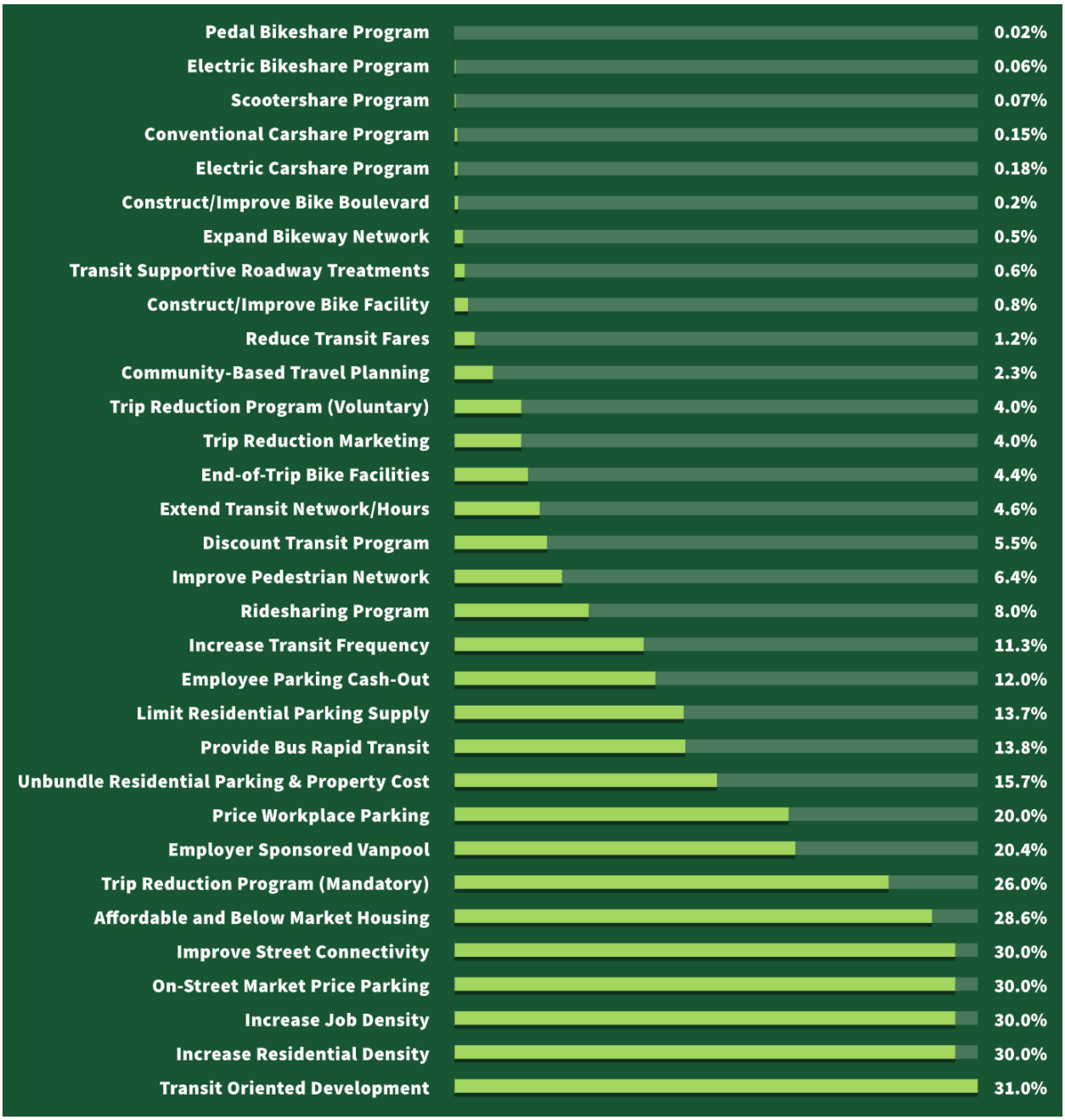


Figure 1. Percentage of VMT or greenhouse gases that could be reduced using each strategy in the CAPCOA 2024 Handbook

Conclusion

This memorandum documents the analytical basis for the VMT-reducing actions incorporated into the Petaluma General Plan TIA and provides supporting evidence for the three VMT-related mitigation menus. Together, these elements demonstrate that the General Plan Update establishes a comprehensive, policy-driven framework for reducing VMT over time through coordinated land use, transportation, and programmatic strategies.

The quantified VMT-reducing actions evaluated in this memorandum reflect conservative, order-of-magnitude estimates derived using standardized methods appropriate for General Plan-level analysis. As discussed throughout this memorandum, these estimates do not capture all of the long-term behavioral and accessibility benefits anticipated from the General Plan Update. In particular, they do not fully reflect the cumulative effects of land use mix, network connectivity, and activity proximity that emerge as the city evolves under the General Plan's policy framework due to the limitations of the available travel models and state or national research.

The General Plan Update advances Petaluma's commitment to active transportation and transit through the full buildout of the City's adopted ATP and transit plans. With these networks in place, nearly every parcel in the city will be within approximately one-eighth of a mile of a high-quality bikeway, supported by a connected system of sidewalks, trails, and frequent transit routes. These investments would substantially improve non-automobile accessibility compared to existing conditions, making it easier for residents to replace short vehicle trips with walking or bicycling and supporting lower auto dependence across a wide range of trip purposes.

The General Plan Update reflects updated economic forecasts and provides greater flexibility for the reuse of existing commercial properties, while expanding opportunities for neighborhood- and community-serving retail and services. The planned 15-minute activity centers are a particularly important VMT-reducing factors, as they bring jobs, retail, schools, parks, and services closer to where people live. By shortening travel distances and increasing the practicality of walking, bicycling, and transit for daily needs, these centers are expected to reduce VMT in ways that are not fully captured by project-level or single-measure elasticity-based methods, particularly compared to patterns envisioned by the existing General Plan.

Taken together, the quantified VMT reductions presented in this memorandum should be understood as a conservative representation of near- to mid-term effects, while the broader accessibility, land use mix, and network changes envisioned by the General Plan Update are likely to yield greater long-term reductions in VMT and traffic volumes than are reflected in the EIR analysis. The mitigation measures included in the General Plan TIA further support this outcome by providing an adaptive, performance-based framework that allows the City to respond to observed travel conditions over time. The City can use this framework to monitor and update the actions it takes to meaningfully reduce VMT and traffic over the planning horizon, consistent with the City's adopted VMT thresholds, state climate goals, and community mobility objectives.

Attachment 1: Supplemental Data

Attachment 1.a: VMT Mitigation Workbook

1. Increase Residential Density & Integrate Affordable and Below Market Rate Housing

Fehr & Peers used a custom VMT reduction formula that combines two measures from CAPCOA. This formula accounts for the VMT reductions from affordable housing and accounts for the reductions from increased land use density. These calculations use VMT and population data from the SCTCA Travel Demand Model.

These calculations are based on CAPCOA Strategy T-1 (Increase Residential Density) and Strategy T-4 (Integrate Affordable and Below Market Rate Housing). Per the CAPCOA guide, these measures can be combined for increased VMT reductions.

Step 1.) Petaluma VMT Details

2019 Dwelling Units	2019 Population	Residents per Dwelling Unit	2050 Dwelling Units	Added Affordable Units	2050 Population	Average Daily HB VMT per Resident
24,327	64,332	2.64	30,777	1,000	81,251	11.57

Step 2.) Calculate VMT Reductions from Increasing the Residential Density of Each TAZ

Customized CAPCOA Strategy T-1 (Increase Residential Density)
Increases residential density of city, reducing VMT

				Daily VMT Results				
Geography	DU per Acre in city, 2019	DU per Acre in city, 2050	Percent Increase in Land Use Density (capped at 25%)	Percent Change in VMT Due to Increase in Land Use Density	Base Daily HB VMT in city (From Existing and Project Population)	Daily VMT Reduction because of Density Increase	Daily HB VMT in city with Density Increase	City Daily HB VMT per Resident with Density Increase
Petaluma	2.19	2.77	25.0%	-5.50%	940,033.88	-51701.86	888,332.02	10.93

Step 3.) Calculate VMT Reductions from the Affordable Housing Units

Customized CAPCOA Strategy T-4 (Intergrate Affordable and Below Market Rate Housing)
Accounts for lower per person VMT for affordable housing residents

			Daily VMT Results		
Geography	Percent reduction in VMT for affordable vs market rate units	Percent of Units that are Affordable	Project VMT (accounting for density increase)	Daily VMT Reduction because of Affordability	Project VMT with Affordability
Petaluma	-28.6%	16%	888,332.02	-39389.61	848,942.41

Total Reductions

Geography	Daily VMT Reductions from Density Increase	Daily VMT Reductions from Affordability	Total Daily VMT Reduction	Days per Year	Total Annual VMT Reduction
Petaluma	-51,702	-39,390	-91,091	347	-31,608,739.75

2. Implement Subsidized or Discounted Transit Program

CAPCOA T-29: Reduce Transit Fares

Petaluma Transit

Step 1.) Calculate VMT reduction percentage

Variable	Value	Source	Notes
B - Percent reduction in transit fare with measure	50%	Based on user assumption	Capped at 50% per CAPCOA guidance.
C- Percent of plan/community transit routes that receive reduced fares	100%	Based on user assumption	
D - Elasticity of transit ridership with respect to transit fare	-0.30	CAPCOA Constant Variable	Handy et al. 2013
E - Transit mode share in plan/community	0.49%	SCTCA Travel Demand Model	Model 2019 Scenario
F - Vehicle mode share in plan/community	90.24%	SCTCA Travel Demand Model	Model 2019 Scenario
G - Statewide mode shift factor	57.80	CAPCOA Constant Variable	FHWA 2017a
Daily VMT Reduction Percentage	-1.20%		

VMT Reduction Formula

Percent Reduction = (B*C*D*E*G)/F Reduction capped at -1.2% per CAPCOA guidance

Entire Petaluma Transit Service Area

Total Population in Service Area	67,863

Petaluma Transit Service Area within Petaluma

Total Population in Service Area	64,263

Step 2.) Apply CAPCOA reduction percentage to area VMT

Total Daily VMT within project area	4,441,406
CAPCOA Percentage Reduction	-1.20%
Daily VMT Reduction	-53,297

Total Daily VMT within project area	4,277,256
CAPCOA Percentage Reduction	-1.20%
Daily VMT Reduction	-51,327

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-53,297	347	-18,494,016

Daily VMT Reduction	Days	Annual VMT Reduction
-51,327	347	-17,810,496

3. Provide Community-Based Travel Planning

CAPCOA T-23: Provide Community-Based Travel Planning

Step 1.) Calculate VMT reduction percentage

Percent of households targeted
100%

Variable	Value	Source	Notes
B - Residences in plan/community	30,777	User input	
C- Residences in plan/community targeted with CBTP	30,777	User input	
D - Percent of targeted residences that participate	19%	Capcoa Constant Variable	MTC 2021
E - Percent vehicle trip reduction by participating residences	12%	Capcoa Constant Variable	MTC 2022
F - Adjustment factor from vehicle trips to VMT	90.24%	Capcoa Constant Variable	Model 2019 Scenario
Daily VMT Reduction Percentage	-2.06%		

VMT Reduction Formula

Percent Reduction = (C/B)*D*-E*F

Total Population in Petaluma	81,251

Step 2.) Apply CAPCOA reduction percentage to area VMT

Total Daily VMT within project area	744,281
CAPCOA Percentage Reduction	-2.06%
Daily VMT Reduction	-15,314

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-15,314	347	-5,314,030

4. Provide Pedestrian Network Improvement

CAPCOA T-18: Provide Pedestrian Network Improvement

Step 1.) Calculate VMT reduction percentage

Sidewalk Gap Closure Miles
10.2

Variable	Value	Source	Notes
B - Existing sidewalk length in study area	930.26	User input	
C- Sidewalk length in study area with measure	940.46	User input	
D - Elasticity of household VMT with respect to the ratio of sidewalk-to-streets	-0.05	Capcoa Constant Variable	Frank et al. 2011
Daily VMT Reduction Percentage	-0.05%		

VMT Reduction Formula

Percent Reduction = ((C/B)-1)*D

Total Population in Service Area	75,272

Step 2.) Apply CAPCOA reduction percentage to area VMT

Total Daily VMT within project area	741,434
CAPCOA Percentage Reduction	-0.05%
Daily VMT Reduction	-406

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-406	347	-141,048

5. Expand Bikeway Network

CAPCOA T-20: Expand Bikeway Network

Step 1.) Calculate VMT reduction percentage

Variable	Value	Source	Notes
B - Existing bikeway miles in plan/community	72.20	User input	
C- Bikeway miles in plan/community with measure	144.20	User input	
D - Bicycle mode share in plan/community	0.47%	San Francisco-Oakland-Hayward CBSA	FHWA 2017
E - Vehicle mode share in plan/community	90.17%	SCTA Model	
F - Average one-way bicycle trip length in plan/community	2.10	San Francisco-Oakland-Hayward CBSA	FHWA 2017
G - Average one-way vehicle trip length in plan/community	12.40	San Francisco-Oakland-Hayward CBSA	FHWA 2017
H - Elasticity of bike commuters with respect to bikeway miles per 10,000 population	0.25	Capcoa Constant Variable	Pucher & Buehler 2011
Daily VMT Reduction Percentage	-0.02%		

VMT Reduction Formula

Percent Reduction = -1*(((C-B)/B)*D*F*H)/(E*G)

Total Population in Service Area	75,272

Step 2.) Apply CAPCOA reduction percentage to area VMT

Total Daily VMT within project area	742,385
CAPCOA Percentage Reduction	-0.02%
Daily VMT Reduction	-163

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-163	347	-56,694

6. Increase Transit Service Frequency

CAPCOA T-26 Increase Transit Service Frequency

This mitigation measure estimates the VMT reduction potential of increasing the frequency of Petaluma Transit Routes.

Route 2

Step 1.) Calculate VMT reduction percentage

Variable	Value	Source	Notes
B - Percent increase in transit frequency	46%	Jared Hall	Ideal Service Levels (2030)
C - Level of implementation	100%	Based on user assumption	This variable accounts for calculations where only part of a transit network receives improvements. This calculation and the data used for this analysis was tailored to evaluate a single transit route, and model data was pulled for the route's service area only (defined as TAZs within 0.5 miles of a bus stop).
D - Elasticity of transit ridership with respect to frequency of service	0.5	CAPCOA Constant Variable	Handey et al. 2013
E - Transit mode share in plan/community	0.48%	SCTCA Travel Demand Model	Model 2019 Scenario
F - Vehicle mode share in plan/community	89.80%	SCTCA Travel Demand Model	Model 2019 Scenario
G - Statewide mode shift factor	57.8%	CAPCOA Constant Variable	FHWA 2017b
Daily VMT Reduction Percentage	-0.07%		

VMT Reduction Formula

Percent Reduction = -C * (B*E*D*G)/F

The information in the two rows below is provided for reference purposes.

Number of TAZs within 0.5 miles of Sonoma County Transit Route 20 Stops	40
Population in Area (for reference purposes only)	36,807

Step 2.) Apply CAPCOA reduction percentage to area VMT

VMT data that are necessary for these calculations were pulled by City from the SCTCA Travel Demand Model.

Total Daily VMT within project area	2,008,085
CAPCOA Percentage Reduction	-0.07%
Daily VMT Reduction	-1,435

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-1,435	347	-497,884

Route 3

Step 1.) Calculate VMT reduction percentage

Variable	Value	Source	Notes
B - Percent increase in transit frequency	174%	Jared Hall	Ideal Service Levels (2030)
C - Level of implementation	100%	Based on user assumption	This variable accounts for calculations where only part of a transit network receives improvements. This calculation and the data used for this analysis was tailored to evaluate a single transit route, and model data was pulled for the route's service area only (defined as TAZs within 0.5 miles of a bus stop).
D - Elasticity of transit ridership with respect to frequency of service	0.5	CAPCOA Constant Variable	Handey et al. 2013
E - Transit mode share in plan/community	0.60%	SCTCA Travel Demand Model	Model 2019 Scenario
F - Vehicle mode share in plan/community	90.18%	SCTCA Travel Demand Model	Model 2019 Scenario
G - Statewide mode shift factor	57.8%	CAPCOA Constant Variable	FHWA 2017b
Daily VMT Reduction Percentage	-0.337%		

VMT Reduction Formula

Percent Reduction = -C * (B*E*D*G)/F

The information in the two rows below is provided for reference purposes.

Number of TAZs within 0.5 miles of Sonoma County Transit Route 32 Stops	49
Population in Area (for reference purposes only)	46,211

Step 2.) Apply CAPCOA reduction percentage to area VMT

VMT data that are necessary for these calculations were pulled by City from the SCTCA Travel Demand Model.

Total Daily VMT within project area	2,215,790
CAPCOA Percentage Reduction	-0.34%
Daily VMT Reduction	-7,456

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-7,456	347	-2,587,398

Route 10

Step 1.) Calculate VMT reduction percentage

Variable	Value	Source	Notes
B - Percent increase in transit frequency	69%	Jared Hall	Ideal Service Levels (2030)
C - Level of implementation	50%	This is 50 percent as Route 44 is interlined with Route 48	This variable accounts for calculations where only part of a transit network receives improvements. This calculation and the data used for this analysis was tailored to evaluate a single transit route, and model data was pulled for the route's service area only (defined as TAZs within 0.5 miles of a bus stop).
D - Elasticity of transit ridership with respect to frequency of service	0.5	CAPCOA Constant Variable	Handey et al. 2013
E - Transit mode share in plan/community	0.48%	SCTCA Travel Demand Model	Model 2019 Scenario
F - Vehicle mode share in plan/community	89.80%	SCTCA Travel Demand Model	Model 2019 Scenario

G - Statewide mode shift factor	57.8%	CAPCOA Constant Variable	FHWA 2017b
Daily VMT Reduction Percentage	-0.05%		

VMT Reduction Formula

Percent Reduction = -C * (B*E*D*G)/F

The information in the two rows below is provided for reference purposes.

Number of TAZs within 0.5 miles of Sonoma County Transit Route 44 Stops	40
Population in Area (for reference purposes only)	36,807

Step 2.) Apply CAPCOA reduction percentage to area VMT

VMT data that are necessary for these calculations were pulled by City from the SCTCA Travel Demand Model.

Total Daily VMT within project area	2,008,085
CAPCOA Percentage Reduction	-0.05%
Daily VMT Reduction	-1,073

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-1,073	347	-372,498

Route 11

Step 1.) Calculate VMT reduction percentage

Variable	Value	Source	Notes
B - Percent increase in transit frequency	46%	Jared Hall	Ideal Service Levels (2030)
C - Level of implementation	50%	This is 50 percent as Route 48 is interlined with Route 44	This variable accounts for calculations where only part of a transit network receives improvements. This calculation and the data used for this analysis was tailored to evaluate a single transit route, and model data was pulled for the route's service area only (defined as TAZs within 0.5 miles of a bus stop).
D - Elasticity of transit ridership with respect to frequency of service	0.5	CAPCOA Constant Variable	Handey et al. 2013
E - Transit mode share in plan/community	0.54%	SCTCA Travel Demand Model	Model 2019 Scenario
F - Vehicle mode share in plan/community	89.54%	SCTCA Travel Demand Model	Model 2019 Scenario
G - Statewide mode shift factor	57.8%	CAPCOA Constant Variable	FHWA 2017b
Daily VMT Reduction Percentage	-0.04%		

VMT Reduction Formula

Percent Reduction = -C * (B*E*D*G)/F

The information in the two rows below is provided for reference purposes.

Number of TAZs within 0.5 miles of Sonoma County Transit Route 48 Stops	41
Population in Area (for reference purposes only)	42,417

Step 2.) Apply CAPCOA reduction percentage to area VMT

VMT data that are necessary for these calculations were pulled by City from the SCTCA Travel Demand Model.

Total Daily VMT within project area	2,098,571
CAPCOA Percentage Reduction	-0.04%
Daily VMT Reduction	-841

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-841	347	-291,669

Route 24

Step 1.) Calculate VMT reduction percentage

Variable	Value	Source	Notes
B - Percent increase in transit frequency	46%	Jared Hall	Ideal Service Levels (2030)
C - Level of implementation	100%	Based on user assumption	This variable accounts for calculations where only part of a transit network receives improvements. This calculation and the data used for this analysis was tailored to evaluate a single transit route, and model data was pulled for the route's service area only (defined as TAZs within 0.5 miles of a bus stop).
D - Elasticity of transit ridership with respect to frequency of service	0.5	CAPCOA Constant Variable	Handey et al. 2013
E - Transit mode share in plan/community	0.51%	SCTCA Travel Demand Model	Model 2019 Scenario
F - Vehicle mode share in plan/community	89.85%	SCTCA Travel Demand Model	Model 2019 Scenario
G - Statewide mode shift factor	57.8%	CAPCOA Constant Variable	FHWA 2017b
Daily VMT Reduction Percentage	-0.08%		

VMT Reduction Formula

Percent Reduction = -C * (B*E*D*G)/F

The information in the two rows below is provided for reference purposes.

Number of TAZs within 0.5 miles of Sonoma County Transit Route 60 Stops	41
Population in Area (for reference purposes only)	40,041

Step 2.) Apply CAPCOA reduction percentage to area VMT

VMT data that are necessary for these calculations were pulled by City from the SCTCA Travel Demand Model.

Total Daily VMT within project area	2,196,037
CAPCOA Percentage Reduction	-0.08%
Daily VMT Reduction	-1,654

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-1,654	347	-573,880

Route 33

Step 1.) Calculate VMT reduction percentage

Variable	Value	Source	Notes
B - Percent increase in transit frequency	100%	Jared Hall	Ideal Service Levels (2030)
C - Level of implementation	100%	Based on user assumption	This variable accounts for calculations where only part of a transit network receives improvements. This calculation and the data used for this analysis was tailored to evaluate a single transit route, and model data was pulled for the route's service area only (defined as TAZs within 0.5 miles of a bus stop).
D - Elasticity of transit ridership with respect to frequency of service	0.5	CAPCOA Constant Variable	Handey et al. 2013
E - Transit mode share in plan/community	0.60%	SCTCA Travel Demand Model	Model 2019 Scenario
F - Vehicle mode share in plan/community	90.18%	SCTCA Travel Demand Model	Model 2019 Scenario
G - Statewide mode shift factor	57.8%	CAPCOA Constant Variable	FHWA 2017b
Daily VMT Reduction Percentage	-0.19%		

VMT Reduction Formula

Percent Reduction = -C * (B*E*D*G)/F

The information in the two rows below is provided for reference purposes.

Number of TAZs within 0.5 miles of Sonoma County Transit Route 60 Stops	48
Population in Area (for reference purposes only)	46,179

Step 2.) Apply CAPCOA reduction percentage to area VMT

VMT data that are necessary for these calculations were pulled by City from the SCTCA Travel Demand Model.

Total Daily VMT within project area	2,214,534
CAPCOA Percentage Reduction	-0.19%
Daily VMT Reduction	-4,282

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-4,282	347	-1,485,942

Total

Sum the subtotals from each route

Daily VMT Reduction	Days	Annual VMT Reduction
-16,741	347	-5,809,272

7. Provide Transit Shelters

CAPCOA T-46: Provide Transit Shelters

Step 1.) Calculate VMT reduction percentage

Variable	Value	Source	Notes
B - Number of transit stops with new bus shelters and benches	53	User input	
C- Average number of boardings per day at each transit station with added amenities	3.96	User input	
D - Average number of boardings per day across the transit agency	4.97	User input	
E - Transit mode share in the plan/community	0.50%	User input	Model 2019 Scenario
F - Percent of total transit users who would otherwise drive	83.3%	CAPCOA Constant Variable	FHWA 2017
G - Average auto occupancy	1.45	CAPCOA Constant Variable	FHWA 2023
H - Percent of total travel time spent waiting (transit trips)	24.9%	CAPCOA Constant Variable	FHWA 2023
I - Percent of perceived total travel time spent waiting (transit trips with shelters)	20.3%	CAPCOA Constant Variable	Fan 2016
J - Wait time elasticity	-0.54	CAPCOA Constant Variable	Taylor et al. 2009
Daily VMT Reduction Percentage	-0.30%		

VMT Reduction Formula

Percent Reduction = B*(C/D)*E*(F/G)*(H-I)*J

Total Population in Service Area	83,435

Step 2.) Apply CAPCOA reduction percentage to area VMT

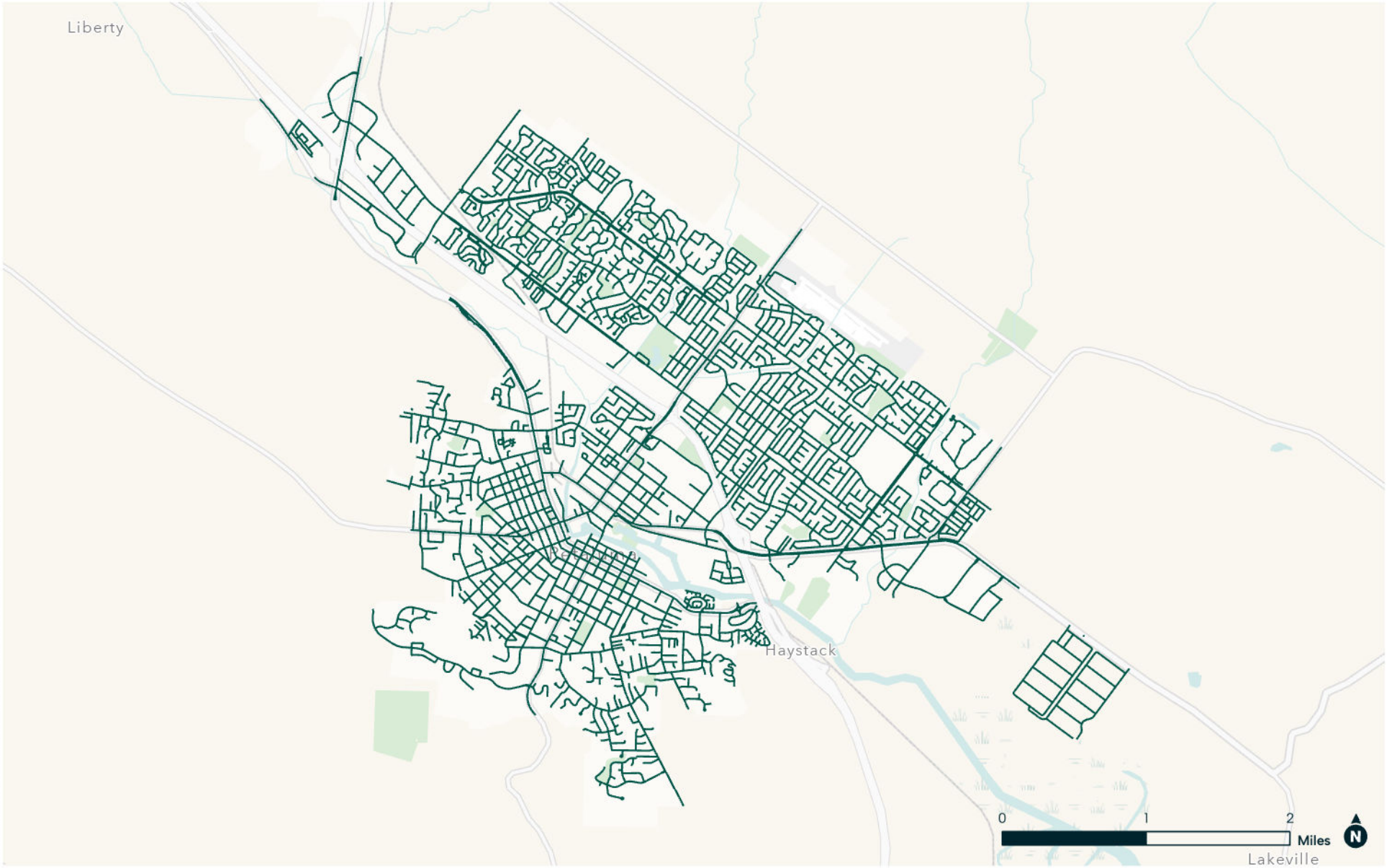
Total Daily VMT within project area	4,381,777
CAPCOA Percentage Reduction	-0.30%
Daily VMT Reduction	-13,160

Step 3.) Convert the daily VMT reductions to annual VMT reductions

Next, the daily VMT reductions was converted to annual VMT reductions.

Daily VMT Reduction	Days	Annual VMT Reduction
-13,160	347	-4,566,377

Attachment 1.b: Open Street Map Roadway Segments



<LINK>C:\Users\jholmes\OneDrive</LINK> - Fehr & Peers\Documents\Petaluma

FIGURE 1

Petaluma Roadways

Fehr & Peers

Attachment 1.c: Petaluma Transit Ridership and Transit Stop Improvement Locations

Stop Name	Stop Number	# Boardings	Boardings/Day	# Alightings	Boardings/Day	Improvements?
Safeway Eastside Transit Center (Washington Square) (87202)	87202	6399	213	5612	187	0
Copeland Street Transit Mall (87100)	87100	1561	52	796	27	0
Ely Blvd S at Juliet Casa Grande (87403)	87403	1377	46	1158	39	0
Keller and Western (87102)	87102	911	30	1397	47	1
Old Redwood Hwy at N McDowell Blvd (87511)	87511	570	19	752	25	0
Sonoma Mtn Pkwy at Reisling Rd SB (87309)	87309	550	18	164	5	1
Petaluma Jr High School (87123)	87123	452	15	339	11	1
Washington and Lakeville EB (87105)	87105	423	14	59	2	0
N McDowell Blvd at Round Walk Circle SB (87520)	87520	415	14	116	4	1
McDowell and Community Center (87500)	87500	353	12	255	9	1
E Washington St at Ellis St WB (87108)	87108	336	11	662	22	0
N McDowell at Clegg SB (87515)	87515	336	11	259	9	0
N McDowell B & Redwood Way (87513)	87513	312	10	142	5	1
4th & C St (87103)	87103	307	10	380	13	1
Ely Blvd S at Casa Grande Rd SB (87404)	87404	275	9	410	14	0
S McDowell Blvd at Baywood Dr SB (87415)	87415	270	9	99	3	0
E Washington St at Vallejo St (87106)	87106	244	8	114	4	0
Lakeville Apt #1 at Ely Blvd S SB (87600)	87600	229	8	138	5	1
N McDowell Blvd at Sunrise Pkwy NB (87504)	87504	223	7	381	13	0
N McDowell Blvd at Petaluma Plaza SC (87524)	87524	203	7	242	8	1
Sonoma Mtn Pkwy at Colombard Rd/Ely Rd (87308)	87308	199	7	88	3	0
E Washington St &Grey St (87101)	87101	193	6	580	19	1
N McDowell at Petaluma Plaza SC(RCU Bank/KMART) (87525)	87525	186	6	322	11	0
Casa Grande Rd at Ely Blvd S EB (87420)	87420	181	6	119	4	0
N McDowell Blvd at Southpoint Blvd SB (87519)	87519	169	6	72	2	0
Grant at Grant School (87167)	87167	164	5	70	2	0
Casa Grande Rd at Casa Grande HS (87405)	87405	145	5	13	0	0
Washington and Vallejo (87109)	87109	139	5	329	11	0
Sonoma Mtn Pkwy at Cygnus Way SB (87311)	87311	129	4	23	1	1
Sonoma Mtn Pkwy at Campus Circle SB (87310)	87310	127	4	55	2	0
Frates & Southgate (The Vineyard Apts) (87601)	87601	123	4	49	2	1
N McDowell Blvd at Rainier Ave NB (87502)	87502	119	4	125	4	0
Maria Dr at Meadow School (87306)	87306	117	4	15	1	0
N McDowell Blvd at Rainier Drive PT (87522)	87522	117	4	85	3	0
Kenilworth JHS on Dover (87333)	87333	116	4	405	14	0
Sonoma Mtn Pkwy at Maria Drive SB (87307)	87307	114	4	8	0	1
Sonoma Mtn Pkwy at Ely Rd/Colombard Rd (87323)	87323	113	4	162	5	1
Washington and Lakeville WB (87110)	87110	93	3	529	18	1
Ely Blvd S at Village East Dr (87422)	87422	91	3	15	1	1
Sonoma Mtn Pkwy at Rainier Ave SB (87312)	87312	90	3	30	1	0
El Rose & D Street (87158)	87158	88	3	10	0	0
Petaluma High School (87122)	87122	84	3	207	7	1
Sonoma Mtn Parkway at Riesling (87322)	87322	84	3	66	2	0
Sonoma Mtn Pkwy at Campus Circle SRJC (87321)	87321	82	3	294	10	1
Lakeville Hwy at Baywood Dr WB (87612)	87612	79	3	20	1	0
Park Ln & Greenbriar Cir NB (87204)	87204	76	3	487	16	1
S McDowell Blvd at Lindberg Lane SB (87413)	87413	73	2	7	0	1
Ely Blvd S at Estuary Way NB (87424)	87424	72	2	25	1	1
N McDowell Blvd at Lynch Creek NB (87501)	87501	72	2	142	5	1
Sonoma Mtn Pkwy at Chehalis Drive SB (87314)	87314	72	2	56	2	0
Maria Dr at Rainier Drive NB (87302)	87302	71	2	26	1	1
Lakeville Hwy & Caulfield (Lucky's Shopping Center (87613)	87613	70	2	20	1	0
N McDowell Blvd at Southpoint Blvd NB (Wells Fargo) (87505)	87505	64	2	47	2	0
Kaiser Medical Center (87606)	87606	59	2	40	1	0
S McDowell Blvd at Caufield (87414)	87414	59	2	17	1	0
McNear Ave at Mission Dr WB (87119)	87119	57	2	1	0	0
N McDowell Blvd at Youngstown MHP SB (87517)	87517	56	2	29	1	1
N. McDowell Blvd. north of Rand St. (Post Office) (87508)	87508	50	2	111	4	1
Petaluma Blvd N at Magnolia Ave SB (87136)	87136	49	2	3	0	0
S McDowell Blvd at Baywood Dr NB (87408)	87408	49	2	237	8	0
E Madison St at Novak Dr Sr Cent (87205)	87205	48	2	0	0	0
Maria Dr at Northstar Dr NB (87304)	87304	47	2	2	0	0
Petaluma Blvd N at ShastaAve/Sycamore (87128)	87128	47	2	118	4	0
Casa Grande Rd at S McDowell (87418)	87418	46	2	16	1	0
Maria Dr at DuPree Meadow School (87325)	87325	46	2	30	1	0
Sonoma Mtn Pkwy at St James Church (87315)	87315	46	2	52	2	0
Ely Blvd S at Meadowview Dr NB (87423)	87423	45	2	36	1	0
Sonoma Mtn Pkwy at Turtle Creek Way (87317)	87317	44	1	34	1	0
SMART Station Lakeville Street (87170)	87170	41	1	170	6	0
Sonoma Mtn Pkwy at E Washington NB (87316)	87316	37	1	98	3	0
Sonoma Mtn Pkwy at Clary Way SB (87313)	87313	36	1	25	1	0
Lakeville Hwy at Casa Grande Rd WB (87610)	87610	35	1	5	0	0
Casa Grande High School at Casa Gr Rd (987900)	987900	34	1	590	20	0
N McDowell Blvd at Lynch Creek SB (87523)	87523	34	1	86	3	1
Petaluma Blvd N at Gossage Ave Park (87133)	87133	34	1	32	1	0
Petaluma Blvd N at Shasta Ave/Sycamore (87135)	87135	34	1	0	0	1
Maria Dr at Rainier Ave SB (87329)	87329	31	1	58	2	1
N. McDowell @ RR Tracks – Sr. Apts NB (87529)	87529	31	1	87	3	0
S McDowell Blvd at Cypress Dr (87607)	87607	31	1	0	0	1
Maria Dr at Sunrise Pkwy NB (87305)	87305	28	1	12	0	1
St. Francis Dr. at S. McDowell Blvd. (87417)	87417	28	1	12	0	0
Lakeville @ Caulfeld SB (87622)	87622	27	1	31	1	0
Maria at Creekside Drive (87200)	87200	26	1	150	5	0
Sonoma Mtn Pkwy at Cygnus Way NB (87320)	87320	26	1	104	3	0
Maria Dr and Greenbriar (87201)	87201	25	1	225	8	1

Maria Dr at Morning Glory Dr (87324)	87324	25	1	52	2	0
S McDowell Blvd at Casa Grande Rd N (87406)	87406	25	1	83	3	1
3820 Cypress Dr at S McDowell Extens (87801)	87801	24	1	44	1	0
Lakeville @ Casa Grande Rd. SB (87620)	87620	24	1	43	1	0
2000 S McDowell Blvd. at Cader Lane NB (87608)	87608	23	1	22	1	1
Petaluma Blvd N at West St SB (87137)	87137	22	1	0	0	0
Petaluma Blvd N at Factory Outlets N (87129)	87129	21	1	39	1	1
Petaluma Blvd S at Roundabout SB (87113)	87113	21	1	10	0	0
S McDowell Blvd at Weaverly Dr NB (87411)	87411	21	1	50	2	1
4th & C Street (87104)	87104	19	1	19	1	0
Maria Dr at Sunrise Pkwy SB (87326)	87326	19	1	79	3	0
N McDowell Blvd at Petaluma Estates MHP SB (87518)	87518	18	1	4	0	1
N McDowell Blvd at Youngstown MHP NB (87507)	87507	18	1	109	4	1
Petaluma Blvd N at Cherry NB (87127)	87127	18	1	70	2	0
Ely Blvd S at Caulifield Lane SB (87402)	87402	17	1	89	3	0
N McDowell Blvd at Rand St Post Off (87516)	87516	16	1	26	1	0
Ely Blvd S at Washington Creek SB (87401)	87401	15	1	62	2	0
Lakeville @ S. McDowell Ext NB (87628)	87628	15	1	21	1	0
S McDowell Blvd at Caulfield Ln NB (87410)	87410	15	1	119	4	0
Ely Blvd South @ Capistrano SB (87430)	87430	14	0	17	1	0
S. McDowell Blvd Ext and Fisher Dr (87609)	87609	14	0	0	0	1
Bodega Ave at Bantam Way (87124)	87124	13	0	1	0	0
Petaluma Blvd N at Oak St SB (87138)	87138	13	0	0	0	0
Sonoma Mtn Pkwy at Rainier Drive NB (87319)	87319	12	0	53	2	0
Maria Dr at Monroe St Eldred SB (87331)	87331	11	0	53	2	0
McNear Ave & Country Club Drive (87152)	87152	11	0	18	1	0
N McDowell Blvd at Candlewood Dr (87521)	87521	10	0	1	0	1
Petaluma Blvd N at Washington St NB (87125)	87125	10	0	21	1	1
S McDowell Blvd at Anna Way NB (87407)	87407	10	0	17	1	0
Ely Blvd S at Gilrix St SB (87400)	87400	9	0	5	0	0
Ely Blvd S at Clydesdale Way NB (87425)	87425	7	0	7	0	1
Ely Blvd S at Gilrix St NB (87426)	87426	7	0	13	0	0
Lakeville @ S. McDowell Ext SB (87627)	87627	7	0	13	0	0
N McDowell Blvd at Candlewood Dr NB (87503)	87503	7	0	7	0	0
Sheraton Hotel – Lakeville & Baywood SB (87618)	87618	7	0	65	2	1
Petaluma Blvd N at Factory Outlets S (87134)	87134	6	0	0	0	0
Casa Grande Rd & Sartori Dr – NB (87419)	87419	5	0	7	0	0
Ely Blvd S at Cross Creek St N (87421)	87421	5	0	11	0	0
Lakeville Hwy at Jefferson St NB (87805)	87805	5	0	6	0	0
Maria Dr at Monroe St Eldred NB (87300)	87300	4	0	10	0	0
Lakeville @ Marina SB (87619)	87619	3	0	0	0	0
N McDowell Blvd at Scott NB (87509)	87509	3	0	79	3	0
1330 Redwood Way at Holistic Institute (87512)	87512	2	0	2	0	0
Maria Dr at Professional Dr (87330)	87330	2	0	5	0	1
McNear Ave. & Mountain View (87154)	87154	2	0	0	0	0
Petaluma Blvd S at Mtn View Ave SB (87112)	87112	2	0	4	0	1
Senior Center (E Madison St at Novak Dr) (87206)	87206	2	0	25	1	0
Sonoma Mtn Pkwy at Castle Drive NB (87318)	87318	2	0	7	0	1
B Street at BGC (87165)	87165	1	0	0	0	0
E Washington St at Ellis St EB (87107)	87107	1	0	2	0	0
Lakeville Hwy at Marina Ave WB (87611)	87611	1	0	0	0	0
Lakeville @ Frates NB (87625)	87625	0	0	11	0	1
Magnolia at SVHS (87164)	87164	0	0	21	1	0
Petaluma Blvd N at Mary St SB (87139)	87139	0	0	9	0	1
S McDowell Blvd at Lakeville Hwy (87804)	87804	0	0	2	0	0
Sonoma Mtn Pkwy at Maria Drive NB (99,990) (no number)		0	0	58	2	0
Sunnyslope & Wallenburg Way (87156)	87156	0	0	1	0	0
Western Ave. & Fair St. (87159)	87159	0	0	12	0	0

Appendix D. General Plan Buildout SCTCA Model Results

Fehr & Peers

Memo

Date: January 9, 2026

To: City of Petaluma

From: Kavya Lakshminarayanan, Kevin Zamzow-Pollock, Matt Goyne (Fehr & Peers)

Subject: Petaluma General Plan Modeling Approach and Results

This memorandum documents Fehr & Peers' use of the Sonoma County Transportation and Climate Authorities (SCTCA) travel demand model on the Petaluma General Plan Update. This memorandum documents the process of updating the existing and future year networks to align with 2019 conditions and General Plan projects and policies, respectively. It summarizes the updated land use inputs used for the future year analysis. It provides a detailed discussion and presentation of model analysis and findings such as VMT, ADT, and V/C Ratio. Finally, it describes the approach to and results from the multimodal accessibility analysis.

Summary

This memorandum documents the modeling approach and key findings supporting the Petaluma General Plan Update, serving as an appendix to the Draft General Plan Environmental Impact Report (EIR) and Transportation Impact Analysis (TIA). The analysis utilizes the SCTCA travel demand model to evaluate both existing and future (2050) conditions, incorporating updated land use inputs and planned transportation projects and policies. The modeling includes two complementary components: a traffic capacity analysis, which assesses roadway volume-to-capacity (V/C) ratios during peak periods, and a multimodal accessibility analysis, which evaluates how people can reach daily activities via walking, bicycling, and transit. This holistic approach provides a more comprehensive understanding of how the transportation network supports access to key destinations for all users, not just vehicles.

A key limitation of traditional peak hour analysis is that it focuses on the most constrained periods of travel, often leading to recommendations for roadway expansions sized to accommodate the highest demand that occurs during a small portion of the day. This can result in overbuilt roadways that are underutilized for the majority of the day, driving up infrastructure costs and encouraging excessive vehicle speeds, while failing to improve overall network performance or accessibility. By contrast, the General Plan Update emphasizes evaluating the transportation system across all periods and modes, supporting investments that align with actual usage patterns and multimodal goals.

