August 2017 | Public Review Draft EIR

Southwest Fresno Specific Plan Environmental Impact Report

for the City of Fresno

SCH #: 2017031012

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1. Introduction

A thorough examination of the existing regulatory and environmental settings in Fresno is a critical initial step in the adoption and implementation of the proposed Southwest Fresno Specific Plan (Plan) and the certification of the Environmental Impact Report (EIR) process.

The City of Fresno (City) is the Lead Agency for the proposed Plan. This EIR is intended to inform the City's decision-makers, other responsible agencies, and the public-at-large of the nature of the proposed Plan and its effect (impact) on the environment. Accordingly, this Draft EIR provides an assessment of the potential environmental consequences of adoption, implementation, and development of the proposed Plan. Additionally, this Draft EIR identifies mitigation measures and alternatives to the proposed Plan that would avoid or reduce significant impacts. This Draft EIR analyzes the buildout potential[1] of the Plan Area described in detail in each resource section of Chapter 4.0, Environmental Analysis, of this Draft EIR.

1.1 PROPOSED ACTION

The City is currently undertaking a community-based planning process to prepare the proposed Plan. Pursuant to Section 21080(d) of the California Environmental Quality Act (CEQA)[2] and Section 15378[a] of the CEQA Guidelines,[3] the proposed Plan is subject to environmental review because adoption and implementation of the proposed Plan is an "action" [undertaken by a public agency] that has the potential to result in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.

The proposed Plan contains land use, urban design, transportation, public facilities, and utilities goals, policies, and strategies to guide investment and development in the Plan Area over the next 25 years. Because the proposed Plan is the guiding regulatory document for Plan Area, and consistent with Section 15-104B, the associated General Plan and Zoning Ordinance Amendments are necessary to ensure that the land use and zoning designations, policies, and development standards in these documents are consistent with the proposed Plan. A detailed description of the proposed Plan is provided in Chapter 3, Project Description, of this Draft EIR.

[1] Buildout potential is defined as the maximum theoretical amount of development that could occur within the 25-year horizon of the Specific Plan.

[2] The CEQA Statute is found at California Public Resources Code, Division 13, Sections 21000-21177.

[3] The CEQA Guidelines are found at California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387.

1.2 ENVIRONMENTAL REVIEW PROCESS

1.2.1 DRAFT EIR

Pursuant to State CEQA Guidelines Section 15063, the City determined that the proposed Plan could result in potentially significant environmental impacts and that an EIR would be required; therefore, this EIR was prepared without an initial study. In compliance with Section 21080.4 of the California Public Resources Code, the City circulated the Notice of Preparation (NOP) of an EIR for the proposed Plan to the Office of Planning and Research (OPR) State Clearinghouse (SCH), as well as interested agencies and persons, on February 28, 2017, for a 30-day review period. The NOP solicited comments from identified responsible and trustee agencies, as well as interested parties regarding the scope of the Draft EIR. Appendix A, Notice of Preparation and Scoping Comments, of this Draft EIR contains the NOP as well as the comments received by the City in response to the NOP.

The scope of this EIR was established by the City through the NOP process and includes an analysis of both the project-specific and cumulative impacts in the following issue areas:

- Aesthetics
- Agriculture Resources
- Air Quality
- Biological Resources
- Cultural and Tribal Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation and Traffic
- Utilities and Service Systems
- CEQA-Mandated Assessment:
  - Impacts Found Not To Be Significant
  - Significant Unavoidable Impacts
  - Growth-Inducing Impacts
  - Significant Irreversible Changes

The implementation of the proposed Plan was found to have no impacts related to Forestry Resources and Mineral Resources. A complete discussion of the impacts to Forestry Resources, and Mineral Resources is provided in Chapter 6, CEQA-Mandated Assessment, of this Draft EIR.

This Draft EIR will be available for review by the public and interested parties, agencies, and organizations for a 45-day comment period. During the comment period, the public is invited to submit written

comments via mail or e-mail on the Draft EIR to the City of Fresno Development and Resource Management Department.

Written comments should be submitted to:

City of Fresno Development and Resource Management Department
Attention: Sophia Pagoulatos, Planning Manager
2600 Fresno Street, Room 3065
Fresno, California 93721
Email: Sophia.Pagoulatos@fresno.gov

1.2.2 FINAL EIR

Upon completion of the 45-day review period, the City will review all written comments received and prepare written responses for each comment. A Final EIR will then be prepared, incorporating all of the comments received, responses to comments raising environmental issues, and any changes to the Draft EIR. The Final EIR will then be presented to the Planning Commission for a recommendation on the certification of the EIR and to City Council for potential certification as the environmental document for the proposed Plan. Public input is encouraged at all public hearings before the Planning Commission and City Council.

All persons who commented on the Draft EIR will be notified of the availability of the Final EIR and the date of the public hearings before the Planning Commission and the City Council.

All responses to comments submitted on the Draft EIR by agencies will be provided to those agencies at least 10 days prior to certification of the Draft EIR. The City Council will make findings regarding the extent and nature of the impacts as presented in the Final EIR. The Final EIR will need to be certified as complete by the City prior to making a decision to adopt the proposed Plan.

After the City Council certifies the Final EIR, it may then consider the proposed Plan itself, which it may approve as presented in this Draft EIR, approve in part, approve with conditions, or deny. In other words, the certification of this EIR does not in and of itself approve any component of the proposed Plan. The approval of the proposed Plan may occur at another time subsequent to the certification of the EIR, if at all. The City Council may require the mitigation measures specified in this Draft EIR as conditions of Plan approval, and it may also require other feasible mitigation measures. Alternately, the City Council may find that the mitigation measures are outside the jurisdiction of the City to implement, or that no feasible mitigation measures have been identified for a given significant impact. In the latter case, the City Council may nonetheless determine that the proposed Plan is necessary or desirable due to specific overriding considerations, including economic factors, and may approve the proposed Plan despite an unavoidable, significant impact.

1.2.3 MITIGATION MONITORING

Public Resources Code Section 21081.6 requires that the Lead Agency adopt a monitoring or reporting program for any project for which it has made findings pursuant to Public Resources Code 21081. Such a

program is intended to ensure the implementation of all mitigation measures adopted through the preparation of an EIR. The Mitigation Monitoring or Reporting Program for the proposed Plan will be completed as part of the environmental review process.

1.3 TYPE OF EIR

As described in Section 15161 of the CEQA Guidelines, the most common type of EIR is a project EIR, which examines the environmental impacts of a specific development project. As described in Section 15168 of the CEQA Guidelines, program EIRs are appropriate when a project consists of a series of actions related to the issuance of rules, regulations, and other planning criteria. In this case, the proposed Plan that is the subject of this EIR includes the proposed Plan, a long-term plan that will be implemented over a 25-year horizon as a policy document guiding future development activities. Therefore, this EIR serves as a program-level EIR that does not evaluate the impacts of future individual projects that may be proposed under the proposed Plan. Under the programmatic EIR approach, future projects or phases may require additional, project-specific environmental analysis.

In order to identify whether additional analysis would be necessary when the project is implemented, the Lead Agency (the City) will need to determine the following:

- Whether the planned characteristics of the project are substantially different from those defined in the programmatic EIR;
- Whether the project would require additional mitigation measures; or
- Whether specific impacts were not evaluated in sufficient detail in the programmatic EIR.

If any of these conditions apply, then a new project-specific Initial Study leading to a Negative Declaration, a Mitigated Negative Declaration, or an EIR, unless the activity qualifies for an exemption, would be necessary to identify how the impacts of the project differ from those identified in this EIR or what additional mitigation measures would be necessary. For these subsequent environmental review documents, this program EIR will serve as the basis or first-tier environmental analysis for future project-level CEQA review.