The modeling results show that no roadway segments in Petaluma are expected to operate over their capacity during the AM or PM peak hours in the future. This represents a substantial change from the prior General Plan, where expansions such as the Rainier Avenue extension were identified to accommodate projected increases in automobile-dependent travel and regional retail. Under the

updated General Plan, these expansions are no longer needed to improve crosstown accessibility. Instead, the focus shifts to enhancing existing connections, implementing multimodal improvements, and managing roadway speeds to reduce per capita kinetic energy in the system. These strategies support safer, more efficient, and sustainable travel for all users, reflecting the City's commitment to complete streets and climate goals.

The latest future year network of the SCTCA model is based on the City's current General Plan and Plan Bay Area 2040. While the 2025 General Plan Update has a horizon year of 2050, the SCTCA model has yet to be updated to reflect Plan Bay Area 2050. SCTCA plans to make this update in the coming years but until that significant regional effort is completed, the 2040 model is only model available for evaluation of the City's General Plan. Therefore, the future year SCTCA model includes updates to reflect the 2025 General Plan Update, including planned 2050 land use and transportation changes within Petaluma, while maintaining the Plan Bay Area 2040 consistent land uses and transportation network facilities outside of Petaluma. The future year analysis is referred to as 2050 conditions for the remainder of this memo to reflect the horizon year of the General Plan Update buildout.

Network Inputs

Fehr & Peers checked the existing roadway network in the model against 2019 base year conditions and made updates to the future year network to align with General Plan projects and policies. These updates included network corrections as well as updating the number of lanes, speed limits, and functional classifications. A summary of these factors for the General Plan study roadway segments can be found in **Table 1. Figure 1** provides a visual for the roadway segments studied.

Network Edits

The future year SCTCA model network was updated to reflect the planned roadway network shown in Figure 1. Street Classification Map of the TIA. This includes removing the Rainier Avenue roadway extension and adjusting the location of the Caulfield Bridge to match its planned alignment. Finally, the alignment of San Antonio Road south of Petaluma was corrected to match its actual location.

The model network did not include some sections of the roadway necessary for the General Plan analysis. Therefore, the following segments were added to the model network:

1. Payran Street between Caulfield Lane and Magnolia Avenue
2. E D Street between Lakeville Street and Payran Street
3. Casa Grande Ave between Lakeville Highway and Technology Lane

Number of Lanes & Road Diets

The General Plan is proposing roadway configurations that include bidirectional road diets, converting two travel lanes in a single direction to one travel lane to achieve the roadway safety and multimodal accessibility goals included in the 2025 General Plan Update. The proposed road diets are located along roadway segments in **Table 1**. **Figure 3** provides a visual representation of streets recommended to be road dieted.

Speed Limits

Speed limit adjustments were made to both base year and future year roadway networks. Base year corrections reflect the current posted speed limits, while future year updates align with proposed roadway classifications and design speeds presented in the TIA to achieve the roadway safety and multimodal accessibility goals included in the 2025 General Plan Update. Specific changes are summarized in **Table 1**.

Functional Classifications

Roadway functional classifications were reviewed by comparing the model roadway network against the most recent Caltrans functional classification[1] map to ensure consistency. Wherever discrepancies were identified, classifications were refined to align with the Caltrans designations. **Table 1** shows the model roadway segments whose classifications were updated.

Table 1. Study Roadway Segment Features

Roadway	Extents	Existing (2019)			Future (2050)		
		# Lanes	Speed Limit	Class	# Lanes	Speed Limit	Class
Petaluma Blvd	Gossage Ave & Sycamore Ln/ Shasta Ave	4	45	Arterial	4	45	Arterial
	McDowell Blvd & Bailey Ave/City Limits	4	30	Arterial	4	30	Arterial
	Sycamore Ln/ Shasta Ave & Lakeville St	4	25	Arterial	4	25	Arterial
	Lakeville St & D St	2	25	Arterial	2	25	Arterial
	D St & I St	2	25	Arterial	2	25	Arterial
	McNear Cir & City Limits	4	30	Arterial	4	30	Arterial
	Lynch Creek Way & Washington St	4	35	Arterial	4	35	Arterial
McDowell Blvd	Old Redwood Hwy & Lynch Creek Way	4	40	Arterial	4	40	Arterial
	Washington St & Lakeville Hwy	2-4	40	Arterial	2	25	Arterial
Washington Street	McDowell Blvd & Lakeville St	4	30	Arterial	4	30	Arterial
	Lakeville St & Howard St	4	25	Arterial	4	25	Arterial
	Ely Blvd & McDowell Blvd	4	35	Arterial	4	35	Arterial
	Executive Dr & Ely Blvd	4	40	Arterial	2	25	Arterial
	Washington St Bet. City Limits & Executive Dr	2	45	Arterial	2	45	Arterial
	Wilson St & Caulfield Ln	4	35	Arterial	4	35	Arterial

[1] California Department of Transportation (Caltrans): Functional Classification | Caltrans

Lakeville St / Highway	Petaluma Blvd & Wilson St	2-4	25	Collector	2-4	25	Arterial
Sonoma Mountain Pkwy	Madison St & Washington St	4	40	Arterial	2	25	Collector
	Sonoma Mountain Pkwy Bet. Corona Rd & Madison St	4	40	Arterial	2	25	Collector
Old Redwood Hwy	McDowell Blvd & City Limits	4	40	Arterial	4	40	Arterial
Corona Rd	Industrial Ave & McDowell Blvd	2	35	Arterial	2	35	Arterial
Frates Rd	Ely Blvd & Lakeville Hwy	2	40	Arterial	2	40	Arterial
	Clubhouse Dr/City Limits & Ely Blvd	2	45	Arterial	2	45	Arterial
	McDowell Blvd & Lakeville St	4	40	Arterial	2	25	Arterial
Caulfield Ln	Ely Blvd & McDowell Blvd	4	30	Arterial	2	25	Collector
	Crinella Dr & S McDowell Blvd	4	35	Arterial	2	25	Collector
Bodega Ave	Bodega Ave Bet. Howard St & Holly Heights/City Limits	2	30	Arterial	2	30	Arterial
Stony Point Rd	Petaluma Blvd & Rainsville Rd/City Limits	2-4	60	Arterial	2-4	60	Arterial
	Rainsville Rd/City Limits & Orchard Ln/City Limit	2	60	Arterial	2	60	Arterial
D St	6th St & Sunnyslope Ave/El Rose Dr	2	30	Arterial	2	30	Arterial
	Sunnyslope Ave/El Rose Dr & Pinnacle Dr	2	35	Arterial	2	35	Arterial
	Payran St & 6th St	2	30	Arterial	2	30	Arterial
Casa Grande Rd	Ely Blvd & Lakeville Hwy	4	35	Arterial	2	25	Collector
	Casa Grande Rd Bet. Lakeville Hwy & Technology Ln	2	35	Collector	2	25	Collector
Ely Blvd[1]	Washington St & Frates Rd	4	35	Arterial	2	25	Collector
Magnolia Ave	Petaluma Blvd & Birch Dr	2	30	Collector	2	30	Collector
Payran St	Petaluma Blvd & Jefferson St	2	25	Collector	2	25	Collector
	Jefferson St & Caulfield Ln	4	30	Collector	2	25	Collector
Rainier Ave	Sonoma Mountain Pkwy & McDowell Blvd	4	35	Arterial	2	25	Collector

I St	Petaluma Blvd & Sunnyslope Rd	2	30	Collector	2	30	Collector
Western Ave	Petaluma Blvd & Howard St	2	25	Arterial	2	26	Arterial

Source: Fehr & Peers, 2025.
[1] In addition to the above streets, the functional class of Ely Boulevard North between Corona Road & Sonoma Mountain Parkway, was updated from 3 to 7 to match Caltrans' classification.

Land Use Inputs

Future year land use input data was provided by the Raimi and Associates and reflects anticipated changes relative to the 2019 base year as a result of the General Plan. Land use data includes changes to residential, hotel, office, commercial, industrial, and recreational land uses. While no category sees a decrease in land use between 2019 and 2050, some categories, particularly commercial and office, see lower land use totals in 2050 than under the previous 2040 General Plan. Existing and future land use by category and TAZ is provided in the **Additional Tables**. For reference, a locator map with all TAZs is provided in **Figure 2.**

Fehr & Peers

Figure 1: Petaluma General Plan Update Study Segments

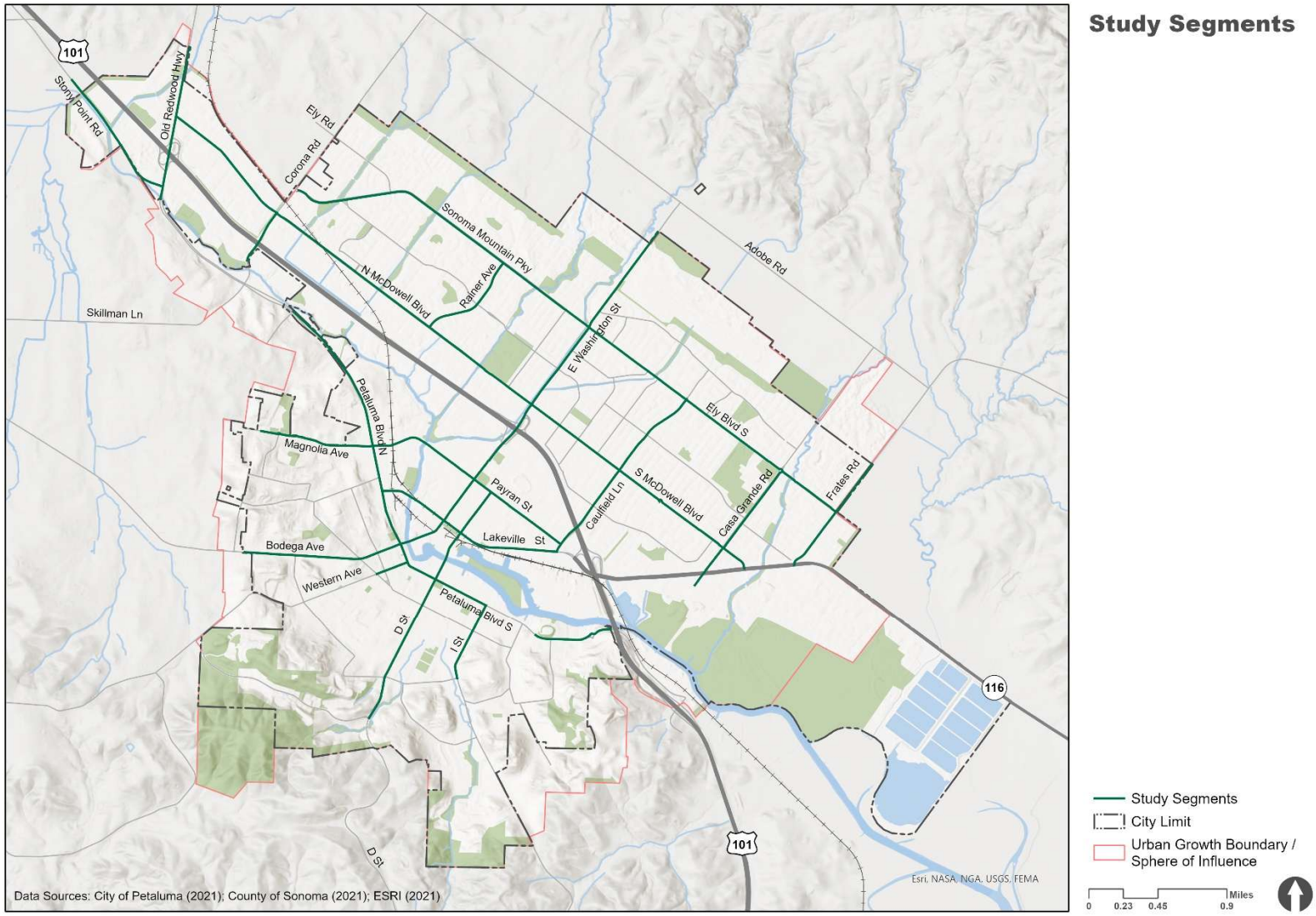
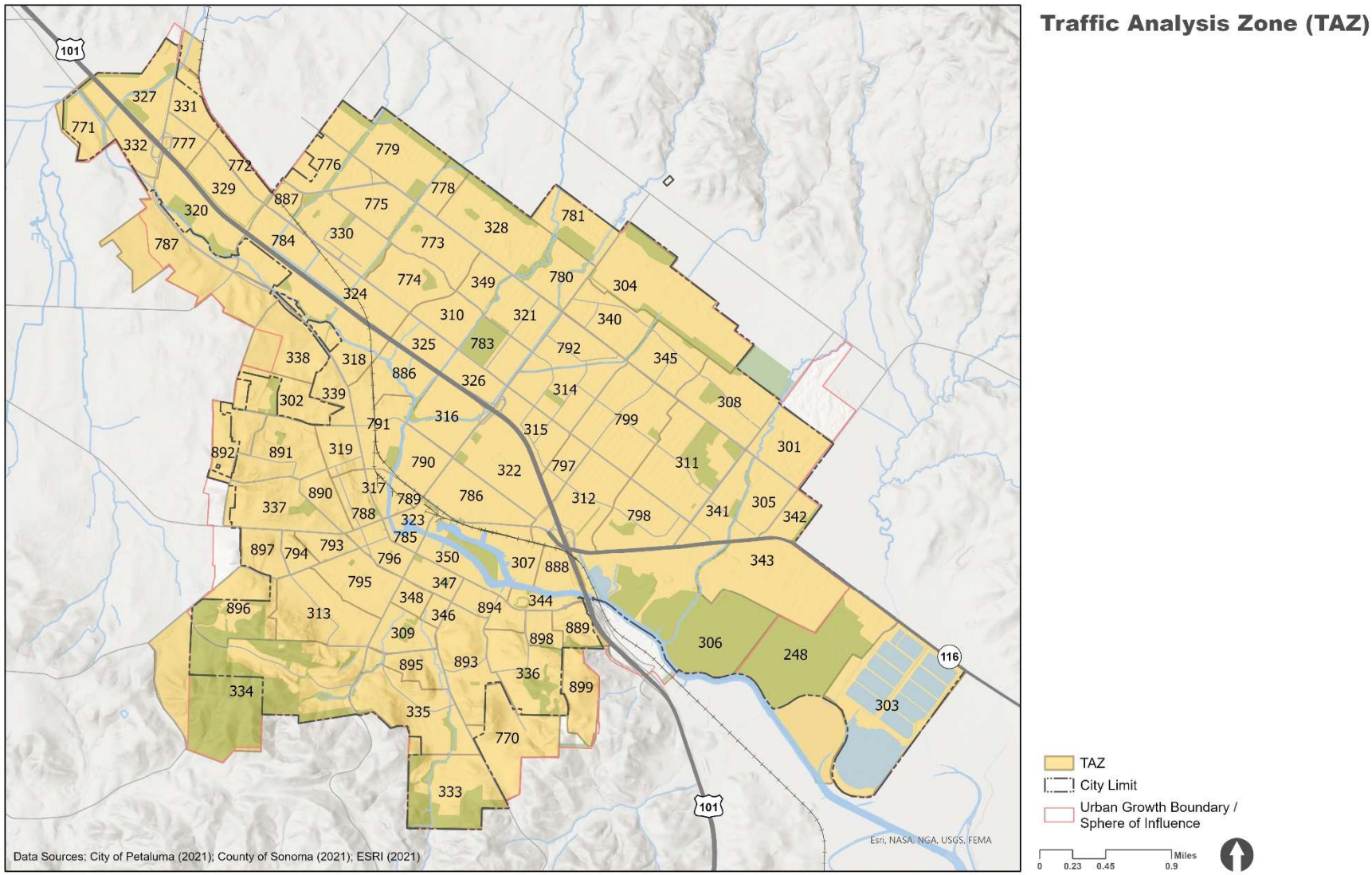


Figure 2: Traffic Analysis Zones



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Model Outputs

Model outputs used for the General Plan analysis include vehicle miles traveled (VMT) and average daily traffic (ADT) on study roadway segments.

VMT

Vehicle miles travelled (VMT) is a measure of the total distance driven by vehicle trips starting and/or ending within Petaluma and is the primary metric used by the City of Petaluma to track environmental impacts and climate goals. VMT is presented per capita for residential and employment trips. Residential VMT per resident includes all home-based VMT from Petaluma residents divided by total population. Employment VMT per employee includes all trips ending at Petaluma workplaces divided by all Petaluma employees.

While the SCTCA model is the most appropriate model for this analysis, it is primarily used to analyze vehicular travel and takes a very high-level approach to walking, bicycling, and transit travel. As documented in the TIA and in **Appendix C. VMT and Traffic Reduction Measures Quantification**, the analysis incorporates the latest guidance provided by the California Air Pollution Control Officers Association (CAPCOA) about the effect of different measures that the City could take as a part of the General Plan preferred alternative to change travel behaviors and reduce VMT. Based on quantification of the VMT reduction potential of actions within the General Plan preferred alternative, this analysis applies a 4.45% reduction to all future year VMT outputs from the model.

The existing year and adjusted future year VMT results by TAZ can be found in the **Additional Tables**.

ADT

Base year Average Daily Traffic (ADT) values are calculated by combining observed traffic counts with the SCTCA model values. Base year ADT values are derived directly from 2019 traffic counts and future year values are derived by adding to the traffic counts the difference between 2050 model ADT and 2019 ADT for each corresponding roadway segment.

The future year ADT is derived from the model ADT post CAPCOA adjustment as described above and documented in **Appendix C. VMT and Traffic Reduction Measures Quantification**. A limitation of this adjustment is that reductions are applied citywide given the citywide nature of General Plan policies. Realistically, some areas would benefit more from policies than others, such as denser and more transit accessible parts of Petaluma. Therefore, the results below likely overstate the traffic volumes on such streets, many of which are among the more constrained and congested roadways in Petaluma.

Based on the projected volumes, about half of study segments experience small changes in traffic volumes – at most a 10% increase or decrease. These are typical fluctuations in traffic volumes that drivers experience on a day to day basis. Some roadways with road diets, such as McDowell Boulevard, Sonoma Mountain Parkway, Caulfield Lane, and Rainier Avenue, experience larger decreases in traffic volumes as drivers choose other routes. Select arterials, such as Lakeville Street, Old Redwood Highway, D Street, and Casa Grande Road, experience larger increases in traffic

volumes due to new land uses or shifts in travel patterns. However, as described in the subsequent section on volume-to-capacity ratios, all streets are still expected to function within capacity.

Table 2. Study Roadway Segment Features

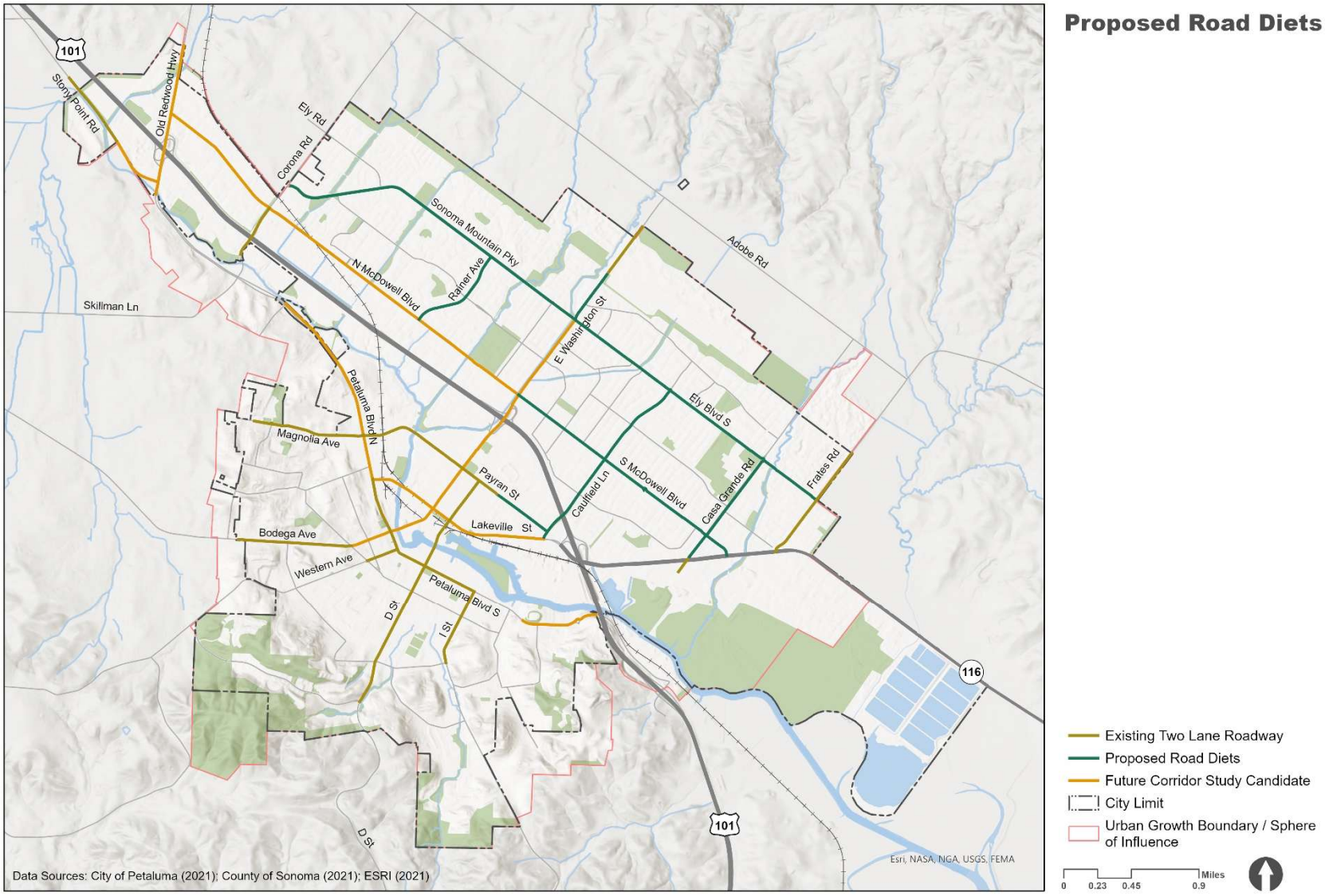
Roadway	Extents	Existing Year (2019)		Future Year (2050)	
		# Lanes	Unadjusted ADT	# Lanes	Adjusted ADT
Petaluma Blvd	Gossage Ave & Sycamore Ln/ Shasta Ave	4	27,240	4	29,671
	McDowell Blvd & Bailey Ave/City Limits	4	23,029	4	24,166
	Sycamore Ln/ Shasta Ave & Lakeville St	4	21,754	4	23,692
	Lakeville St & D St	2	13,373	2	13,262
	D St & I St	2	12,618	2	13,909
	McNear Cir & City Limits	4	11,348	4	11,975
McDowell Blvd	Lynch Creek Way & Washington St	4	25,564	4	27,630
	Old Redwood Hwy & Lynch Creek Way	4	20,118	4	21,743
	Washington St & Lakeville Hwy	2-4	9,278	2	5,952
Washington Street	McDowell Blvd & Lakeville St	4	24,049	4	25,624
	Lakeville St & Howard St	4	20,411	4	21,142
	Ely Blvd & McDowell Blvd	4	19,209	4	20,619
	Executive Dr & Ely Blvd	4	9,584	2	9,726
	City Limits & Executive Dr	2	8,900	2	8,883
Lakeville St / Highway	Wilson St & Caulfield Ln	4	19,809	4	24,381
	Petaluma Blvd & Wilson St	2-4	5,297	2-4	7,595
Sonoma Mountain Pkwy	Madison St & Washington St	4	19,052	2	13,458
	Corona Rd & Madison St	4	8,052	2	4,255
Old Redwood Hwy	McDowell Blvd & City Limits	4	18,022	4	23,130
Corona Rd	Industrial Ave & McDowell Blvd	2	14,253	2	15,814
Frates Rd	Ely Blvd & Lakeville Hwy	2	12,604	2	13,068
	Clubhouse Dr/City Limits & Ely Blvd	2	9,607	2	9,163

Caulfield Ln	McDowell Blvd & Lakeville St	4	11,381	2	6,198
	Ely Blvd & McDowell Blvd	4	8,090	2	5,709
	Crinella Dr & S McDowell Blvd	4	7,871	2	5,056
Bodega Ave	Howard St & Holly Heights/City Limits	2	10,452	2	10,732
Stony Point Rd	Petaluma Blvd & Rainsville Rd/City Limits	2-4	10,384	2-4	10,508
	Rainsville Rd/City Limits & Orchard Ln/City Limit	2	7,878	2	8,042
D St	6th St & Sunnyslope Ave/El Rose Dr	2	9,450	2	9,994
	Sunnyslope Ave/El Rose Dr & Pinnacle Dr	2	6,078	2	6,298
	Payran St & 6th St	2	4,006	2	5,493
Casa Grande Rd	Ely Blvd & Lakeville Hwy	4	8,693	2	8,526
	Lakeville Hwy & Technology Ln	2	3,348	2	4,812
Ely Blvd	Washington St & Frates Rd	4	8,681	2	7,533
Magnolia Ave	Petaluma Blvd & Birch Dr	2	6,756	2	7,295
Payran St	Petaluma Blvd & Jefferson St	2	6,678	2	8,414
	Jefferson St & Caulfield Ln	4	6,140	2	5,268
Rainier Ave	Sonoma Mountain Pkwy & McDowell Blvd	4	5,473	2	4,335
I St	Petaluma Blvd & Sunnyslope Rd	2	4,647	2	6,277
Western Ave	Petaluma Blvd & Howard St	2	4,631	2	5,124

Source: Fehr & Peers, 2025.

Fehr & Peers

Figure 3: Proposed Road Diets



Volume to Capacity Ratio

Volume-to-capacity (V/C) ratios measure the relationship between roadway demand and roadway supply and provide an understanding of how the roadway network accommodates vehicle travel. Study segment V/C ratios are calculated for both existing (2019) conditions and 2050 forecast conditions using link AM and PM peak hour volumes. While the ADT estimates above are calculated by applying the difference in model volumes to observed 2019 traffic counts, due to a lack of peak hour 2019 counts at all locations, the V/C analysis simply uses the model estimates for AM and PM peak hour volumes. The capacity of the roadway segments is calculated as length-weighted average using the corresponding model segments. Roadway capacity and level of service (LOS) are not used for evaluation of environmental impacts consistent with SB 743 and City Council Resolution No. 2021-112.

The SCTCA travel demand model is set up to allow AM and PM peak hour V/C but not daily calculations. Peak hour analysis, while useful for identifying the most constrained periods of travel, has significant limitations compared to daily analysis when evaluating a general plan. Other peak periods outside those that the SCTCA travel demand model is designed for include event conditions or those conditions before or after school pick-up periods. Designing roadway networks based solely on the peak hour V/C ratios or LOS often results in infrastructure sized for the highest demand that occurs during a very small portion of the day. This approach can lead to overbuilt roadways that are underutilized for the majority of the day, creating inefficiencies in both cost and performance of the overall transportation network. When traffic volumes drop outside of peak periods, these oversized facilities encourage excessive speeds, increase maintenance costs, and consume valuable land resources—all to accommodate conditions that exist for only a few hours. Therefore, the results of the peak hour V/C analysis must be evaluated within the context of the roadway safety and multimodal accessibility policies of the General Plan Update.

EXISTING YEAR (2019)

Table 3 shows the base year (existing) volume to capacity ratio using the 2019 SCTCA Model. As described above, the 2019 SCTCA travel model is the latest travel model available for the purposes of this analysis. Therefore, some roadway changes completed since 2019, such as the complete street and roadway safety projects that reduced Petaluma Boulevard and Rainier Avenue from four to two travel lanes, are not reflected in this analysis. They are included in the future year model analysis.

Under the existing conditions analysis, the SCTCA model indicates that most roadway study segments operate well within their available capacity, with the volume-to-capacity (V/C) ratios under 1.0. This doesn't mean that there isn't intermittent traffic congestion that slows down drivers on some roadways, particularly during the peak hours of travel, but rather that the roadways do not exceed their theoretical capacities where drivers wait through multiple signal cycles. Segments with volumes that approach peak hour roadway capacities of 1.0, with values between 0.8 and 1.0, include the following roadways that are discussed further within the roadway constraints section of the TIA:

- Corona Rd between Industrial Ave & McDowell Blvd during the PM peak hour (two-lanes)
- Petaluma Boulevard between McDowell Boulevard & Bailey Avenue/City Limits during PM Peak Hour (two-lanes)
- Petaluma Boulevard between Lakeville Street & D Street during AM & PM peak hours (two-lanes)

- Washington Street between McDowell Boulevard and Lakeville Street during AM & PM peak hours (four-lanes)
- Lakeville Street between Wilson Street and Caulfield Lane during PM peak hours (four-lanes)
- Casa Grande Road between Lakeville Highway & Technology Lane during PM peak hour (two-lanes)

Table 3: Existing Year (2019) Volume to Capacity Ratio

Roadway	Extents	# Lanes	ADT	Capacity	AM Peak	AM V/C Ratio	PM Peak	PM V/C Ratio
Petaluma Blvd	Gossage Ave & Sycamore Ln/ Shasta Ave	4	27,240	3,200	1,767	0.55	2,233	0.70
	McDowell Blvd & Bailey Ave/City Limits	4	23,029	3,200	2,040	0.64	2,548	0.80
	Sycamore Ln/ Shasta Ave & Lakeville St	4	21,754	3,200	1,726	0.54	2,189	0.68
	Lakeville St & D St	2	13,373	1,600	1,367	0.85	1,511	0.94
	D St & I St	2	12,618	1,600	985	0.62	1,263	0.79
	McNear Cir & City Limits	4	11,348	3,200	890	0.28	1,395	0.44
McDowell Blvd	Lynch Creek Way & Washington St	4	25,564	3,200	1,787	0.56	2,358	0.74
	Old Redwood Hwy & Lynch Creek Way	4	20,118	3,200	1,326	0.41	1,758	0.55
	Washington St & Lakeville Hwy	2-4	9,278	2,124	1,057	0.50	1,203	0.57
Washington Street	McDowell Blvd & Lakeville St	4	24,049	3,200	2,586	0.81	2,928	0.92
	Lakeville St & Howard St	4	20,411	3,200	1,359	0.42	1,705	0.53
	Ely Blvd & McDowell Blvd	4	19,209	3,200	1,270	0.40	1,382	0.43
	Executive Dr & Ely Blvd	4	9,584	3,200	504	0.16	484	0.15
	City Limits & Executive Dr	2	8,900	1,600	504	0.32	484	0.30
Lakeville St / Highway	Wilson St & Caulfield Ln	4	19,809	3,200	2,155	0.67	2,616	0.82
	Petaluma Blvd & Wilson St	2-4	5,297	2,146	1,242	0.58	1,615	0.75

Sonoma Mountain Pkwy	Madison St & Washington St	4	19,052	3,200	1,135	0.35	1,312	0.41
	Corona Rd & Madison St	4	8,052	3,200	945	0.30	1,066	0.33
Old Redwood Hwy	McDowell Blvd & City Limits	4	18,022	3,200	1,564	0.49	1,740	0.54
Corona Rd	Industrial Ave & McDowell Blvd	2	14,253	1,600	1,094	0.68	1,456	0.91
Frates Rd	Ely Blvd & Lakeville Hwy	2	12,604	1,600	1,015	0.63	1,088	0.68
	Clubhouse Dr/City Limits & Ely Blvd	2	9,607	3,200[1]	650	0.20	714	0.22
Caulfield Ln	McDowell Blvd & Lakeville St	4	11,381	2,961	1,229	0.41	1,704	0.58
	Ely Blvd & McDowell Blvd	4	8,090	3,200	423	0.13	601	0.19
	Crinella Dr & S McDowell Blvd	4	7,871	3,200	842	0.26	1,050	0.33
Bodega Ave	Howard St & Holly Heights/City Limits	2	10,452	1,822	415	0.23	509	0.28
Stony Point Rd	Petaluma Blvd & Rainsville Rd/City Limits	2–4	10,384	2,096	373	0.18	471	0.22
	Rainsville Rd/City Limits & Orchard Ln/City Limit	2	7,878	2,600	344	0.13	430	0.17
D St	6th St & Sunnyslope Ave/El Rose Dr	2	9,450	1,600	1,090	0.68	1,063	0.66
	Sunnyslope Ave/El Rose Dr & Pinnacle Dr	2	6,078	1,600	698	0.44	647	0.40
	Payran St & 6th St	2	4,006	1,600	1,126	0.70	1,234	0.77
Casa Grande Rd	Ely Blvd & Lakeville Hwy	4	8,693	3,200	492	0.15	569	0.18
	Lakeville Hwy & Technology Ln	2	3,348	1,400	820	0.59	1,118	0.80
Ely Blvd	Washington St & Frates Rd	4	8,681	3,200	451	0.14	559	0.17

Magnolia Ave	Petaluma Blvd & Birch Dr	2	6,756	1,400	377	0.27	405	0.29
Payran St	Petaluma Blvd & Jefferson St	2	6,678	1,400	592	0.42	878	0.63
	Jefferson St & Caulfield Ln	4	6,140	2,800	716	0.26	913	0.33
Rainier Ave	Sonoma Mountain Pkwy & McDowell Blvd	4	5,473	3,200	354	0.11	406	0.13
I St	Petaluma Blvd & Sunnyslope Rd	2	4,647	1,400	256	0.18	254	0.18
Western Ave	Petaluma Blvd & Howard St	2	4,631	1600	970	0.61	1,036	0.65

Source: Fehr & Peers 2025
[1] This portion of Frates Road is categorized in the SCTCA model as a rural road, which means it has a higher per lane capacity than other streets in Petaluma.

FUTURE YEAR (2050)

The General Plan Update includes roadway network changes to reallocate roadway space where excess capacity can lead to excessive roadway speeds for consistency with the General Plan Update policies described in the TIA.

V/C Results

Table 4 presents the future year (2050) volume-to-capacity ratio. These AM and PM peak hour volumes are all adjusted in accordance with CAPCOA methodologies which can be referred to in **Appendix C. VMT and Traffic Reduction Measures Quantification**. The 2050 forecast conditions show roadway demand increases across the city. All two-lane roadways are expected to carry under 15,000 vehicles in the future, except for portions of the following roadways:

- Corona Road
- Petaluma Boulevard
- McDowell Boulevard
- Washington Street
- Lakeville Street/Highway
- Old Redwood Highway

As noted in TIA **Appendix A. Draft Street Typology Framework**, roadways with 15,000 to 20,000 vehicles are still good candidates for road diets although the capacity may be constrained during some periods. Roadways with greater than 20,000 vehicles per day can be candidates for road diets subject to corridor feasibility studies to ensure the road diets design do not impede transit or emergency access or result in adverse safety conditions.

Future year peak hour operations were evaluated using volume-to-capacity ratios. Most roadway segments would continue to operate with excess capacity during both AM and PM peak hours. No roadway segments are expected to operate over their capacity during the AM and PM peak hours in

the future. This represents a substantial change from the current General Plan, which noted that key roadways through central Petaluma such as East Washington, were expected to operate over capacity in the future. This change in future traffic operations is a primarily a function of the following two factors:

- The existing General Plan included an excessive amount of commercial space, specifically regional retail, which was forecasted to draw in traffic from around region as retail outpaced population growth. Retail trends over the past few decades in Petaluma, including since the 2025 General Plan, indicate small if any growth in non-commercial land uses given trends related to e-commerce and the lack of additional retail space. Therefore, the General Plan Update includes retail projects based on recent trends and more moderate levels of traffic growth than the General Plan.
- The General Plan Update implements land use and transportation policies that reduce the amount that each individual needs to drives by increasing the convenience of short trips through strategies such as the 15 minute neighborhoods and complete and connected active transportation networks and transit networks. Rather than assume that all future residents, employees, and visitors to Petaluma would travel the same as today, as was used in the prior General Plan analysis, this analysis accounts for how these policies would allow people to drive fewer miles.

The outcome of this change from the prior General Plan is that previously included roadway expansions, such as the Rainier Avenue extension, are no longer needed to improve accessibility for crosstown travel. The Rainier Avenue extension was specifically identified in the 2025 General Plan to accommodate large increases in traffic based on continuing the existing automobile dependent travel patterns and large increases in regionally serving retail. This General Plan Update focuses on enhancing existing connections and multimodal options rather than expanding roadway capacity, while reducing the per capita kinetic energy in the roadway system through increase multi-modal travel and improved management of roadway speeds.

A limited number of segments, listed below, approach higher utilization, with peak hour ratios between 0.8 and 1.0.

- Petaluma Boulevard between McDowell Boulevard & Bailey Avenue/City limits during PM peak hours (four-lanes)
- Petaluma Boulevard between Lakeville Street & D Street during AM & PM peak hours (two-lanes)
- Petaluma Boulevard between D Street & I Street during PM peak hours (two-lanes)
- Washington Street between McDowell Boulevard & Lakeville Street during AM & PM peak hours (four-lanes)
- Lakeville Street/Highway between Wilson Street & Caulfield Lane during PM peak hours (four-lanes)
- Corona Road between Industrial Avenue & McDowell Boulevard during PM peak hours (two-lanes)
- Caulfield Lane between McDowell Boulevard & Lakeville Street during PM peak hours (two-lanes)
- D Street between Payran Street & 6th Street during PM peak hours (two-lanes)
- Casa Grande Road between Lakeville Highway & Technology Lane during PM peak hours (two-lanes)

- Payran Street between Petaluma Boulevard & Jefferson Street during PM peak hours (two-lanes)

Roadway capacity is generally more constrained during the PM peak hours while the AM peak hour would continue to have more excess capacity across the network. As noted above, this analysis focuses on a narrow segment of the day and excess capacity can increase vehicle travel, encourage higher speeds, require higher infrastructure costs, or negatively impact safety. The accessibility analysis in the following section presents a more comprehensive evaluation of how accessibility for daily needs would be affected by the General Plan Update beyond the narrow lens of peak hour roadway capacities.

Table 4: Future Year (2050) Roadway Volume to Capacity Ratio

Roadway	Extents	# Lanes	ADT	Capacity	AM Peak	AM V/C Ratio	PM Peak	PM V/C Ratio
Petaluma Blvd	Gossage Ave & Sycamore Ln/ Shasta Ave	4	29,671	3,200	1,918	0.60	2,348	0.73
	McDowell Blvd & Bailey Ave/City Limits	4	24,166	3,200	2,170	0.68	2,682	0.84
	Sycamore Ln/ Shasta Ave & Lakeville St	4	23,692	3,200	1,858	0.58	2,241	0.70
	Lakeville St & D St	2	13,262	1,600	1,379	0.86	1,500	0.94
	D St & I St	2	13,909	1,600	1,071	0.67	1,347	0.84
	McNear Cir & City Limits	4	11,975	3,200	925	0.29	1,434	0.45
McDowell Blvd	Lynch Creek Way & Washington St	4	27,630	3,200	1,933	0.60	2,509	0.78
	Old Redwood Hwy & Lynch Creek Way	4	21,743	3,200	1,424	0.45	1,910	0.60
	Washington St & Lakeville Hwy	2	5,952	1,600	785	0.49	943	0.59
Washington Street	McDowell Blvd & Lakeville St	4	25,624	3,200	2,679	0.84	2,980	0.93
	Lakeville St & Howard St	4	21,142	3,200	1,472	0.46	1,826	0.57
	Ely Blvd & McDowell Blvd	4	20,619	3,200	1,359	0.42	1,537	0.48
	Executive Dr & Ely Blvd	2	9,726	1,600	416	0.26	495	0.31

	Washington St Bet. City Limits & Executive Dr	2	8,883	1,600	407	0.25	481	0.30
Lakeville St / Highway	Wilson St & Caulfield Ln	4	24,381	3,200	2,521	0.79	2,910	0.91
	Petaluma Blvd & Wilson St	2-4	7,595	2,239	1,425	0.64	1,648	0.74
Sonoma Mountain Pkwy	Madison St & Washington St	2	13,458	1,400	812	0.58	879	0.63
	Sonoma Mountain Pkwy Bet. Corona Rd & Madison St	2	4,255	1,400	703	0.50	762	0.54
Old Redwood Hwy	McDowell Blvd & City Limits	4	23,130	3,200	1,870	0.58	2,217	0.69
Corona Rd	Industrial Ave & McDowell Blvd	2	15,814	1,600	1,221	0.76	1,569	0.98
Frates Rd	Ely Blvd & Lakeville Hwy	2	13,068	1,600	1,081	0.68	1,209	0.76
	Clubhouse Dr/City Limits & Ely Blvd	2	9,163	3,200[1]	699	0.22	808	0.25
Caulfield Ln	McDowell Blvd & Lakeville St	2	6,198	1,600	971	0.61	1,331	0.83
	Ely Blvd & McDowell Blvd	2	5,709	1,400	289	0.21	362	0.26
	Crinella Dr & S McDowell Blvd	2	5,056	1,400	673	0.48	775	0.55
Bodega Ave	Bodega Ave Bet. Howard St & Holly Heights/City Limits	2	10,732	1,600	470	0.29	538	0.34
Stony Point Rd	Petaluma Blvd & Rainsville Rd/City Limits	2-4	10,508	2,096	435	0.21	490	0.23
	Rainsville Rd/City Limits & Orchard Ln/City Limit	2	8,042	2,600	409	0.16	453	0.17
D St	6th St & Sunnyslope Ave/El Rose Dr	2	9,994	1,600	1,136	0.71	1,095	0.68
	Sunnyslope Ave/El Rose Dr & Pinnacle Dr	2	6,298	1,600	706	0.44	662	0.41

	Payran St & 6th St	2	5,493	1,600	1,213	0.76	1,349	0.84
Casa Grande Rd	Ely Blvd & Lakeville Hwy	2	8,526	1,400	493	0.35	575	0.41
	Casa Grande Rd Bet. Lakeville Hwy & Technology Ln	2	4,812	1,400	930	0.66	1,236	0.88
Ely Blvd	Washington St & Frates Rd	2	7,533	1,400	338	0.24	434	0.31
Magnolia Ave	Petaluma Blvd & Birch Dr	2	7,295	1,400	422	0.30	463	0.33
Payran St	Petaluma Blvd & Jefferson St	2	8,414	1,400	682	0.49	1,137	0.81
	Jefferson St & Caulfield Ln	2	5,268	1,400	523	0.37	941	0.67
Rainier Ave	Sonoma Mountain Pkwy & McDowell Blvd	2	4,335	1,400	239	0.17	305	0.22
I St	Petaluma Blvd & Sunnyslope Rd	2	6,277	1,400	359	0.26	384	0.27
Western Ave	Petaluma Blvd & Howard St	2	5,124	1,600	970	0.61	1,151	0.72

Source: Fehr & Peers, 2025
[1] This portion of Frates Road is categorized in the SCTCA model as a rural road, which means it has a higher per lane capacity than other streets in Petaluma.

Accessibility Analysis

An evaluation of accessibility was conducted for both existing conditions and for future conditions under the General Plan Update. This analysis focuses on the ability of people walking, rolling, and bicycling to reach key destinations via lower stress routes. It uses a combination of proximity to key destinations and level of traffic stress (LTS) for active transportation modes to document multimodal accessibility improvements under the General Plan Update. Accessibility improvements include a combination of land use changes that create more accessible activity centers across the city and transportation network improvements including new connections such as the Caulfield Bridge and improved facilities and reduced traffic stress for people walking and biking.