1.3.1 TIERING

This Draft EIR tiers from the Master EIR (MEIR), SCH 2012111915, prepared for the Fresno General Plan. "Tiering" or "tier" means the coverage of general matters and environmental effects in an environmental impact report prepared for a policy, plan, program, or ordinance followed by narrower or site-specific environmental impact reports which incorporate by reference the discussion in any prior environmental impact report, and which concentrate on the environmental effects which (a) are capable of being mitigated, or (b) were not analyzed as significant effects on the environment in the prior environmental impact report (Cal. Pub. Res. Code Section 20168.5; CEQA Guidelines Section 15152).

Tiering of EIRs is encouraged to promote construction of needed housing and other development projects by (1) streamlining regulatory procedures, (2) avoiding repetitive discussions of the same issues in

successive environmental impact reports, and (3) ensuring that EIRs prepared for later projects which are consistent with a previously approved policy, plan, program, or ordinance concentrate upon environmental effects that may be mitigated or avoided in connection with the decision on each later project. Tiering is appropriate when it helps a public agency focus upon the issues ripe for decision at each level of environmental review and in order to exclude duplicate analysis of environmental effects examined in previous EIRs. To achieve this purpose, the California Legislature has determined that an EIR shall be tiered whenever feasible, as determined by the lead agency (Cal. Pub. Res. Code Section 20193).

Where a lead agency is using the tiering process in connection with an EIR for a large-scale planning approval, such as a general plan or component thereof (e.g., a specific plan), the development of detailed, site-specific information may not be feasible but can be deferred, in many instances, until such time as the lead agency prepares a future environmental document in connection with a project of a more limited geographical scale, as long as deferral does not prevent adequate identification of significant effects of the planning approval at hand.
Each topical section of this Draft EIR provides any applicable mitigation measures from the MEIR. Additional mitigation measures are provided where necessary to discuss impacts unique to the implementation of the proposed Plan that were not addressed in the MEIR.

2. Executive Summary

This chapter presents an overview of the proposed Southwest Fresno Specific Plan, herein referred to as "proposed Plan." This executive summary provides a summary of the proposed Plan, a summary of the alternatives to the proposed Plan, identifies issues to be resolved, areas of concern, and conclusions of the analysis contained in Chapters 4.0 through 4.15 of this Draft Environmental Impact Report (Draft EIR). For a complete description of the proposed Plan, see Chapter 3, and for a discussion of alternatives to the proposed Plan, see Chapter 5 of this Draft EIR.

This Draft EIR addresses the environmental effects associated with the implementation of the proposed Plan. The California Environmental Quality Act (CEQA) requires that local government agencies, prior to taking action on projects over which they have discretionary approval authority, consider the environmental consequences of such projects. An EIR is a public document designed to provide the public, and local and State governmental agency decision-makers with an analysis of potential environmental consequences to support informed decision-making.

This Draft EIR has been prepared pursuant to the requirements of CEQA (California Public Resources Code, Division 13, Section 21000, et seq.) and the State CEQA Guidelines (Title 14 of the California Code of Regulations, Division 6, Chapter 3, Section 15000, et seq.) to determine if approval of the identified discretionary actions and related subsequent development under the proposed Plan could have a significant impact on the environment. The City of Fresno, as the Lead Agency, has reviewed and revised as necessary all submitted drafts, technical studies, and reports to reflect its own independent judgment, including reliance on applicable City technical personnel and review of all technical subconsultant reports. Information for this Draft EIR was obtained from on-site field observations; discussions with affected agencies; analysis of adopted plans and policies; review of available studies, reports, data, and similar literature in the public domain; and specialized environmental assessments (e.g., air quality, hazards and hazardous materials, hydrology and water quality, noise, and transportation and traffic).

2.1 ENVIRONMENTAL PROCEDURES

This Draft EIR has been prepared to assess the potential environmental effects associated with implementation of the proposed Plan. The main purposes of this document as established by CEQA are:

- To disclose to decision-makers and the public the significant environmental effects of proposed activities.
- To identify ways to avoid or reduce environmental damage.
- To prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures.

- To disclose to the public reasons for agency approval of projects with significant environmental effects.
- To foster interagency coordination in the review of projects.
- To enhance public participation in the planning process.

An EIR is the most comprehensive form of environmental documentation identified in the statutes and in the CEQA Guidelines. It provides the information needed to assess the environmental consequences of a proposed project, to the extent feasible. EIRs are intended to provide an objective, factually supported, full-disclosure analysis of the environmental consequences associated with a proposed project that has the potential to result in significant, adverse environmental impacts. An EIR is also one of various decision-making tools used by a lead agency to consider the merits and disadvantages of a project that is subject to its discretionary authority. Prior to approving a proposed project, the lead agency must consider the information contained in the EIR, determine whether the EIR was properly prepared in accordance with CEQA and the CEQA Guidelines, determine that it reflects the independent judgment of the lead agency, adopt findings concerning the project's significant environmental impacts and alternatives, and must adopt a Statement of Overriding Considerations if the proposed project would result in significant impacts that cannot be avoided.

2.1.1 REPORT ORGANIZATION

This Draft EIR is organized into the following chapters:

- Chapter 1: Introduction. Provides an overview describing the Draft EIR document.
- Chapter 2: Executive Summary. Summarizes the environmental consequences that would result from implementation of the proposed Plan, the alternatives to the proposed Plan, the recommended mitigation measures, and it indicates the level of significance of environmental impacts with and without mitigation.
- Chapter 3: Project Description. Describes the proposed Plan in detail, including the site location and characteristics, objectives, and the structural and technical elements of the proposed action.
- Chapter 4: Environmental Analysis. Organized into 15 sub-chapters corresponding to the environmental resource categories identified in Appendix G, Environmental Checklist, of the CEQA Guidelines, this section provides a description of the physical environmental conditions in the vicinity of the proposed Plan as they existed at the time the Notice of Preparation was published, from both a local and regional perspective, as well as an analysis of the potential environmental impacts of the proposed Plan, and recommended mitigation measures, if required, to reduce their significance. The environmental setting included in each sub-chapter provides baseline physical conditions from which the Lead Agency determines the significance of environmental impacts resulting from the proposed Plan. Each sub-chapter also includes a description of the thresholds used to determine if a significant impact would occur; the methodology to identify and evaluate the potential impacts of the proposed Plan; and the potential cumulative impacts associated with the proposed Plan.
- Chapter 5: Alternatives to the Proposed Plan. Considers two alternatives to the proposed Plan, including the CEQA-required "No Project" Alternative and the "Mixed-Use Corridor" Alternative.

- Chapter 6: CEQA-Mandated Assessment. Discusses growth inducement, cumulative impacts, unavoidable significant effects, and significant irreversible changes as a result of the proposed Plan. Additionally, this chapter identifies environmental issues that were determined not to require further environmental review during the scoping process pursuant to CEQA Guidelines Section 15128.
- Chapter 7: Organizations and Persons Consulted. Lists the people and organizations that were contacted during the preparation of this EIR for the proposed Plan.
- Chapter 8: References. List of the material referenced in this EIR.
- Appendices: The appendices for this document (presented in PDF format on a CD attached to the back cover of the Draft EIR) contain the following supporting documents:
  - Appendix A: Notice of Preparation and Scoping Comments
  - Appendix B: Proposed Public Review Draft of Southwest Fresno Specific Plan
  - Appendix C: Air Quality and Greenhouse Gas Data
  - Appendix D: Cultural Resources Data
  - Appendix E: Hazards and Hazardous Materials Data
  - Appendix F: Noise Data
  - Appendix G: Public Services Data
  - Appendix H: Transportation and Traffic Data

2.1.2 PURPOSE OF THE DRAFT EIR

According to Section 15121(a) of the CEQA Guidelines, 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.