Focusing on the ability of people walking, rolling, and bicycling to reach key destinations via lower stress routes provides a robust measure of overall mobility in Petaluma. This approach highlights how easily the most vulnerable roadway users—including children, seniors, and those who cannot or choose not to drive—can access essential daily needs such as jobs, shopping, recreation, and other activities. By incorporating access to bus stops and transit as part of the analysis, the model also serves as a useful proxy for the number of daily trips that can be made within a short distance, regardless of travel mode. Importantly, low stress routes are not only critical for improving comfort and safety for non-drivers, but they also contribute to safer conditions for drivers by reducing

conflicts and creating more predictable travel environments. As a result, this accessibility-based evaluation offers a more holistic representation of how the General Plan Update will affect future travel patterns, going beyond traditional measures of automobile capacity and driver delay to reflect the true connectivity and safety of the city's transportation network.

Proximity to Key Destinations

The first part of the analysis uses network analysis in GIS to assign an accessibility score to each roadway and trail in Petaluma based on its proximity to identified destinations. These destinations are schools, parks, bus stops, and activity centers, which are key commercial and cultural centers throughout the city divided into one of four "tiers". Each destination is given a weight to distinguish between major and minor destinations; the activity centers receive different weighing by tier, with larger activity centers, such as Downtown Petaluma, being weighted more heavily than smaller centers, such as Arroyo Center at McDowell Blvd and Casa Grande Rd.

All roads and trails within a given distance of each destination receive the identified weight for that destination. The distances are intended to represent a reasonable "catchment area" for walking and bicycling modes for the type of destination identified – half a mile for all destinations except for bus stops, for which a quarter mile distance is used. These distances are assessed along the network, thereby taking into account new road and trail connections. Prior to running the network analysis, a comprehensive review of trails, pedestrian paths, and cut-throughs was conducted to ensure an accurate assessment of network distance for people walking and bicycling.

The weights from multiple destinations are aggregated for each road or trail, taking only the highest weight from any activity center and adding the weights from any schools, parks, and bus stops. The weights and distances used for each destination are shown in **Table 5**.

Table 5. Accessibility Analysis Destinations and Weights

Destination	Weight	Catchment Area Distance	Data Source
Schools	5	0.5 miles	County of Sonoma Open Data
Parks	5	0.5 miles	County of Sonoma Open Data, with manual review and edits[1]
Bus Stops	2	0.25 miles	Petaluma Transit
Activity Center – Tier 1	30	0.5 miles	Developed by General Plan Update team based on existing and proposed land uses and densities
Activity Center – Tier 2	20	0.5 miles	
Activity Center – Tier 3	12	0.5 miles	
Activity Center – Tier 4	5	0.5 miles	

Source: Fehr & Peers, 2024

[1] Manual review added Kenilworth Park/Petaluma Library and Penry Park, as well as the Petaluma Veterans Building which, while not technically a park, fit most easily into that category. For small parks, the analysis assumes the center of the park is the destination. For larger parks, like Helen Putnam Regional Park, the analysis assumes each entrance/trailhead is a destination.

Level of Traffic Stress

The second part of the analysis uses the level of traffic stress (LTS) analysis developed for the Petaluma Active Transportation Plan.[2] LTS is a measure of roadway comfort for vulnerable road users – people walking, rolling, and bicycling. Low stress routes for these users are important for overall accessibility to key destinations. LTS is measured on a scale from 1 to 4, with 1 being the lowest stress and 4 being the highest stress. For future LTS conditions, this analysis reduces existing LTS 3 and 4 roads to LTS 1 in the future if an off-street path is proposed in the General Plan preferred alternative and LTS 2 if an on-street bike lane or neighborhood greenway are proposed. Roads identified for future corridor studies, but without a proposal yet developed, do not receive any reduction in LTS. Finally, any paths or trails added during the network review step described above are assigned LTS 1 by default.

Accessibility Analysis Results

Accessibility and LTS findings for every roadway in Petaluma under existing conditions is presented in **Figure 5** and under future conditions in **Figure 6**. For effective visualization, each metric is divided into "high" and "low" categories. For traffic stress, LTS 1 and 2 are considered low and LTS 3 and 4 are considered high. On the figure, light blue represents streets which have high accessibility and low LTS, while pink represents streets which have low accessibility and high LTS.

As shown in **Figure 6**, the General Plan preferred alternative results in more high accessibility and low stress roads and paths, providing greater connectivity and multimodal accessibility throughout the city, especially for vulnerable road users walking, rolling, and bicycling. Additional on- and off-street bicycle facilities result in few high traffic stress (LTS 3 or 4) remaining in Petaluma with implementation of the General Plan proposals. Proposed land use and density changes mean more of city's residents would be within a reasonable walking and bicycling distance of key destinations.

[2] Petaluma Active Transportation Plan (2025). LTS map can be found at: https://storage.googleapis.com/proudcity/petalumaca/uploads/2022/08/4_Bicycle-Level-of-Traffic-Stress.pdf

Fehr & Peers

Figure 5: Existing Accessibility Conditions

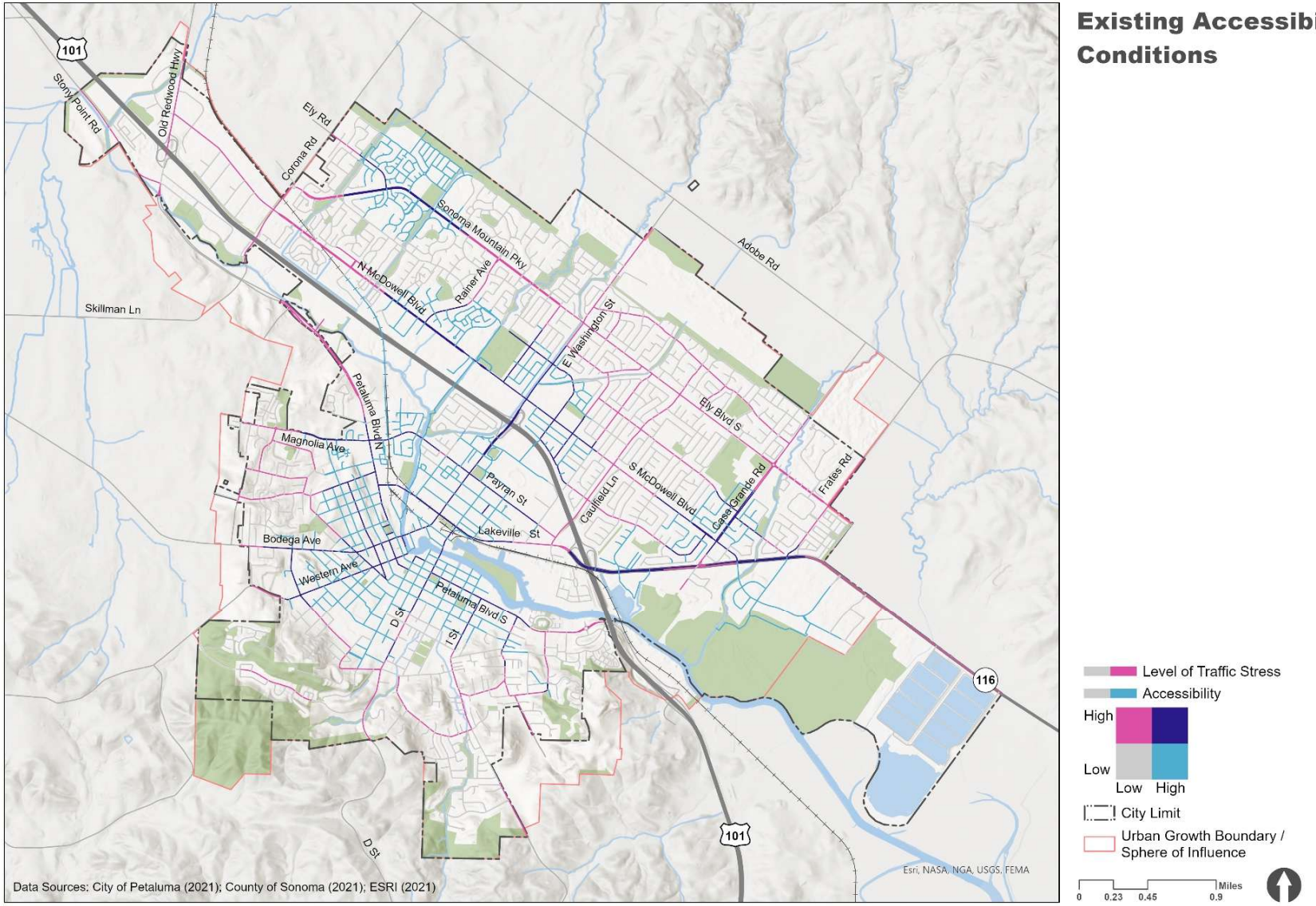
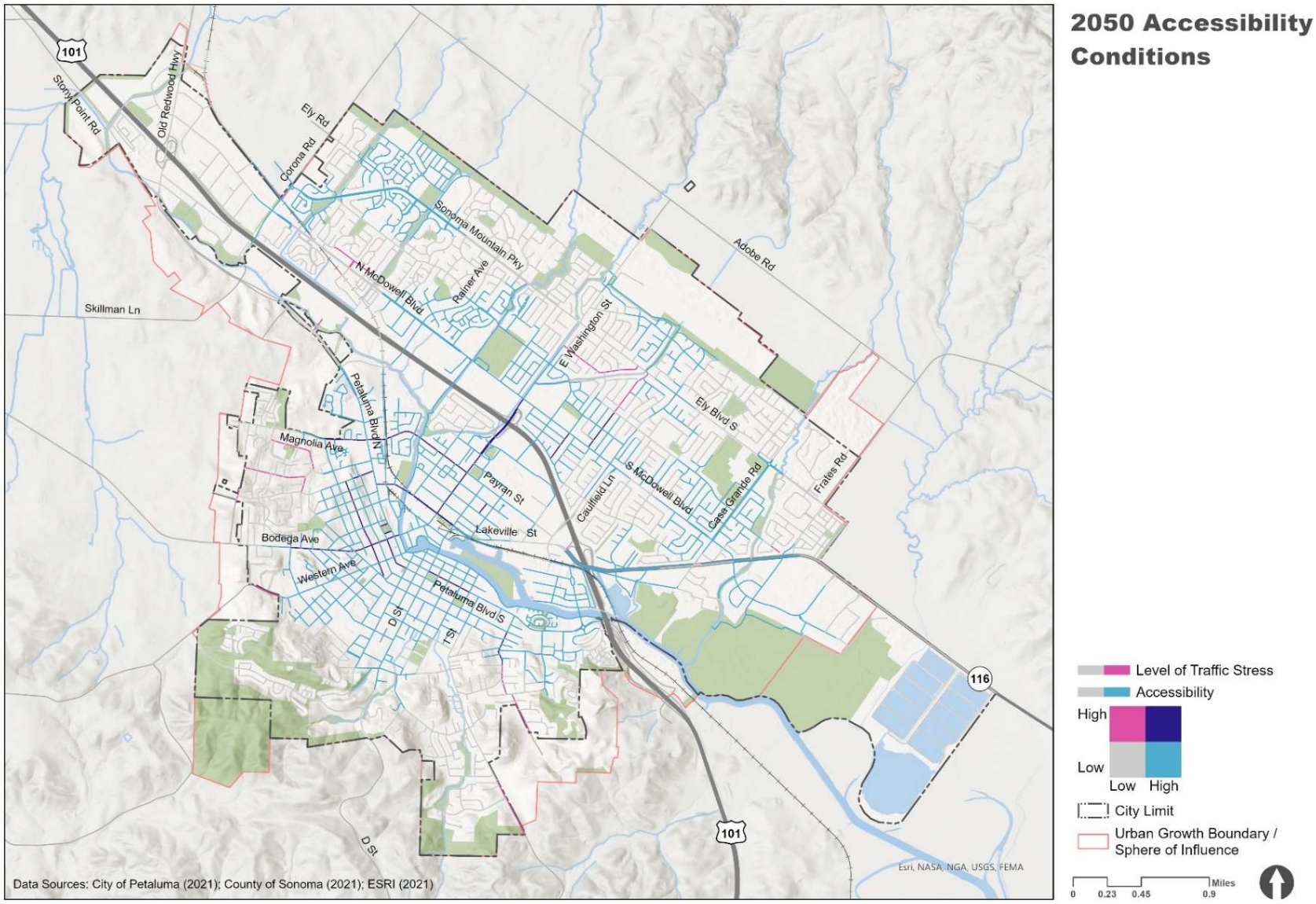


Figure 6: 2050 Accessibility Conditions



Additional Tables

Existing Year (2019) Land Use Assumptions

TAZ	Residential Units	Hotel Rooms	Office KSF	Commercial KSF	Industrial KSF	Recreation Acreage
239	0	0	0	0	0	0
245	1	0	0	3	20	0
270	25	0	0	0	0	0
277	0	0	0	0	20	116
301	325	0	0	0	0	25
302	108	0	0	0	0	0
303	0	0	0	0	0	0
304	0	0	0	0	0	62
305	719	0	0	0	0	0
306	467	184	237	88	162	38
307	0	0	0	98	53	0
308	593	0	0	0	0	11
309	225	0	0	0	0	6
310	262	0	47	0	0	0
311	656	0	0	0	0	0
312	650	0	0	0	9	0
313	558	0	22	0	0	0
314	607	0	35	238	0	5
315	363	75	0	3	0	0
316	500	0	5	33	0	0
317	0	0	5	242	5	0

TAZ	Residential Units	Hotel Rooms	Office KSF	Commercial KSF	Industrial KSF	Recreation Acreage
318	13	0	0	293	87	0
319	357	0	7	120	14	0
320	3	0	0	391	217	0
321	504	0	0	0	0	0
322	0	0	12	758	238	0
323	0	0	2	96	6	0
324	198	0	135	67	417	0
325	0	0	102	525	0	0
326	308	0	0	361	0	0
327	0	173	752	37	87	0
328	558	0	0	0	0	3
329	0	0	81	11	872	0
330	871	0	18	0	43	7
331	0	121	241	98	103	0
332	134	0	0	15	0	20
333	182	0	0	0	0	7
334	365	0	25	0	0	173
335	404	0	0	0	0	2
336	339	0	0	0	0	2
337	372	0	2	10	0	5
338	98	0	6	0	0	0
339	240	0	2	65	0	0
340	548	0	0	0	0	0

TAZ	Residential Units	Hotel Rooms	Office KSF	Commercial KSF	Industrial KSF	Recreation Acreage
341	312	0	0	37	0	3
342	244	0	0	0	0	0
343	0	0	625	0	2331	0
344	185	0	0	0	33	1
345	384	0	0	0	0	2
346	118	0	0	0	0	0
347	257	0	25	22	0	3
348	224	0	61	0	0	0
349	204	0	0	0	0	0
350	190	23	221	128	219	0
770	92	0	0	0	0	0
771	0	0	0	0	0	58
772	0	0	0	0	394	0
773	505	0	0	0	0	3
774	514	0	0	0	0	6
775	363	0	0	0	0	4
776	365	0	0	0	0	0
777	0	0	113	199	0	0
778	0	0	0	0	0	0
779	650	0	0	74	0	7
780	315	0	0	0	0	0
781	0	0	0	0	0	100
783	182	0	0	0	0	37

TAZ	Residential Units	Hotel Rooms	Office KSF	Commercial KSF	Industrial KSF	Recreation Acreage
784	316	0	0	24	0	0
785	99	0	99	239	0	0
786	498	76	60	262	69	0
787	121	0	0	132	8	0
788	339	100	37	84	0	0
789	81	0	0	71	94	0
790	284	0	14	72	54	0
791	383	0	12	260	3	7
792	393	0	8	6	0	0
793	225	0	3	5	0	0
794	84	0	0	0	0	0
795	627	0	25	4	91	0
796	90	6	257	481	47	0
797	195	0	0	0	0	0
798	699	0	5	8	0	3
799	899	0	0	0	0	3
886	76	0	0	0	0	0
887	199	0	0	0	0	0
888	0	0	0	16	0	0
889	239	0	0	0	0	0
890	242	0	5	2	0	0
891	348	0	0	0	0	1
892	134	0	0	0	0	0

TAZ	Residential Units	Hotel Rooms	Office KSF	Commercial KSF	Industrial KSF	Recreation Acreage
893	414	0	0	0	0	1
894	326	0	0	64	0	0
895	110	0	0	0	0	0
896	99	0	0	0	0	2
897	85	0	0	5	0	0
898	65	0	0	0	7	0
899	0	0	0	0	0	80

Source: Raimi & Associates and Fehr & Peers, 2025

Future Year (2050) Land Use Assumptions

TAZ	Residential Units	Hotel Rooms	Office KSF	Commercial KSF	Industrial KSF	Recreation Acreage
239	0	0	0	0	0	0
245	1	0	0	3	20	0
270	25	0	0	0	0	20
277	0	0	0	0	20	126
301	325	0	0	0	0	25
302	113	0	0	0	0	0
303	0	0	0	0	0	0
304	8	0	0	0	0	62
305	724	0	0	0	0	0

TAZ	Residential Units	Hotel Rooms	Office KSF	Commercial KSF	Industrial KSF	Recreation Acreage
306	731	184	292.072	88.136	213.072	38
307	1025	0	0	157.891	53	3.5
308	593	0	0	0	0	11
309	240	0	0	0	0	6
310	262	0	47	0	0	0
311	886	0	0	21.78	0	0
312	670	0	0	0	9	0
313	586	0	22.516	0.516	0	0
314	652	0	35	238.086	0	5
315	378	75	0	3	0	0
316	592	0	5	33.323	0	0
317	350	0	5.603	245.106	9.7	0
318	250	0	0	390.314	87	0
319	365	0	7	120.37	14	0
320	3	0	0.9	391	217	0
321	519	0	0	0	0	0
322	140	0	12	768.408	371.905	10
323	872	0	2	121.401	6	0
324	198	0	135.226	66.983	430.543	0
325	230	0	102	535.503	0	0
326	361	0	0	360.89	0	0
327	61	173	752	43.38	87	0
328	558	0	0	0	0	3

TAZ	Residential Units	Hotel Rooms	Office KSF	Commercial KSF	Industrial KSF	Recreation Acreage
329	0	0	81	11	918.095	0
330	871	0	30.842	0	55.842	7
331	0	121	241	97.823	103	0
332	134	0	0	15	0	20
333	187	0	0	0	0	7
334	405	0	25	0	0	220
335	418	0	0	0	0	2
336	354	0	0	0	0	2
337	390	0	2	10	0	5
338	98	0	6	0	0	0
339	372	0	2	64.765	0	0
340	572	0	0	0	0	0
341	435	0	0	37.321	0	3
342	244	0	0	0	0	0
343	0	0	671.192	0	2557.192	0
344	507	0	0	0	33	1
345	384	0	0	0	0	2
346	118	0	0	0	0	0
347	257	0	25	22	0	3
348	229	0	61	0	0	0
349	204	0	0	0	0	0
350	309	23	221	130.457	219	0.25
770	92	0	0	0	0	0

TAZ	Residential Units	Hotel Rooms	Office KSF	Commercial KSF	Industrial KSF	Recreation Acreage
771	0	0	0	0	0	58
772	0	0	0	0	394	0
773	526	0	0	0	0	3
774	519	0	0	0	0	6
775	363	0	0	0	0	4
776	365	0	0	0	0	0
777	0	280	113	204.947	0	0
778	0	0	0	0	0	0
779	672	0	0	74.236	0	7
780	325	0	0	0	0	0
781	0	0	0	0	0	100
783	197	0	0	0	0	37
784	422	0	0	45.941	0	0
785	99	0	99	253.128	13.517	0
786	502	112	60	261.866	79.168	0
787	121	0	24.018	132	44.027	0
788	346	100	37.839	84.839	0	0
789	105	0	1.072	72.041	94	0
790	315	0	14	71.784	54	0
791	494	0	12	283.685	3	18
792	413	0	8	6	0	0
793	225	0	3	5	0	0
794	94	0	0	0	0	0

TAZ	Residential Units	Hotel Rooms	Office KSF	Commercial KSF	Industrial KSF	Recreation Acreage
795	632	0	25	4	91	0
796	216	6	279.877	485.377	47	0
797	210	0	0	0	0	0
798	719	0	5	8	0	3
799	926	0	0	0	0	3.5
886	553	0	0	0	0	10
887	528	0	0	0	0	0
888	273	244	60	50.759	0	0
889	239	0	0	0	0	0
890	263	0	6.481	3.481	0	0
891	372	0	0	0	0	1
892	144	0	0	0	0	0
893	439	0	0	0	0	1
894	392	0	0	64	0	0
895	147	0	0	0	0	0
896	99	0	0	0	0	2
897	95	0	0	5	0	0
898	129	0	0	0	7	0
899	32	0	0	0	0	80

Source: Raimi & Associates and Fehr & Peers, 2025

VMT Results by TAZ

TAZ	Existing Year (2019)				Adjusted Future Year (2050)[1]			
	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee
239	0	229	0	8.57	0	229	0.00	7.60
245	3	205	22.89	0	3	205	29.65	8.28
270	66	0	20.85	0	66	0	22.76	0.00
277	0	37	0	51.84	0	37	0.00	50.00
301	858	0	25.15	0	858	0	27.60	0.00
302	285	86	17.65	6.04	298	86	19.02	5.26
303	0	0	0	0	0	0	0.00	0.00
304	0	83	0	15.19	21	83	26.18	13.46
305	1898	0	18.39	0	1911	0	19.93	0.00
306	1233	1560	15.77	17.47	1930	1861	16.79	14.91
307	0	324	0	21.58	2706	421	16.16	21.74
308	1566	23	23.47	12.52	1566	23	25.66	11.06
309	594	33	18.26	30	634	33	19.62	25.81
310	692	664	17.91	13.42	692	664	19.13	11.65
311	1732	161	21.75	32.74	2339	196	22.90	29.14
312	1716	21	19.27	15.37	1769	21	20.79	13.34
313	1473	291	17.96	18.74	1547	294	19.16	16.01
314	1602	527	15.77	35.04	1721	527	16.35	29.81

TAZ	Existing Year (2019)				Adjusted Future Year (2050)[1]			
	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee
315	958	75	18.07	14.34	998	75	18.84	12.28
316	1320	105	17.27	53.13	1563	105	17.92	46.00
317	0	444	0	36.64	924	461	10.70	30.57
318	34	684	15.47	28.84	660	842	17.64	25.62
319	942	310	14.7	30.53	964	310	15.64	26.04
320	8	1356	87.14	22.12	8	1475	72.58	18.34
321	1331	147	14.11	10.85	1370	147	15.45	9.53
322	0	2662	0	17.08	370	2988	12.68	14.67
323	0	222	0	41.06	2302	264	12.03	33.92
324	523	2188	9.27	12.2	523	2220	9.87	10.63
325	0	1189	0	24.28	607	1206	13.22	21.17
326	813	585	6.85	35.48	953	585	8.45	30.88
327	0	2927	0	11.63	161	2937	15.02	10.29
328	1473	172	19	11.35	1473	172	20.65	9.73
329	0	2369	0	13.29	0	2475	0.00	11.69
330	2299	282	13.42	9.75	2299	354	14.35	8.89
331	0	1427	0	16.04	0	1427	0.00	14.13
332	354	24	6.11	44.84	354	24	6.72	39.61
333	480	0	24.66	0	494	0	26.30	0.00

TAZ	Existing Year (2019)				Adjusted Future Year (2050)[1]			
	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee
334	964	342	20.86	13.14	1069	342	22.67	12.62
335	1067	0	20.81	0	1104	0	22.65	0.00
336	895	13	25.53	35.54	935	13	25.97	30.38
337	982	32	18.98	23.1	1030	32	20.47	19.96
338	259	43	19.32	8.78	259	43	20.31	7.63
339	634	175	15.56	26.08	982	175	12.63	22.47
340	1447	302	17.51	6.24	1510	302	18.81	5.31
341	824	60	18.96	92.82	1148	60	21.23	81.46
342	644	0	23.15	0	644	0	24.95	0.00
343	0	8301	0	15.43	0	8939	0.00	13.31
344	488	66	26.33	9.96	1338	66	23.38	8.37
345	1014	0	21.74	0	1014	0	23.43	0.00
346	312	0	19.69	0	312	0	21.08	0.00
347	678	125	16.74	16.96	678	125	18.02	14.56
348	591	203	16.15	10.86	605	203	17.04	9.27
349	539	0	18.95	0	539	0	20.44	0.00
350	502	1414	13.03	13.73	816	1418	11.85	11.81
770	243	0	24.06	0	243	0	25.47	0.00
771	0	0	0	0	0	0	0.00	0.00

TAZ	Existing Year (2019)				Adjusted Future Year (2050)[1]			
	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee
772	0	819	0	9.64	0	819	0.00	8.46
773	1333	0	18.66	0	1389	0	20.00	0.00
774	1357	0	13.41	0	1370	0	14.55	0.00
775	958	37	17.96	28.56	958	37	19.06	24.61
776	964	0	16.57	0	964	0	17.52	0.00
777	0	697	0	25.92	0	909	0.00	20.64
778	0	492	0	29.59	0	492	0.00	25.39
779	1716	161	17.47	51.18	1774	161	17.90	43.55
780	832	0	19.9	0	858	0	21.90	0.00
781	0	0	0	0	0	0	0.00	0.00
783	480	0	18.01	0	520	0	19.33	0.00
784	834	82	4.16	18.33	1114	118	6.63	19.66
785	261	723	11.57	26.49	261	777	12.11	22.07
786	1315	978	14.42	25	1325	1027	15.31	20.99
787	319	241	21.37	33.38	319	404	21.96	22.38
788	895	331	15.74	20.53	913	335	16.72	17.48
789	214	359	10.39	26.66	277	364	11.09	22.63
790	750	267	15.41	27.46	832	267	16.76	23.44
791	1011	513	14.57	34.76	1304	551	14.91	29.69

TAZ	Existing Year (2019)				Adjusted Future Year (2050)[1]			
	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee
792	1038	79	19.11	11.3	1090	79	20.38	9.86
793	594	55	15.68	10.66	594	55	16.82	9.21
794	222	95	17.62	11.96	248	95	18.78	10.20
795	1655	530	15.41	6.56	1668	530	16.36	5.60
796	238	2541	17.76	15.71	570	2625	14.23	13.19
797	515	0	20.24	0	554	0	21.74	0.00
798	1845	61	18.37	29.14	1898	61	20.49	25.41
799	2373	103	20.24	13.69	2445	103	21.70	11.75
886	201	0	11.54	0	1460	0	14.31	0.00
887	525	0	12.48	0	1394	0	12.76	0.00
888	0	73	0	16.6	721	504	16.21	14.28
889	631	0	19.96	0	631	0	19.70	0.00
890	639	71	17.43	16.99	694	78	18.54	14.61
891	919	150	17.92	21.4	982	150	19.25	18.45
892	354	0	19.05	0	380	0	20.32	0.00
893	1093	37	23.09	32.42	1159	37	23.99	27.83
894	861	187	19.97	22.97	1035	187	19.66	19.54
895	290	0	19.39	0	388	0	20.65	0.00
896	261	0	20.94	0	261	0	22.36	0.00

TAZ	Existing Year (2019)				Adjusted Future Year (2050)[1]			
	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee	Total Population	Total Employment	Residential VMT per Resident	Employment VMT per Employee
897	224	218	18.64	13.77	251	218	20.09	11.80
898	172	56	26.3	7.5	341	56	22.38	5.93
899	0	0	0.00	0.00	84	0	28.02	0.00

Source: SCTCA Model and Fehr & Peers, 2025

[1] Future year VMT results incorporate a 4.45% reduction to reflect the VMT reduction effect of actions in the General Plan not captured by the model itself. See Appendix C. VMT and Traffic Reduction Measures Quantification.

Appendix E. Petaluma Safety Element: Emergency Evacuation Assessment

FEHR PEERS

Memorandum

Date: September 13, 2024

To: Heather Gurewitz, City of Petaluma

CC: Ron Whitmore, Raimi + Associates

From: Matt Goyne, PE, Kevin Zamzow-Pollock, Drake Hayes, Terence Zhao, Fehr & Peers

Subject: Petaluma Safety Element – Emergency Evacuation Assessment

SF21-1150

Fehr & Peers has conducted a general, programmatic assessment of emergency evacuation routes for the Safety Element Update of the Petaluma General Plan. This includes an assessment of roadway capacity for evacuation as required by Assembly Bill 747 (AB 747). AB 747 requires that the safety element be reviewed and updated to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios. This is a requirement for all safety elements or updates to a Local Hazard Mitigation Plan (LHMP) completed after January 2022.

This document is intended to provide an assessment of roadway capacity under representative scenarios of reasonably foreseeable evacuation conditions and should not be considered an evacuation plan. Please note that emergency evacuations can occur due to any number of events, that emergency events requiring evacuation are inherently unpredictable by nature, as is individual behavior related to evacuation events. For example, driver behavior can be disorderly; evacuation progress can proceed in a nonlinear fashion (for example, it is anticipated that evacuees would vacate at a rate that more closely resembles a bell curve from the time that the evacuation order is issued); and there is general unpredictability in operational issues, such as power issues that would trigger traffic signals to operate in "red flash mode" in which traffic would need to proceed through intersections in an all-way stop configuration. These are conditions which would affect the total evacuation time estimated in our assessment that are beyond the scope of our assessment. The city should develop evacuation contingency plans for other scenarios not described in this study.

As such, this assessment is intended to provide the City with a broad understanding of the capacity of the transportation system during an evacuation scenario; it does not provide a guarantee that evacuations will follow modeling that is used for analysis purposes, nor can it

guarantee that the findings are applicable to any or all situations. This document may be used to highlight where City staff may want to focus specific efforts to improve evacuation efficiency, such as through the recommendations provided in "Strategies to Reduce Evacuation Times."

Moreover, as emergency evacuation assessment is an emerging field, there is no established standard methodology. We have adopted existing methodologies in transportation planning that, in our knowledge and experience, we believe are the most appropriate within the limits presented by the tools and data available and the budgetary and time constraints in our scope of work, and by the current knowledge and state of the practice.

While this assessment should help the city better prepare for hazard-related events and the associated evacuations, the city should take care in planning for any potential evacuation scenario. Fehr & Peers cannot and does not guarantee the efficacy of any of the information used in this assessment as such would be beyond our professional duty and capability. We would be happy to conduct additional analyses in further detail, analyze different scenarios, or employ other methodologies, if desired.

Executive Summary

Given the inherent uncertainty associated with any evacuation scenario, emergency evacuation assessments must rely on representative evacuation scenarios developed from available studies and input from hazard experts. This analysis focuses on four scenarios: two quantitative wildfire scenarios intended to meet the requirements of AB 747, and two qualitative scenarios intended to provide guidance for the City of Petaluma: a Petaluma River flooding event and an urgent evacuation of downtown Petaluma. Fehr & Peers and the City of Petaluma selected these events based on review of the City of Petaluma's *Local Hazard Mitigation Plan (LHMP)*[1] and the City's existing emergency operation protocols.

The AB 747 quantitative wildfire scenarios include both a wildfire affecting the western side of Petaluma and one affecting the eastern side of Petaluma. The primary and secondary evacuation areas within west and east Petaluma are shown in **Figure 1**. Both scenarios assumed an overnight evacuation where the evacuees are residents of the areas being evacuated, since the highest risk parts of Petaluma are more residential than commercial in nature. Both scenarios assume a roadway capacity of 1,080 vehicles per lane per hour, which accounts for the potential lower capacity under wildfire conditions due to heavy volumes, reduced visibility, and wayfinding challenges. Both scenarios also include households in adjacent unincorporated county land that could evacuate into Petaluma to avoid the path of a wildfire. Below is a summary of the findings of this analysis:

- Wildfires on the western side of Petaluma typically burn small areas but may arise with short notice, requiring rapid evacuation. This analysis considered two potential scenarios for a wildfire on the western side of Petaluma and selected one focused on the southwestern edge of the city.[2] The street grid on the southwestern edge of Petaluma does not have multiple parallel routes like the eastern side of Petaluma, limiting the potential evacuation routes for residents living on the edge of the City. Therefore, Fehr & Peers developed evacuation sub-areas where residents rely on individual egress routes. The western edge of Petaluma also has lower residential densities and fewer homes within the evacuation zone, resulting in a small number of evacuating vehicles compared to the eastern edge of Petaluma (approximately 4,700). Consequently, **this assessment determines that a wildfire evacuation for the southwestern edge of Petaluma could occur within one hour if needed**.

[1] https://storage.googleapis.com/proudcity/petalumaca/uploads/2020/12/City-of-Petaluma-LHMP_Nov2020_Reduced-Size-PDF-12-2021.pdf

[2] For more information on the selection of a scenario for the western side of Petaluma, please see Attachment A.

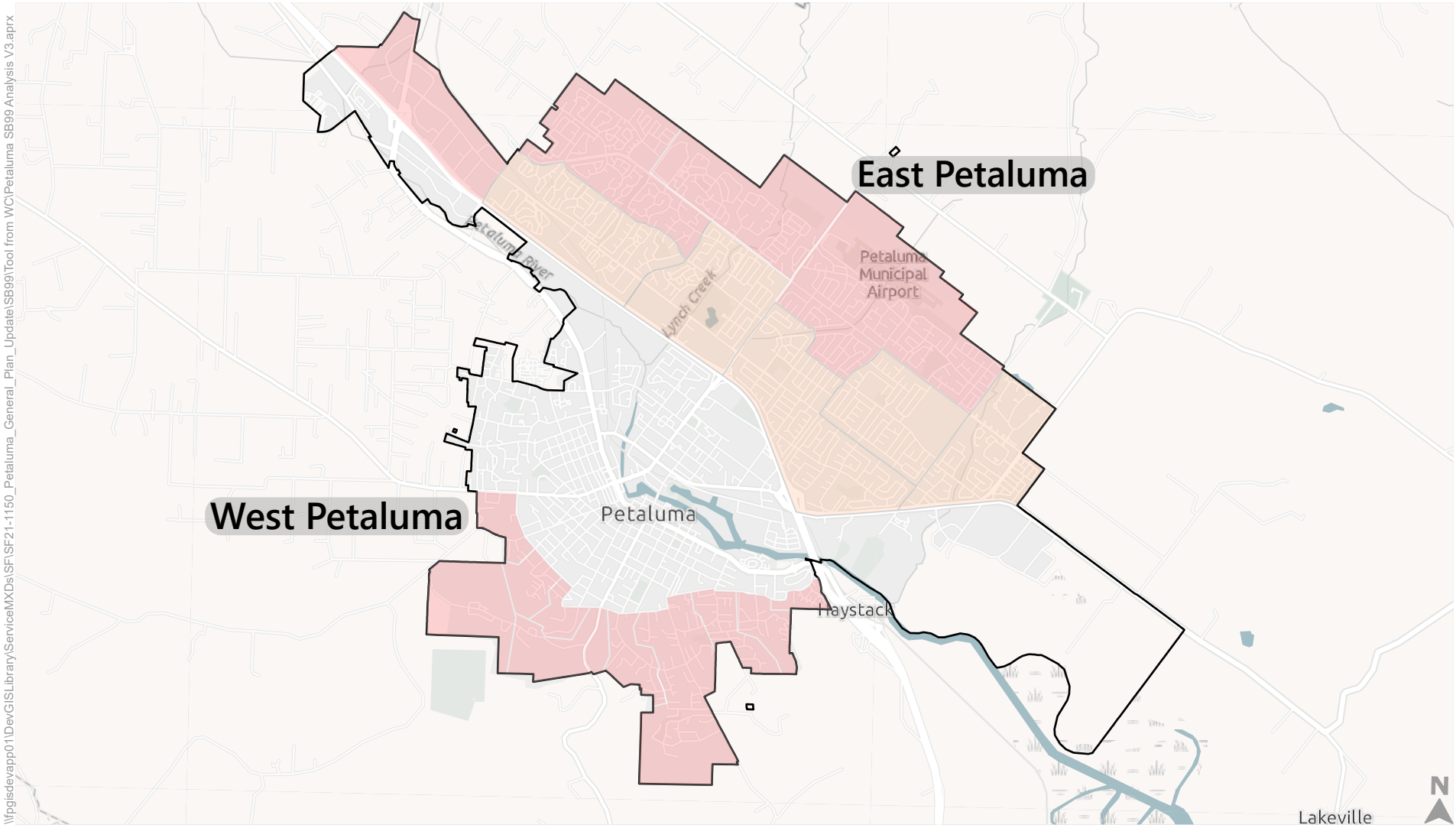
- Wildfires on the eastern side of Petaluma are less common and typically originate farther away, providing more advance notice but burning larger areas and potentially threatening more developed parts of the city. The eastern side of Petaluma has a grid-like network of arterials and collector roadways that provide more redundant options and capacity for evacuees than residents on the western edge of Petaluma. However, the primary and secondary evacuation areas shown on **Figure 1** include more residents than the western edge of Petaluma, resulting in more people that may need to evacuate. **A lower intensity fire affecting the primary evacuation zone on the eastern edge of the city could result in up to 10,200 evacuating vehicles. Given the multiple evacuation roadway options, this could be completed within one hour. However, a higher intensity fire resulting in the evacuation of the entire eastern side of the city would require two to three hours to evacuate up to 25,800 vehicles.** This scale of evacuation reflects a scenario that would benefit from a phased evacuation focused first on the primary evacuation zones, as is currently incorporated within the City of Petaluma evacuation operations.

The analysis also looked at two additional evacuation scenarios to guide policy and not for compliance with AB 747. The first looks at evacuation due to the Petaluma River flooding. Given the slow rise of floods, this assessment identifies which arterial and collector roadways could be inaccessible to understand how citywide travel and emergency provider access could be impacted during the peak flood period. In general, neighborhoods that would not need to evacuate would continue to have access out of the City, although the number of routes could be minimal and thus a shelter-in-place order during this peak period would help maintain roadway capacity for emergency vehicles. The second scenario explores the urgent evacuation of downtown Petaluma during a major event such as the Butter & Eggs Days Parade & Festival. This analysis focused on the capacity of routes out of downtown Petaluma to guide emergency services with evacuation operations and wayfinding. Based on high-level assumptions for the attendance of the Butter & Eggs Days, the analysis concludes that **there is enough roadway capacity to evacuate all potential vehicles from the downtown area within an hour, assuming an even distribution of evacuees in all directions.** It is important that emergency responders or signage actively direct people out of downtown Petaluma rather than crossing through downtown Petaluma to make the best use of the available roadway capacity.

This memorandum also presents strategies to reduce evacuation times during the types of evacuation scenarios presented in the City's LHMP. These strategies include supply-side strategies such as ensuring the availability of personnel to direct traffic during an evacuation, providing early and informative warning to the public, implementing flexible infrastructure that allows additional roadway space to be used for vehicle egress, and maintaining redundant and resilient infrastructure to prevent systemic breakdowns during an evacuation. These strategies also include demand-side strategies such as advising or requiring residents to evacuate with only one vehicle

and not to make return trips, as well as coordinating shared rides, routinely monitoring the size and location of evacuation zones, and establishing a "shelter-in-place" policy for those that don't need to evacuate.

The city should also consider individuals without vehicles and provide resources for them, including carpooling arrangements and plans for concentrated vulnerable populations like senior centers and schools. This analysis assumes an overnight evacuation to maximize the number of residents that are home and would need to evacuate the residential communities on the edge of the city in the evacuation zones in a short period of time. If an evacuation takes place while children are in school or senior centers are occupied, those children and seniors without access to vehicles will need to be picked up by family and friends or transported by city-provided vehicles. Recommendations to support this type of scenario are provided in the "Evacuation without a Vehicle" section of the report.



Primary City Evacuation Zones

Secondary City Evacuation Zones

City of Petaluma

Figure 1

Note: Additional evacuation areas for the County of Sonoma are included in each fire evacuation scenario as shown in figures 2 and 3.

Evacuation Study Areas

Representative Evacuation Scenarios

Fehr & Peers and City staff worked together to identify evacuation scenarios appropriate for analysis in this context. Petaluma's 2022 LHMP describes that the following hazards present a high or medium overall risk to Petaluma:[3]

- Earthquake (High risk)
- Wildfire (Medium risk)
- Flood (Medium risk)
- Severe Weather: Heavy Rain/Thunderstorms/Hail/Lighting/High Winds (Medium risk)
- Drought (Medium risk)
- Hazardous Material Releases (Medium risk)

In December 2023 and January 2024, Fehr & Peers met with City of Petaluma staff to discuss priorities for evacuation planning, review the LHMP evacuation scenarios, and determine the representative scenarios that Fehr & Peers would evaluate to comply with AB 747. The outcome of these meetings was the selection of two representative AB 747 evacuation scenarios. This includes evening or overnight wildfire scenarios from the south or west, affecting the areas of West Petaluma shown in **Figure 2,** and from the north or east, affecting the areas of East Petaluma shown in **Figure 3**. These events were selected because they include several general features that are associated with a range of reasonably foreseeable evacuation scenarios where the roadway network for an evacuation would be constrained:

- Medium-risk scenarios identified in the LHMP (per Table 4-2 of the LHMP) that would necessitate evacuations of a substantial number of residents, as opposed to a "shelter in place" response.
- A clear outcome that could be modeled based on available studies.
- A limited number of roadways serving as evacuation routes that could constrain the roadway network capacity in the neighborhoods subject to the evacuation.
- Maximize the number of people affected within a constrained area by assessing a period when all residents would be at home.

[3] Table 4-2 of the LHMP, accessible online on the City of Petaluma's website: https://storage.googleapis.com/proudcity/petalumaca/uploads/2020/12/City-of-Petaluma-LHMP_Nov2020_Reduced-Size-PDF-12-2021.pdf

As a result, the following scenarios were considered but not selected as the basis of the AB 747 analysis because they would result in reduced evacuation roadway network capacity constraints:

- A major earthquake, drought, or severe weather event, considered independently of any major infrastructure failure, which was rejected as the default emergency response is to "shelter in place."
- A major earthquake event leading to secondary events, such as fires or major infrastructure failure, which was rejected as failure of infrastructure in the wake of an earthquake is unpredictable and results in similar outcomes to wildfires that require evacuation of a portion of the City on a limited number of evacuation routes – was considered a more defined scenario.
- Middle of the day wildfire scenarios, when fewer people would need to evacuate in a short time frame since there are fewer employees than residents who would not be at home within the evacuation zones.
- Floods, which affect a smaller number of households and would typically allow more time to evacuate compared to wildfire scenarios, thus have a reduced burden on roadway capacity.
- Hazardous material releases or other human-caused emergency scenarios, which was ruled out due to the limited geographic nature and unpredictability of such events.

While these LHMP hazards are not evaluated for AB 747 compliance, the City of Petaluma and Fehr & Peers selected the flood and human-caused emergency scenarios for a qualitative, policy-based assessment to inform land use and safety policies for the General Plan Update and to provide additional context about the range of potential evacuation scenarios presented in the City's LHMP.

The remainder of the quantitative AB747 analysis is based on assumptions associated with the representative wildfire scenarios, which are described further in the following sections. The features of these representative scenarios could apply to a wide range of evacuation scenarios, including other medium-risk scenarios identified in the LHMP. Emergency scenarios that require evacuation are inherently difficult to predict and it is plausible that any number of scenarios may cause the need for an evacuation of sections of Petaluma. It is also plausible that some combination of emergencies could occur that would put further strain on the transportation network. For example, an earthquake could cause fires by breaking gas lines. For more information on other emergency scenarios, see the 2022 Petaluma LHMP. The recommendations presented in the "Strategies to Reduce Evacuation Times" are meant to help the City plan for a range of potential evacuation scenarios to increase the capacity of roadways during an evacuation (supply-side strategies) and reduce the vehicular demand.