The Project that is the subject of this EIR is the proposed Plan, a long-term plan that will be implemented over time as a policy document guiding future development activities. Therefore, this EIR serves as a program-level EIR. This EIR discloses and evaluates the environmental impacts associated with the policies, development standards, and anticipated buildout of the proposed Plan at a program level. This programmatic EIR is generally qualitative in nature due to a 25-year buildout horizon.

This EIR does not evaluate the impacts of future individual projects that may be proposed under the proposed Plan. However, if the program EIR addresses the program's effects as specifically and comprehensively as is reasonably possible, and later activities are within scope of the effects examined in the program EIR, then additional environmental review may not be required for those future projects. (See CEQA Guidelines Section 15168[c] and CEQA streamlining provisions.) When a program EIR is relied on for a subsequent activity, the lead agency must incorporate feasible mitigation measures and alternatives developed in the program EIR, and the Fresno General Plan MEIR when applicable, into the subsequent activities (CEQA Guidelines Section 15168[c][3]). If a subsequent activity would have effects that are not within the scope of the program EIR, the lead agency must prepare a new Initial Study leading to a Negative Declaration, a Mitigated Negative Declaration, or an EIR unless the activity qualifies for an exemption. For these subsequent environmental review documents, this program EIR will serve as the

first-tier environmental analysis. The program EIR can also serve to streamline future environmental review of subsequent projects.

See Chapter 1, Introduction, Section 1.3, Type of EIR, of this Draft EIR for a detailed discussion on the environmental review applied in this EIR.

2.2 SUMMARY OF THE PROPOSED PLAN

The City of Fresno proposes the Southwest Fresno Specific Plan for the 3,255-acre area located southwest of the Downtown Planning Area. The proposed Plan envisions the interplay of "Complete Neighborhoods," "Corridors," and "Magnet Cores" to create a vibrant and desirable community for both existing and new residents. The proposed Plan sets aside the majority of vacant land for single-family residential uses and locates higher density residential uses at neighborhood nodes, near magnet uses, and along corridors. This will allow walkable access for greater numbers of residents to shopping, schools, parks, and transit.

Additionally, the proposed Plan envisions that the most optimal locations for large-scale, regional-serving retail are those that have good proximity, visibility, and access from the greatest number of people, while having enough distance away from other similar types of retail to avoid competition. In the Plan, regional retail is shown in two locations: with access from Highway 180 at Marks and Whites Bridge avenues and from Highway 41 near Jensen Avenue and MLK Jr. Boulevard. These locations would allow new retail businesses to draw customers from areas beyond Southwest Fresno. On the other hand, smaller scale community commercial, including neighborhood retail shops, would be closer to the residential areas at many of the neighborhood nodes, adjacent to magnet uses, and near mixed use.

Furthermore, larger scale employment uses such as offices, a college, and medical facilities are concentrated along higher-intensity corridors and within magnet cores, while opportunities for smaller scale offices are allowed along a less intensive corridor. While more jobs in Southwest Fresno are desirable, the types of businesses that provide them must be healthy, safe, and good neighbors to nearby residents. To avoid potential conflicts between residents and employment uses, new employment areas and all previously "Light Industrial," "Heavy Industrial," "Business Park," or "Regional Business Park" areas would be planned and zoned "Office".

Table 3-1 in Chapter 3, Project Description contains the development capacity of the land uses proposed in the Plan Area over the proposed Plan's 25-year timeframe compared to the Fresno General Plan, as well as a discussed of findings from the development capacity analysis. It should be noted that, like the Fresno General Plan, the development capacities are for new development and only take into account the development of parcels that have higher opportunities for development, such as parcels that are vacant, open agriculture, or rural residential (partially vacant).

The development capacities for the Fresno General Plan are also shown in the table for comparison against the proposed Plan's development capacities.

2.3 SUMMARY OF THE ALTERNATIVES TO THE PROPOSED PLAN

This Draft EIR analyzes alternatives to the proposed Plan that are designed to reduce the significant environmental impacts of the proposed Plan and feasibly attain some of the proposed Plan objectives. There is no set methodology for comparing the alternatives or determining the environmentally superior alternative under CEQA. Identification of the environmentally superior alternative involves weighing and balancing all of the environmental resource areas by the City. The following alternatives to the proposed Plan were considered and analyzed in detail:

- No Project Alternative
- Mixed-Use Corridor Alternative

Chapter 5 of this Draft EIR includes a complete discussion of these alternatives and of alternatives that were considered but not carried forward for detailed analysis.

2.4 ISSUES TO BE RESOLVED

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR identify issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With regard to the proposed Plan, the major issues to be resolved include decisions by the City of Fresno, as Lead Agency, related to:

- Whether this Draft EIR adequately describes the environmental impacts of the proposed Plan.
- Whether the benefits of the proposed Plan override those environmental impacts that cannot be feasibly avoided or mitigated to a level of insignificance.
- Whether the proposed land use changes are compatible with the character of the existing area.
- Whether the identified goals, policies, or mitigation measures should be adopted or modified.
- Whether there are other mitigation measures that should be applied to the proposed Plan besides those Mitigation Measures identified in the Draft EIR.
- Whether there are any alternatives to the proposed Plan that would substantially lessen any of the significant impacts of the proposed Plan and achieve most of the basic objectives.

2.5 AREAS OF CONCERN

The City issued a Notice of Preparation (NOP) on February 28, 2017, and held a Scoping Meeting on March 1, 2017, to receive comments on the proposed Plan from interested agencies and members of the public. In addition to the comments received at the Scoping Meeting, the City received 10 comment letters from two State agencies, three local agencies, one Native American Tribe, one non-profit organization, and three members of the public during the public review period. A summary of the comments received at the Scoping Meeting and copies of the letters received are provided in Appendix A, Notice of Preparation and Scoping Comments, of this Draft EIR.

The following is a discussion of issues that are likely to be of particular concern to agencies and interested members of the public during the environmental review process. While every concern applicable to the CEQA process is addressed in this Draft EIR, this list is not necessarily exhaustive, but rather attempts to capture those concerns that are likely to generate the greatest interest based on the input received during the NOP scoping process.

- Groundwater/soil contamination
- Traffic impacts in and around the Plan Area, including parking, transit access, and safe pedestrian and bicycle safety and connections
- Affordable housing
- Cultural resources
- Eminent Domain

2.6 SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Under CEQA, a significant impact on the environment is defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the proposed Plan, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance. The proposed Plan has the potential to generate significant environmental impacts in a number of areas; however, as described in Chapter 6, CEQA-Mandated Assessment, of this Draft EIR, the proposed Plan would have no significant impact on the following environmental topics due to existing conditions in the Plan Area and the surrounding area. These issues have therefore not been analyzed further in this Draft EIR.

- Forestry Resources
- Mineral Resources

Table 2-1 presents a summary of the significant impacts and mitigation measures identified based on the conclusions of the environmental analysis in Chapters 4.1 through 4.15 of this Draft EIR. The table is arranged in four columns: 1) impact 2) significance without mitigation; 3) mitigation measures; and 4) significance with mitigation. For a complete description of potential impacts, please refer to the specific discussions Chapters 4.0 through 4.15.

As shown in Table 2-1, some significant impacts would be reduced to a less-than-significant level if the mitigation measures identified in this Draft EIR are adopted and implemented. However, pursuant to Section 15126.2(b) of the CEQA Guidelines, which requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures, as shown in Table 2-1, significant unavoidable impacts were identified in the areas of Aesthetics, Agriculture, Air Quality, Greenhouse Gas Emissions, Noise, and Transportation and Traffic.