Quantitative AB 747 Evacuation Scenarios

The representative scenarios used for the AB 747 analysis include evacuations associated with wildfires affecting either West or East Petaluma. Figures 4-19 through 4-21 of the City's LHMP show that Sonoma County has moderate fire hazard severity zones to the south and west Petaluma and moderate to high fire hazard severity zones to the north and east of the city. Since the completion of the 2022 LHMP, California Department of Forestry and Fire Protection (CAL FIRE) updated the fire hazard severity zone map for the unincorporated areas of Sonoma County, effective June 2023.[4] An updated fire hazard severity zone map for the City of Petaluma, and other cities throughout the state, is still in process and yet to be released. The updated unincorporated county map indicates that some areas south of the Petaluma along the I Street Extension changed from moderate to high severity. The high severity zone to the east of Petaluma also now reaches the City of Petaluma border along Frates Road from Adobe Road to Ely Road in East Petaluma. The nearest very high fire hazard severity zones near Petaluma are in the Sonoma Mountains southeast of Taylor Mountain. The representative scenarios are described in the following sections.

City of Petaluma emergency services staff provided Fehr & Peers with a map of the geographic zones that are used to determine which areas will receive an evacuation order in the case of an emergency.[5] The geographic coverage of the zones used for this study includes those within the City of Petaluma and those in the County of Sonoma that are likely to travel on Petaluma roadways in the event of evacuation event.

Fehr & Peers selected the evacuation routes and destinations for each scenario in coordination with City of Petaluma staff. The evacuation routes include arterials and collectors serving each neighborhood, with the addition of local streets for West Petaluma when serving a small number of households. The immediate destinations for evacuees could include the fairgrounds, community centers, or out of town locations via U.S. 101 or Lakeville Highway. Given the multitude of routes and destinations that could be used by evacuees, Fehr & Peers identified a "safe zone limit" with City of Petaluma staff to simplify the analysis where the evacuees would be out of immediate danger based on the representative wildfire scenario. The selected safe zone limit would be reaching Petaluma Boulevard for evacuees from West Petaluma and U.S. 101 for evacuees from East Petaluma. After reaching these major roadways, evacuees would then disperse to their destination, thus reducing the demand on each roadway the farther they travel. This analysis assumes there are sufficient routes beyond the safe zone limits to allow evacuees to

[4] Accessed by Fehr & Peers on August 20, 2024: https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008
[5] https://cityofpetaluma.org/emergency-evacuations/

reach their destinations efficiently, and, even if there is congestion beyond the safe zone limit, evacuees would be out of immediate danger of a wildfire.

Wildfire Affecting West Petaluma

According to City staff and as described in the City's LHMP, small wildfires periodically flare up along the western and southern perimeter of Petaluma. These wildfires do not necessarily burn large areas, but may arise with short notice, requiring a rapid evacuation. As noted above, these areas are primarily rated as moderate fire severity zones by Cal Fire, with high fire severity zones south of the City of Petaluma southern border on I Street.[6] W

Fehr & Peers and City of Petaluma staff reviewed several options for representative wildfire scenarios approaching from the south or west that would require an evacuation of residents in West Petaluma as described in **Attachment A**. **Figure 2** shows the representative scenario that includes areas of Southwest Petaluma and nearby Sonoma County that would need evacuate in the case of a wildfire from the southwest and the routes that would be used for this evacuation. This Southwest fire scenario was selected as the representative scenario because it had more evacuees within the City of Petaluma than the West fire scenario, as discussed in **Attachment** A. This scenario represents a reasonable and conservative range of conditions that could test the West Petaluma roadway network capacity consistent with the requirements of AB 747.

[6] Cal Fire's Wildfire Severity Zones Map. Accessed by Fehr & Peers on August 20, 2024: https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008

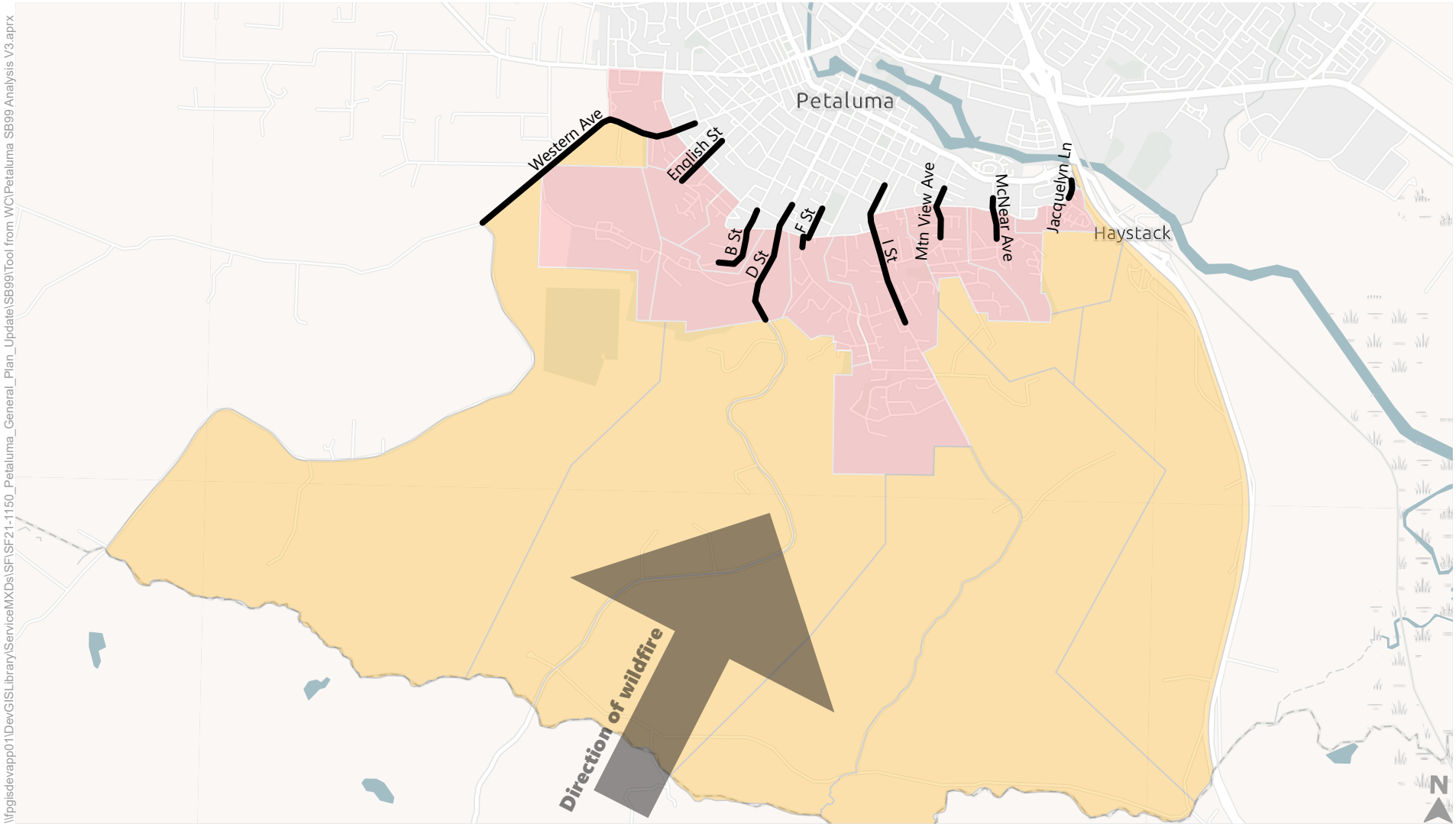


Figure 2

Southwest Petaluma Evacuation Area and Key Evacuation Routes

Wildfire Affecting East Petaluma

According to the city's LHMP, the northern edge of Petaluma is at a lower risk from wildfires than the southern edge. This is due to longer distances between the dense forests to the north and the city limits compared to cities such as Santa Rosa and the typical wind directions. As presented in the LHMP and CAL FIRE, the area between Adobe Road and the residential communities along the eastern edge of Petaluma serve as a natural fire break between the city and the moderate and high severity zones in the hills to the north and east of the city. However, City staff have noted the risk of large wildland fires like the 2017 Tubbs fire; with sufficient strength, such fires could spread far into the urbanized areas of Petaluma, driven by Diablo red flag winds from the northeast.

Fehr & Peers and City of Petaluma staff reviewed several options for representative wildfire scenarios approaching from the north or east that would require an evacuation of residents in East Petaluma as described in **Attachment A**. **Figure 3** shows two scenarios for different scales of evacuation for East Petaluma to illustrate how a phased evacuation of East Petaluma would occur, with evacuation zones in Sonoma County on the edge of Petaluma evacuating first (identified as the primary evacuation zone in Figure 2). For a high impact wildfire or sufficiently unhealthy conditions that threatened the rest of the households in East Petaluma, the remaining evacuation zones shown in Figure 2 is used to assess the unlikely evacuation of all residents in East Petaluma north of US 101 and Lakeville Highway. These two scenarios represent a reasonable and conservative range of conditions that could test the East Petaluma roadway network capacity consistent with the requirements of AB 747. While potentially affecting a larger area, a wildfire affecting East Petaluma has a lower probability than the grass fires assumed in the West Petaluma scenario. In addition, the distance between East Petaluma households and high wildfire severity forests is much greater than in other Sonoma County cities, such as Santa Rosa, reducing the likelihood of high impact wildfires like the Tubbs fire affecting East Petaluma residents.

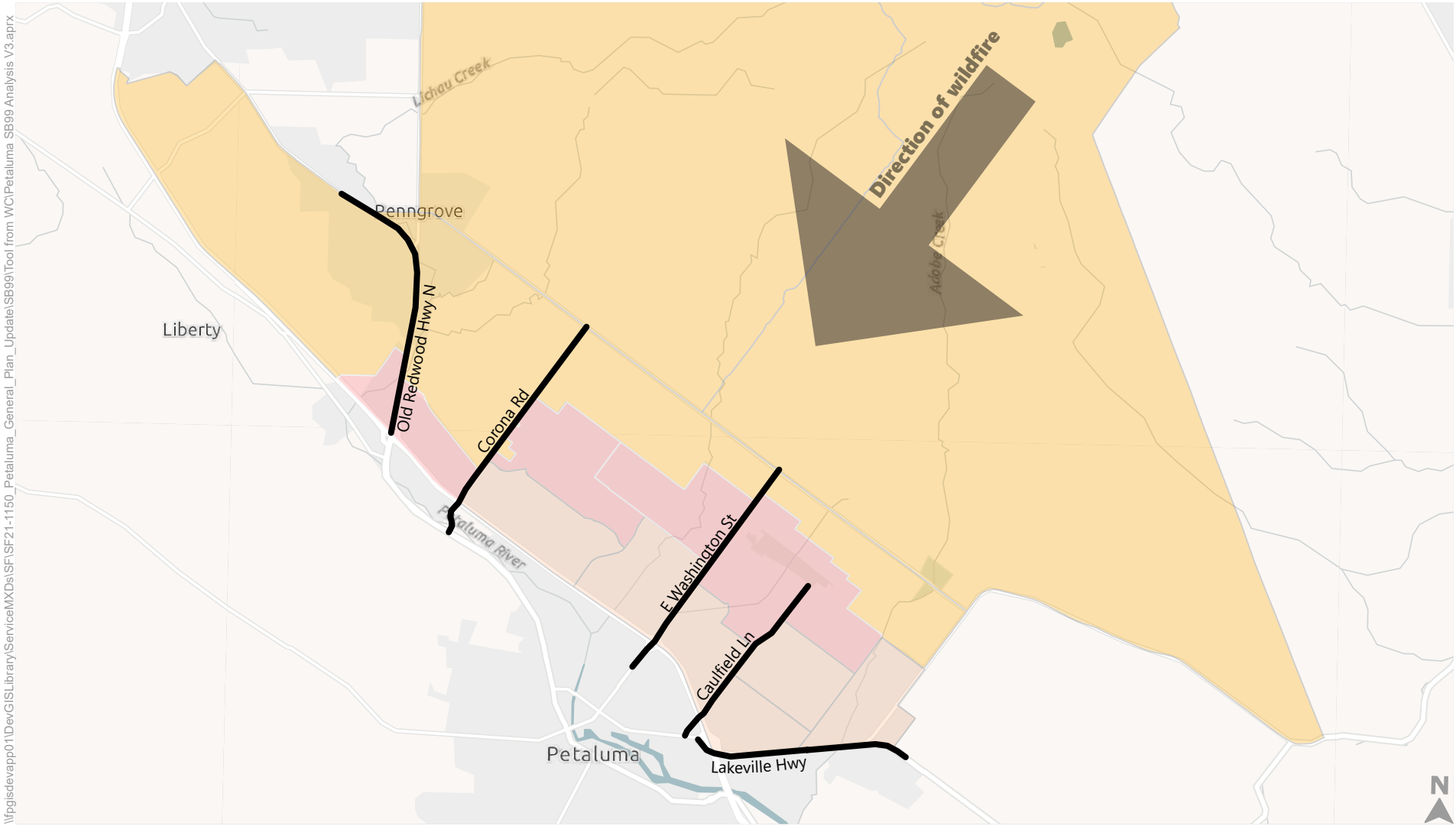


Figure 3

East Petaluma Evacuation Area and Key Evacuation Routes

Qualitative Evacuation Scenarios

The qualitative evacuation analysis presents two additional evacuation scenarios: a citywide flood scenario and a human-caused emergency evacuation of downtown Petaluma. These scenarios are solely to guide policy decisions and therefore do not include a quantitative analysis used for AB 747compliance as they represent lower stress scenarios on the roadway network as described above.

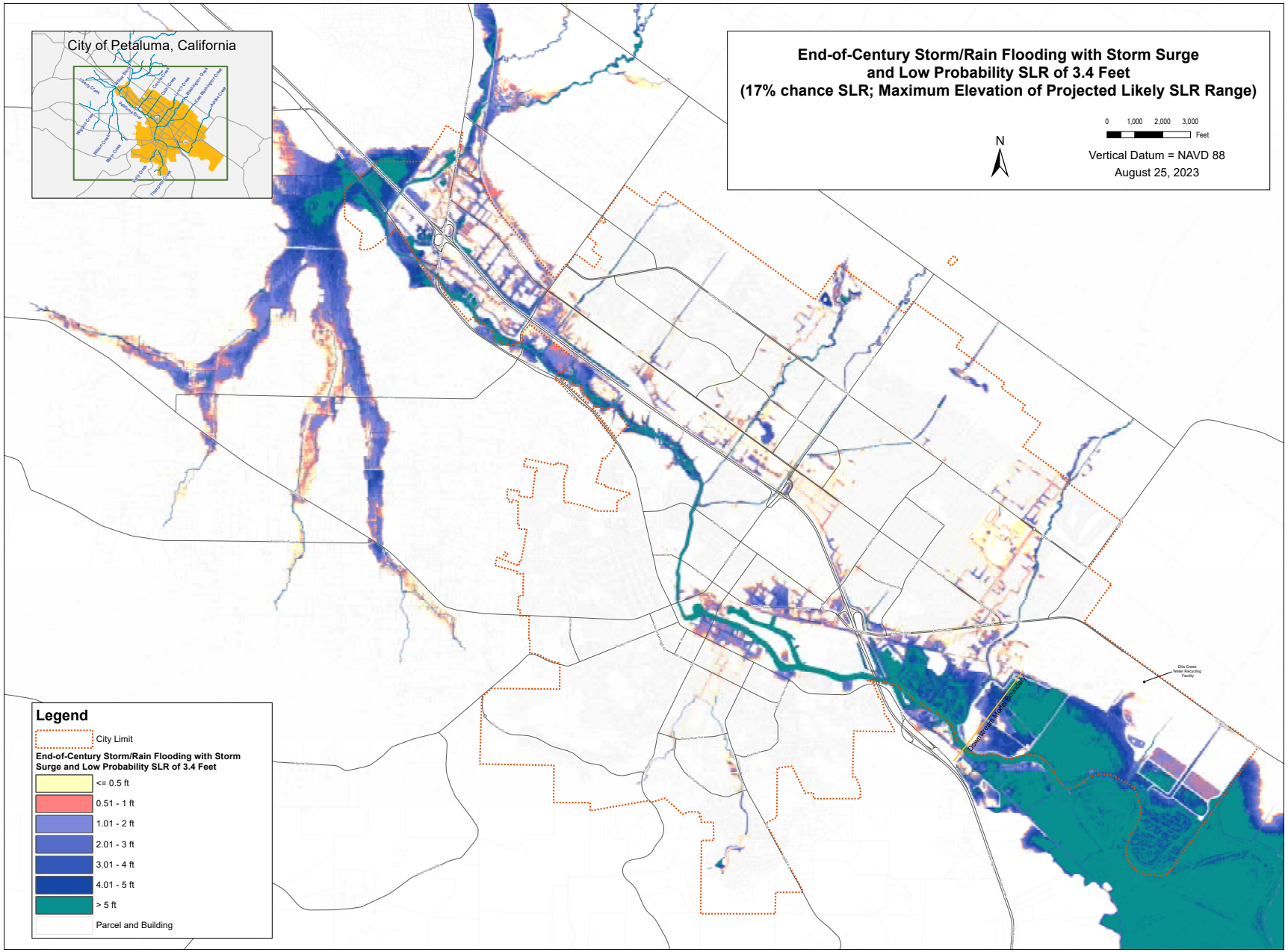
Flood Scenario

The City of Petaluma selected the "End-of-Century Flood Model for Rain and Storm Surge" as the representative flood scenario, which incorporates rain with sea level rise of 3.4 feet, including rainfall flooding and storm surge.[7] This analysis used the flood map made publicly available by the City of Petaluma, shown in **Figure 4**. There is a low probability that this amount of sea level rise will occur, so this represents a reasonably foreseeable scenario to test the accessibility City's roadway network under the peak of flooding condition. As noted on as noted on page 4-92 of Petaluma's 2022 LHMP "the warning time associated with slow rise floods assists in life and property protection" and thus the evacuation of these neighborhoods would be more spread out than a wildfire and thus pose less burden on the roadway capacity for AB 747-compliance purposes. Therefore, the purpose for the roadway capacity assessment for this scenario is to identify how flooding would impact citywide travel and the ability of emergency providers to reach impacted neighborhoods by identifying which arterial and collector roadways would be inaccessible under the peak of the flood. This assessment can be used as a guide for evacuation planning under flood conditions and does not constitute an evacuation plan for these neighborhoods.

Downtown Evacuation Scenario

The final scenario analyzed is the urgent evacuation of downtown Petaluma during a major event such as the Butter & Egg Days Parade & Festival. Since there are no natural risks that would prompt such an urgent evacuation of downtown Petaluma according to the LHMP, Fehr & Peers and the City of Petaluma assumed that a human-caused risk would be impetus for evacuation. At the request of City staff, Fehr & Peers assessed the capacity of routes presented in **Figure 5** out of downtown Petaluma to assist emergency services with evacuation operations and wayfinding. This assessment can be used as a guide for evacuation planning and does not constitute an evacuation plan for downtown Petaluma.

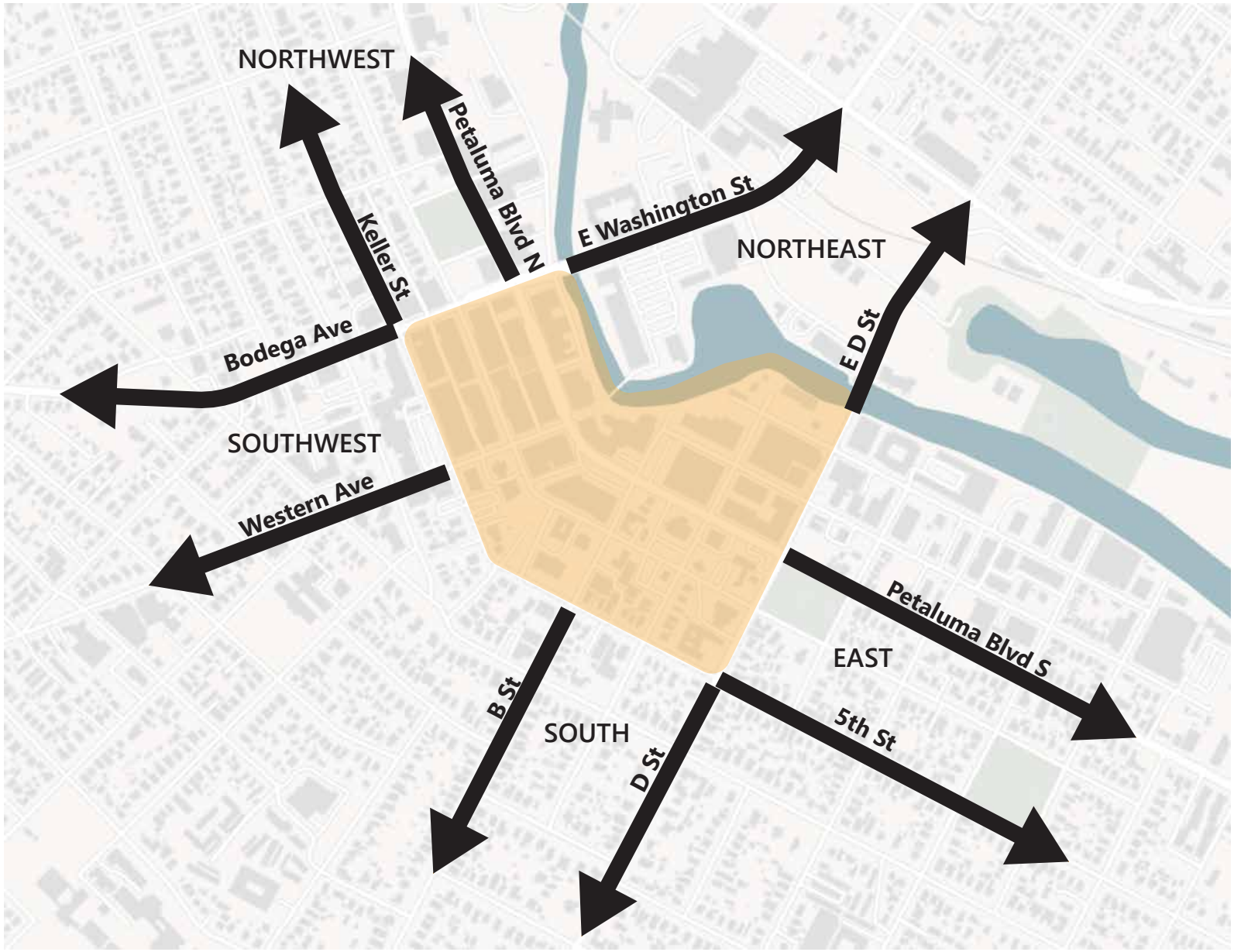
[7] https://www.planpetaluma.org/slr-flood-map



Source: City of Petaluma

Figure 4

End-of-Century Storm/Rain Flooding with Storm Surge



Note: Additional evacuation areas for the County of Sonoma are included in each fire evacuation scenario as shown in figures 2 and 3.

Figure 5

Downtown Evacuation Area and Key Evacuation Routes

AB 747 Evacuation Assessment

Evacuation assessment is an emerging field, and there is no established standard methodology. Fehr & Peers has adopted a methodology in transportation planning that, in our knowledge and experience, we believe is the most appropriate for the City of Petaluma for AB 747 compliance. First, Fehr & Peers estimated the available capacity of egress routes serving the West and East Petaluma evacuation areas. Then Fehr & Peers estimated the cumulative evacuation vehicle demand over the anticipated evacuation period and compared the two.

Evacuation Roadways and Capacities

The roadways serving as evacuation egress routes for the representative scenarios are presented in **Figures 2** and **3**. While there is no official guidance or industry standard for roadway capacities during evacuations, this analysis used a combination of the Highway Capacity Manual (6th edition) and engineering judgement based on similar studies, such as the *Scott Ranch DEIR Wildfire Evacuation Transportation Assessment* in 2020, which has substantial spatial overlap with the West Petaluma representative scenario. While this analysis uses the same base capacity as the Scott Ranch study, 1,800 vehicles per lane per hour, more recent best practices around wildfire evacuation indicates that a substantial reduction in this capacity should be made to account for heavy volumes, reduced visibility, and wayfinding challenges due to a wildfire. This analysis has therefore used a 40% reduction in base capacity, resulting in 1,080 vehicles per lane per hour. This capacity analysis does not include use of any contra-flow lanes for outbound evacuees as inbound lanes may be needed for emergency vehicle access to supplement first responders.

In general, there are fewer roadways serving the evacuation areas in West Petaluma due to the lack of a street grid on the edge of the city. Due to the lack of a grid, the West Petaluma households in the evacuation zones would also be limited to one or two roadways for egress, assuming the southbound direction of the roadways is closed due to the fire. This reduces the ability of vehicular demand to spread out to secondary roadways. Therefore, the evacuation analysis for West Petaluma breaks the full evacuation area into catchment sub-areas based on the available evacuation routes so that each roadway can be evaluated based on the households that the route would serve at the location with maximum vehicular demand. By the time the evacuees reach the Central Petaluma grid at 6th Street, 5th Street, or Petaluma Boulevard South, they would have multiple routes to travel to reach their final destinations and thus distribute the vehicular demand to multiple streets. Petaluma Boulevard and D Street would provide evacuees access to their final destinations.

Unlike West Petaluma, East Petaluma has a grid network all the way to the edge of the city, with multiple high-capacity roadways that run parallel to the path of evacuation. This allows

evacuating vehicles to spread out and take advantage of all evacuation routes. Therefore, the total demand for evacuating households in East Petaluma is compared to the total roadway capacity serving these neighborhoods

Evacuation Demand

The number of residents in Petaluma and evacuation vehicles trips per household were used to estimate the number of vehicles that would need to evacuate for each evacuation scenario. **Table 1** presents the number of households within the evacuation zones used for the AB 747 evacuation scenarios. Fehr & Peers and the City of Petaluma decided to use the future 2040 land use projections for the quantitative evacuation analysis to account for potential land use growth. The 2040 land use projections are from the Sonoma County Transportation Authority (SCTA) travel demand model based on the City of Petaluma General Plan 2025 as of the end of 2023.[8]

Table 1. Existing and Future Households

Geography	City of Petaluma		County of Sonoma		Total	
	Existing Households	Estimated 2040 Households	Existing Households	Estimated 2040 Households	Existing Households	Estimated 2040 Households
Representative West Petaluma Evacuation Zones						
Total[1]	2,252	2,469	213	244	2,465	2,713
Representative East Petaluma Evacuation Zones						
Primary Evacuation Zones[1]	4,992	5,020	768	808	5,760	5,828
Entire East Petaluma[1]	13,895	13,933	768	808	14,663	14,741

Notes:

1. Evacuation zones are from the city's evacuation map: https://cityofpetaluma.org/emergency-evacuations/ and presented in Figures 1 and 2. Specific zone numbers are listed in Appendix A. The number of households were appropriated to the most direct evacuation route roadway for West Petaluma.

Source: SCTA Model, 2040; Fehr & Peers

[8] The increase in population in Petaluma from the 2019 model base year to the 2040 future conditions is 3,470 households, or an increase of approximately 15 percent. This land use growth was checked in December 2023 to ensure it was greater than the City's Housing Element allocation, which assumes growth in 1,910 households by 2031. Most of the increased growth from the 2025 General Plan is outside of the wildfire evacuation zones within Central Petaluma, south of Lakeville Highway and north of Petaluma Boulevard. However, the growth shown in **Table 1** does account for planned projects in the evacuation zones, such as Scott Ranch in West Petaluma.

Fehr & Peers multiplied the number of households in each evacuation area by a vehicle trip generation rate based on the Santa Rosa Post-Fire Survey (2018), shown in **Table 2**. This survey indicates that each household uses an average of 1.75 vehicles to evacuate.

Table 2. Vehicle Utilization Rates

Vehicles Used to Evacuate	Percentage of Households
1	46%
2	38%
3	11%
4 or more	5%
1.75	**Weighted Average**

Source: Santa Rosa Post-Fire Survey, 2018. https://its.berkeley.edu/news/developing-transportation-response-strategies-wildfire-evacuations-empirically-supported, accessed by Fehr & Peers August 2024.

The two representative AB 747 wildfire evacuation scenarios are based on a nighttime evacuation to maximize the number of people at home that would need to evacuate since the affected evacuation areas are primarily residential land uses. **Table 3** presents the results of applying the vehicle utilization rates to each household for the representative scenarios.

Table 3. Estimated Evacuation Vehicle Demand

Geography	City of Petaluma		County of Sonoma		Total	
	Households	Vehicle Demand	Households	Vehicle Demand	Households	Vehicle Demand
West Petaluma	2,469	4,321	244	427	2,713	4,748
East Petaluma						
Primary Evacuation Zones	5,020	8,785	808	1,414	5,828	10,199
Entire East Petaluma	13,933	24,383	808	1,414	14,741	25,797

Source: Fehr & Peers

Evacuation Analysis Results

Table 4 compares the estimated vehicle trips generated by evacuating residences to roadway capacity for the West Petaluma evacuation scenario. All roadway segments would operate at volume to capacity (V/C) under 1.0, which indicates that all vehicles would be able to evacuate within an hour. I Street would serve the highest amount of evacuating vehicle demand and

therefore policies should be designed to prioritize evacuation of these neighborhoods, particularly given the proximity to the high severity wildfire zone to the south of this area. The resulting vehicle demand by scenario and by evacuation route can be found in **Attachment B: Evacuation Analysis Calculations**.

Table 4. West Petaluma Roadway Evacuation Volumes and Capacity

Roadway	Evacuating Vehicle Demand	Hourly Roadway Capacity	Hourly Volume / Capacity[1]	Time to Evacuate all Households
Western Ave	506	1,080	0.47	< 1 hour
English St	308	1,080	0.29	< 1 hour
B St	297	1,080	0.27	< 1 hour
D St	695	1,080	0.64	< 1 hour
F St	547	1,080	0.51	< 1 hour
I St	1,078	1,080	1.00	1 hour
Mountain View Ave	699	1,080	0.65	< 1 hour
McNear Ave	252	1,080	0.23	< 1 hour
Jacquelyn Ln	319	1,080	0.30	< 1 hour
Total	**4,701**	**9,720**	**0.48**	--

Notes:
1. This roadway capacity analysis assumes a no notice evacuation condition and all households leave as soon as an evacuation notice is provided for the purpose of presenting a representative analysis. In most wildfire evacuation cases, households would typically evacuate over a longer period, which would result in lower volume to capacity ratios than those presented here.

Source: Fehr & Peers, 2024

For East Petaluma, the grid network that would allow evacuees would have multiple evacuation route options to cross at the nearest roadway over U.S. 101 or use roadways such as Sonoma Mountain Parkway, Ely Boulevard South, or North McDowell Boulevard to reach the next closest route. Therefore, the V/C ratio was assessed for total demand and capacity. As shown in **Table 5**, the zones in nearby Sonoma County and the primary evacuation zones on eastern edge of the City of Petaluma would not exceed the evacuation capacity of the roadways and therefore would need approximately one hour to clear if all households attempted to evacuate at one time. The V/C ratio for all East Petaluma is 2.39, indicating that the full evacuation demand would require two to three hours to clear. This illustrates the need for phased evacuation as are incorporated in the City of Petaluma's emergency evacuation plans to ensure all residents could make it out in a timely manner without overwhelming the roadway capacity at once. Strategies for increasing the

roadway capacity under the low likelihood scenario where all East Petaluma households need to evacuate are presented in the "Strategies to Reduce Evacuation Times" section.

Table 5. East Petaluma Roadway Evacuation Volumes and Capacity

Roadway	Hourly Roadway Capacity[1]	Evacuating Vehicle Trips	Hourly Volume / Capacity[2]	Time to Evacuate all Households
Primary Evacuation Area	10,800	10,199	0.94	< 1 hour
Entire East Side of the City	10,800	25,797	2.39	2.5 hours

Notes:

1. Includes four roadways with two outbound lanes for evacuation (Old Redwood Highway North, East Washington Street, and Lakeville Highway to the west or east) and two roadways with one outbound lane for evacuation (Corona Road and Caulfield Lane). 1,080 per lane multiplied by 10 lanes (4*2 + 2*1) = 10,800-hour capacity. One lane on Caulfield Lane represents a conservative scenario where the number of lanes is reduced from two to one vehicle lane in each direction in the future, reflecting the current planned complete streets project. These roadway capacity assumptions do not include the use of two-way left turn lanes or bikeways for vehicular evacuation for conservative purposes. These facilities could be used to increase evacuation capacity as noted in the "Strategies to Reduce Evacuation Times" section.
2. This roadway capacity analysis assumes a no notice evacuation condition and all households leave as soon as an evacuation notice is provided for the purpose of presenting a representative analysis. In most wildfire evacuation cases, households would typically evacuate over a longer period, which would result in lower volume to capacity ratios than those presented here.

Source: Fehr & Peers, 2024

We acknowledge that power loss during a wildfire scenario could disrupt evacuation routes, leading to vehicle backups at intersections due to non-functioning traffic signals. This could create confusion for drivers, result in severe traffic congestion, and delay response times for first responders. While the assumed reduction in roadway capacity of 40% accounts for some of the confusion and congestion of evacuation, it is beyond the scope of this study to assess how power loss to any given traffic signals could effect an evacuation. As noted in Strategies to Reduce Evacuation Times, keeping infrastructure up-to-date, installing backup power sources, and providing flaggers can mitigate the effects of power loss.

Qualitative Evacuation Assessment

As described above, scenarios that require evacuation due to the Petaluma River flooding or an evacuation of downtown Petaluma are included below to guide policy and are not for compliance with AB 747.

Flood Scenario

As shown in **Figure 4**, arterial and collector roadways near the Petaluma River or other flood zones are likely to be inundated in a flood and alternative routes would be required. Local roadways that become inaccessible would impact neighborhoods that would be directly affected by the flooding but serve few people and therefore would not present conditions where the roadway capacity would be the constraint to evacuation. The City of Petaluma can concurrently enact operational plans to ensure neighborhoods in the flood zones are evacuated before floodwaters reach individual homes or businesses. In general, the number of available routes for vehicle travel would be reduced during the peak flood condition and thus a shelter-in-place order for non-evacuated residents during this peak period would help maintain roadway capacity for emergency vehicles. Roadways leading out of Petaluma such as U.S. 101, Lakeville Highway, Bodega Avenue, Western Avenue, and D Street are expected to be accessible for egress away from Petaluma in this flood scenario, although roadways leading to these routes may be inaccessible for some residents. The arterial and collector roadways that are likely to be inaccessible during the peak of the flooding scenario are described in the following sections by geographic area.

Northeast Petaluma – North of Corona Road and West of SMART Tracks

Northeastern Petaluma neighborhoods and roadways between Petaluma Blvd and the SMART tracks could experience extensive flooding under this scenario and would need to be evacuated before the flood waters make roadways in this neighborhood inaccessible. The following arterial and collector roadways in this area could be inaccessible at the peak of this flooding scenario:

- Old Redwood Highway
- Petaluma Boulevard North
- Corona Road
- North McDowell Boulevard

East Petaluma – East of SMART Tracks and North of Caulfield

These neighborhoods would not see extensive flooding but would be impacted by roadway closures in northeast Petaluma. The following arterial and collector roadways in this area would see low levels of water and could be inaccessible at the peak of this flooding scenario:

- North McDowell Boulevard
- Rainier Avenue
- Sonoma Mountain Parkway
- Maria Drive

While these roadways are inaccessible, residents would need to shelter in place or use unaffected roadways such as Corona Road east of North McDowell to exit Petaluma.

Central and Downtown Petaluma

Downtown Petaluma along the Petaluma River and the blocks south of D Street and east of Payran Street could experience extensive flooding under this scenario and would need to be evacuated before the flood waters make roadways in these neighborhoods inaccessible. The following arterial and collector roadways in central or downtown Petaluma could be inaccessible at the peak of this flooding scenario:

- Payran Street over the Petaluma River and at Linberg Lan
- Lakeville Street over the Petaluma River
- Washington Street between Petaluma Boulevard and Copeland Street
- D Street between Petaluma Boulevard and Copeland Street
- Petaluma Boulevard between B Street and Mountain View Avenue
- Lakeville Highway between D Street and Caulfield
- Hopper Street

Roadways across the Petaluma River could be inaccessible during the peak of this scenario and thus residents would need to shelter in place or use the remaining accessible roadways to exit Petaluma. Neighborhoods west and south of downtown Petaluma and northeast of D Street would be less affected by flood waters and could use roadways such as Washington Street, Bodega Avenue, Western Avenue, and D Street to exit Petaluma if needed.

East Petaluma – South of Caulfield Lane

These neighborhoods would not see extensive flooding except for those south of Lakeville Highway but could be impacted by roadway closures in other areas of the city. The following arterial and collector roadways in this area could be inaccessible at the peak of this flooding scenario:

- Lakeville Highway between U.S. 101 and McDowell Boulevard
- McDowell Boulevard between Baywood Drive and Lakeville Highway
- Casa Grande Road
- Ely Boulevard at Casa Grande Road

Roadways across the Petaluma River and tributaries could be inaccessible during the peak of this scenario and thus residents would need to shelter in place or use the remaining accessible roadways to exit Petaluma if needed, such as East Washington Street, Frates Road, or Lakeville Highway.

Downtown Evacuation Scenario

Based on the extent of the Butter & Egg Days Parade, Fehr & Peers assumed an evacuation of the core downtown area of Petaluma, bounded by the Petaluma River, D Street, 5th Street, Keller Street, and East Washington Street. As shown in **Figure 5**, this core downtown area is divided into five sides by direction, each with two key evacuation routes. These routes reflect the best opportunities for evacuation in each direction because they allow evacuees to clear the downtown area.

This analysis conservatively assumes a vehicular evacuation. Such an evacuation may involve multiple modes, in particular walking, which would mean fewer capacity constraints than those presented here. In addition, this analysis does not consider whether there is sufficient parking in the immediate vicinity of the parade route to accommodate all the vehicles that would need to park if all attendees drove. Therefore, this analysis should be considered a ceiling for vehicular evacuation demand, with actual evacuations involving fewer vehicles or vehicle trips that begin further from downtown where parking is available.

As described in the quantitative evacuation analysis section, this study assumes a base vehicle capacity of 1,800 vehicles per lane per hour based on a combination of the Highway Capacity Manual (6th edition) and engineering judgement based on similar studies. Where the quantitative evacuation analysis assumes a 40 percent reduction in this capacity due to smoke and other conditions present during a wildfire, this analysis assumes a 15 percent reduction in base capacity to reflect other non-standard conditions such as wayfinding challenges present in a sudden evacuation. The resulting capacity for this assessment is 1,530 vehicles per lane per hour.

As shown in **Table 6**, evacuation capacity is relatively spread between the five sides of the downtown area, because of the same number of evacuation routes per direction, most of which are two-lane streets. The exception to this is East Washington Street/Bodega Avenue, which is a four-lane street through downtown and thus provides a higher capacity for evacuation.

Table 6. Downtown Evacuation Routes

Direction	Roadway	Unmodified Hourly Roadway Capacity	Modified Hourly Roadway Capacity	Hourly Roadway Capacity by Direction	Direction as % of Total Capacity
Northeast	E Washington	3,600	3,060	4,590	25%
	E D St	1,800	1,530		
East	Petaluma Blvd S	1,800	1,530	3,060	17%
	5th St	1,800	1,530		
South	D St	1,800	1,530	3,060	17%
	B St	1,800	1,530		
Southwest	Western Ave	1,800	1,530	4,590	25%
	Bodega Ave	3,600	3,060		
Northwest	Keller St	1,800	1,530	3,060	17%
	Petaluma Blvd N	1,800	1,530		

Source: Fehr & Peers, 2024

According to the permit for the 2023 Butter & Eggs Days Parade & Festival provided by City staff, the event expected approximately 15,000 adults (21+) to be in attendance. Assuming all of these adults drove their own vehicle and parked near the parade route, there would be roughly 15,000 vehicles seeking to depart the area in the event of an evacuation.[9] Together, the total hourly vehicle capacity of all evacuation routes is 18,360 under evacuation conditions, meaning that there is sufficient road capacity to evacuate all vehicles within an hour, assuming an even distribution of vehicles across all evacuation routes.

These findings underscore the importance of routing traffic outwards from Downtown for an efficient evacuation. While evacuees on the western side of downtown might seek to travel back eastward back through downtown to U.S. 101, they should be directed and encouraged to travel west and rejoin the highway at another location. The city can support a distributed evacuation through education, wayfinding, and direction by emergency services during an evacuation.

[9] As noted in the Approach section, this is a very conservative assumption. It is unlikely that all adult attendees would drive their own vehicle and find parking immediately adjacent to downtown Petaluma, so the total number of evacuating vehicles would be lower.

Strategies to Reduce Evacuation Times

The Petaluma General Update Transportation Policy Framework (January 2024) includes Policy TP-4.4 to "Provide multimodal emergency evacuation routes that align with the safe, equitable, and inclusive mobility framework." This includes the following actions:

- Action TP-4.4.1: Continue to ensure that all neighborhoods have access to designated evacuation routes in an emergency.
- Action TP-4.4.2: Continue to ensure that all emergency access routes required of new developments provide adequate access for people walking or traveling by wheelchair, bicycle, or other micromobility device.
- Action TP-4.4.3: Identify new emergency evacuation routes and disaster resource access routes specifically for residents and visitors without personal motor vehicles who may be walking or traveling by wheelchair, bicycle, or other micromobility device, and provide for the installation of signage and wayfinding to support whole community use of these routes.
- Action TP-4.4.4: Continue to ensure citywide access is provided for emergency services, and response times are monitored and maintained relative to an adopted minimum threshold.

The following section identifies supply-side and demand-side strategies that the City can undertake to reduce evacuation times in alignment with this draft policy. This includes considerations related to evacuation without a vehicle. While these strategies are designed to address the roadway capacity constraints presented in for the AB 747 evacuation scenarios, they could be applied to help direct drivers during any evacuation scenario, including the flood and downtown evacuation scenarios described in this memorandum.

Supply-side Strategies

Supply-side strategies focus on managing and increasing the supply for evacuation capacity – that is, increasing the amount of evacuation vehicle throughput.