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
AESTHETICS			
AES-1: Implementation of the proposed Plan would not have a substantial adverse effect on a scenic vista.	LTS	N/A	N/A
AES-2: Implementation of the proposed Plan would not substantially degrade the view from a scenic highway, including, but not limited to, trees, rock outcroppings, and historic buildings.	LTS	N/A	N/A
AES-3: Implementation of the proposed Plan would not degrade the existing visual character or quality of the site and its surroundings.	LTS	N/A	N/A
AES-4: Implementation of the proposed Plan would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	S	MEIR AES-1: Lighting systems for street and parking areas shall include shields to direct light to the roadway surfaces and parking areas. Vertical shields on the light fixtures shall also be used to direct light away from adjacent light sensitive land uses such as residences. MEIR AES-2: Lighting systems for public facilities such as active play areas shall provide adequate illumination for the activity; however, low-intensity light fixtures and shields shall be used to minimize spillover light onto adjacent properties. MEIR AES-3: Lighting systems for non-residential uses, not including public facilities, shall provide shields on the light fixtures and orient the lighting system away from adjacent properties. Low-intensity light fixtures shall also be used if excessive spillover light onto adjacent properties will occur. MEIR AES-4: Lighting systems for freestanding signs shall not exceed 100 foot-Lamberts (FT-L) when adjacent to streets which have an average light intensity of less than 2.0 horizontal footcandles and shall not exceed 500 FT-L when adjacent to streets that have an average light intensity of 2.0 horizontal footcandles or greater. MEIR AES-5: Materials used on building façades shall be non-reflective.	SU
AES-5: Implementation of the proposed Plan would result in an increase in glare.	S	AES-5: Implement Mitigation Measures AES-1 through AES-5 of the MEIR.	SU

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
AGRICULTURE			
AG-1: Implementation of the proposed Plan would 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.	SU	No mitigation measures available.	SU
AG-2: Implementation of the proposed Plan would not conflict with existing zoning for agricultural use, or a Williamson Act contract.	LTS	N/A	N/A
AG-3: Implementationof the proposed Plan would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use.	LTS	N/A	N/A
AG-4: Implementation of the proposed Plan, in combination with past, present and reasonably foreseeable projects, would result in significant and unavoidable cumulative impacts with respect to agriculture resources.	SU	No mitigation measures available.	SU
AIR QUALITY			
AQ-1: Implementation of the proposed Plan would result in the generation of substantial long-term criteria air pollutant emissions that would exceed the SJVAPCD regional significance thresholds and would therefore not be considered consistent with the existing AQMPs.	S	N/A	SU
AQ-2: Construction activities associated with implementation of the proposed Plan would exceed the San Joaquin Valley Air Pollution Control District (SJVAPCD) regional significance thresholds for VOC and NO_X.	S	AQ-2a: In order to contribute in minimizing exhaust emission from construction equipment, prior to issuance of grading, demolition or building permits whichever occurs first, the property owner/developer shall provide a list of all construction equipment proposed to be used on the project site for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects). This list may be provided on the building plans. The construction equipment list shall state the	SU

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		make, model, and equipment identification number of all the equipment. AQ-2b: During construction activities, for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects), the construction contractors shall ensure that the equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations; and, that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9. AQ-2c: In order to reduce VOC emissions from construction activities, prior to issuance of a building permit for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects), the property owner/developer shall require the construction contractor and provide a note on construction plans indicating that: ▪ All coatings and solvents will have a volatile organic compound (VOC) content lower than required under Rule 4601 (i.e., super compliant paints). ▪ All architectural coatings shall be applied either by (1) using a high-volume, low-pressure spray method operated at an air pressure between 0.1 and 10 pounds per square inch gauge to achieve a 65 percent application efficiency; or (2) manual application using a paintbrush, hand-roller, trowel, spatula, dauber, rag, or sponge, to achieve a 100 percent applicant efficiency. ▪ The construction contractor shall also use precoated/natural colored building materials, where feasible.	
AQ-3: Operation of development projects accommodated under the proposed Plan would generate emissions that would exceed the SJVAPCD regional significance thresholds for VOC, NOX, CO, PM_{10}, and $PM_{2.5}$.	S	N/A	SU
AQ-4: Development of land uses accommodated under the proposed Plan could result in short- and	S	AQ-4a: Implement Mitigation Measures AQ-2a through AQ-2c to further reduce construction-related criteria air pollutant emissions.	SU