The city should make every effort to coordinate with emergency responders and City staff across agencies to ensure the availability of personnel to direct traffic. The presence of personnel can enable such capacity-boosting measures as directing vehicles to use contraflow lanes or shoulders to maximize throughput where possible. The City of Petaluma could also implement the

following Intelligent Transportation Systems (ITS) and operational strategies to increase network capacity for evacuation routes:

- Proactively plan and implement flexible infrastructure that facilitates the management of public spaces, vehicle lanes, active modes lanes (cycle tracks, bike lanes, sidewalks, and shoulders) that can be repurposed during emergencies to provide essential services or additional capacity for evacuation routes. This can be accomplished by designing dual purpose two-way left turn lanes, shoulders, multi-use pathways, or protected bike lanes that are wide enough to be used for vehicle egress or inbound emergency vehicle access during evacuations.
- Provide priority transit evacuation routes that enable transit agencies to implement integrated transit evacuation plans.
- Provide multi-agency agreements to facilitate revisions to control of traffic signal phasing and timing by multiple partner agencies (such as Sonoma County and Caltrans) during emergencies to better facilitate revisions on multiple corridors.
- Install improved and redundant communication lines (such as fiber optic interconnect) and connections to multiple control centers that facilitate traffic control signal timing to be remotely adjusted under emergency conditions to allow for green times to be maximized in the direction of the evacuation.
- Implement infrastructure to provide guidance to the public, such as changeable message and variable lane signs, directing them to major evacuation routes, alerting them to revised traffic patterns, and allowing for the repurposing of lanes.
- Install smart vehicle detection such as fishbowl and pan-tilt-zoom cameras along major evacuation routes to help identify vehicle breakdowns, crashes, and identify routes for emergency responders and expedite response.
- Maintain evacuation warning systems (zonal evacuation alerts, NOAA hazard radios, etc.).
- Prepare emergency traffic control plans for key intersections along major evacuation routes where flaggers and traffic control devices will be needed to facilitate traffic revisions while allowing first responders to reach households in evacuation zones.
- Install battery back-up and alternative power systems at key intersections along major evacuation routes to ensure traffic signal and ITS equipment continue to operate under evacuation conditions.
- Coordinate with utilities to underground key electric and communication lines to prevent downed wires on main evacuation routes.
- Identify parallel and redundant critical transportation infrastructure to facilitate emergency response in the opposite direction of evacuations.
- Identify and prioritize key aging and vulnerable traffic signals for upgrade or replacement, connection to signal communication networks, and provide redundant connections to traffic control centers.

As noted in the "AB 747 Evacuation Assessment" section, the assessment presented in this study does not include any of these features and assumes that only one egress vehicle lane for each evacuation route except for East Washington, Old Redwood Highway, and Lakeville Highway, which would have two vehicle lanes. The ITS and operational strategies listed above could increase the capacity of evacuation routes by allowing use of two-way left turn lanes, shoulders, or bicycle facilities as a second egress lane on roadways. Priority roadways for these treatments include two-lane roadways that serve the most households with limited alternative options, such as I Street in West Petaluma as presented in Table 4. These technology features could also help in the event of a flood or incident at a downtown event to help drivers understand which roadways are accessible and direct them to the nearest safe location.

Demand-Side Strategies

Demand-side strategies focus on managing the demand for evacuation capacity – that is, managing evacuation volumes to move as many people as efficiently as possible within existing capacity constraints.

Limiting the Number of Evacuation Vehicles

Reducing the number of evacuating vehicles is a key aspect of reducing evacuation demand. Each household in Petaluma owns, on average, two vehicles.[10] The evacuation vehicle demand from residents can be significantly reduced if each household were to limit themselves to evacuating in no more than one vehicle.

In addition to being advised or required to take no more than a certain number of vehicles per household, residents should also be advised to not make return trips after they have evacuated, or to stay away if they were not in the evacuation zone when evacuation orders are given. This measure can also reduce vehicle volumes and, crucially, reduce contraflow traffic. However, it must be implemented in conjunction with coordinated efforts to evacuate anyone within Petaluma without access to a vehicle as described below, as to avoid situations such as parents needing to return following an evacuation order to pick up their children from school.

Other Demand-Side Strategies

Other demand-side strategies that the City of Petaluma currently uses or can consider in the future include:

- Development of "right-sized" evacuation zones that provide the early evacuation targeted evacuation orders to not overwhelm roadway capacity early.

[10] Accessed by Fehr & Peers on September 6, 2024: https://datausa.io/profile/geo/petaluma-ca/#:~:text=In%202022%2C%20Petaluma%2C%20CA%20had,median%20household%20income%20of%20%24108%2C527.

- Establishment of a "shelter-in-place" policy that works in conjunction with a phased evacuation, real-time communication, and granular evacuation zones that can be aggregated as capacity is added in the direction of the evacuation.
- Policies and systems to encourage and enable residents to share vehicles, provide rides to neighbors that may not own private vehicles, reduce the number of evacuating vehicles, and ensure all seats in evacuating vehicles are filled.
- Provide aggregated designated parking areas outside hazard zones for additional household vehicles in advance of an evacuation, avoiding extra vehicles on the road while enabling the public to protect their property and day-to-day modes of transportation they rely on.
- Coordinate with emergency responders to provide complete access to all locations in a jurisdiction, including gated communities and critical infrastructure that may be adjacent to jurisdiction boundaries.
- Development of integrated transit evacuation plans for "Access & Functional Needs" populations as well as other vulnerable populations (such as those without sufficient access to or ability to operate a vehicle).
- Install travel time detectors (such as Bluetooth detection systems) to enable the management of evacuation travel speeds and on major evacuation routes to guide the public to the routes that best match the demand to the available capacity.

Evacuation without a Vehicle

Individuals who are able and willing to evacuate on foot, using bicycles, or other modes could do so using sidewalks and trails. Approximately two percent of all households residing in Petaluma do not own a vehicle, according to the 2022 American Community Survey.[11] While this number may be a useful proxy for the number of evacuees likely to need assistance evacuating, the number could be higher depending on the specific timing of the evacuation. For example, in a workday evacuation, it is likely that some workers in Petaluma will have gotten to work without driving their own vehicle and may need transportation out of an evacuation zone. As noted in the AB 747 assessment, the primary land uses in the wildfire evacuation zones are residential so there are unlikely to be many employees in these areas. Many of Petaluma's employment areas would be inundated in the peak flood scenario and thus coordination with local employers in the case of a flooding event would be important to ensure employees have access to other methods of evacuation. Finally, if an evacuation occurs during the school day, it is likely that many schoolchildren will need transportation even if they are theoretically part of households that have vehicles available.

[11] Accessed by Fehr & Peers on September 6, 2024: https://datausa.io/profile/geo/petaluma-ca/#:~:text=In%202022%2C%20Petaluma%2C%20CA%20had,median%20household%20income%20of%20%24108%2C527.

There are several pedestrian and bicycle paths that are available for residents to evacuate zones within the City of Petaluma without using the major vehicle evacuation paths. These paths include the Lynch Creek Trail, the Sonoma-Marin Area Rail Transit (SMART) Trail, the Corona Creek Trail, the Washington Creek Trail, and the Petaluma Ring Trail. Nearby residents should be notified of the existence of these paths and provided instructions on how to use them in an evacuation. The city has miles of sidewalks and bike lanes, and additional short sections of paths and overcrossings to support non-vehicular travel during an evacuation.

The city may want to consider a program that ensures a more accurate estimate of the number of individuals needing assistance, and that there are programs in place to ensure that there are transportation options available for those who need them. Examples of programs that the city can implement include:

- Encourage establishing carpool arrangements between neighbors to provide rides during evacuation situations through education and existing programs such as Petaluma Cool Blocks.
- Establish plans for evacuation of areas with concentrated vulnerable populations, such as senior centers and schools, to designated evacuation centers.
- Coordinate plans to commit public transportation vehicles, school buses, and other shuttle vehicles (such as employer-offered shuttle buses) to providing transportation for evacuees needing assistance.

Attachment A: Evacuation Scenario Selection

Fehr & Peers reviewed initial wildfire scenarios with City staff before selecting the scenarios described above for quantitative evaluation. Additional context on the scenarios reviewed with the city are described below.

West Petaluma Scenario

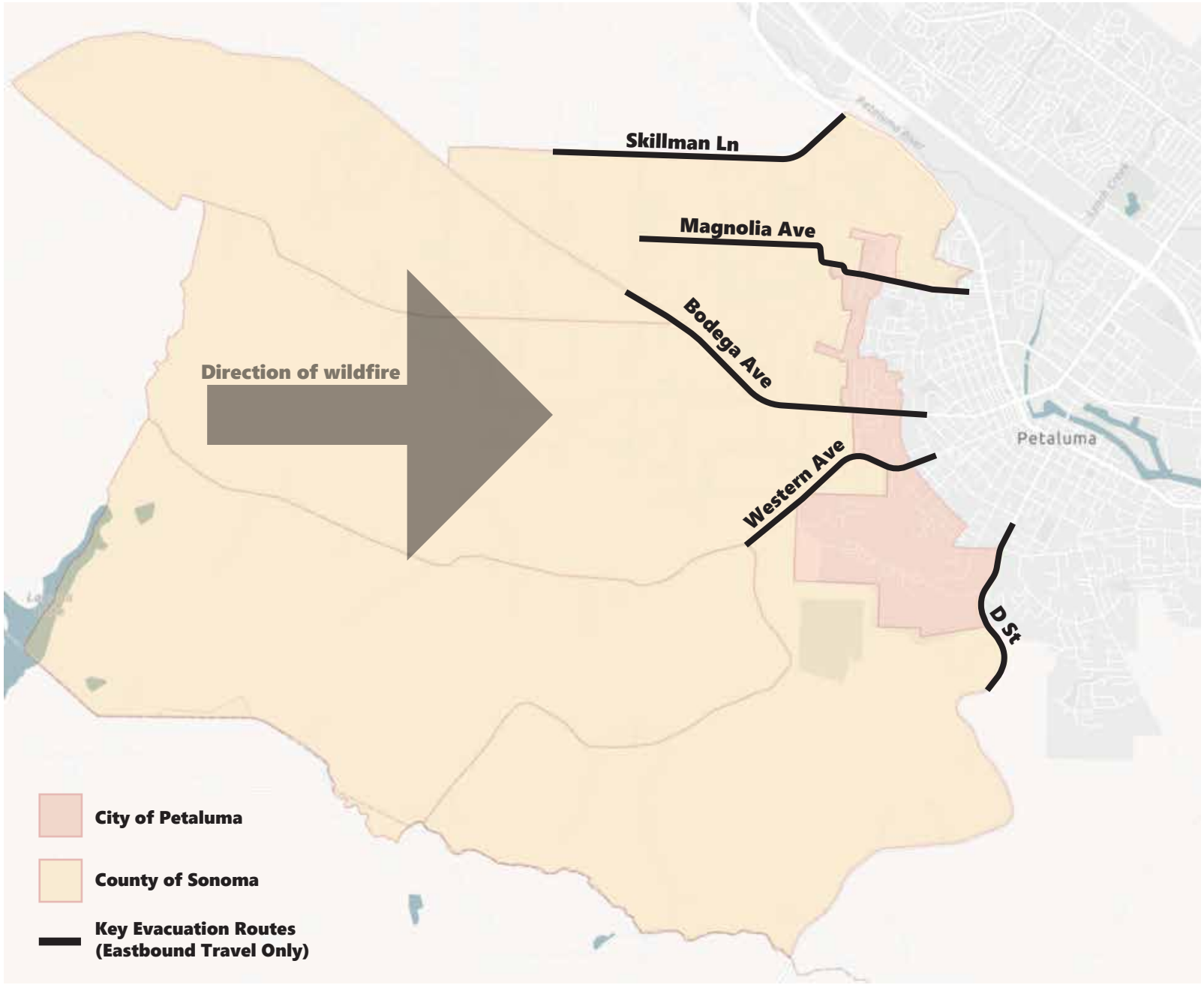
Rather than a wildfire from the south, an alternate scenario could include a wildfire approaching Petaluma from the west. **Figure A-1** presents a map of the evacuation zones and routes for this scenario. As shown in the figure, there are overlapping West Petaluma neighborhoods contained within each evacuation scenario and thus a roadway capacity assessment for the west wildfire scenario would overlap with the roadways used for south wildfire scenario. The City's Local Hazard Mitigation Plan (LHMP) considers most of the areas evacuated to have moderate fire risk. As shown in **Table A-1**, the alternate scenario would have fewer households within the city limits than the selected representative West Petaluma Scenario, although it would have more households in the unincorporated county land just west of the city limits that may need to evacuate into Petaluma. The total amount of households for each scenario are similar (the alternate scenario is seven percent higher) and both scenarios would include Western Avenue and D Street as evacuation routes serving the highest concentrations of evacuating residents. Given these similarities, both scenarios would adequately serve as a representative scenario for a wildfire on the south or west side of the city.

Table A-1: Wildfire from West or South

Scenario	City of Petaluma		County of Sonoma		Total 2040 Households	Key Evacuation Routes
	Evacuation Zones[1]	Est. 2040 Households	Evacuation Zones[1]	Est. 2040 Households		
Representative	3A, 4A	2,469	5P1, 5P2, 5P3	244	2,713	Western Ave, D St, I St, Mountain View Ave, McNear Ave
Alternate	4A, 5A	1,294	5F8, 5N1, 5N3, 5N5, 5P1	1,608	2,902	Western Ave, D St, Bodega Ave, Skillman Ln, Magnolia Ave,

Notes:
1. Evacuation zones are from the city's evacuation map: https://cityofpetaluma.org/emergency-evacuations/

Source: SCTA Model, 2040, reflective of Petaluma General Plan growth; Fehr & Peers



Note: Additional evacuation areas for the County of Sonoma are included in each fire evacuation scenario as shown in figures 2 and 3.

Figure A-1

West Petaluma Alternate Evacuation Area and Key Evacuation Routes

In coordination with City staff, Fehr & Peers selected the representative south fire scenario for analysis because there are fewer arterial or collector streets serving this evacuation area and I Street has a higher concentration of households compared to Bodega Avenue, Skillman Lane, or Magnolia Avenue. Further, evacuees on Bodega Avenue, Skillman Lane, and Magnolia Avenue must travel shorter distances through populated areas before reaching unaffected areas or higher capacity arterials such as Petaluma Boulevard North. Therefore, the south fire would represent a reasonable and conservative range of conditions that could test the West Petaluma roadway network capacity consistent with the requirements of AB 747. The conclusions of the representative evacuation analysis of the West Petaluma wildfire scenario could be applied to communities affected by an evacuation from a fire from the west.

East Petaluma Scenario

Fehr & Peers reviewed scenarios that included a lower impact wildfire with an evacuation that extends partially into Petaluma (generally north of Sonoma Mountain Parkway) and one that that extends all the way to U.S. 101 and Lakeville Highway. The evacuation area for the primary area zones north of Sonoma Mountain Parkway (primary evacuation area), is the boundary indicated by City staff as the furthest likely spread of a wildfire within the city limits. However, the evacuation scenario for the entire east side of the city was assessed as well to stress test the roadway network in the case of an extreme fire or secondary effects such as hazardous air quality that required evacuation of the rest of East Petaluma.

Table A-2: Wildfire from East or North

Scenario	City of Petaluma		County of Sonoma		Total 2040 Households	Key Evacuation Routes
	Evacuation Zones	Est. 2040 Households	Evacuation Zones	Est. 2040 Households		
Primary Evacuation Area	7, 8, 11, 12	5,020	5G1, 5J1, 5J2, 5K1, 5K2, 5K3	808	5,828	Old Redwood Hwy, Corona Rd, Rainier Ave, Washington St, Caulfield Ln, Casa Grande Rd
Entire East Side of the City	7, 8, 9, 10, 11, 12, 13, 14, 15B	13,933	5G1, 5J1, 5J2, 5K1, 5K2, 5K3	808	14,741	Old Redwood Hwy, Corona Rd, Rainier Ave (future) Washington St, Caulfield Ln, Casa Grande Rd, Frates Rd, Lakeville St/Highway

Source: SCTA Model, 2040, reflective of Petaluma General Plan growth; Fehr & Peers

Attachment B: Evacuation Analysis Calculations

Roadway	Unmodified Roadway Capacity	Modified Roadway Capacity	Evacuating Vehicle Trips City of Petaluma[1]	Evacuating Vehicle Trips Sonoma County[2]	Evacuating Vehicle Trips Total	V/C or Time to Evacuate (Hours)
West Petaluma Representative Fire Scenario						
Western Ave	1,800	1,080	407	99	506	0.47
English St	1,800	1,080	308	-	308	0.29
B St	1,800	1,080	297	-	297	0.27
D St	1,800	1,080	633	62	695	0.64
F St	1,800	1,080	547	-	547	0.51
I St	1,800	1,080	937	141	1,078	1.00
Mountain View Ave	1,800	1,080	620	79	699	0.65
McNear Ave	1,800	1,080	252	-	252	0.23
Jacquelyn Ln	1,800	1,080	319	-	319	0.30
East Petaluma Representative Fire Scenario						
Old Redwood Hwy N	3,600	2,160				
Corona Rd	1,800	1,080				
E Washington St	3,600	2,160	24,382	1,414	25,797	2.39
Caulfield Ln	1,800	1,080				
West Lakeville Hwy	3,600	2,160				
East Lakeville Hwy	3,600	2,160				
Total East Petaluma	18,000	10,800	24,382	1,414	25,797	2.39

Assumptions

Vehicle Utilization[3]

# of vehicles	*% used to evacuate*
1	*46%*
2	*38%*
3	*11%*
4 or more	*5%*
1.75	*Weighted Average*

Capacity Per Lane[4]

Max Theoretical Capacity	1,800
Total Reductions	40%
Operating Capacity Per Lane	1,080

Notes

1. Fehr & Peers first identified the number of households in each evacuation area under 2040 conditions, per the land use assumptions within the Sonoma County Transportation Authority (SCTA) travel demand model used for the Petaluma General Plan 2025
2. Fehr & Peers first identified the number of households in each evacuation area under 2040 conditions, per the land use assumptions within the Sonoma County Transportation Authority (SCTA) travel demand model used for the Petaluma General Plan 2025
3. Santa Rosa Post-Fire Survey, 2018. https://www.cmap.illinois.gov/documents/10180/995345/CATMUG-20190403-Lupa-EvacSurvey.pdf/f5550362-e8b3-8d57-2a50-11b4e56162f1, accessed by Fehr & Peers April 2024.
4. Capacity and reductions based on Highway Capacity Manual (6th Edition) and engineering judgement. Reductions account for the presence of heavy vehicles and roadway characteristics such as curves and grade. Evacuation roadways do not have vegetation overgrowth, which would further reduce roadway capacity in the event of a fire.

Administrative Record

- City of Petaluma (2021). "Infrastructure Presentation." Measure U Workshop Meeting, Petaluma City Council, March 8, 2021. Accessed at https://petaluma.granicus.com/GeneratedAgendaViewer.php?view_id=31&event_id=45335
- Caulfield Bridge Crosstown Connector Project https://cityofpetaluma.org/caulfieldbridge/
- The staff report for the October 10, 2022 City Council workshop "Crosstown Connector Workshop: Exploring Petaluma's Options for Enhancing Community Mobility, Safety, and Connectedness" describes the changing circumstances for Rainier Avenue since completion of the 2025 General Plan.
- Highway 101 Pedestrian & Bicycle Crossings Study https://cityofpetaluma.org/101crossings/
- The information in this Petaluma Transit section comes from publicly available data and conversations with Petaluma Transit's Transit Manager, Jared Hall.
- State of California, Department of Finance, E-4 Population Estimates for Cities, Counties, and the State, 2021-2025, with 2020 Census Benchmark. Sacramento, California, May 2025. Accessed by Fehr & Peers on 12/5/2025 at https://dof.ca.gov/forecasting/demographics/estimates/e-4-population-estimates-for-cities-counties-and-the-state-2021-2025-with-2020-census-benchmark/
- U.S. Bureau of Labor Statistics, the average employment in the Santa Rosa-Petaluma, CA Metropolitan Statistical Area for the first six months of 2025 was 238,742 compared to 246,376 in 2019.
- Sonoma County Travel Behavior Study, 2020. https://scta.ca.gov/wp-content/uploads/2020/02/Sonoma_TBS_2-7-2020_web.pdf
- The Safe Systems Pyramid Policy Brief, UC Davis, March 2025, accessed by Fehr & Peers on September 2, 2025 at https://ncst.ucdavis.edu/research-product/safe-systems-pyramid
- California State Transportation Agency (CalSTA) (2025) Joint Secretary's Policy on Road Safety (SP 01-2025), Sacramento, CA.
- General Plan Guidelines and Technical Advisory, Appendix B Transportation Safety; OPR; 2017; accessed by Fehr & Peers on September 2, 2025 at https://lci.ca.gov/docs/OPR_Appendix_B_final.pdf
- Technical Advisory on Evaluating Transportation Impacts in CEQA http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf
- California Air Resources Board 2017 Scoping Plan https://ww2.arb.ca.gov/sites/default/files/2019-01/2017_sp_vmt_reductions_jan19.pdf
- Caltrans Transportation Impact Study Guide https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-05-20-approved-vmt-focused-tisg-a11y.pdf
- City of Petaluma Local Road Safety Plan https://cityofpetaluma.org/documents/local-road-safety-plan/
- Petaluma Municipal Code, Chapter 11.90, Trip Reduction Ordinance Program https://petaluma.municipal.codes/Code/11.90.010
- California Air Pollution Control Officers Association, *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, December 2021. https://www.caleemod.com/handbook/index.html

- California Air Resources Board (CARB) 2022 Scoping Plan, Appendix D, Table 3. Accessed here by Fehr & Peers on July 14, 2025: https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp-appendix-d-local-actions.pdf
- MTC, SB 743 Policy Adoption Technical Assistance Program: Establishing an Infill and Affordable Housing Screen (April 2024). Accessed here by Fehr & Peers on July 14, 2025: https://abag.ca.gov/tools-resources/digital-library/mtcinfillhousingvmtwhitepaper.pdf

Appendices:

- Caltrans' *Design Information Bulletin 94: Draft Complete Streets Contextual Design Guidance* ("DIB-94", April 2023)
- For example, FHWA's *Bikeway Selection Guide* provides input on appropriate types of bicycle facilities, which can be found here: https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-07/fhwasa18077.pdf https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf
- For example, NACTO's *Urban Street Design Guide* (accessible here: https://nacto.org/publication/urban-street-design-guide/) provides guidance on how to design lane widths and other roadway features for roadway safety.
- Federal Highway Administration. "Highway Functional Classification Concepts, Criteria and Procedures, 2023 Edition." U.S. Department of Transportation: Federal Highway Administration. February 2023. https://www.fhwa.dot.gov/planning/processes/statewide/related/hwy-functional-classification-2023.pdf. Accessed 2025.
- California Department of Transportation. "Functional Classification (FC)." Caltrans. https://dot.ca.gov/programs/research-innovation-system-information/office-of-highway-system-information-performance/functional-classification. Accessed 2025.
- Federal Highway Administration. "Accessible Shared Streets." U.S. Department of Transportation: Federal Highway Administration. October 2017. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/accessible_shared_streets/. Accessed 2025.
- SCTA Travel Model Update Report and SCTA Model Enhancement Report

Appendix C

Natural Resources Potential To Occur Table

Special-Status Plant Species in the Regional Vicinity of the Project Site

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements
Allium peninsulare var. franciscanum Franciscan onion	None/None G4G5T2/S2 1B.2	Perennial bulbiferous herb. Cismontane woodland, valley and foothill grassland. Clay, Serpentinite (often), volcanic. Elevations: 170-1000ft. (52-305m.) Blooms (Apr)May-Jun.
Alopecurus aequalis var. sonomensis Sonoma alopecurus	FE/None G5T1/S1 1B.1	Perennial herb. Marshes and swamps, riparian scrub. Wet areas, marshes, and riparian banks, with other wetland species. Elevations: 15-1200ft. (5-365m.) Blooms May-Jul.
Amorpha californica var. napensis Napa false indigo	None/None G4T2/S2 1B.2	Perennial deciduous shrub. Broadleafed upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. 30-735 m. Elevations: 165-6560ft. (50-2000m.) Blooms Apr-Jul.
Astragalus tener var. tener alkali milk-vetch	None/None G2T1/S1 1B.2	Annual herb. Playas, valley and foothill grassland, vernal pools. Alkaline. Elevations: 5-195ft. (1-60m.) Blooms Mar-Jun.
Blennosperma bakeri Sonoma sunshine	FE/SE G1/S1 1B.1	Annual herb. Valley and foothill grassland, vernal pools. Vernal pools and swales. Elevations: 35-360ft. (10-110m.) Blooms Mar-May.
Ceanothus masonii Mason's ceanothus	None/SR G1/S1 1B.2	Perennial evergreen shrub. Chaparral. Serpentine ridges or slopes in chaparral or transition zone. Elevations: 755-1640ft. (230-500m.) Blooms Mar-Apr.
Ceanothus sonomensis Sonoma ceanothus	None/None G2/S2 1B.2	Perennial evergreen shrub. Chaparral. Sandy, serpentine or volcanic soils. Elevations: 705-2625ft. (215-800m.) Blooms Feb-Apr.
Centromadia parryi ssp. parryi pappose tarplant	None/None G3T2/S2 1B.2	Annual herb. Chaparral, coastal prairie, marshes and swamps, meadows and seeps, valley and foothill grassland. Alkaline (often). Elevations: 0-1380ft. (0-420m.) Blooms May-Nov.
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	None/None G4?T2/S2 1B.2	Annual herb (hemiparasitic). Marshes and swamps. Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. Elevations: 0-35ft. (0-10m.) Blooms Jun-Oct.
Chloropyron molle ssp. molle soft salty bird's-beak	FE/SR G2T1/S1 1B.2	Annual herb (hemiparasitic). Marshes and swamps. In coastal salt marsh with Distichlis, Salicornia, Frankenia, etc. Elevations: 0-10ft. (0-3m.) Blooms Jun-Nov.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements
Chorizanthe valida Sonoma spineflower	FE/SE G1/S1 1B.1	Annual herb. Coastal prairie. Sandy soil. Elevations: 35-1000ft. (10-305m.) Blooms Jun-Aug.
Delphinium bakeri Baker's larkspur	FE/SE G1/S1 1B.1	Perennial herb. Broadleafed upland forest, coastal scrub, valley and foothill grassland. Only site occurs on NW-facing slope, on decomposed shale. Historically known from grassy areas along fencelines too. Elevations: 260-1000ft. (80-305m.) Blooms Mar-May.
Delphinium luteum golden larkspur	FE/SR G1/S1 1B.1	Perennial herb. Chaparral, coastal prairie, coastal scrub. North-facing rocky slopes. Elevations: 0-330ft. (0-100m.) Blooms Mar-May.
Downingia pusilla dwarf downingia	None/None GU/S2 2B.2	Annual herb. Valley and foothill grassland, vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools. Elevations: 5-1460ft. (1-445m.) Blooms Mar-May.
Eriogonum luteolum var. caninum Tiburon buckwheat	None/None G5T2/S2 1B.2	Annual herb. Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Serpentine soils; sandy to gravelly sites. Elevations: 0-2295ft. (0-700m.) Blooms May-Sep.
Fritillaria liliacea fragrant fritillary	None/None G2/S2 1B.2	Perennial bulbiferous herb. Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Often on serpentine; various soils reported though usually on clay, in grassland. Elevations: 10-1345ft. (3-410m.) Blooms Feb-Apr.
Hemizonia congesta ssp. congesta congested-headed hayfield tarplant	None/None G5T2/S2 1B.2	Annual herb. Valley and foothill grassland. Grassy valleys and hills, often in fallow fields; sometimes along roadsides. Elevations: 65-1835ft. (20-560m.) Blooms Apr-Nov.
Hesperolinon congestum Marin western flax	FT/ST G1/S1 1B.1	Annual herb. Chaparral, valley and foothill grassland. In serpentine barrens and in serpentine grassland and chaparral. Elevations: 15-1215ft. (5-370m.) Blooms Apr-Jul.
Lasthenia burkei Burke's goldfields	FE/SE G1/S1 1B.1	Annual herb. Meadows and seeps, vernal pools. Most often in vernal pools and swales. Elevations: 50-1970ft. (15-600m.) Blooms Apr-Jun.
Lasthenia conjugens Contra Costa goldfields	FE/None G1/S1 1B.1	Annual herb. Cismontane woodland, playas, valley and foothill grassland, vernal pools. Vernal pools, swales, low depressions, in open grassy areas. Elevations: 0-1540ft. (0-470m.) Blooms Mar-Jun.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements
Legenere limosa legenere	None/None G2/S2 1B.1	Annual herb. Vernal pools. In beds of vernal pools. 1-. Elevations: 5-2885ft. (1-880m.) Blooms Apr-Jun.
Leptosiphon jepsonii Jepson's leptosiphon	None/None G2G3/S2S3 1B.2	Annual herb. Chaparral, cismontane woodland, valley and foothill grassland. Open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. Elevations: 330-1640ft. (100-500m.) Blooms Mar-May.
Lilium pardalinum ssp. pitkinense Pitkin Marsh lily	FE/SE G5T1/S1 1B.1	Perennial bulbiferous herb. Cismontane woodland, marshes and swamps, meadows and seeps. Saturated, sandy soils with grasses and shrubs. Elevations: 115-215ft. (35-65m.) Blooms Jun-Jul.
Limnanthes vinculans Sebastopol meadowfoam	FE/SE G1/S1 1B.1	Annual herb. Meadows and seeps, valley and foothill grassland, vernal pools. Swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam. Elevations: 50-1000ft. (15-305m.) Blooms Apr-May.
Microseris paludosa marsh microseris	None/None G2/S2 1B.2	Perennial herb. Cismontane woodland, closed-cone coniferous forest, coastal scrub, valley and foothill grassland. Elevations: 15-1165ft. (5-355m.) Blooms Apr-Jun(Jul).
Navarretia leucocephala ssp. bakeri Baker's navarretia	None/None G4T2/S2 1B.1	Annual herb. Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools. Vernal pools and swales; adobe or alkaline soils. Elevations: 15-5710ft. (5-1740m.) Blooms Apr-Jul.
Plagiobothrys mollis var. vestitus Petaluma popcornflower	None/None G4?TX/SX 1A	Perennial herb. Marshes and swamps, valley and foothill grassland. Wet sites in grassland, possibly coastal marsh margins. Elevations: 35-165ft. (10-50m.) Blooms Jun-Jul.
Pleuropogon hooverianus North Coast semaphore grass	None/ST G2/S2 1B.1	Perennial rhizomatous herb. Broadleafed upland forest, meadows and seeps, north coast coniferous forest. Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments. Elevations: 35-2200ft. (10-671m.) Blooms Apr-Jun.
Polygonum marinense Marin knotweed	None/None G2Q/S2 3.1	Annual herb. Marshes and swamps. Coastal salt marshes and brackish marshes. Elevations: 0-35ft. (0-10m.) Blooms (Apr)May-Aug(Oct).
Sidalcea calycosa ssp. rhizomata Point Reyes checkerbloom	None/None G5T2/S2 1B.2	Perennial rhizomatous herb. Marshes and swamps. Freshwater marshes near the coast. Elevations: 10-245ft. (3-75m.) Blooms Apr-Sep.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements
Streptanthus anomalus Mount Burdell jewelflower	None/None G1/S1 1B.1	Annual herb. Cismontane woodland. Openings, Serpentinite. Elevations: 165-490ft. (50-150m.) Blooms May-Jun.
Trifolium amoenum two-fork clover	FE/None G1/S1 1B.1	Annual herb. Coastal bluff scrub, valley and foothill grassland. Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. Elevations: 15-1360ft. (5-415m.) Blooms Apr-Jun.
Trifolium hydrophilum saline clover	None/None G2/S2 1B.2	Annual herb. Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. Elevations: 0-985ft. (0-300m.) Blooms Apr-Jun.
Trifolium polyodon Pacific Grove clover	None/SR G1/S1 1B.1	Annual herb. Closed-cone coniferous forest, coastal prairie, meadows and seeps, valley and foothill grassland. Along small springs and seeps in grassy openings. Elevations: 15-1395ft. (5-425m.) Blooms Apr-Jun(Jul).

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SCE = State Candidate Endangered
SCT = State Candidate Threatened
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Special-Status Wildlife Species in the Regional Vicinity of the Project Site

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements
Invertebrates		
Bombus crotchii Crotch's bumble bee	None/SCE G2/S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.
Bombus occidentalis western bumble bee	None/SCE G3/S1	Once common and widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.
Syncaris pacifica California freshwater shrimp	FE/SE G2/S2	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main streamflow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.
Fish		
Acipenser medirostris pop. 1 green sturgeon - southern DPS	FT/None G2T1/S1 SSC	Spawning site fidelity. Spawns in the Sacramento, Feather and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta Estuary is important for rearing juveniles. Spawning occurs primarily in cool (11-15 C) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium sized sand, gravel, cobble, or boulder.
Hesperoleucus venustus subditus southern coastal roach	None/None GNRT2/S2 SSC	Found in the drainages of Tomales Bay and northern San Francisco Bay in the north, and drainages of Monterey Bay in the south.
Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast DPS	FT/None G5T3Q/S3 SSC	DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). Also includes the drainages of San Francisco and San Pablo Bays.
Pogonichthys macrolepidotus Sacramento splittail	None/None G3/S3 SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.
Reptiles		
Actinemys marmorata northwestern pond turtle	FPT/None G2/SNR SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying. Occurs in northern California, south along the Sierra Nevada Mountains and the Coast Range down to Monterey and Kern Counties.
Amphibians		
Ambystoma californiense pop. 3 California tiger salamander - Sonoma County DPS	FE/ST G2G3T2/S2 WL	Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements
Dicamptodon ensatus California giant salamander	None/None G2G3/S2S3 SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.
Rana boylii pop. 1 foothill yellow-legged frog - north coast DPS	None/None G3T4/S4 SSC	Northern Coast Ranges north of San Francisco Bay Estuary, Klamath Mountains, and Cascade Range including watershed subbasins (HU 8) Lower Pit, Battle Creek, Thomes Creek, and Big Chico Creek in Lassen, Shasta, Tehama, and Butte Counties. Partly shaded shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying and at least 15 weeks to attain metamorphosis.
Rana draytonii California red-legged frog	FT/None G2G3/S2S3 SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.
Taricha rivularis red-bellied newt	None/None G2/S2 SSC	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County. Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate.
Birds		
Accipiter cooperii Cooper's hawk	None/None G5/S4 WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.
Agelaius tricolor tricolored blackbird	None/ST G1G2/S2 SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.
Ammodramus savannarum grasshopper sparrow	None/None G5/S3 SSC	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.
Aquila chrysaetos golden eagle	None/None G5/S3 FP WL	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.
Athene cunicularia burrowing owl	None/SCE G4/S2 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.
Buteo regalis ferruginous hawk	None/None G4/S3S4 WL	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements
Buteo swainsoni Swainson's hawk	None/ST G5/S4	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE G5T2T3/S1	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.
Elanus leucurus white-tailed kite	None/None G5/S3S4 FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.
Eremophila alpestris actia California horned lark	None/None G5T4Q/S4 WL	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.
Falco columbarius merlin	None/None G5/S3S4 WL	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches. Clumps of trees or windbreaks are required for roosting in open country.
Geothlypis trichas sinuosa saltmarsh common yellowthroat	None/None G5T3/S3 SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.
Haliaeetus leucocephalus bald eagle	FD/SE G5/S3 FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water . Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.
Laterallus jamaicensis coturniculus California black rail	None/ST G3T1/S2 FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.
Melospiza melodia samuelis San Pablo song sparrow	None/None G5T2/S2 SSC	Resident of salt marshes along the north side of San Francisco and San Pablo bays. Inhabits tidal sloughs in the Salicornia marshes; nests in Grindelia bordering slough channels.
Rallus obsoletus obsoletus California Ridgway's rail	FE/SE G3T1/S2 FP	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.
Riparia riparia bank swallow	None/ST G5/S3	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 caurina northern spotted owl	FT/ST G3G4T3/S2	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements
Mammals		
Antrozous pallidus pallid bat	None/None G4/S3 SSC	Found in a variety of habitats including deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees which must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.
Corynorhinus townsendii Townsend's big-eared bat	None/None G4/S2 SSC	Occurs throughout California in a wide variety of habitats. Most common in mesic sites, typically coniferous or deciduous forests. Roosts in the open, hanging from walls & ceilings in caves, lava tubes, bridges, and buildings. This species is extremely sensitive to human disturbance.
Reithrodontomys raviventris salt-marsh harvest mouse	FE/SE G1G2/S3 FP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat, but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow; builds loosely organized nests. Requires higher areas for flood escape.
Taxidea taxus American badger	None/None G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.

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Appendix D

Supporting Noise Information

Traffic Noise Calculator: FHWA 77-108 **Project Title: Petaluma GPU (Existing Traffic)**

	Output						Inputs													Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																	
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	AADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	63.0	65.1	65.6	25	55	118	Bodega Ave	Howard St & Holly Heights/City Limit	7,320	40	0.0%	95.0%	3.0%	2.0%	83.9%	9.3%	6.8%	2	Soft	50	0.5	20
2	64.0	66.9	67.5	34	73	157	Casa Grande Rd	Lakeville Hwy & Technology Lane	12,043	35	0.0%	95.0%	3.0%	2.0%	76.4%	13.0%	10.6%	2	Soft	50	0.5	20
3	63.7	65.5	66.2	28	60	129	Casa Grande Rd	Ely Blvd & Lakeville Hwy	8,344	40	0.0%	95.0%	3.0%	2.0%	82.8%	11.6%	5.6%	4	Soft	50	0.5	44
4	67.7	69.9	70.5	54	116	249	Caulfield Ln	McDowell Blvd & Lakeville St	21,003	40	0.0%	95.0%	3.0%	2.0%	81.8%	11.1%	7.0%	4	Soft	50	0.5	44
5	61.1	62.7	63.3	18	38	83	Caulfield Ln	Ely Blvd & McDowell Blvd	8,220	30	0.0%	95.0%	3.0%	2.0%	84.9%	10.4%	4.6%	4	Soft	50	0.5	44
6	64.7	66.6	67.2	33	70	151	Caulfield Ln	Crinella Dr & S McDowell Blvd	13,846	35	0.0%	95.0%	3.0%	2.0%	83.0%	11.0%	6.0%	4	Soft	50	0.5	44
7	65.5	67.0	67.5	34	73	158	Corona Rd	Industrial Ave & McDowell Blvd	17,150	35	0.0%	95.0%	3.0%	2.0%	88.0%	7.4%	4.6%	2	Soft	50	0.5	20
8	65.5	67.7	68.0	37	80	172	D St	Sunnyslope Ave/El Rose Dr & Pinnacle Dr	7,890	50	0.0%	95.0%	3.0%	2.0%	86.6%	6.0%	7.4%	2	Soft	50	0.5	20
9	62.7	64.9	65.3	24	53	113	D St	6th St & Sunnyslope Ave/El Rose Dr	12,011	30	0.0%	95.0%	3.0%	2.0%	84.2%	8.4%	7.4%	2	Soft	50	0.5	20
10	63.7	65.7	66.3	28	61	132	D St	Payran St & 6th St	15,207	30	0.0%	95.0%	3.0%	2.0%	82.7%	10.6%	6.7%	2	Soft	50	0.5	20
11	61.5	63.1	63.7	19	41	88	Ely Blvd	Washington St & Frates Rd	6,549	35	0.0%	95.0%	3.0%	2.0%	85.3%	9.6%	5.1%	4	Soft	50	0.5	44
12	65.2	69.1	69.4	45	98	211	Frates Rd	Ely Blvd & Lakeville Hwy	12,233	40	0.0%	95.0%	3.0%	2.0%	76.7%	7.4%	15.9%	2	Soft	50	0.5	20
13	65.3	68.3	68.6	41	87	188	Frates Rd	Clubhouse Dr/City Limits & Ely Blvd	7,480	50	0.0%	95.0%	3.0%	2.0%	81.5%	7.1%	11.3%	2	Soft	50	0.5	20
14	58.6	60.4	60.9	12	27	58	I St	Petaluma Blvd & Sunnyslope Rd	4,691	30	0.0%	95.0%	3.0%	2.0%	84.8%	9.5%	5.7%	2	Soft	50	0.5	20
15	64.4	66.8	67.4	33	72	155	Lakeville St / Highway	Wilson St & Caulfield Ln	24,127	25	0.0%	95.0%	3.0%	2.0%	80.5%	11.0%	8.5%	4	Soft	50	0.5	44
16	62.3	64.8	65.3	24	53	113	Lakeville St / Highway	Petaluma Blvd & Wilson St	15,533	25	0.0%	95.0%	3.0%	2.0%	80.6%	11.0%	8.4%	2	Soft	50	0.5	20
17	58.1	59.8	60.4	11	24	53	Magnolia Ave	Petaluma Blvd & Birch Dr	4,218	30	0.0%	95.0%	3.0%	2.0%	85.2%	9.7%	5.2%	2	Soft	50	0.5	20
18	67.5	69.5	70.1	51	109	235	McDowell Blvd	Lynch Creek Way & Washington St	26,117	35	0.0%	95.0%	3.0%	2.0%	82.7%	10.6%	6.6%	4	Soft	50	0.5	44
19	67.4	69.9	70.3	53	113	244	McDowell Blvd	Old Redwood Hwy & Lynch Creek Way	19,609	40	0.0%	95.0%	3.0%	2.0%	82.9%	8.6%	8.5%	4	Soft	50	0.5	44
20	66.0	68.3	68.9	42	90	195	McDowell Blvd	Washington St & Lakeville Hwy	14,588	40	0.0%	95.0%	3.0%	2.0%	82.0%	10.2%	7.8%	2	Soft	50	0.5	20
21	67.4	70.2	70.6	55	118	255	Old Redwood Hwy	McDowell Blvd & City Limits	19,417	40	0.0%	95.0%	3.0%	2.0%	81.1%	8.8%	10.1%	4	Soft	50	0.5	44
22	60.3	62.0	62.6	16	35	75	Payran St	Petaluma Blvd & Jefferson St	9,827	25	0.0%	95.0%	3.0%	2.0%	84.8%	10.0%	5.2%	2	Soft	50	0.5	20
23	62.5	64.2	64.8	23	49	105	Payran St	Jefferson St & Caulfield Ln	11,183	30	0.0%	95.0%	3.0%	2.0%	84.1%	10.5%	5.4%	4	Soft	50	0.5	44
24	72.2	74.5	74.9	107	229	494	Petaluma Blvd	Gossage Ave & Sycamore Ln/ Shasta Ave	28,987	55	0.0%	95.0%	3.0%	2.0%	84.1%	8.4%	7.5%	4	Soft	50	0.5	44
25	64.9	66.8	67.4	33	72	155	Petaluma Blvd	Sycamore Ln/ Shasta Ave & Lakeville St	27,391	25	0.0%	95.0%	3.0%	2.0%	84.0%	10.0%	6.0%	4	Soft	50	0.5	44
26	66.7	69.5	69.9	49	106	228	Petaluma Blvd	McDowell Blvd & Bailey Ave/City Limits	29,407	30	0.0%	95.0%	3.0%	2.0%	81.1%	8.8%	10.1%	4	Soft	50	0.5	44
27	62.9	65.0	65.5	25	54	117	Petaluma Blvd	Lakeville St & D St	17,653	25	0.0%	95.0%	3.0%	2.0%	82.6%	10.7%	6.8%	2	Soft	50	0.5	20
28	62.5	64.9	65.5	25	54	116	Petaluma Blvd	D St & I St	15,616	25	0.0%	95.0%	3.0%	2.0%	80.3%	11.4%	8.2%	4	Soft	50	0.5	44
29	64.4	66.9	67.4	34	72	156	Petaluma Blvd	McNear Cir & City Limits	17,476	30	0.0%	95.0%	3.0%	2.0%	81.4%	9.9%	8.7%	4	Soft	50	0.5	44
30	60.4	61.5	62.1	15	32	69	Rainier Ave	Sonoma Mountain Pkwy & McDowell Blvd	5,103	35	0.0%	95.0%	3.0%	2.0%	88.1%	8.6%	3.4%	4	Soft	50	0.5	44
31	66.6	68.6	69.2	44	95	205	Sonoma Mountain Pkwy	Madison St & Washington St	16,261	40	0.0%	95.0%	3.0%	2.0%	83.6%	9.8%	6.6%	4	Soft	50	0.5	44
32	65.6	67.1	67.8	36	77	166	Sonoma Mountain Pkwy	Sonoma Mountain Pkwy Bet. Corona Rd & Madison St	12,826	40	0.0%	95.0%	3.0%	2.0%	84.1%	11.1%	4.8%	4	Soft	50	0.5	44
33	65.8	67.9	68.3	39	83	180	Stony Point Rd	Petaluma Blvd & Rainsville Rd/City Limits	5,497	60	0.0%	95.0%	3.0%	2.0%	84.8%	8.4%	6.8%	2	Soft	50	0.5	20
34	65.4	67.3	67.7	35	76	163	Stony Point Rd	Rainsville Rd/City Limits & Orchard Ln/City Limit	4,990	60	0.0%	95.0%	3.0%	2.0%	86.6%	7.3%	6.2%	2	Soft	50	0.5	20
35	65.6	68.5	69.0	43	92	199	Washington Street	McDowell Blvd & Lakeville St	31,837	25	0.0%	95.0%	3.0%	2.0%	78.8%	10.5%	10.7%	4	Soft	50	0.5	44
36	65.0	67.4	68.1	37	80	173	Washington Street	Lakeville St & Howard St	19,890	30	0.0%	95.0%	3.0%	2.0%	78.6%	12.9%	8.5%	4	Soft	50	0.5	44
37	63.6	66.2	66.8	31	66	143	Washington Street	Ely Blvd & McDowell Blvd	14,648	30	0.0%	95.0%	3.0%	2.0%	78.4%	12.6%	9.0%	4	Soft	50	0.5	44
38	63.6	66.7	67.1	32	69	149	Washington Street	Executive Dr & Ely Blvd	6,329	45	0.0%	95.0%	3.0%	2.0%	79.0%	9.5%	11.4%	4	Soft	50	0.5	44
39	65.3	68.4	68.8	42	90	194	Washington Street	Washington St Bet. City Limits & Executive Dr	6,089	55	0.0%	95.0%	3.0%	2.0%	79.0%	9.4%	11.6%	2	Soft	50	0.5	20
40	60.8	62.3	63.1	17	37	80	Western Ave	Petaluma Blvd & Howard St	10,899	25	0.0%	95.0%	3.0%	2.0%	83.1%	12.2%	4.7%	2	Soft	50	0.5	20
41	77.8	81.1	81.6	296	638	1376	Redwood Hwy (US 101)	Petaluma, South Jct. Rte 116 East	98,000	55	0.0%	95.0%	3.0%	2.0%	76.0%	10.9%	13.1%	6	Soft	50	0.5	68
42	78.0	81.5	81.9	310	669	1441	Redwood Hwy (US 101)	Petaluma, East Washington St	103,000	55	0.0%	95.0%	3.0%	2.0%	75.5%	10.8%	13.7%	6	Soft	50	0.5	68
43	78.5	81.9	82.4	335	721	1554	Redwood Hwy (US 101)	Petaluma, Old Redwood Hwy	117,000	55	0.0%	95.0%	3.0%	2.0%	75.7%	11.1%	13.2%	6	Soft	50	0.5	68

Traffic Noise Calculator: FHWA 77-108 **Project Title: Petaluma GPU (Future Traffic)**

	Output						Inputs													Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																	
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	AADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	59.0	61.1	61.6	14	30	64	Bodega Ave	Howard St & Holly Heights/City Limit	7,266	25	0.0%	95.0%	3.0%	2.0%	83.9%	9.3%	6.8%	2	Soft	50	0.5	20
2	61.9	64.8	65.4	25	53	115	Casa Grande Rd	Lakeville Hwy & Technology Lane	14,100	25	0.0%	95.0%	3.0%	2.0%	76.4%	13.0%	10.6%	2	Soft	50	0.5	20
3	58.9	60.7	61.3	13	28	61	Casa Grande Rd	Ely Blvd & Lakeville Hwy	7,033	25	0.0%	95.0%	3.0%	2.0%	82.8%	11.6%	5.6%	2	Soft	50	0.5	20
4	62.4	64.5	65.1	24	51	110	Caulfield Ln	McDowell Blvd & Lakeville St	15,805	25	0.0%	95.0%	3.0%	2.0%	81.8%	11.1%	7.0%	2	Soft	50	0.5	20
5	57.7	59.3	59.9	11	23	49	Caulfield Ln	Ely Blvd & McDowell Blvd	5,397	25	0.0%	95.0%	3.0%	2.0%	84.9%	10.4%	4.6%	2	Soft	50	0.5	20
6	60.8	62.6	63.3	18	38	82	Caulfield Ln	Crinella Dr & S McDowell Blvd	10,837	25	0.0%	95.0%	3.0%	2.0%	83.0%	11.0%	6.0%	2	Soft	50	0.5	20
7	66.0	67.5	68.0	37	79	170	Corona Rd	Industrial Ave & McDowell Blvd	19,203	35	0.0%	95.0%	3.0%	2.0%	88.0%	7.4%	4.6%	2	Soft	50	0.5	20
8	65.8	68.0	68.3	39	83	180	D St	Sunnyslope Ave/El Rose Dr & Pinnacle Dr	8,443	50	0.0%	95.0%	3.0%	2.0%	86.6%	6.0%	7.4%	2	Soft	50	0.5	20
9	63.2	65.4	65.8	26	57	123	D St	6th St & Sunnyslope Ave/El Rose Dr	13,541	30	0.0%	95.0%	3.0%	2.0%	84.2%	8.4%	7.4%	2	Soft	50	0.5	20
10	64.3	66.3	66.9	31	67	144	D St	Payran St & 6th St	17,414	30	0.0%	95.0%	3.0%	2.0%	82.7%	10.6%	6.7%	2	Soft	50	0.5	20
11	57.8	59.4	60.0	11	23	50	Ely Blvd	Washington St & Frates Rd	5,410	25	0.0%	95.0%	3.0%	2.0%	85.3%	9.6%	5.1%	2	Soft	50	0.5	20
12	66.2	70.1	70.4	53	114	246	Frates Rd	Ely Blvd & Lakeville Hwy	15,389	40	0.0%	95.0%	3.0%	2.0%	76.7%	7.4%	15.9%	2	Soft	50	0.5	20
13	66.2	69.3	69.6	47	101	218	Frates Rd	Clubhouse Dr/City Limits & Ely Blvd	9,367	50	0.0%	95.0%	3.0%	2.0%	81.5%	7.1%	11.3%	2	Soft	50	0.5	20
14	58.8	60.6	61.2	13	28	60	I St	Petaluma Blvd & Sunnyslope Rd	4,981	30	0.0%	95.0%	3.0%	2.0%	84.8%	9.5%	5.7%	2	Soft	50	0.5	20
15	63.8	66.3	66.8	31	66	142	Lakeville St / Highway	Wilson St & Caulfield Ln	21,792	25	0.0%	95.0%	3.0%	2.0%	80.5%	11.0%	8.5%	2	Soft	50	0.5	20
16	62.3	64.7	65.3	24	52	112	Lakeville St / Highway	Petaluma Blvd & Wilson St	15,340	25	0.0%	95.0%	3.0%	2.0%	80.6%	11.0%	8.4%	2	Soft	50	0.5	20
17	59.1	60.8	61.3	13	29	61	Magnolia Ave	Petaluma Blvd & Birch Dr	5,300	30	0.0%	95.0%	3.0%	2.0%	85.2%	9.7%	5.2%	2	Soft	50	0.5	20
18	68.2	70.2	70.8	57	122	263	McDowell Blvd	Lynch Creek Way & Washington St	30,807	35	0.0%	95.0%	3.0%	2.0%	82.7%	10.6%	6.6%	4	Soft	50	0.5	44
19	68.0	70.5	70.9	58	124	268	McDowell Blvd	Old Redwood Hwy & Lynch Creek Way	22,586	40	0.0%	95.0%	3.0%	2.0%	82.9%	8.6%	8.5%	4	Soft	50	0.5	44
20	61.1	63.4	63.9	20	42	91	McDowell Blvd	Washington St & Lakeville Hwy	11,645	25	0.0%	95.0%	3.0%	2.0%	82.0%	10.2%	7.8%	2	Soft	50	0.5	20
21	68.7	71.5	71.9	67	144	310	Old Redwood Hwy	McDowell Blvd & City Limits	26,103	40	0.0%	95.0%	3.0%	2.0%	81.1%	8.8%	10.1%	4	Soft	50	0.5	44
22	61.0	62.7	63.3	18	39	83	Payran St	Petaluma Blvd & Jefferson St	11,536	25	0.0%	95.0%	3.0%	2.0%	84.8%	10.0%	5.2%	2	Soft	50	0.5	20
23	61.7	63.4	64.1	20	43	93	Payran St	Jefferson St & Caulfield Ln	13,509	25	0.0%	95.0%	3.0%	2.0%	84.1%	10.5%	5.4%	2	Soft	50	0.5	20
24	72.8	75.1	75.5	117	252	542	Petaluma Blvd	Gossage Ave & Sycamore Ln/ Shasta Ave	33,319	55	0.0%	95.0%	3.0%	2.0%	84.1%	8.4%	7.5%	4	Soft	50	0.5	44
25	65.5	67.4	67.9	36	78	169	Petaluma Blvd	Sycamore Ln/ Shasta Ave & Lakeville St	31,107	25	0.0%	95.0%	3.0%	2.0%	84.0%	10.0%	6.0%	4	Soft	50	0.5	44
26	67.4	70.2	70.6	55	118	253	Petaluma Blvd	McDowell Blvd & Bailey Ave/City Limits	34,384	30	0.0%	95.0%	3.0%	2.0%	81.1%	8.8%	10.1%	4	Soft	50	0.5	44
27	63.3	65.4	65.9	27	58	125	Petaluma Blvd	Lakeville St & D St	19,419	25	0.0%	95.0%	3.0%	2.0%	82.6%	10.7%	6.8%	2	Soft	50	0.5	20
28	63.3	65.7	66.3	28	61	131	Petaluma Blvd	D St & I St	18,753	25	0.0%	95.0%	3.0%	2.0%	80.3%	11.4%	8.2%	4	Soft	50	0.5	44
29	65.3	67.8	68.3	39	83	179	Petaluma Blvd	McNear Cir & City Limits	21,440	30	0.0%	95.0%	3.0%	2.0%	81.4%	9.9%	8.7%	4	Soft	50	0.5	44
30	59.6	60.7	61.3	13	28	61	Rainier Ave	Sonoma Mountain Pkwy & McDowell Blvd	8,219	25	0.0%	95.0%	3.0%	2.0%	88.1%	8.6%	3.4%	2	Soft	50	0.5	20
31	59.3	61.3	61.9	14	31	67	Sonoma Mountain Pkwy	Madison St & Washington St	7,759	25	0.0%	95.0%	3.0%	2.0%	83.6%	9.8%	6.6%	2	Soft	50	0.5	20
32	59.6	61.1	61.8	14	31	66	Sonoma Mountain Pkwy	Sonoma Mountain Pkwy Bet. Corona Rd & Madison St	8,231	25	0.0%	95.0%	3.0%	2.0%	84.1%	11.1%	4.8%	2	Soft	50	0.5	20
33	66.0	68.1	68.5	40	86	185	Stony Point Rd	Petaluma Blvd & Rainsville Rd/City Limits	5,750	60	0.0%	95.0%	3.0%	2.0%	84.8%	8.4%	6.8%	2	Soft	50	0.5	20
34	65.6	67.5	67.9	36	78	169	Stony Point Rd	Rainsville Rd/City Limits & Orchard Ln/City Limit	5,267	60	0.0%	95.0%	3.0%	2.0%	86.6%	7.3%	6.2%	2	Soft	50	0.5	20
35	66.0	69.0	69.4	46	99	213	Washington Street	McDowell Blvd & Lakeville St	35,262	25	0.0%	95.0%	3.0%	2.0%	78.8%	10.5%	10.7%	4	Soft	50	0.5	44
36	62.6	65.1	65.7	26	56	120	Washington Street	Lakeville St & Howard St	16,612	25	0.0%	95.0%	3.0%	2.0%	78.6%	12.9%	8.5%	2	Soft	50	0.5	20
37	61.2	63.7	64.4	21	45	98	Washington Street	Ely Blvd & McDowell Blvd	11,901	25	0.0%	95.0%	3.0%	2.0%	78.4%	12.6%	9.0%	2	Soft	50	0.5	20
38	57.5	60.6	61.0	13	27	58	Washington Street	Executive Dr & Ely Blvd	5,100	25	0.0%	95.0%	3.0%	2.0%	79.0%	9.5%	11.4%	2	Soft	50	0.5	20
39	64.5	67.6	68.0	37	79	171	Washington Street	Washington St Bet. City Limits & Executive Dr	5,014	55	0.0%	95.0%	3.0%	2.0%	79.0%	9.4%	11.6%	2	Soft	50	0.5	20
40	61.2	62.7	63.5	18	39	85	Western Ave	Petaluma Blvd & Howard St	11,927	25	0.0%	95.0%	3.0%	2.0%	83.1%	12.2%	4.7%	2	Soft	50	0.5	20
41	78.8	82.2	82.6	348	751	1617	Redwood Hwy (US 101)	Petaluma, South Jct. Rte 116 East	124,908	55	0.0%	95.0%	3.0%	2.0%	76.0%	10.9%	13.1%	6	Soft	50	0.5	68
42	79.0	82.5	82.9	365	786	1694	Redwood Hwy (US 101)	Petaluma, East Washington St	131,281	55	0.0%	95.0%	3.0%	2.0%	75.5%	10.8%	13.7%	6	Soft	50	0.5	68
43	79.6	83.0	83.4	394	848	1827	Redwood Hwy (US 101)	Petaluma, Old Redwood Hwy	149,125	55	0.0%	95.0%	3.0%	2.0%	75.7%	11.1%	13.2%	6	Soft	50	0.5	68

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/13/2025
Case Description: Petaluma GPU

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Construction Scenario	Residential	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Jackhammer	Yes	20		88.9	50.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Excavator	80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jackhammer	88.9	81.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	88.9	84.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Street	Segment	Lanes_2019	Speed_2019	ADT_2019	Lanes_2050	Speed_2050	ADT_2050
Bodega Ave	Howard St & Holly Heights/City Limit	2	40	7320	2	25	7266
Casa Grande Rd	Lakeville Hwy & Technology Lane	2	35	12043	2	25	14100
Casa Grande Rd	Ely Blvd & Lakeville Hwy	4	40	8344	2	25	7033
Caulfield Ln	McDowell Blvd & Lakeville St	4	40	21003	2	25	15805
Caulfield Ln	Ely Blvd & McDowell Blvd	4	30	8220	2	25	5397
Caulfield Ln	Crinella Dr & S McDowell Blvd	4	35	13846	2	25	10837
Corona Rd	Industrial Ave & McDowell Blvd	2	35	17150	2	35	19203
D St	Sunnyslope Ave/El Rose Dr & Pinnacle Dr	2	50	7890	2	50	8443
D St	6th St & Sunnyslope Ave/El Rose Dr	2	30	12011	2	30	13541
D St	Payran St & 6th St3	2	30	15207	2	30	17414
Ely Blvd	Washington St & Frates Rd	4	35	6549	2	25	5410
Frates Rd	Ely Blvd & Lakeville Hwy	2	40	12233	2	40	15389
Frates Rd	Clubhouse Dr/City Limits & Ely Blvd	2	50	7480	2	50	9367
I St	Petaluma Blvd & Sunnyslope Rd	2	30	4691	2	30	4981
Lakeville St / Highwa	Wilson St & Caulfield Ln	4	25	24127	2	25	21792
Lakeville St / Highwa	Petaluma Blvd & Wilson St	2	25	15533	2	25	15340
Magnolia Ave	Petaluma Blvd & Birch Dr	2	30	4218	2	30	5300
McDowell Blvd	Lynch Creek Way & Washington St	4	35	26117	4	35	30807
McDowell Blvd	Old Redwood Hwy & Lynch Creek Way	4	40	19609	4	40	22586
McDowell Blvd	Washington St & Lakeville Hwy	2	40	14588	2	25	11645
Old Redwood Hwy	McDowell Blvd & City Limits	4	40	19417	4	40	26103
Payran St	Petaluma Blvd & Jefferson St	2	25	9827	2	25	11536
Payran St	Jefferson St & Caulfield Ln	4	30	11183	2	25	13509
Petaluma Blvd	Gossage Ave & Sycamore Ln/ Shasta Ave	4	55	28987	4	55	33319
Petaluma Blvd	Sycamore Ln/ Shasta Ave & Lakeville St	4	25	27391	4	25	31107
Petaluma Blvd	McDowell Blvd & Bailey Ave/City Limits	4	30	29407	4	30	34384
Petaluma Blvd	Lakeville St & D St	2	25	17653	2	25	19419
Petaluma Blvd	D St & I St	4	25	15616	4	25	18753
Petaluma Blvd	McNear Cir & City Limits	4	30	17476	4	30	21440
Rainier Ave	Sonoma Mountain Pkwy & McDowell Blvd	4	35	5103	2	25	8219
Sonoma Mountain Pl	Madison St & Washington St	4	40	16261	2	25	7759
Sonoma Mountain Pl	Sonoma Mountain Pkwy Bet. Corona Rd & Ma	4	40	12826	2	25	8231
Stony Point Rd	Petaluma Blvd & Rainsville Rd/City Limits	2	60	5497	2	60	5750
Stony Point Rd	Rainsville Rd/City Limits & Orchard Ln/City Lim	2	60	4990	2	60	5267
Washington Street	McDowell Blvd & Lakeville St	4	25	31837	4	25	35262
Washington Street	Lakeville St & Howard St	4	30	19890	2	25	16612
Washington Street	Ely Blvd & McDowell Blvd	4	30	14648	2	25	11901
Washington Street	Executive Dr & Ely Blvd	4	45	6329	2	25	5100
Washington Street	Washington St Bet. City Limits & Executive Dr	2	55	6089	2	55	5014
Western Ave	Petaluma Blvd & Howard St	2	25	10899	2	25	11927

Appendix E

Water Supply and Wastewater System Evaluation Technical Memorandum prepared by EKI in October 2025

23 October 2025

MEMORANDUM

To: Chelsea Thompson, City of Petaluma
Dannielle Favella, City of Petaluma

From: Kendra Olmos, E.I.T., EKI
Tina Wang, P.E., EKI

Subject: Technical Memorandum: Water Supply and Wastewater System Evaluation for the General Plan Update
(EKI C50227.00)

This Technical Memorandum (TM) documents the water system and wastewater system evaluation per the City of Petaluma's (City) General Plan Update (GPU).

BACKGROUND

Based on information received by the City on 17 July 2025, EKI understands that City is preparing a GPU that will revise the land use designations and zoning districts within the City to include, among other things, an increase in mixed use and higher density housing. The City is interested in understanding: (1) the total projected water demands for the City associated with buildout of the GPU through 2050 (referred to herein as the "GPU demand"); (2) the City's ability to meet the GPU demand under normal, single-dry, and multiple-dry year hydrologic conditions; (3) the impacts of the GPU to sewer flows; and (4) the capacity to treat additional wastewater flows resulting from the buildout of the GPU.

The GPU demand is currently being developed by EKI as part of the Sonoma-Marin Saving Water Partnership (SMSWP) 2025 Water Demand and Conservation Measures Update (referred to herein as the "SMSWP Project"), under a separate scope of work. For the purposes of this technical analysis, EKI utilized the draft GPU demand[1] prepared under the existing SMSWP Project. EKI utilized available supply reliability information included in the City's 2020 Urban Water Management Plan (UWMP) and 2025 actual water demand data provided by the City to assess the City's ability to meet GPU demand.

[1] EKI understands that the City has retained separate consultants to assess the impacts of the GPU on the City's water and wastewater system infrastructure. The GPU demand and wastewater flow developed by EKI for water resources planning will not be fully comparable to the values developed for infrastructure planning purposes. For example, the demands developed for water infrastructure planning may consider the adequate sizing of local infrastructure at buildout to meet peak demand and fire flow requirements, whereas EKI's GPU demand for water resources planning purposes considers the timing of buildout and the increased level of water use efficiency over time. The two methods for producing demands may have different assumptions.

KEY FINDINGS

Based on the projected GPU demand and the currently available water supply information, the City is projected to have sufficient water supplies to meet the GPU demand under normal year and multiple-dry year conditions[2]. A water supply shortfall of 12% in 2045 is projected for single-dry year conditions, similar in magnitude to what was anticipated in the City's 2020 UWMP. Per the 2020 UWMP, it is anticipated that the City's Water Shortage Contingency Plan will be implemented to reduce demand to mitigate this potential shortfall. In addition, the City's wastewater treatment plant is projected to have sufficient capacity to accommodate the full build out of the GPU.

EXISTING AND FUTURE WATER DEMANDS

Per the SMSWP Project, EKI calculated the projected GPU demand in five-year increments through 2050, provided in Table 1 and described in Appendix A. The GPU demand was developed based on population and non-residential growth projections consistent with the full build out assumptions, changes to land use, and allowed density associated with the GPU. The potable and non-potable GPU demands were then compared to the estimated 2025 water use (Table 2) and to the City's 2020 UWMP projected demand (Table 3).

Table 2 shows the City's estimated 2025 water use compared to the GPU demand. Potable and non-potable demand estimates for 2025 were provided by the City, based on actual 2025 water use through September 2025 and the actual 2020 water use for October through December. Potable GPU demands in 2045 are projected to be 18% higher than the 2025 potable water use, and non-potable GPU demands in 2045 are projected to be 80% higher than 2025 non-potable water use. It should be noted that, separate from the GPU, the City plans to increase recycled water delivery to agricultural customers, and this increase is included in the non-potable GPU demands. Therefore, the non-potable water demand increase from 2025 is not entirely associated with the GPU.

Table 3 shows the projected potable and non-potable GPU demands compared to the 2020 UWMP projected demands. Compared to the 2020 UWMP projected demands in 2045, the potable and non-potable GPU demands are projected to be 4% lower and 31% higher, respectively. As noted above, the increase in projected non-potable demand is due in part to the City's plans to increase recycled water deliveries in comparison to 2020 demand projections and is not entirely associated with the GPU.

[2] The GPU buildout timeframe extends to 2050 and EKI developed GPU demand projections out to 2050. While the City's 2020 UWMP only includes projected supplies and demands through 2045, projected supply was assumed to meet demands for the normal-year and multiple-dry year conditions based on Sonoma Water's sufficient availability to meet contractual supply allocations under these conditions per the 2020 UWMP, as noted in Tables 4 and 6. Given the City's supply of recycled water, non-potable supply was also able to be assumed for 2050 and included in Tables 4-6. However, given that supply shortfalls are projected for the single-dry year conditions through 2045 and lack of available modeling for 2050, the 2050 supply projection was excluded from Table 5. Similarly, potable and non-potable demand projections per the 2020 UWMP were not available and unable to be assumed for inclusion in Table 3.

COMPARISON OF PROJECTED SUPPLIES AND DEMANDS

The City has historically used surface water, groundwater, and recycled water to supply its customer demands. The source and reliability of the City's water supply were summarized per the City's 2020 UWMP and projected in five-year increments through 2045. Total projected potable and non-potable water supplies were compared to the GPU demands for normal, single-dry, and multiple-dry years, as shown in Tables 4, 5 and 6 respectively.

Under normal year and multiple-dry year conditions, the City's potable and non-potable water supplies are projected to be adequate to meet the GPU demands. This is consistent with findings in the 2020 UWMP in which water supply modeling results for the average year (2002) and five consecutive dry year period (1987-1991) indicated adequate water supply from Sonoma Water to meet 100% of the projected demands for the City.

Under single-dry year conditions, a potable water supply shortfall of roughly 13% compared to potable GPU demand is projected in 2045. This shortfall is similar to that reported for single-dry year conditions in the 2020 UWMP. Per the 2020 UWMP, it is anticipated that the City's Water Shortage Contingency Plan will be implemented to reduce demand to mitigate this potential shortfall. The City's non-potable supplies are projected to be sufficient to meet non-potable GPU demand.

WASTEWATER DEMAND AND CAPACITY

The City's wastewater treatment plant is currently designed for a dry weather flow (DWF) of 6.7 million gallons per day (MGD). The current average DWF is 4.72 MGD (not including the inflows from Penngrove; per communication with Woodard & Curran on 2 October 2025). The DWF associated with the projects GPU buildout (Table 7) was estimated as a product of:

- The GPU demand;
- The calculated percentage of indoor water use associated with each water use sector using historical water demand between 2017 and 2019, consistent with the period used to develop baseline water demand; and
- A, indoor water use to DWF factor developed using current DWF (per Woodard & Curran) and water use.

The DWF for the GPU buildout is estimated to be 5.35 MGD in 2050, which is lower than the City's treatment plant design capacity. Therefore, the existing wastewater treatment plant capacity is anticipated to be sufficient to accommodate the GPU.

Table 1

Projected Annual GPU Water Demand

City of Petaluma General Plan Update, Petaluma, California

Water Use Sector	Projected GPU Demand (AFY) (a)					
	2025 (b)	**2030**	**2035**	**2040**	**2045**	**2050**
Potable Demand (c)						
Single-family Residential	--	3,698	3,743	3,795	3,860	3,933
Multi-family Residential	--	857	863	871	882	895
Commercial	--	938	932	928	926	926
Commercial Irrigation	--	1,456	1,475	1,493	1,512	1,530
Institutional	--	206	205	204	204	204
Institutional Irrigation	--	626	633	641	649	657
Industrial	--	496	493	491	490	490
Non-revenue Water	--	602	627	648	670	691
Total Potable Demand	**7,875**	**8,879**	**8,970**	**9,072**	**9,193**	**9,325**
Non-Potable Demand						
Urban	634	899	1,035	1,035	1,035	1,035
Agricultural	789	1,575	2,280	2,280	2,280	2,280
Total Non-Potable Water Demand	**1,423**	**2,474**	**3,315**	**3,315**	**3,315**	**3,315**
Total Water Demand (d)	***9,298***	***11,353***	***12,285***	***12,387***	***12,508***	***12,640***

Abbreviations:

AFY = acre-feet per year

City = City of Petaluma

GPU = General Plan Update

UMWP = Urban Water Management Plan

Notes:

(a) Both potable and non-potable water demands were estimated, per Reference 1, based on the GPU population and non-residential square footage provided by City staff on 16 July 2025. Future water demands, per Reference 1, are detailed in Appendix A.

(b) Total 2025 potable and non-potable demand estimates provided by City staff, per Reference 3, and are not disaggregated by sector. The 2025 demand values presented herein reflect actual use through September 2025 and actual 2020 water use for October through December. Accordingly, the 2025 demand value presented herein differs from the 2025 estimate included in the City's 2020 UWMP (Reference 2), as the UWMP value represents a full-year projection for January through December 2025.

(c) Potable water demand projections include passive conservation savings.

(d) Total water demand includes both potable and non-potable water demands.

References:

1. EKI, 2025. 2025 Draft Demand Projection Tables and Figures developed as part of the Sonoma-Marin Demand and Conservation Update - Appendix A, dated September 2025.
2. City of Petaluma, 2021. 2020 Urban Water Management Plan, prepared by West Yost, dated June 2021.
3. City of Petaluma, 2025. Demand information provided by the City of Petaluma on 22 October 2025.

Table 2

Comparison of Projected GPU Demand to 2025 Actual Water Demand

City of Petaluma General Plan Update, Petaluma, California

Water Demand	Projected Water Demand (AFY)					
	2025 (a)	**2030**	**2035**	**2040**	**2045**	**2050**
Potable Demand						
Projected Potable GPU Demand (b)	7,875	8,879	8,970	9,072	9,193	9,325
Incremental Increase from 2025 Demand	**0**	**1,004**	**1,095**	**1,197**	**1,318**	**1,450**
Incremental Percent Difference from 2025 Demand (%)	***0%***	***12%***	***13%***	***14%***	***15%***	***17%***
Non-Potable Demand						
Projected Non-Potable GPU Demand (b)	1,423	2,474	3,315	3,315	3,315	3,315
Incremental Increase from 2025 Demand (c)	**0**	**1,051**	**1,892**	**1,892**	**1,892**	**1,892**
Incremental Percent Difference from 2025 Demand (%)	***0%***	***54%***	***80%***	***80%***	***80%***	***80%***

Abbreviations:

AFY = acre-feet per year

City = City of Petaluma

GPU = General Plan Update

UWMP = Urban Water Management Plan

Notes:

(a) Total 2025 potable and non-potable demand estimates provided by City staff, per Reference 1, and are not disaggregated by sector. The 2025 demand values presented herein reflect actual use through September 2025 and actual 2020 water use for October through December. Accordingly, the 2025 demand value presented herein differs from the 2025 estimate included in the City's 2020 UWMP (Reference 2), as the UWMP value represents a full-year projection for January through December 2025.

(b) Potable and non-potable water demands from Table 1.

(c) The City plans to increase their non-potable water production by 2030 to support agricultural customers; as such, the incremental increases in non-potable demands, represented herein, are not entirely associated with buildout of the GPU.

References:

1. City of Petaluma, 2025. Demand information provided by the City of Petaluma on 23 October 2025.
2. City of Petaluma, 2021. 2020 Urban Water Management Plan, prepared by West Yost, dated June 2021.

Table 3

Comparison of GPU Demand to 2020 UWMP Demand Projections

City of Petaluma General Plan Update, Petaluma, California

Water Demand	Projected Water Demand (AFY)					
	2025	**2030**	**2035**	**2040**	**2045**	**2050 (a)**
Potable Demand						
2020 UWMP Projected Potable Water Demand (a)	8,705	8,870	8,974	9,255	9,577	--
Projected Potable GPU Demand (b)	7,875	8,879	8,970	9,072	9,193	9,325
Total Difference in Demand from 2020 UWMP Projected Demand (AFY)	**-830**	**9**	**-4.0**	**-183**	**-384**	**--**
Percent Difference from 2020 UWMP Projected Demand (%)	***-10%***	***0.10%***	***-0.044%***	***-2.0%***	***-4.0%***	**--**
Non-Potable Demand						
2020 UWMP Projected Non-Potable Water Demand	2,000	2,540	2,540	2,540	2,540	--
Projected Non-Potable GPU Demand (c)	1,423	2,474	3,315	3,315	3,315	3,315
Total Difference in Demand from 2020 UWMP Projected Demand (AFY)	**-577**	**-66**	**775**	**775**	**775**	**--**
Percent Difference from 2020 UWMP Projected Demand (%)	***-29%***	***-2.6%***	***31%***	***31%***	***31%***	**--**

Abbreviations:

AFY = acre-feet per year

City = City of Petaluma

GPU = General Plan Update

UWMP = Urban Water Management Plan

Notes:

(a) 2020 UWMP projected potable and non-potable water demands, per Reference 1. The UWMP did not project potable or non-potable demands out to 2050 and; therefore, potable and non-potable demands for 2050 are not assumed.

(b) Potable and non-potable water demands from Table 1.

(c) The City plans to increase their non-potable water production beyond the projections reported in the 2020 UWMP by 2030 to support agricultural customers; as such, the incremental increases in non-potable demands, represented herein, are not entirely associated with buildout of the GPU.

References:

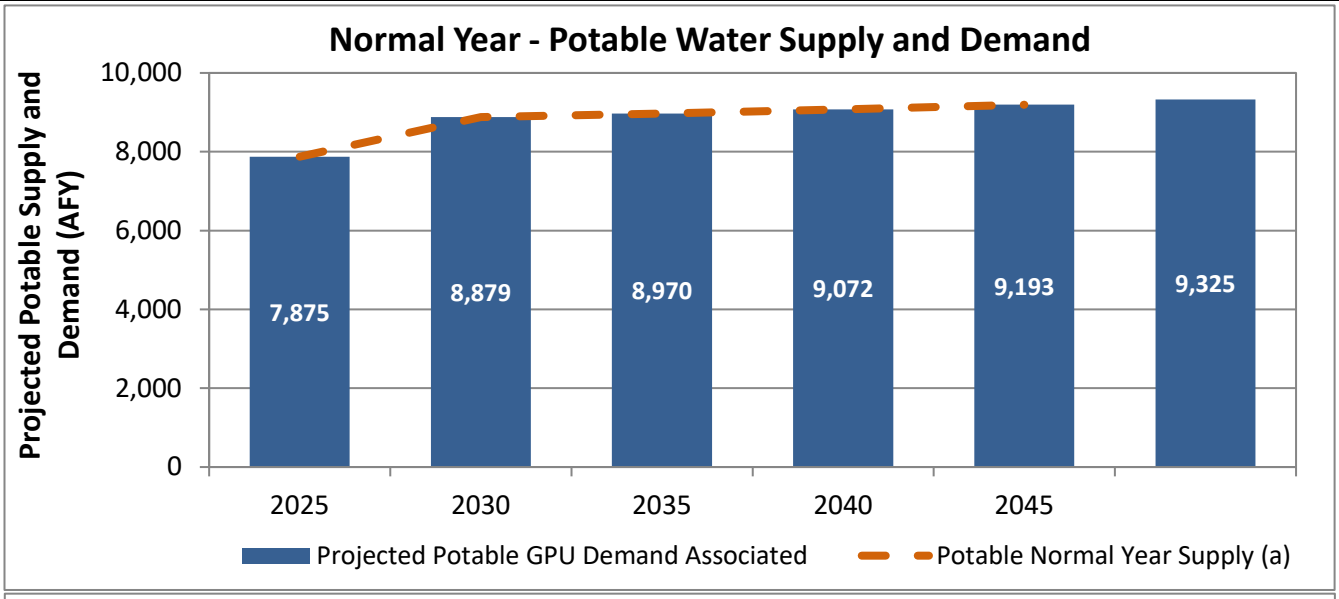
1. City of Petaluma, 2021. 2020 Urban Water Management Plan, prepared by West Yost, dated June 2021.

Table 4

Projected Normal Year Water Supply and GPU Demand

City of Petaluma General Plan Update, Petaluma, California

Water Supply and Demand	Projected Normal Year Supply and Demand (AFY)					
	2025	2030	2035	2040	2045	2050 (a)
Potable Supply and Demand						
Potable Normal Year Supply (a)	7,875	8,879	8,970	9,072	9,193	9,325
Projected Potable GPU Demand Associated	7,875	8,879	8,970	9,072	9,193	9,325
Supply Shortfall (% demand)	***None***	***None***	***None***	***None***	***None***	***None***
Non-Potable Supply and Demand						
Non-Potable Normal Year Supply (a)	1,423	2,474	3,315	3,315	3,315	3,315
Projected Non-Potable GPU Demand (b)	1,423	2,474	3,315	3,315	3,315	3,315
Supply Shortfall (% demand)	***None***	***None***	***None***	***None***	***None***	*--*



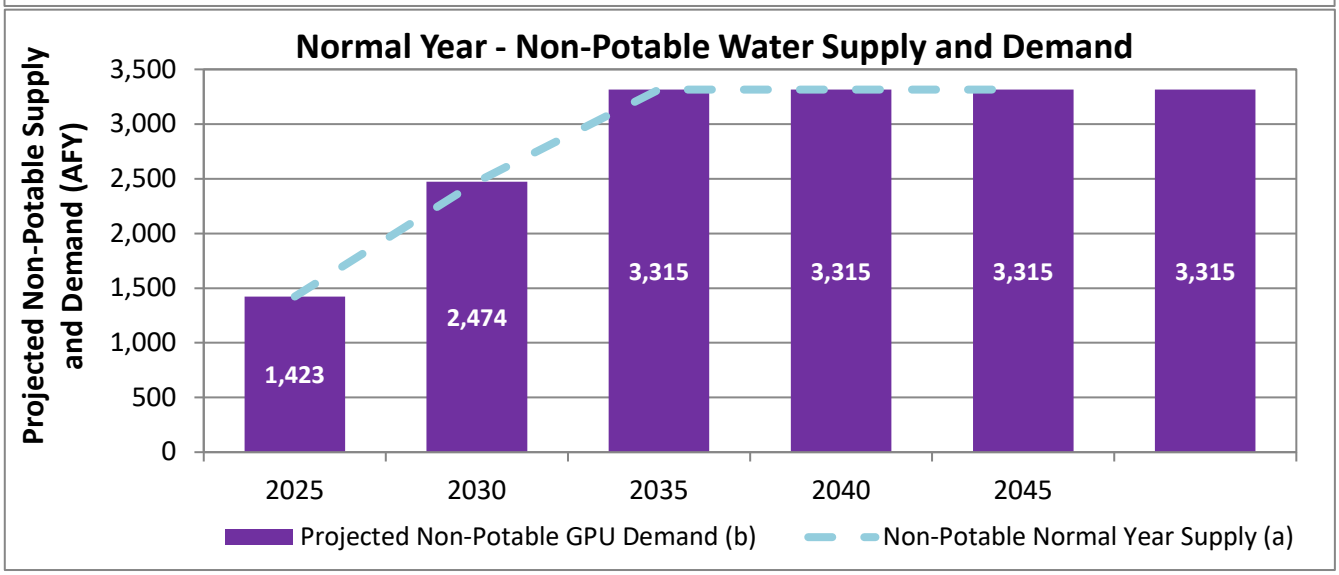


Table 4

Projected Normal Year Water Supply and GPU Demand

City of Petaluma General Plan Update, Petaluma, California

Abbreviations:

AFY = acre-feet per year
City = City of Petaluma
GPU = General Plan Update
UWMP = Urban Water Management Plan

Notes:

(a) Per Reference 1, the City's annual supply allocation from Sonoma Water is 13,400 AFY. Since this allocation is greater than the projected GPU demand, per Reference 2, the normal year potable and non-potable supply is assumed equal to the projected GPU demand. This is consistent with findings in the 2020 UWMP that indicated water supply modeling results for the average year (2002) and five consecutive dry year period (1987-1991) indicated there will be adequate water supply by Sonoma Water to meet 100 percent of the projected demands for Sonoma Water and the City. While the 2020 UWMP did not project supply beyond 2045 supply, given the City's supply contract with Sonoma Water and per the findings of the 2020 UWMP stated above, it is assumed potable and non-potable supplies will be available in 2050 and therefore potable and non-potable supply is assumed equal to the projected GPU demand.

(b) Potable and non-potable water demands from Table 1.

References:

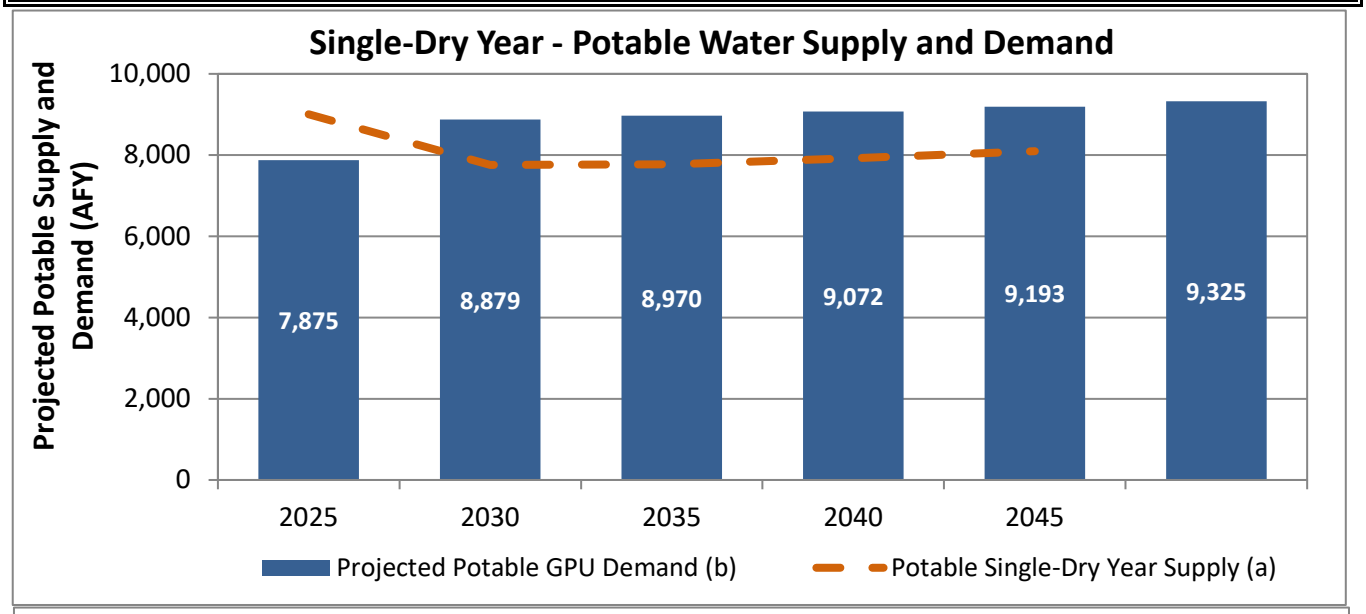
1. City of Petaluma, 2021. 2020 Urban Water Management Plan, prepared by West Yost, dated June 2021.
2. EKI, 2025. 2025 Draft Demand Projection Tables and Figures developed as part of the Sonoma-Marin Demand and Conservation Update - Appendix A, dated September 2025.

Table 5

Projected Single-Dry Year Water Supply and GPU

City of Petaluma General Plan Update, Petaluma, California

Supply and Demand	Projected Single-Dry Year Supply and Demand (AFY)					
	2025	2030	2035	2040	2045	2050 (a)
Potable Supply and Demand						
Potable Single-Dry Year Supply (a)	9,005	7,758	7,773	7,923	8,092	--
Projected Potable GPU Demand (b)	7,875	8,879	8,970	9,072	9,193	9,325
Supply Shortfall (% demand) (c)	***None***	***13%***	***13%***	***13%***	***12%***	*--*
Non-Potable Supply and Demand						
Non-Potable Single-Dry Year Supply (a)	1,423	2,474	3,315	3,315	3,315	3,315
Projected Non-Potable GPU Demand (b)	1,423	2,474	3,315	3,315	3,315	3,315
Supply Shortfall (% demand)	***None***	***None***	***None***	***None***	***None***	*--*



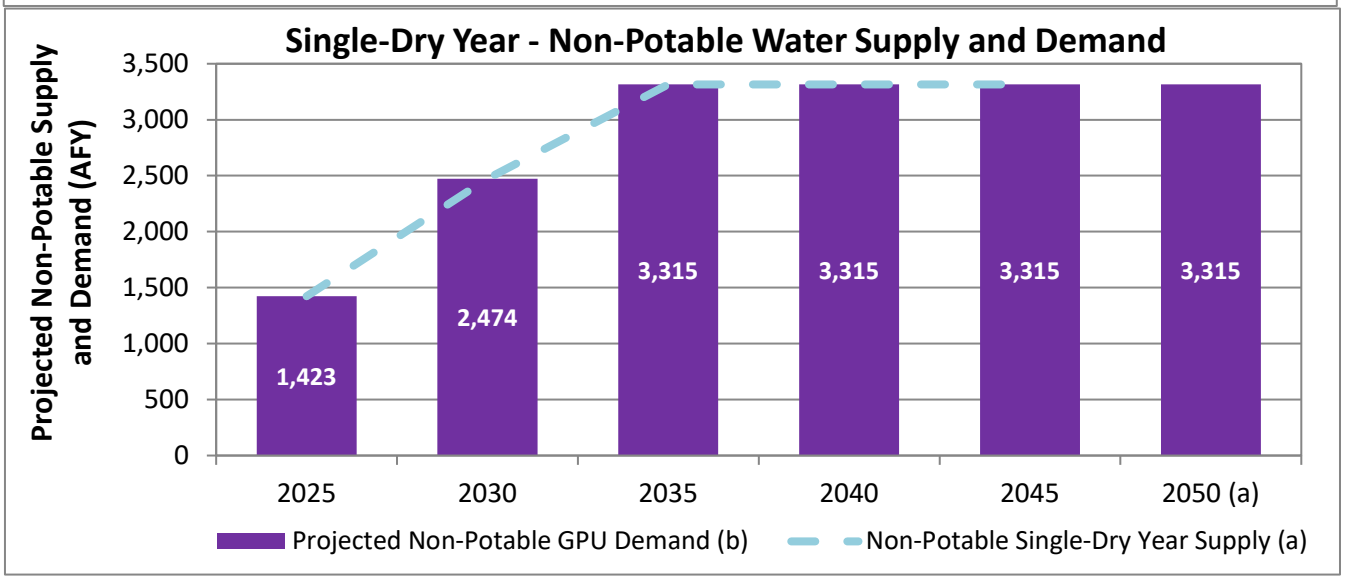


Table 5

Projected Single-Dry Year Water Supply and GPU

City of Petaluma General Plan Update, Petaluma, California

Abbreviations:

AFY = acre-feet per year
City = City of Petaluma
GPU = General Plan Update
UWMP = Urban Water Management Plan

Notes:

(a) Single-dry year potable and non-potable supplies estimated using Reference 1. Given that the City's 2020 UWMP only includes projected supplies and demands through 2045, projected single-dry year potable supplies were not estimated for 2050 using Reference 1 (the single-dry year supply projections from Sonoma Water, per Reference 2, were developed using a Sonoma Water specific model and therefore assumptions were not able to be made for the 2050 single-dry year supply condition). Non-potable supplies sourced by the City's recycled water system are not projected to have a shortfall during the single-dry year condition and; therefore, non-potable supply is assumed to be equal to demand.

(b) Potable and non-potable water demands from Table 1.

(c) Potable supply shortfalls are anticipated during single-dry year events in 2030, 2035, and 2040 based on supply values estimated using Reference 1 and detailed in Appendix A. Per the 2020 UWMP, it is anticipated that the City's Water Shortage Contingency Plan will be implemented to reduce demand to mitigate this potential shortfall.

References:

1. City of Petaluma, 2021. 2020 Urban Water Management Plan, prepared by West Yost, dated June 2021.
2. Sonoma Water, 2021. 2020 Urban Water Management Plan, prepared by Brown and Caldwell, dated June 2021.

Table 6

Multiple Dry Year Water Supply and GPU Demand

City of Petaluma General Plan Update, Petaluma, California

Supply and Demand	Projected Water Supply and Demand During Multiple Dry Years (AFY)																													
	2025					2030					2035					2040					2045					2050 (a)				
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
Potable Supply and Demand																														
Potable Multiple Dry Year Supply (a)	7,875	7,875	7,875	7,875	7,875	8,879	8,879	8,879	8,879	8,879	8,970	8,970	8,970	8,970	8,970	9,072	9,072	9,072	9,072	9,072	9,193	9,193	9,193	9,193	9,193	9,325	9,325	9,325	9,325	9,325
Potable Demand Associated with the GPU (b)	7,875	7,875	7,875	7,875	7,875	8,879	8,879	8,879	8,879	8,879	8,970	8,970	8,970	8,970	8,970	9,072	9,072	9,072	9,072	9,072	9,193	9,193	9,193	9,193	9,193	9,325	9,325	9,325	9,325	9,325
Supply Shortfall (% demand)	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***
Non-Potable Supply and Demand																														
Non-Potable Multiple Dry Year Supply (a)	1,423	1,423	1,423	1,423	1,423	2,474	2,474	2,474	2,474	2,474	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315
Non-Potable Demand Associated with the GPU (b)	1,423	1,423	1,423	1,423	1,423	2,474	2,474	2,474	2,474	2,474	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315	3,315
Supply Shortfall (% demand)	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***	***None***

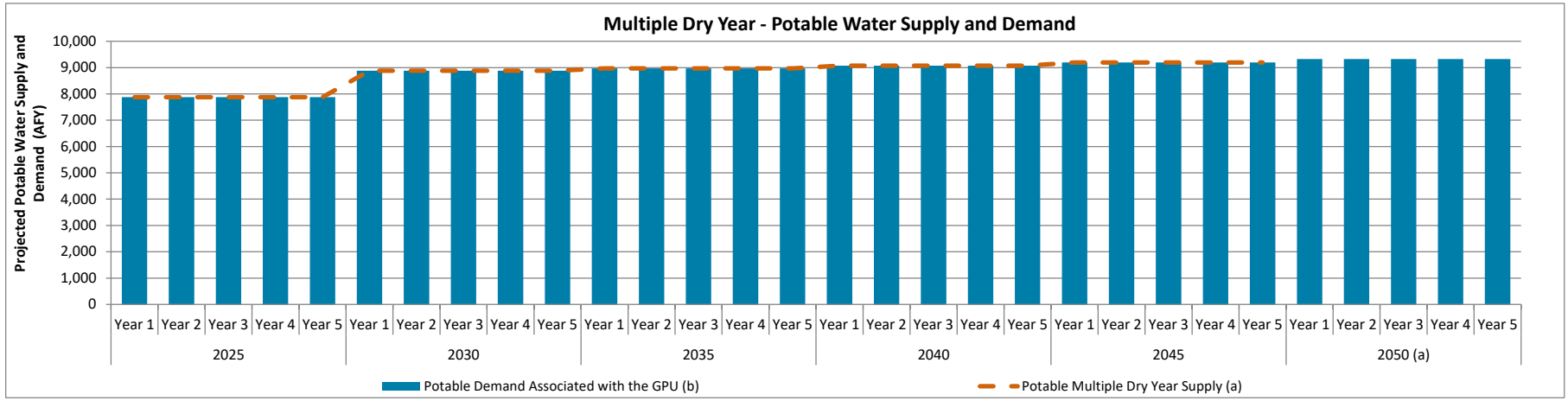
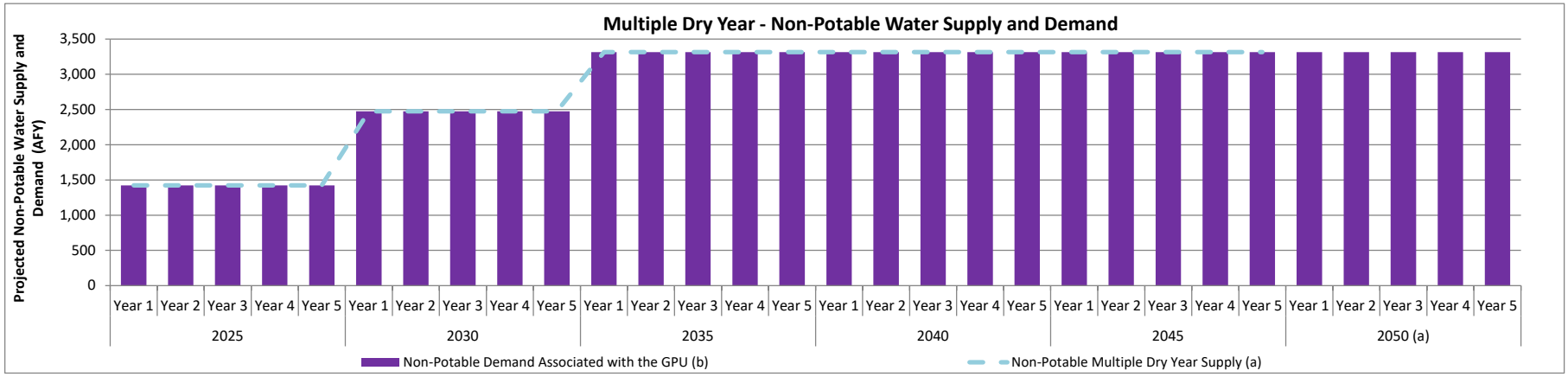


Table 6

Multiple Dry Year Water Supply and GPU Demand

City of Petaluma General Plan Update, Petaluma, California



Abbreviations:

AFY = acre-feet per year
City = City of Petaluma
GPU = General Plan Update
UWMP = Urban Water Management Plan

Notes:

(a) Per Reference 1, the City's annual supply allocation from Sonoma Water is 13,400 AFY. Since this allocation is greater than the projected GPU demand, per Reference 2, the normal year potable and non-potable supply is assumed equal to the projected GPU demand. This is consistent with findings in the 2020 UWMP that indicated water supply modeling results for the average year (2002) and five consecutive dry year period (1987-1991) indicated there will be adequate water supply by Sonoma Water to meet 100 percent of the projected demands for Sonoma Water and the City. While the 2020 UWMP did not project supply beyond 2045 supply, given the City's supply contract with Sonoma Water and per the findings of the 2020 UWMP stated above, it is assumed potable and non-potable supplies will be available in 2050 and therefore potable and non-potable supply is assumed equal to the projected GPU demand.

(b) Potable and non-potable water demands from Table 1.

References:

1. City of Petaluma, 2021. 2020 Urban Water Management Plan, prepared by West Yost, dated June 2021.

Table 7

Projected Wastewater Dry Weather Flow Associated with the GPU

City of Petaluma General Plan Update, Petaluma, California

Water Use Sector	% Indoor Water Demand (a)	DWF to Indoor Use Factor (b)	Projected Wastewater DWF (AFY) (c)					
			Existing (d)	2030	2035	2040	2045	2050
Single-family Residential	56%	1.5	--	3,069	3,106	3,150	3,204	3,264
Multi-family Residential	80%	1.5	--	1,020	1,028	1,037	1,050	1,065
Commercial	69%	1.5	--	967	960	956	955	954
Commercial Irrigation	0%	1.5	--	0	0	0	0	0
Institutional	69%	1.5	--	213	211	210	210	210
Institutional Irrigation	0%	1.5	--	0	0	0	0	0
Industrial	69%	1.5	--	511	508	506	505	505
Total Projected DWF (AFY)			**5,293**	**5,780**	**5,813**	**5,860**	**5,924**	**5,998**
Total Projected DWF (MGD)			**4.7**	**5.2**	**5.2**	**5.2**	**5.3**	**5.3**

Abbreviations:

AFY = acre-feet per year

City = City of Petaluma

DWF = dry weather flow

GPU = General Plan Update

MGD = million gallons per day

Notes:

(a) Calculated percentage of the average historical potable water use (2017-2019) associated with indoor water use, per EKI estimates.

(b) Estimated DWF to indoor water use demand factor, calculated based on the estimated current DFW per note (d) and the estimated indoor water use in 2024.

(c) Wastewater demand associated with the GPU for each sector is calculated as the product of the following: (1) the projected potable demands, per Table 1 and Reference 1; the calculated proportion of indoor flows associated with the City's potable demand, per Note (a); and the DWF to indoor water use demand factor, per Note (b).

(d) Per conversation with Woodard and Curran in October 2025, the total existing dry weather flows entering the City's wastewater treatment plant, not including Penngrove's flow contribution, is 4.72 MGD.

References:

1. EKI, 2025. 2025 Draft Demand Projection Tables and Figures developed as part of the Sonoma-Marin Demand and Conservation Update - Appendix A, dated September 2025.

APPENDIX A

GPU Demand Projections

Appendix A

Demand Projections Associated with the General Plan Update

Prepared as part of the 2025 Water Demand Analysis and Water Conservation Measure Update

This appendix describes the basis, methodology, and resulting projected demands for the City through 2050. As described in more detail below, the future water demands for the City were estimated by:

1. Applying an estimated growth rate to accounts within each water use sector based on projected population and employment growth rates,
2. Evaluating and selecting water demand factors for each water use sector based on review of recent average per account water use representing three scenarios,
3. Estimating future passive savings using the Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool (AWE model), and
4. Calculating estimated future water demand that incorporates the anticipated account growth, water demand factors, and estimated future passive water savings.

This methodology is consistent with California Water Code (CWC) § 10631(d)(4)(A), which requires that "Water use projections, where available, shall display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area." The assumptions used as the bases for demand projections were developed in close coordination with the City and reflect a land-use based approach consistent with the City's community planning.

A.1. Basis for Account Growth Projections

Water demand increases as new accounts are added to the system, among other factors. In order to estimate how accounts will grow within the City, recent historical account growth within the City was considered, as well as projected future growth in population and employment. As described below, it was assumed that depending on the customer sector, the number of accounts will grow at the same rate as the projected population or employment growth.

Table 1 identifies the growth projection assumptions applied to each potable water use sector per the City's direction and identifies the average annual growth rate in accounts observed within the City from 2010-2024 to provide context for the growth assumptions. Growth for the residential sectors is based on the City's General Plan Update population projections, which is higher than the historical growth observed in the single family residential and multifamily residential sectors from 2015-2024. The projected growth for the CII sectors (commercial, industrial, and institutional, and associated irrigation) is based on the City's General Plan Update non-residential square footage projections. Recycled water projections include both urban and agricultural uses and are based on information provided by City staff.

Table 2 and Figure 1 present the City's historical population through 2024 and the General Plan Update population and non-residential growth projections.

A.2. Water Demand Factors

Water use rates are influenced by a variety of factors, including weather, economic recession, and state and local regulations, among other drivers. Given this, selecting a "representative" baseline is important to developing the land-use based water demand factors to estimate baseline water use by existing customers, which can then be extrapolated and applied to future growth within the City. Table 3 shows the water demand factors used to estimate baseline water demand.

A.2.1. Potable Water

Water demand factors based on historical use within the City were used as the basis of future demand projections for potable water accounts. As shown on Figure 2, the City's per account water use declined significantly over the past 15 years due to improvements in water use efficiency and shows significant response to key events such as the 2014-2017 drought, the 2021-2023 drought, and the COVID-19 pandemic. Current (2024) water levels are lower than historical. Potable water demand factors are developed based on the maximum per account water use by sector for 2017 through 2019, generally representing the lower levels of recent water use but considers some rebound to pre-2020 levels.

A.2.2. Recycled Water

Given recycled water demand projections are provided directly by City staff, no demand factors are developed for recycled water use.

A.2.3. Non-Revenue Water and Water Loss

Non-revenue water is water that has been produced but not billed and thus does not generate revenue for the supplier. To more fully capture total water use within the City, non-revenue water is estimated based on a sum of (1) unbilled authorized uses (such as water for fighting fires and flushing mains), (2) apparent water loss due to metering inaccuracies, and (3) real water loss due to distribution system leaks. Rates of non-revenue water in gpd per service connection are based on the City's Calendar Year (CY) 2023 water loss report.

A.3. Passive Water Savings Estimate

Passive water savings are the water savings associated with the natural replacement of older toilets, showerheads, clothes washers, and other water using appliances with newer high efficiency devices that are available due to both market shifts and increasing efficiency mandated by the building code and other regulatory requirements. The AWE model was used to estimate future passive savings within the City (AWE, 2021). These future water savings are a result of (1) plumbing/energy codes interacting with the natural replacement of toilets, showerheads, and other water using appliances whose current or future efficiency is dictated by national, state, or local code requirements, and (2) water savings from water conservation program freeriders. The AWE model calculates efficient plumbing fixture saturation rates and takes into account historical and projected replacement of plumbing fixtures by utility programs as well as natural replacement.

The AWE model also considers estimates of historical population, residential building stock, number of accounts, and projected population and account growth to estimate future passive savings. The estimated passive savings are presented in Table 4 and are subtracted from the water demand projected based on the water demand factors described in Section A.2 above. Passive savings are only applied to potable water use.

A.4. Projected Water Demand Through 2050

Future potable water demand was projected for each sector based on their respective demand factors, non-revenue water estimated as a proportion of total potable water production, and estimated passive savings, and is shown in Table 5. Potable water demand is projected to increase to 9,326 AFY in 2050, which is an 20% increase over 2025 water demand. Recycled water, inclusive of both urban and agricultural uses, is projected to increase to 3,315 AFY in 2050 from 1,423 AFY in 2025.

A.5. References

AWE, 2021. Water Conservation Tracking Tool Version 4, Release 3, Alliance for Water Efficiency (AWE).

Table 1 Basis for Account Growth

City of Petaluma, Sonoma-Marin Saving Water Partnership

Water Use Sector	Basis for Account Growth (b)	Average Annual Growth (a)		
		Historical (2015-2024)	Projected Growth Through 2050	2020 UWMP Projected Growth Through 2045 (c)
Single Family (d)	General Plan Population	-0.61%	0.84%	0.54%
Multifamily (d)	General Plan Population	0.27%	0.84%	0.54%
Commercial	General Plan Non-Residential Area	-0.23%	0.26%	0.96%
Commercial Irrigation	General Plan Non-Residential Area	0.00%	0.26%	0.96%
Institutional	General Plan Non-Residential Area	-1.87%	0.26%	0.96%
Institutional Irrigation	General Plan Non-Residential Area	-0.92%	0.26%	0.96%
Industrial	General Plan Non-Residential Area	-1.39%	0.26%	--
Industrial Irrigation (e)	General Plan Non-Residential Area	--	0.26%	--
Recycled	(f)	3.60%	--	--

Abbreviations:

UWMP = Urban Water Management Plan

Notes:

(a) Growth is presented on an average annual basis over the indicated period. When applied to account growth, the specific growth rate between each 5-year period was applied.

(b) Population and non-residential area projected growth to be used in the City's General Plan Update were provided by the City on July 16, 2025.

(c) Projected growth per Reference 1 and subsequently used in the 2020 UWMP. Projected growth includes the estimated demands associated with known planned development identified in Reference 1. Additional information on the basis for account growth is provided in Reference 1.

(d) Single family residential and multifamily residenital percentages of total population are assumed to be the same percentage split as in 2024.

(e) Historical industrial account information unavailable. Projected account growth assumed to be similar to the commercial irrigation and institutional irrigation account growth.

(f) Recycled water demand projections are provided by City staff on September 25, 2025.

References:

1. EKI, 2020. 2020 Water Demand Analysis and Water Conservation Measure Update City of Petaluma, prepared by EKI Environment & Water, Inc. (EKI), December 2020.

Table 2 Population and Employment Growth Projections

City of Petaluma, Sonoma-Marin Saving Water Partnership

Category	Growth Projections											Total Growth Rate 2025-2050	Average Annual Growth Rate 2025-2050
	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050		
Population													
Historical Population Estimates (a)	64,690	63,505	61,304	60,665	60,781	--	--	--	--	--	--	--	--
General Plan Population Projections (b)	--	--	--	--	--	64,076	66,929	69,782	72,276	74,771	77,265	21%	0.82%
Single Family Population (c)	--	--	--	--	--	48,532	50,743	52,954	54,887	56,820	58,753	21%	0.84%
Multifamily Population (c)						14,097	14,739	15,381	15,943	16,504	17,065	21%	0.84%
Coast Guard Training Center Population (c)	--	--	--	--	--	1,447	1,447	1,447	1,447	1,447	1,447	0%	0%
Non-Residential Square Footage													
Historical Non-Residential Square Footage (d)	18,373,682	--	--	--	--	--	--	--	--	--	--	--	--
General Plan Non-Residential Square Footage (b)	--	--	--	--	--	18,612,540	18,851,398	19,090,256	19,329,113	19,567,971	19,806,829	6%	0.26%

Abbreviations:

-- = not available

DOF = California Department of Finance

Notes:

(a) Historical population estimates are based on DOF population data and adjusted by City staff, provided on February 12, 2025 by the City.

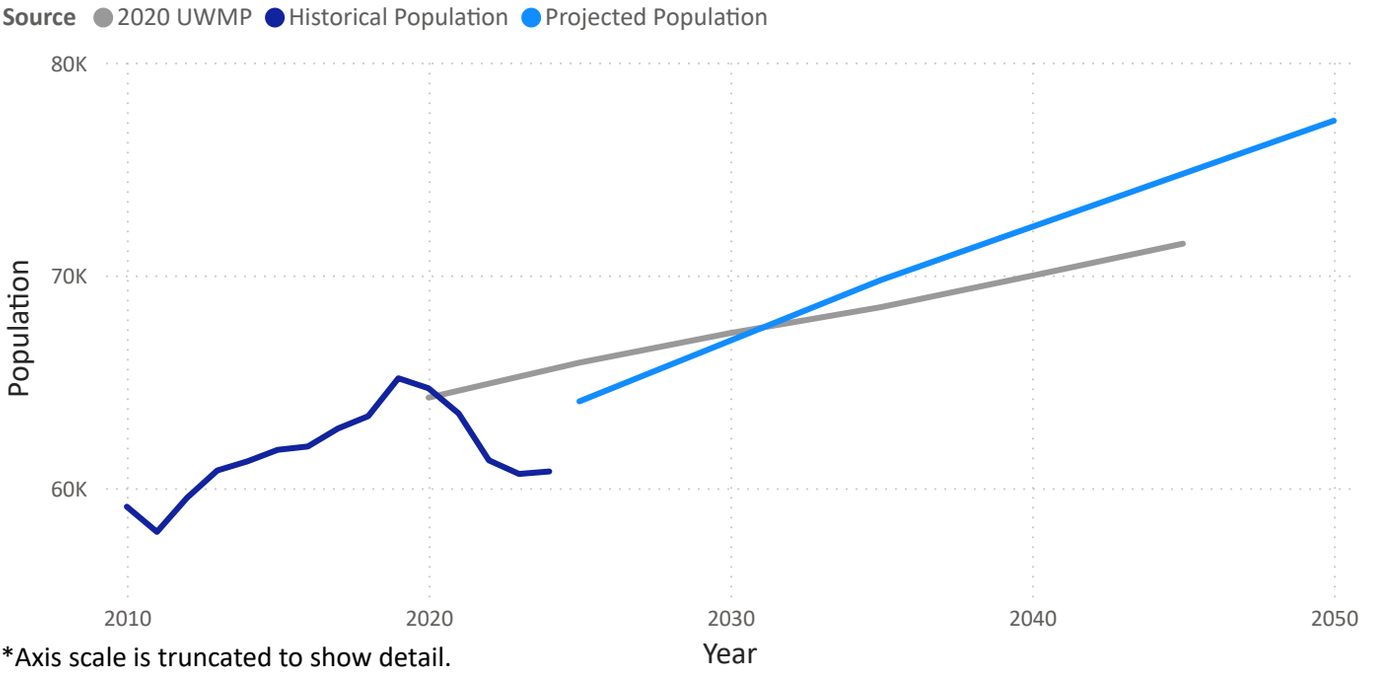
(b) Projected population and non-residential area to be used in the City's General Plan Update were provided by the City on July 16, 2025. Projected population additionally includes 1,447 persons estimated for the Coast Guard Training Center, located outside City limits and served by the City's water system.

(c) Projected single family residential and multifamily residential population is estimated based on the assumption that the projected percentages of SFR and MFR population is the same as in 2024.

(d) Historical non-residential square footage provided by City on July 16, 2025.

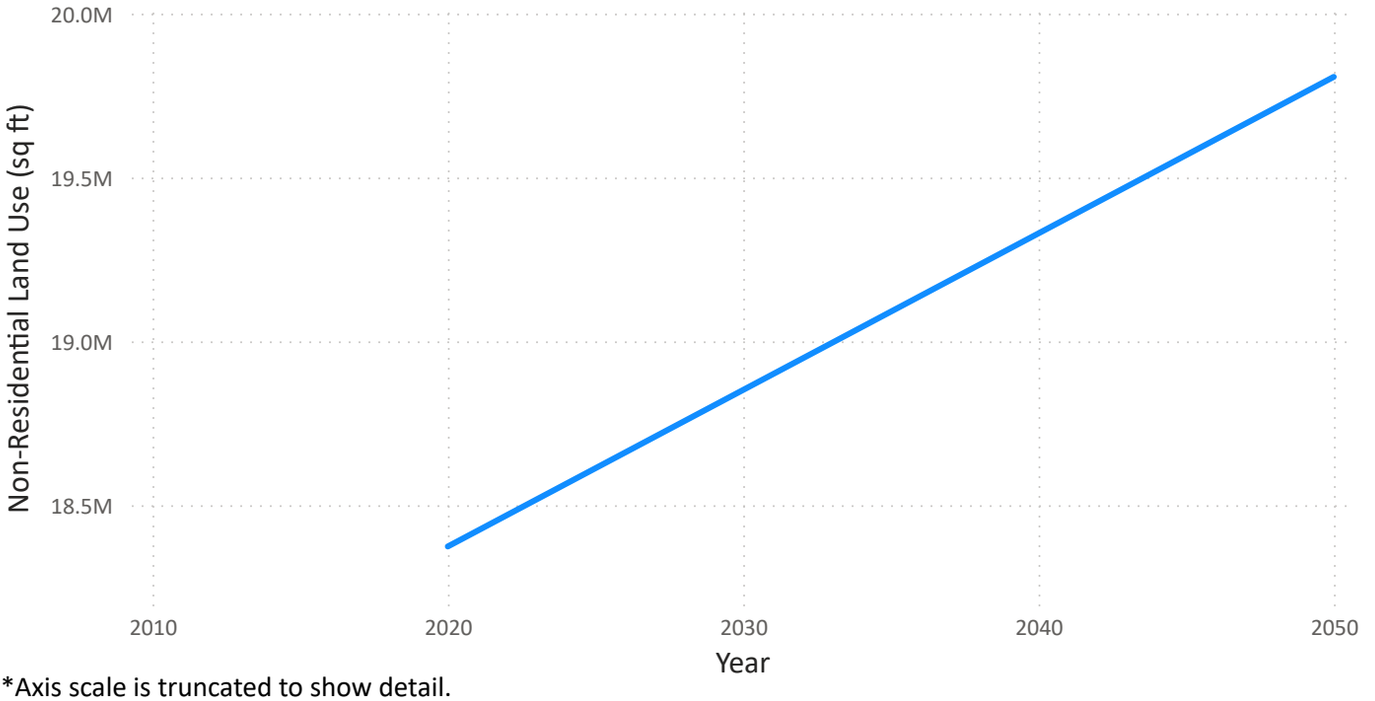
Figure 1 Population and Non-Residential Land Use Projections
City of Petaluma, Sonoma-Marin Saving Water Partnership

Population



*Axis scale is truncated to show detail.

Non-Residential Land Use



*Axis scale is truncated to show detail.

Abbreviations:
sq ft = square feet
UWMP = Urban Water Management Plan

Table 3 Selected Demand Factors

City of Petaluma, Sonoma-Marin Saving Water Partnership

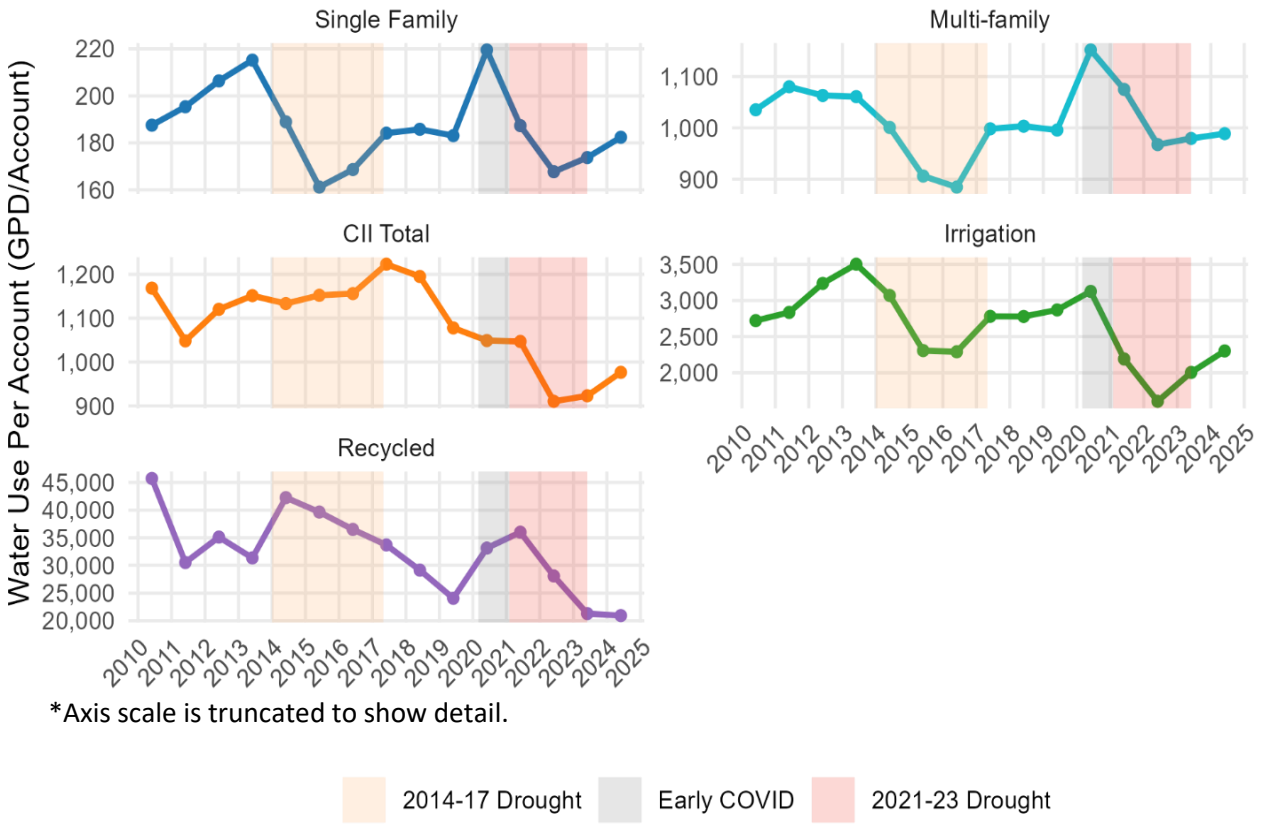
Water Use Sector Group	Water Demand Factor	Units	Basis for Demand Factor
Water Consumption			
Single Family	186	GPD/account	Maximum of 2017-2019
Multi-family	1,003	GPD/account	Maximum of 2017-2019
CII Total	1,223	GPD/account	Maximum of 2017-2019
Irrigation	2,871	GPD/account	Maximum of 2017-2019
Non-Revenue Water			
Apparent Losses	6.8	GPD/connection	CY 2023 Water Loss Audit
Real Losses	17.7	GPD/connection	CY 2023 Water Loss Audit
Unbilled Authorized	0.078	GPD/connection	CY 2023 Water Loss Audit

Abbreviations:

CY = calendar year

GPD = gallons per day

Figure 2. Average Per-Account Water Use by Customer Sector



*Axis scale is truncated to show detail.

Table 4 Projected Demand and Passive Conservation

City of Petaluma, Sonoma-Marin Saving Water Partnership

Water Use Sector	Projected Demand (AFY) (a)					
	2025 (b)	2030	2035	2040	2045	2050
Potable Water						
Baseline Potable Water Demand	7,788	9,298	9,582	9,837	10,092	10,346
Passive Water Conservation (c)	0	(419)	(613)	(765)	(899)	(1,021)
Total Potable Water Demand	**7,788**	**8,879**	**8,970**	**9,072**	**9,193**	**9,325**
Recycled Water (d)						
Urban Recycled Water Demand	634	899	1,035	1,035	1,035	1,035
Agricultural Recycled Water Demand	789	1,575	2,280	2,280	2,280	2,280
Total Recycled Water Demand	**1,423**	**2,474**	**3,315**	**3,315**	**3,315**	**3,315**
Total Water Demand	**9,211**	**11,353**	**12,285**	**12,387**	**12,508**	**12,640**

Abbreviations:

AFY = acre-feet per year

AWE = Alliance for Water Efficiency

UWMP = Urban Water Management Plan

Notes:

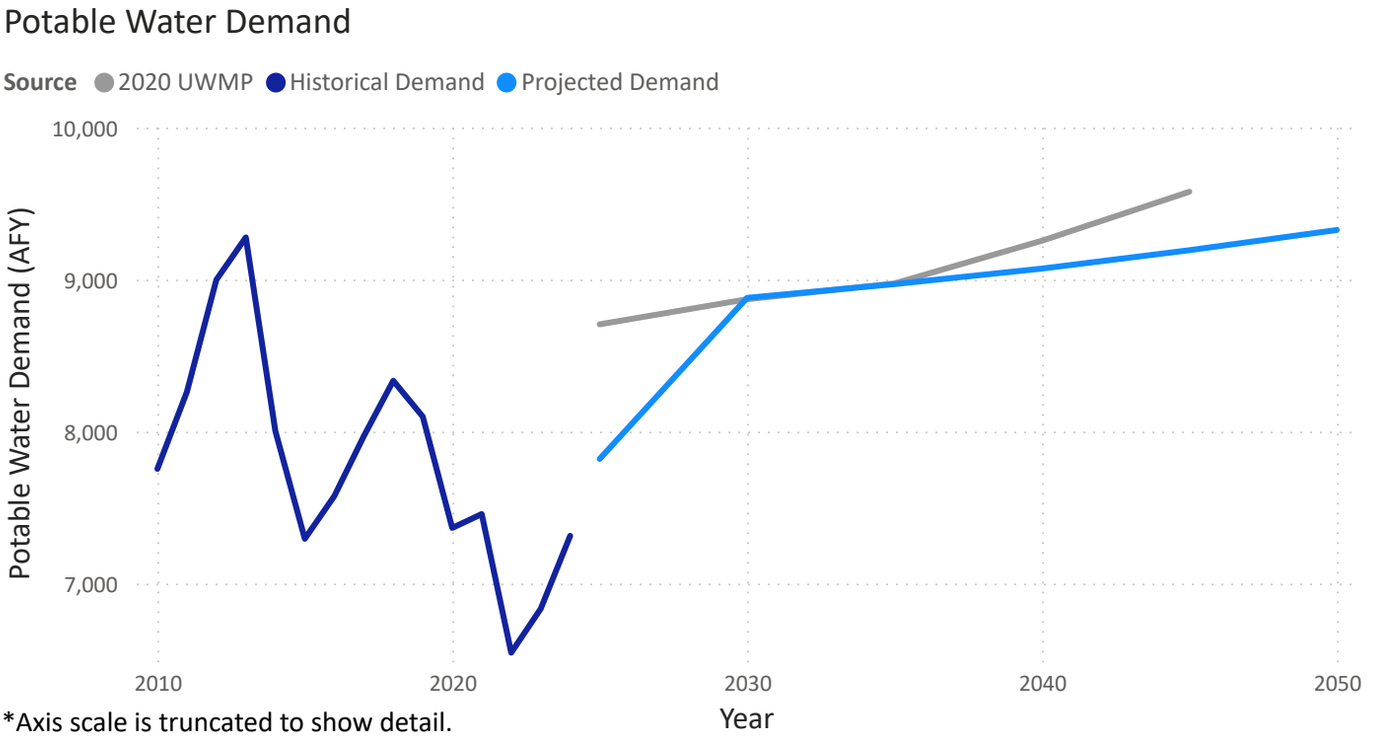
(a) Water demand projections are estimated based on growth in accounts shown in Table 1 and the water demand factors identified in Table 3. Non revenue water projections are estimated by water loss factors shown in Table 3 and the total growth in number of services from all sectors.

(b) 2025 water demand estimated based on water use during January-September 2025 and October-December 2020, provided by City staff on October 14, 2025.

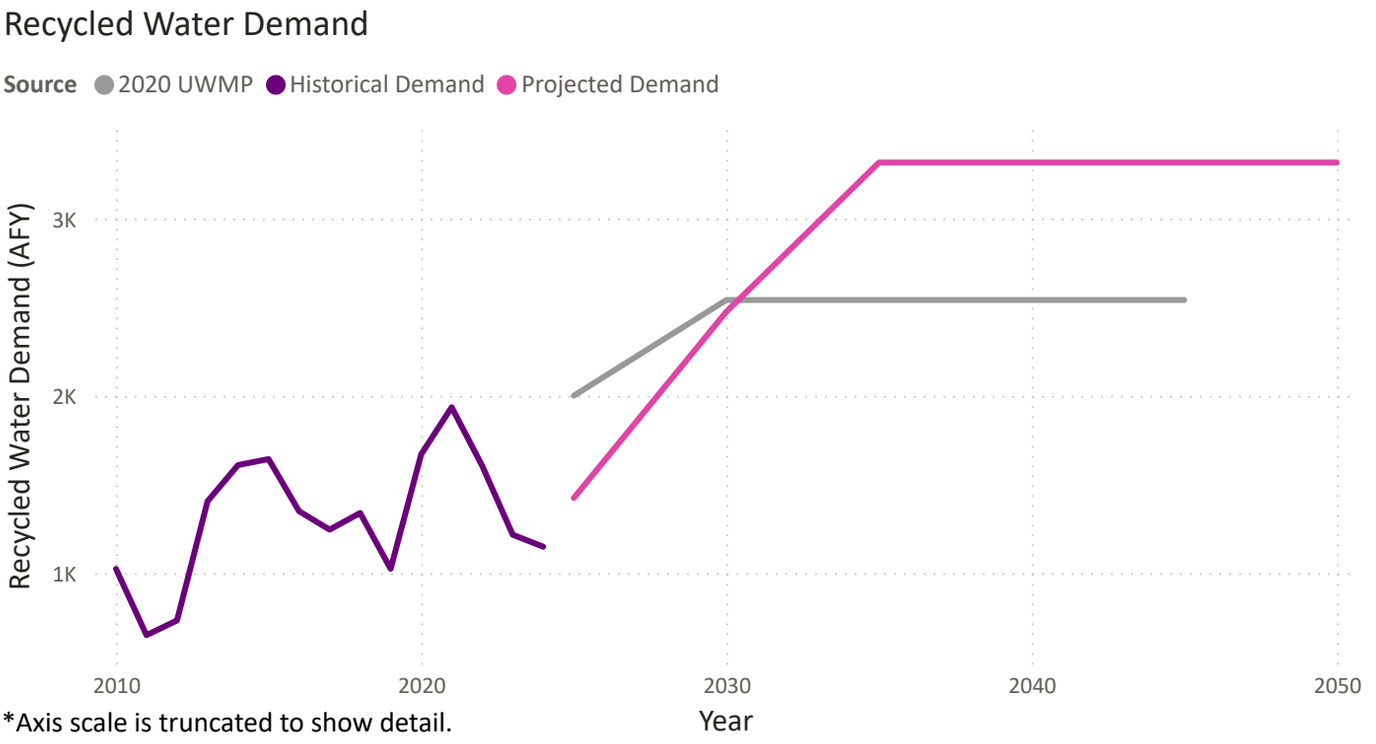
(c) Passive water savings are based on the AWE Conservation Tracking Tool.

(d) Recycled water demand projections are provided by City staff on September 25, 2025.

Figure 3 Water Demand Projections
City of Petaluma, Sonoma-Marin Saving Water Partnership



*Axis scale is truncated to show detail.



*Axis scale is truncated to show detail.

Abbreviations:
AFY = acre-feet per year
UWMP = Urban Water Management Plan

Table 5 Projected Water Demand by Sector

City of Petaluma, Sonoma-Marin Saving Water Partnership

Water Use Sector	Projected Demand (AFY) (a)					
	2025 (b)	2030	2035	2040	2045	2050
Potable Water						
Single Family Residential	--	3,698	3,743	3,795	3,860	3,933
Multifamily Residential	--	857	863	871	882	895
Commercial	--	938	932	928	926	926
Commercial Irrigation	--	1,456	1,475	1,493	1,512	1,530
Institutional	--	206	205	204	204	204
Institutional Irrigation	--	626	633	641	649	657
Industrial	--	496	493	491	490	490
Non-revenue Water	--	602	627	648	670	691
Total Potable Demand	**7,875**	**8,879**	**8,970**	**9,072**	**9,193**	**9,325**
Recycled Water						
Urban Recycled Recycled Demand	634	899	1,035	1,035	1,035	1,035
Agricultural Recycled Water Demand	789	1,575	2,280	2,280	2,280	2,280
Total Recycled Water Demand	**1,423**	**2,474**	**3,315**	**3,315**	**3,315**	**3,315**

Abbreviations:

AFY = acre-feet per year

Notes:

(a) Water demand projections are estimated based on growth in accounts shown in Table 1 and the water demand factors identified in Table 3. Non revenue water projections are estimated by water loss factors shown in Table 3 and the total growth in number of services from all sectors.

(b) Total 2025 water demand estimate provided by City staff on October 22, 2025 and is not further broken down by sector.

APPENDIX B

Supplemental Tables

Appendix B

Table B-1. Projected Single-Dry Year Potable Supply

Single-Dry Year Supply	Supply (AFY)				
	2025	2030	2035	2040	2045
Total Single Dry Year Supply (a)	**11,005**	**10,298**	**10,313**	**10,463**	**10,632**
Single Dry Year Potable Water Supply (c)	9,005	7,758	7,773	7,923	8,092
Single Dry Year Non-Potable Water Supply (b)	2,000	2,540	2,540	2,540	2,540

Abbreviations:

AFY = acre-feet per year

City = City of Petaluma

UWMP = Urban Water Management Plan

Notes:

(a) Total single-dry year supply per Table 7-2 of the City's 2020 UWMP (Reference 1) and associated with the driest water year on record (1977).

(b) Single-dry year non-potable water supply was assumed to be equal to the 2020 UWMP reported recycled water demand per Reference 1.

(c) Potable water supply was presented in Reference 1 as a total combined value of potable and non-potable water supply. Using the total single-dry year supply and the assumption per Note (b), the single-dry year potable water supply values were estimated.

References:

1. City of Petaluma, 2021. 2020 Urban Water Management Plan, prepared by West Yost, dated June 2021.

Appendix F

General Plan Update Water System Evaluation Technical Memorandum prepared by West Yost in December 2025

WEST YOST
Water. Engineered.

2020 Research Park Drive
Suite 100
Davis CA 95618

530.756.5905 phone
530.756.5991 fax
westyost.com

TECHNICAL MEMORANDUM

DATE: December 11, 2025

Project No.: 702-60-25-45
SENT VIA: EMAIL

TO: Dan Herrera, PE

CC: Chelsea Thompson

FROM: Bonnie Robison, PE, RCE #85779

REVIEWED BY: Brenda Estrada, PE, RCE #67062

SUBJECT: General Plan Update Water System Evaluation



The City of Petaluma (City) is updating its General Plan, which establishes the long-term vision and land use framework for the community. The City is interested in understanding how land use changes proposed in the General Plan Update (GPU) may affect its existing water system infrastructure and level of service to existing customers. The water system consists of multiple pressure zones and critical infrastructure components that must maintain adequate service pressures and provide fire flow capacity to meet existing and future demand conditions. As the City grows, it is important to assess whether the existing water system can support proposed development and where upgrades might be needed to maintain reliable service.

West Yost has conducted this high-level hydraulic evaluation to assess how anticipated GPU development may impact system pressures and available fire flow. This technical memorandum (TM) documents the evaluation, including a summary of the existing and future water demands, hydraulic evaluation methodology, and key results. The TM does not identify specific improvement projects but highlights areas where improvements may be warranted to mitigate projected impacts resulting from the proposed changes in land use. Detailed project recommendations will be developed in the City's Water Master Plan as part of development of a capital improvement program.

EXISTING AND FUTURE WATER DEMANDS

For the purposes of this evaluation, existing demands were assumed to match the observed 2024 maximum day demand. Future demands were projected using a parcel-level land use database[1] from the GPU and applying water use factors (WUFs) consistent with the allowable uses for each land use category.[2]

WUFs used were consistent with those developed as part of the City's Water Master Plan, which is currently in progress. New WUFs were developed for new GPU land uses that did not have an existing

[1] Petaluma_UpdatedGPLU_Clean.shp shapefile provided by Raimi + Associates and received August 29, 2025.

[2] Raimi + Associates. August 6, 2025. "Recommended General Plan Land Use Designations."

water use factor based on the allowable development types and densities. Table 1 in Attachment A provides a summary of the WUFs used for this evaluation. For all residential parcels, housing density was anticipated to develop at the mid-point between the minimum and maximum density as proposed in the GPU. Projected water demands were developed in two parts:

- **Vacant Parcels:** Vacant parcels were identified based on assessor's parcel information from Sonoma County. All vacant parcels within the City were assumed to be developed within the timeframe of the GPU.
- **Redeveloped Parcels:** Using the GPU land use database provided, parcels were reviewed to determine if the WUF category was expected to change from existing to future conditions. Three main areas of land use changes and potential redevelopment were identified: the Petaluma Boulevard corridor, the East Washington Street Corridor, and the industrial area along east Lakeville Highway.

Projected water demands from the vacant and redeveloped parcels were calculated by multiplying the WUF by the parcel area, and demands were allocated spatially in the City's hydraulic water model. The calculated maximum day demand for the City under the new General Plan is expected to increase by approximately 17 percent.[3]

Proposed changes in land use were also considered to determine if there was an anticipated change in general fire flow requirements, listed in Table 2 in Attachment A. Actual required fire flow for individual projects will be assessed by the City Fire Department as development moves forward.

HYDRAULIC EVALUATION

The water distribution system evaluation was conducted using the City of Petaluma's existing hydraulic water model, which was previously calibrated by West Yost. The model was updated for this evaluation to reflect recently constructed pipeline improvements and projects actively planned for construction within the next two years, as identified by the City.

The following evaluations were conducted under both existing and future demand conditions to assess potential changes in level of service:

- Normal Operations: Minimum service pressures during a peak hour on the maximum day
- Emergency Operations – Fire Flow: Available fire flow during maximum day demand condition

The results of the future demand scenarios were compared to those from the existing scenarios to identify areas where pressures and fire flow availability change across the City.

[3] The City retained EKI as a consultant to evaluate the ability of the City's water supply to meet project water demands. The GPU water demand projections developed by EKI for this purpose are not fully comparable to the projections developed for water infrastructure planning purposes within this TM. For example, EKI's projections use water use factors based on customer account types and incorporate different assumptions related to future water use efficiency, and do not consider the spatial location of increased demands. The two methods may have different results.

Normal Operations

The normal operations scenarios evaluate pressures within the City's water distribution system under maximum day with peak hour demand conditions (i.e., non-fire). Overall, system pressures remain similar between existing and GPU development, with minor decreases (0.5 pounds per square inch [psi] to 2.9 psi) in some areas, shown on Figure 1. Decreases in pressures occur within Pressure Zones 1, 2, and 4, where the majority of development and redevelopment is projected. The increase in development from the GPU is not anticipated to cause any areas to drop below the City's minimum pressure criterion of 40 psi during maximum day demand conditions.

Emergency Operations – Fire Flow

The emergency operations scenarios evaluated fire flow availability in the City's distribution system under a maximum day demand condition. The hydraulic model was used to determine available fire flow at all junctions that represent hydrant locations within the City, while maintaining a minimum residual system pressure of 20 psi at all customer service locations. Results presented are representative of the distribution system and do not depict available flow from a specific hydrant.

With the proposed development of the GPU, most of the City will experience minimal changes to available fire flow (within 2 percent) as shown on Figure 2. Select locations are expected to experience reductions in available fire flow by up to 11 percent. Locations with the most impact to fire flow correspond with those areas planned for the most development and redevelopment in the GPU.

The East Washington Street Corridor is expected to have the largest reduction in available fire flow, with a few locations reduced by up to 11 percent. However, this area has available fire flow significantly over the maximum City planning criteria of 4,000 gallons per minute (gpm) (see Attachment A) and would not require any projects to mitigate this reduction. Locations along the Petaluma Boulevard corridor are projected to have reductions in available fire flow by up to 10 percent, due to the increased level of development planned along the corridor. These locations have available fire flow ranging from 1,050 gpm to 4,000 gpm and may require pipeline replacement projects to provide adequate fire flow to the proposed GPU development.

Additional locations in Pressure Zones 1 and 4 also show decreases in available fire flow by up to 5 percent. These locations are primarily at higher elevations where system static pressures are lower or at areas on the edges of the City with limited water system looping. Available fire flow at these areas could likely be increased by construction of additional water pipelines to provide additional looping, as well as potential operational changes. Some locations are also along smaller diameter pipelines, and replacing these pipelines with larger diameter pipelines may improve fire flow availability.

System Storage

Total water storage capacity for the City is based on the sum of three main components:

- Operational storage: Stored water needed to meet peak water demands
- Fire flow storage: Stored water reserved for fire suppression
- Emergency storage: Stored water to meet demands during unplanned water shortages or system outages

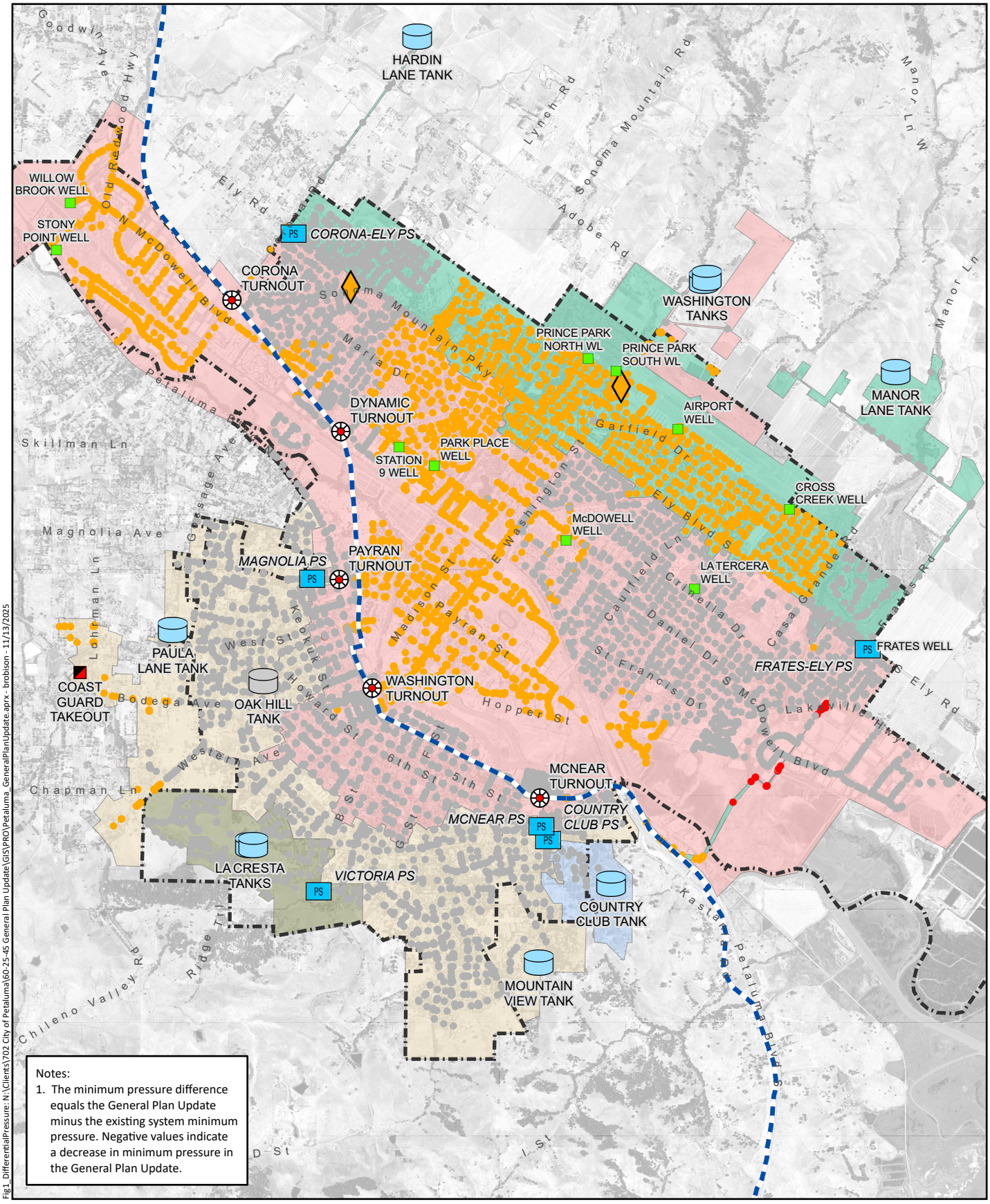


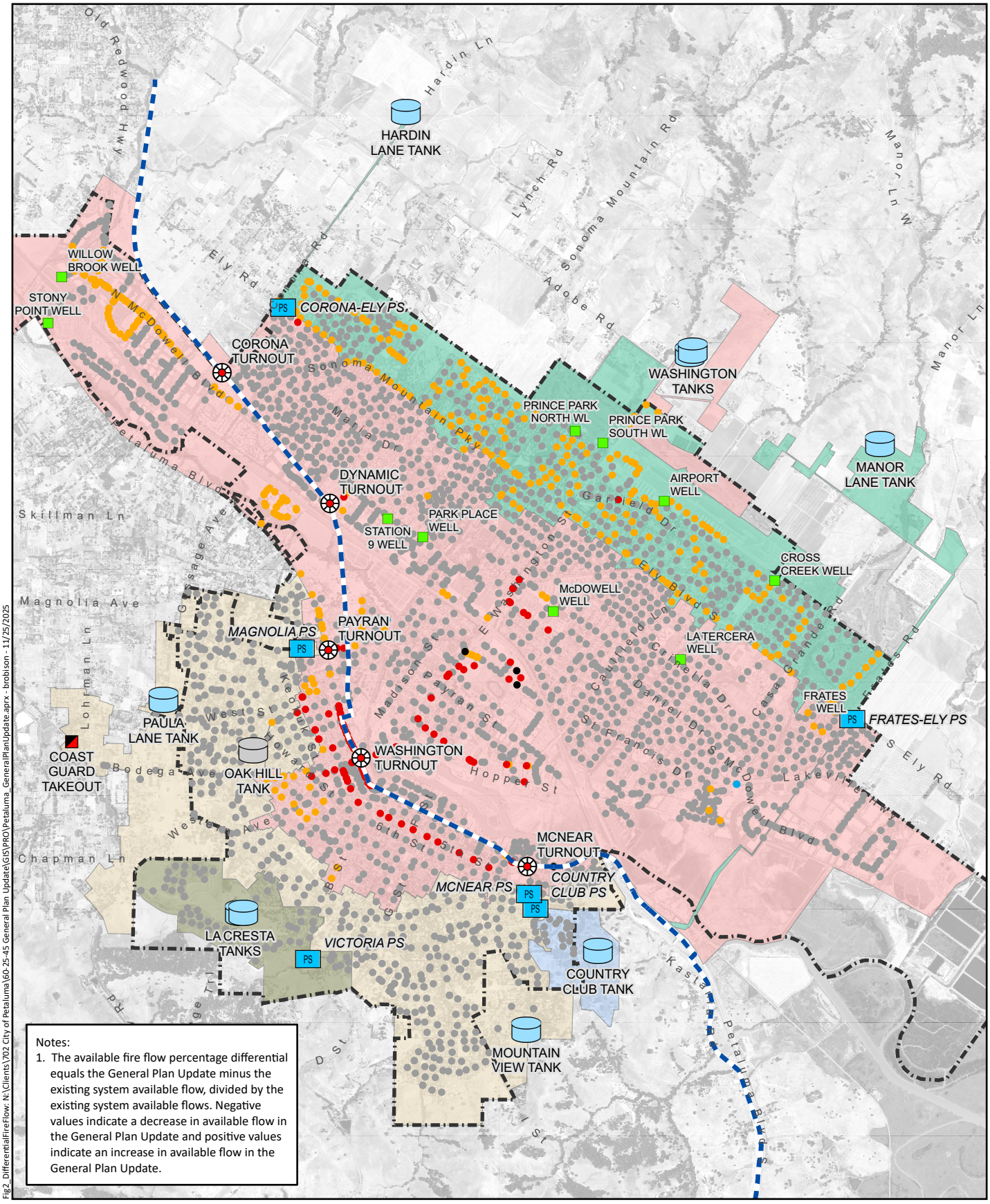
Fig1_DifferentialPressure: N:\Clients\702 City of Petaluma\60-25-45 General Plan Update\GIS\PRO\Petaluma_GeneralPlanUpdate.aprx - brobison - 11/13/2025

Prepared for:

City of Petaluma
General Plan Update
Water System Evaluation

General Plan vs. Existing System Minimum Pressure Differential Results

Figure 1



Notes:
1. The available fire flow percentage differential equals the General Plan Update minus the existing system available flow, divided by the existing system available flows. Negative values indicate a decrease in available flow in the General Plan Update and positive values indicate an increase in available flow in the General Plan Update.

Available Fire Flow Results Percentage Differential

- Less than -10 percent
- -10 to -5 percent
- -5 to -2 percent
- -2 to 2 percent
- Greater than 2 percent

Pressure Zone

- Zone 1
- Zone 2
- Zone 3
- Zone 4
- Zone 5

N

0 4,000 Feet

Prepared for:

City of Petaluma
General Plan Update
Water System Evaluation

General Plan vs. Existing System Fire Flow Differential Available Flow Results

Figure 2

Fig2_DifferentialFireFlow: N:\Clients\702 City of Petaluma\60-25-45 General Plan Update\GIS\PRO\Petaluma_GeneralPlanUpdate.aprx - brobison - 11/25/2025

The volume of stored water required for each of these components is based on system water demands and on fire flow criteria. Based on an evaluation of the demands for the proposed GPU land uses, no new fire flow storage recommendations are expected to be needed to support the GPU. However, water demands will increase under the GPU, increasing required storage to meet operational and emergency components. The City has an existing storage deficit in Pressure Zone 1 and the proposed GPU development will exacerbate this storage deficit. Therefore, it is recommended that the City continue to pursue additional water storage tank projects in order to support existing and future development.

KEY FINDINGS

The hydraulic evaluation found that the City's water distribution system can generally accommodate projected GPU development without major impacts to system pressures. Reductions in system pressures could likely be mitigated through operational changes.

Localized available fire flow reductions are anticipated due to the proposed GPU developments. Although some of the available fire flow changes may be able to be mitigated by operational changes, others will likely require installation of new water pipelines to improve looping or increased pipeline sizes to improve available fire flow. Specific capital improvement program project recommendations will be evaluated and identified through the City's Water Master Plan project to address any areas which may be below minimum level of service standards as a result of changed land use/development of vacant property. The City's existing storage deficit will also become more pronounced with growth and will require continued investment to increase storage capacity.

Attachment A

Tables

Table 1. Water Use Factors

Water Use Factor Category	Existing General Plan Designation[(a)]	General Plan Update Designation[(b)]	Water Use Factor	Water Use Factor Unit
Single Family Residential	Rural Residential	Rural Residential	220	gal/du/day
	Very Low Density Residential	Very Low Density Residential		
	Low Density Residential	Low Density Residential		
Medium/High Density Residential	Diverse Low Density Residential	Diverse Low Density Residential	165	gal/du/day
	Medium Density Residential	Medium Density Residential		
	High Density Residential	High Density Residential		
	Mobile Homes	Mobile Homes		
Commercial	Neighborhood Commercial	Neighborhood Commercial	1,485	gal/ac/day
	Community Commercial	Community Commercial		
	–	Railroad District		
Mixed Use	Mixed Use	Neighborhood Center Mixed Use	2,095	gal/ac/day
		Mini-Center Mixed Use		
		Stepdown Mixed Use		
Mixed Use – High Intensity		Town Center Mixed Use	3,700	gal/ac/day
		Downtown Mixed Use		
		Urban Core Mixed Use		
		Urban Corridor Mixed Use		
Business Park	Business Park	Business Park	1,060	gal/ac/day
	–	Thoroughfare District		
	–	Maker/Microbusiness		
Industrial	Industrial	Industrial	1,460	gal/ac/day
		Agricultural Support Industrial		
		River-Dependent Industrial		
Governmental/Institutional	Public/Semi-Public	Public/Semi-Public	855	gal/ac/day
		Education		
Landscape Irrigation	Open Space and Parks	Parks[(c)]	1,460	gal/ac/day

(a) Existing General Plan descriptions are from the City's Zoning Code.
(b) GPU descriptions are from "Recommended General Plan Land Use Designations" dated August 6, 2025, provided by Raimi + Associates.
(c) A separate Open Space land use designation is proposed with the GPU. No water use is planned for open space.
ac = acre, du = dwelling unit, gal = gallons

Table 2. City of Petaluma Recommended Fire Flow Criteria[(a)]

Land Use Category	Fire Flow, gpm	Duration, hours	Recommended Storage, MG
Single Family Residential	1,500	2	0.18
Multi-Family Residential	2,500	2	0.30
Mixed Use/Commercial	3,000	3	0.54
Institutional	3,000	3	0.54
Industrial	4,000	4	0.96

(a) Recommended fire flow criteria are for planning purposes and are generalized based on land use type since actual building construction type and square footages are not yet known. Fire flow for individual development projects may vary and will be assessed by the City Fire Department as project applications are submitted.

gpm = gallons per minute, MG = million gallons

Appendix G

General Plan Update Sewer Study Technical Memorandum prepared by Woodard and Curran in November 2025

TECHNICAL MEMORANDUM

TO: Dan Herrera, City of Petaluma

PREPARED BY: Chris van Lienden, P.E., Woodard & Curran

REVIEWED BY: Stephanie Estabrook, P.E., Woodard & Curran

Gisa Ju, P.E., Woodard & Curran

DATE: November 21, 2025

RE: Proposed General Plan Land Use Update – Sewer Study

1. BACKGROUND

The City of Petaluma (City) is proposing updates to the City's General Plan land uses, which will include significant intensification in the downtown areas. As part of the General Plan Update (GPU) process, the City is looking to understand the potential impacts of the update on the sewer collection system.

A hydraulic model of the collection system has been developed as part of the City's Sewer Master Plan, currently being prepared. The model was calibrated to flow monitoring data collected in February/March 2022 and late December 2023 through early March 2024. The findings from that model, including potential projects to relieve capacity deficiencies triggered by near-term development, were documented in a Draft Master Plan submitted to the City. City staff are currently reviewing the report. As documented in the Draft Master Plan, a capacity deficiency was identified under the following conditions:

- Any model-predicted surcharging (pipe flowing full, and water level rising above the pipe crown in the manhole) under peak dry weather flow (PDWF).
- Any model-predicted overflows or surcharging reaching within 5 feet of manhole rims under design storm peak wet weather flow (PWWF).

The purpose of this Technical Memorandum (TM) is to identify the potential capacity impacts of the proposed General Plan land use changes on the City's sewer collection system, over and above any sewer deficiencies identified in the Draft Master Plan.

2. FUTURE DEVELOPMENT SCENARIO ASSUMPTIONS

For this analysis, a new model scenario has been prepared to reflect the maximum anticipated growth potential associated with the proposed General Plan Update. This Buildout scenario is typically included in Master Plans to conservatively identify potential capacity deficiencies. The growth assumptions incorporated into this scenario include:

- All major projects identified by City Planning[1] will be implemented. These projects fall within the allowable density limits of the General Plan Update, but are typically somewhat less than the maximum density.

[1] Major Projects provided by the City in September 2024.

- All currently vacant parcels will develop to their maximum allowable density.
- All currently developed parcels where the proposed General Plan Update results in a significant increase to their allowable density will redevelop to their maximum allowable density (see Appendix A).
    - For flow estimating purposes, an assumed floor-area-ratio (FAR) for the non-residential component of Mixed Use was applied: 1.0 for the "CORE-MU" and "UC-MU" categories and 0.5 for all other Mixed Use categories. To estimate potential non-residential flows, the parcel acreage is multiplied by the FAR to determine a non-residential square footage, then the flow factors discussed below are applied.
- All other parcels would retain their currently estimated sewer flows.

Note that these assumptions are highly conservative, and are intended to identify sewers that are potentially at risk due to the proposed land use intensifications, rather than in need of immediate capacity relief.

To calculate the potential increase in flow, base wastewater flow (BWF) factors have been assigned based on the unit flow factors defined in the Draft Master Plan, as summarized in the table below.

Table 1: Unit Base Wastewater Flow Factors for Future Development

Development Type	Unit	BWF Factor (gpd/unit)
Single Family Residential (SFR)	Dwelling Units	160
Multi-Family Residential (MFR)[1]	Dwelling Units	110
Non-Residential (NR)	Square feet	0.1

[1]Assumed as 70% of SFR flow factor. This factor is also applied to hotel rooms.

3. SUMMARY OF FINDINGS

The model identified five (5) locations that could result in potential sewer capacity deficiencies due to the proposed General Plan Update land use changes. These locations are shown in Figure 1 and Table2,, and the areas of redevelopment that could potentially trigger those capacity deficiencies are also indicated in Table 2. As noted, this analysis assumes that those areas will redevelop to their maximum potential densities; if those areas do not redevelop, or redevelop to lesser densities, the capacity relief projects may not be needed. However, the City should consider opportunities to upsize these sewers when or if street repaving or sewer-condition related work is needed or planned.

Table 2: Potential Sewer Capacity Impacts of Proposed Land Use Changes

Location	Capacity Relief Project	Redevelopment Area Trigger
McDowell Blvd.	Upsize ~1,600 feet of 12-inch to 15-inch along McDowell Blvd.	Maria Drive and E Washington St, north of S. McDowell Blvd.
D St, Vallejo St.	Upsize ~1,200 feet of 6-inch to 10-inch along D St. and Vallejo St. (3 segments)	East side of E Washington St, north of Vallejo St.
Washington St	Upsize ~400 feet of 6-inch to 8-inch along E Washington St.	West side of E Washington St, north of Lakeville St.
Railroad/Petaluma River	Upsize ~3,700 feet of 21-inch and 24-inch to 27-inch under the railroad and adjacent to Petaluma River	Between Petaluma River and HWY 101, upstream of Wilmington Pump Station
Petaluma Blvd.	Upsize ~500 feet of 12-inch to 15-inch along Petaluma Blvd.	N. Petaluma Blvd and Magnolia Ave, north of Cherry St.

In addition to potential capacity impacts to the sewers at these locations, the additional flow would also further increase the need for infiltration and inflow (I/I) reduction, particularly to reduce peak flows under wet weather conditions to the City's Primary Influent Pump Station (PIPS) and C Street Pump Station. Those stations have capacity limitations due to high flows that occur under existing wet weather conditions, and the additional flow from potential higher intensity development could increase the I/I reduction needed.

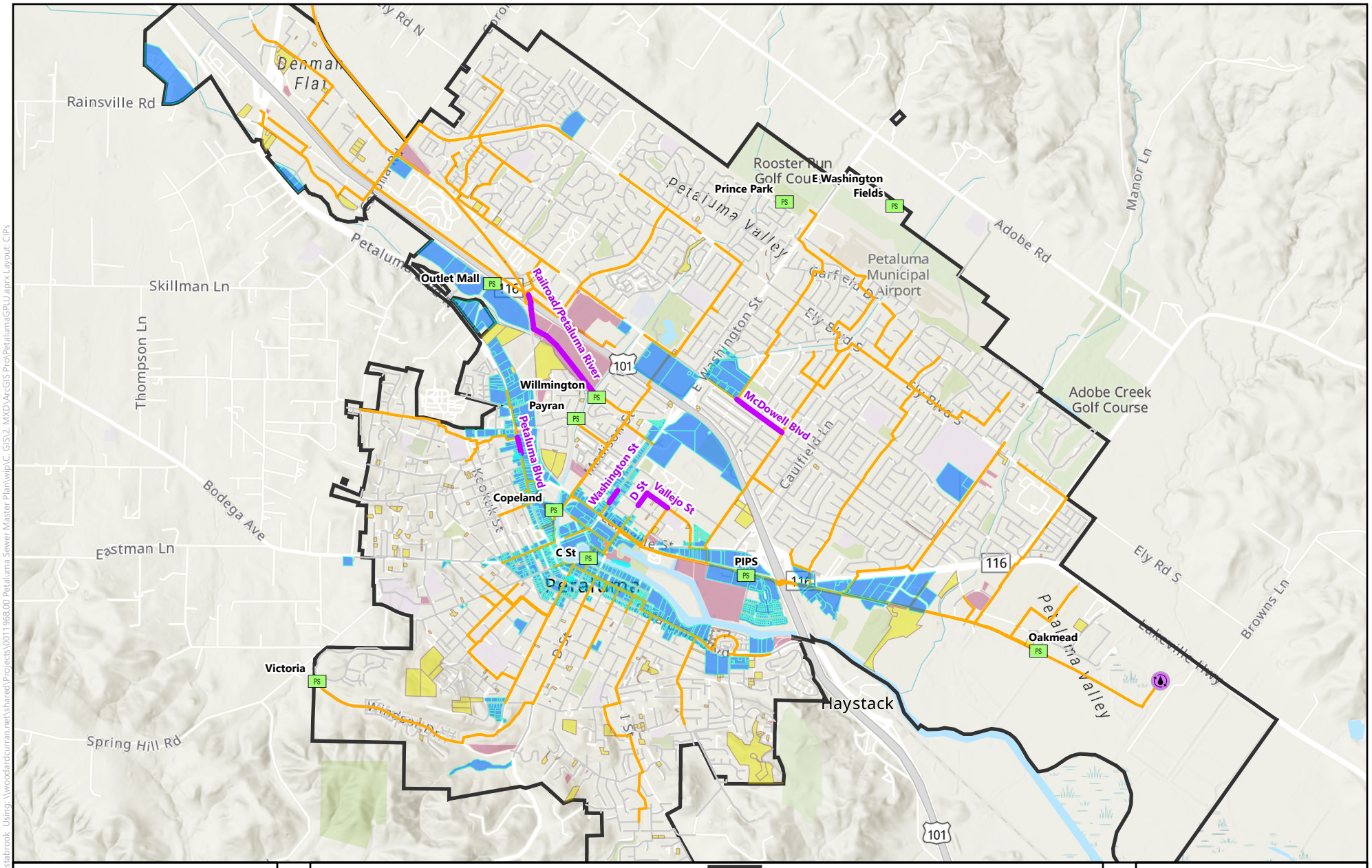


Figure 1

Potential Development and Associated Sewer Capacity Deficiencies

Legend

- Potential Development-Driven Sewer Capacity Deficiencies
- Modeled Gravity Sewers
- Unmodeled Gravity Sewers
- Sewer Pump Station
- Ellis Creek WRF
- City Boundary
- Potential Development Parcels - Proposed GPU Land Use Changes
- Potential Development Parcels - Near-Term Projects
- Potential Development Parcels - Vacant

0 0.5 1 Miles

N

Woodard & Curran

Project #: 0011968.00
Map Created: November 2025

Figure Exported: 11/13/2025 By: SEstabrook Using: \\woodardcurran.net\shared\Projects\0011968.00 Petaluma Sewer Master Plan\wip\C. GIS\2. MXD\ArcGIS Pro\PetalumaGPLU.aprx Layout: CIPs

Third Party GIS Disclaimer: This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions.
Any reliance upon the map or data contained herein shall be at the users' sole risk. **Data Sources: City of Petaluma**

APPENDIX A – RECOMMENDED GENERAL PLAN LAND USE DESIGNATIONS

Recommended General Plan Land Use Designations

August 6, 2025

Overview

General Plan Land Use Designations establish development standards for each designation on the land use map. Residential density is expressed as housing units per net acre of developable land, and for non-residential and mixed uses, a maximum permitted ratio of floor area to net site area (FAR) is specified. The City's Municipal Code (including the Implementing Zoning Ordinance (IZO) and SmartCode) contains more detailed regulations and standards for physical development, which in turn helps to implement the General Plan land use designation. Specific plans, zoning actions, development agreements, entitlement review, and subdivisions must be consistent with the Land Use Map and Designation standards.

Building on the GPAC's input, feedback from the Planning Commission, community engagement, test fit analysis, and input from the City Council during meetings in March, April, and June 2025, the GPU Team has prepared these recommended revised Land Use Designations. The Designations are organized into four tables: Residential, Mixed Use, Commercial & Industrial, and Public. Within each table, each designation is defined by its intent, allowed uses, and standards for density, intensity, and height. Definitions of the allowed uses are immediately below. After the adoption of the revised General Plan, the Zoning Code will be revised and contain more detailed regulations to implement each land use designation.

Underlined standards are new or revisions to standards in the existing General Plan. **Bolded and underlined** standards are revisions to those included in the draft Land Use Policy Framework.

Mixed Use Designations

"Mixed use" describes an area in which both residential and non-residential uses are allowed, either vertically (one above the other) or horizontally (one besides or behind the other). The current General Plan contains a single mixed use designation, while the IZO and SmartCode contain (at present) seven mixed use zones.

Since the adoption of the current General Plan, new State law allows development up to the highest maximum allowable residential density established in either a city's Zoning Ordinance or General Plan, whichever is greater. To ensure consistency between the General Plan designations and the zones in the City's IZO and SmartCode, the number of mixed use General Plan designations has been expanded. The tables below note the corresponding zoning districts as found in the IZO or SmartCode.

Land Use Definitions

Residential

- Plex: A range of house-scale buildings with multiple units, such as duplexes, fourplexes, cottage or garden courts, and multiplexes, that match the scale of single-family neighborhoods.
- Multifamily: A large-scale housing configuration where multiple separate housing units are contained within one apartment or condominium building or several buildings within one complex.

Mixed Use

- Vertical Mixed Use: A configuration with one use (typically residential) located above another (typically non-residential).
- Horizontal Mixed Use: A combination of residential and non-residential uses across a site.
- Live/Work: A hybrid unit combining residential with commercial or limited industrial uses in the same space.
- Active Uses: Uses that result in activity in the public realm during most of the day, including retail, services, live/work, coworking, gym/fitness, studio, maker, civic (e.g., education, childcare, library), and community space, and not including most office uses in which activity is limited to workers coming and going. The public realm is the space between buildings, including sidewalks, streets, parks, and other public spaces.
- Large Sites: Parcels or proposed development projects that exceed 2.5 total acres. Horizontal (or vertical) mixed use is encouraged for large sites located in Urban Corridor Mixed Use and Flex designations to promote a mix of residential and commercial uses.

Commercial and Industrial

- Standalone Commercial: Allows retail, restaurants/food service, services, entertainment/indoor recreation, professional offices, medical office, craft/artisan/ small-scale food & beverage manufacture, hotels/lodging.
- R&D (Research and Development). A facility for scientific research, and the design, development and testing components in advance of product manufacturing, and the assembly of related products from parts produced off-site, where the manufacturing activity is secondary to the research and development activities.
- PDR: Production (light and medium manufacturing), Distribution (establishments engaged in selling merchandise to retailers, contractors, or other industrial, commercial, institutional, farm, or professional business users), and Repair (business that provides repair and/or maintenance services).
- Food & Beverage: Medium or large-scale food and beverage product manufacturing, including distribution and on-site sale.
- Maker: Manufacturing and/or assembling of small products primarily by hand, including but not limited to jewelry, ceramics, glass and metal art, and craft products. May also include small-scale food and beverage product manufacturing.
- Light Industrial: Processes and materials that are unlikely to cause significant impacts on surrounding land uses or the community.
- Heavy Industrial: Processes and materials that typically have significant impacts on surrounding uses and communities, like construction yards, asphalt production, quarrying, and factories.

Residential Designations

PROPOSED DESIGNATION NAME	CURRENT ALIGNED ZONING	INTENT/ DESCRIPTION	ALLOWED RESIDENTIAL USES	MIN DENSITY (du/ac)	MAX DENSITY (du/ac)	MAX FAR	MAX HEIGHT[1]	
							Stories	Feet
Rural Residential (RR)	*(County zone)*	Transition zones between unincorporated rural and agricultural lands that maintain a rural character	Single-Family (Townhouse, Plex**)	0.1	0.6**	--	2	25
Very Low Density Residential (VLR*)	R1	Primarily larger, sloped, hillside lots that maintain a rural character	Single-Family (Townhouse, Plex**)	0.6	2.5**	--	2	25
Low Density Residential (RLD*)	R2	Primarily existing single-family residential neighborhoods with infill potential	Single-Family (Townhouse, Plex**)	2.6	**12****	--	2	25
Diverse Low Density Residential (RDIV*)	R3	Neighborhoods in or near the downtown with a diversity of housing types and densities	Single-Family, Townhouse, Plex, Multifamily	6.1	15***	**1.0 – 1.25 (depending on number of units)****	2	25
Medium Density Residential (RMD*)	R4	Neighborhoods that include a mix of attached single-family dwellings and multi-family housing	Townhouse, Plex, Multifamily	12	22	**1.5**	3	35
High Density Residential (RHD*)	R5	Areas targeted for higher density multi-family housing	Townhouse, Plex, Multifamily	22.1	**45**	**2.25**	4	45
Mobile Homes (MH)	MH	Areas preserved for mobile or manufactured homes	Mobile Home	8	18	--	n/a	n/a

* Small-scale, neighborhood-oriented commercial uses conforming to certain standards (size and location) would be permitted.

** By-right provisions (based on SB 9) apply to housing developments of up to four units per parcel that conform to objective design standards.

*** The maximum density will govern. Pursuant to SB 478, in no case shall lot coverage standards limit feasibility for projects with 3 to 10 units; for housing development projects of 3 to 7 units, a maximum FAR of 1.0 shall govern, and for housing development projects of 8 to 10 units, a maximum FAR of 1.25 shall govern.

[1] Maximum Building Height shall be regulated by the maximum number of feet listed. Stories are included for reference.

Mixed Use Designations

PROPOSED DESIGNATION NAME	CURRENT ALIGNED ZONING	INTENT/ DESCRIPTION	ALLOWED USES[2]				MIN DENSITY (du/ac)	MAX DENSITY (du/ac)	MAX FAR	MAX HEIGHT[3]		STEPDOWNS & STEPBACKS	MIN GROUND FLOOR ACTIVE USE
			100% COMMERCIAL	100% RESIDENTIAL	VERTICAL MIXED USE	HORIZONTAL MIXED USE				Stories	Feet		
Mini-Center Mixed Use (MC-MU)	MU1C	Smaller lots in single-family residential neighborhoods that are appropriate for residential and/or non-residential uses	**Y**	Y	Y	Y	12	30	**2.0**	3 (stepdown to 2 along rear/sides)	40 (30)	Down to 2 stories within 25' of rear & side property lines	--
Neighborhood Center Mixed Use (NC-MU)	MU1A/B & T4	Areas meant to become small neighborhood centers or vibrant community gathering places and typically contain services or retail	Y	**Y**	Y	**Y**	15	30	**2.0**	3	40	n/a	**0.10 FAR if in Neighborhood Center**
Stepdown Mixed Use (SD-MU)		**Areas similar in mix of use and intensity as MU2A but with a height stepdown that blends into abutting neighborhoods**	**Y**	**Y**	**Y**	**Y**	**20**	**45**	**2.5**	**4 (stepdown to 3 where indicated on map)**	**50 (35)**	**Down to 3 stories generally within 35' of rear and/or side property lines (or 45' setback)**	--
Downtown Mixed Use (DT-MU)	MU2	Primarily downtown areas that are intended to retain the same physical form and active, walkable character[4]	Y	N	Y / Required	N	--[5]	**45**	**4.0**	4	45	n/a	**0.2 FAR**
Town Center Mixed Use (TC-MU)	T5	Major destinations that include a robust combination of uses, including regional and local commercial uses as well as residential	Y	Y	Y	Y	30	55	**3.0 [4.0 with PC approval]**	4 (stepdown to 3 fronting Pet. Blvd.) [6 with PC approval] ***See SmartCode for minimum***	50 (40 fronting Pet. Blvd.) [70 with PC approval]	Down to 3 stories along front property line facing Pet Blvd; 15' deep	**0.12 FAR (large sites only)**
Urban Corridor Mixed Use (UC-MU)		Corridor development that fosters ground-floor activity with high-quality pedestrian frontages	Y	Y Discouraged on large development sites	Y	**Y / Encouraged on large development sites**	30	**75**	**3.5**	5 (stepdown to 4 adjacent to R zones)	60 (50)	**Down to 4 stories adjacent to R zones; 15' deep**	**0.12 FAR**
Urban Core Mixed Use (CORE-MU)	T6	High-density mixed use, commercial, and civic areas of regional importance	Y	N	Y	Y	**50**	**95**	**4.0**	6 ***See SmartCode for minimum***	70	n/a	**0.12 FAR or per SmartCode Frontage Map**
Flex *(FX)*		Future designation when appropriate for sites currently designated HASD that allows all uses except heavy industrial	Y	N	Y	**Y / Required on Large Sites**	30	75	3.5	6	70	Down to 4 stories facing Pet Blvd; 15' deep	**0.15 FAR (large sites only)**

[2] See the summary below of Residential Uses Permitted by Mixed Use Designation.
[3] Maximum Building Height shall be regulated by either the maximum number of feet or stories listed, whichever is lower.
[4] Arts, entertainment, educational, indoor recreation, and other destination uses are strongly encouraged.
[5] Downtown Mixed Use has no minimum density to permit one or a few units above a storefront (such as an owner living above a restaurant or artist's lofts above an art gallery).

Residential Uses Permitted by Mixed Use Designation

All designations allow Live/Work.

Mixed Use Designation	Single-Family	Plex	Townhouse	Multifamily
Mini-Center	Small lot SF only	x	x	x
Neighborhood Center		x	x	x
Downtown Mixed Use			x	x
Stepdown Mixed Use		x	x	x
Town Center Mixed Use			x	x
Urban Corridor Mixed Use			x	x
Urban Core Mixed Use				x
Station Mixed Use				x
Flex				x

Commercial & Industrial Designations

PROPOSED DESIGNATION NAME	CURRENT ALIGNED ZONING	INTENT/ DESCRIPTION	ALLOWED USES	MIN DENSITY (du/ac)	MAX DENSITY (du/ac)	MAX INTENSITY (FAR)	MAX HEIGHT[6]	
							Stories	Feet
Neighborhood Commercial (NC)	C-1*	Small-scale clusters of local shopping and service uses, preferably with walkable street-fronts, that serve the surrounding neighborhood	• Retail & Services • Office	-	-	0.8	2	30
Community Commercial (CC)	C-2*	Existing shopping centers and commercial districts, preferably designed in pedestrian-friendly "park-once" formats	• Retail & Services • Office • Shopping Center • Hotels	-	-	1.2	3	40
Business Park (BP)	BP	Business and professional offices, technology park clusters, research and development, light industrial operations, and visitor service establishments	• Office • R&D • Light Industrial/ Manufacturing/PDR • Warehousing/Storage • Hotels (conditional) • Retail & Services	-	-	1.5 (FAR of 2.0 is attainable if all required parking is structured)	3	50
Maker/ Microbusiness (M/M)		Areas for local economic activities and tourism that allow most non-residential uses other than heavy industrial	• Retail & Services • Office • R&D • Small-scale Food & Beverage • Light Industrial/ Manufacturing/PDR • Warehousing/Storage	-	-	1.5 (FAR of 2.0 is attainable if all required parking is structured	3	50
Industrial (I)	I	Areas for the full range of manufacturing, industrial, and/or food processing/preparation uses	• Light Industrial/ Manufacturing/PDR • Food & Beverage • Warehousing/Storage	-	-	0.6	2	40

[6] Maximum Building Height shall be regulated by the maximum number of feet listed. Stories are included for reference.

PROPOSED DESIGNATION NAME	CURRENT ALIGNED ZONING	INTENT/ DESCRIPTION	ALLOWED USES	MIN DENSITY (du/ac)	MAX DENSITY (du/ac)	MAX INTENSITY (FAR)	MAX HEIGHT[6]	
							Stories	Feet
			• Supporting Retail					
River-Dependent Industrial District (RDI)	D-3***	Heavy industrial manufacturing, raw material processing and related uses that require river access as an integral part of daily operations	• Light and Heavy Industrial / Manufacturing • Materials Processing	-	-	1.0	6	70
Agricultural Support Industry (AGS)	D-1***	Dairy and poultry operations, food processing, and related uses that are consistent with supporting local agricultural production	• Food & Beverage • Food Processing • Heavy Industrial/ Manufacturing	-	-	1.0	4	50
Thoroughfare District (TD)	D-4	Areas between Lakeville Highway and the railroad where standalone residential is not allowed	• Retail & Services • Hotels • Light Industrial/ Manufacturing • Food & Beverage •	-	55	**3.0**	4	50
Agriculture (AG)	AG	Areas that are actively and primarily used for grazing or the production or sale of food and fiber. Areas subject to seasonal or historic inundation and identified by FEMA as areas warranting special consideration are included.	• Farming/Grazing • Food & Beverage	-	-	-	**2**	25

* Qualifying 100% affordable housing and mixed-income residential projects are ministerially allowed in NC and CC designations per AB 2011/SB 6, subject to the requirements of the applicable state laws.

*** Minor changes in existing structures are permitted if they conform with the current development pattern of the site in terms of building placement, setbacks, and heights.

Public Designations

PROPOSED DESIGNATION NAME	CURRENT ALIGNED ZONING	INTENT/ DESCRIPTION	ALLOWED USES	MIN DENSITY (du/ac)	MAX DENSITY (du/ac)	MAX INTENSITY (FAR)	MAX HEIGHT[7]	
							Stories	Feet
Public/Semi-Public (PSP)	CF	Lands intended for public or semi-public uses	• Civic/government offices • Public utility facilities • Community service uses (e.g., houses of worship)	--	*	--	3	35
Education (ED)	CF	Lands owned and operated by elementary, secondary, or community college districts as well as private and parochial schools. Does not include preschool facilities.	• Public and private educational facilities	--	*	--	3	35
Railroad District (RAIL)	D-2	Parcels that are intended for exclusive use by SMART or other railway operators	Proposed redevelopment shall comply with standards established through the conditional use permit process or design review	--	--	--	--	--
Parks (P)	OSP	City-owned and privately-owned lands whose primary purpose is recreation	• Community-serving facilities • Recreational facilities • Concessions • Temporary uses	--	--	--	2	25
Open Space (OS)	OSP	Unimproved sites devoted to the preservation of natural and cultural resources, outdoor recreation, or public health and safety	• Recreational amenities • Interpretive amenities • Temporary uses	--	--	--	2	25
Urban Separator (US)	OSP	Open space lands within and/or directly adjacent to the Urban Growth Boundary that are intended to serve as the outer boundary of urban development and as a buffer between agricultural and urban land	• Recreational amenities • Interpretive amenities • Temporary uses	--	--	--	--	--

[7] Maximum Building Height shall be regulated by the maximum number of feet listed. Stories are included for reference.

PROPOSED DESIGNATION NAME	CURRENT ALIGNED ZONING	INTENT/ DESCRIPTION	ALLOWED USES	MIN DENSITY (du/ac)	MAX DENSITY (du/ac)	MAX INTENSITY (FAR)	MAX HEIGHT[7]	
							Stories	Feet
Floodway (FW)	FW	Delineates riparian channels and adjacent lands that must be reserved in order to discharge the "base flood" without cumulatively increasing the water surface elevation more than one foot, as determined by the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM)	• No new development is allowed	--	--	--	--	--

* By-right provisions of SB 4 apply to 100% affordable housing developments that conform to objective design standards by religious institutions or nonprofit colleges.