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
long-term emissions that could cause or contribute to a violation of the AAQS.		AQ-4b: In order to reduce fugitive dust particulate matter emissions during construction activities, prior to issuance of grading, demolition or building permits, whichever occurs first, for projects subject to the California Environmental Quality Act (i.e., non-exempt projects), but that would be outside the purview of San Joaquin Valley Air Pollution Control District's (SJVAPCD) Regulation VIII,the property owner/developer shall submit a dust control plan that includes, but not limited to the following measures during ground-disturbing activities to further reduce PM10 and PM2.5 emissions: ▪ Disturbed areas (including storage piles) that are not being actively utilized for construction purposes shall be effectively stabilized using water, chemical stabilizer/suppressant, or covered with a tarp or other suitable cover (e.g., revegetated). ▪ On-site unpaved roads and off-site unpaved access roads shall be effectively stabilized using water or chemical stabilizer/suppressant. ▪ Land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled utilizing application of water or by presoaking. ▪ Material shall be covered, or effectively wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained when materials are transported off-site. ▪ Operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.) ▪ Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant. ▪ Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday. ▪ Any site with 150 or more vehicle trips per day shall prevent carryout and trackout.	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		▪ Limit traffic speeds on unpaved roads to 15 mph. ▪ Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1 percent. ▪ Install wheel washers for all exiting trucks or wash off all trucks and equipment leaving the project area. ▪ Adhere to Regulation VIII's 20 percent opacity limitation, as applicable.	
AQ-5: Implementation of the proposed Plan would not expose sensitive receptors to substantial toxic air contaminant concentrations.	LTS	N/A	N/A
AQ-6: New land uses accommodated under the proposed Plan would not create objectionable odors that could affect a substantial number of people.	LTS	N/A	N/A
AQ-7: Construction activities associated with implementation of the proposed Plan would exceed the SJVAPCD regional significance thresholds for VOC and NO_X.	S	AQ-7: Implement Mitigation Measures AQ-2a through AQ-4b of the Draft EIR.	SU

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
BIOLOGICAL RESOURCES			
BIO-1.1: Potential development resulting from the proposed Plan could result in the loss of rare plant species.	S	MEIR BIO-1.1a: Construction of a proposed project should avoid, where possible, vegetation communities that provide suitable habitat for a special-status species known to occur within the Plan Area. If construction within potentially suitable habitat must occur, the presence/absence of any special-status plant or wildlife species must be determined prior to construction, to determine if the habitat supports any special-status species. If a special-status species are determined to occupy any portion of a project site, avoidance and minimization measures shall be incorporated into the construction phase of a project to avoid direct or incidental take of a listed species to the greatest extent feasible. MEIR BIO-1.1b: Direct or incidental take of any State- or federally-listed species should be avoided to the greatest extent feasible. If construction of a proposed project will result in the direct or incidental take of a listed species, consultation with the resources agencies and/or additional permitting may be required. Agency consultation through the CDFW 2081 and USFWS Section 7 or Section 10 permitting processes must take place prior to any action that may result in the direct or incidental take of a listed species. Specific mitigation measures for direct or incidental impacts to a listed species will be determined on a case-by-case basis through agency consultation. MEIR BIO-1.1c: Development within the Plan Area should avoid, where possible, special-status natural communities and vegetation communities that provide suitable habitat for special-status species. If a proposed project will result in the loss of a special-status natural community or suitable habitat for special-status species, compensatory habitat-based mitigation is required under CEQA and CESA. Mitigation will consist of preserving on-site habitat, restoring similar habitat, or purchasing off-site credits from an approved mitigation bank. Compensatory mitigation will be determined through consultation with the City and/or resource agencies. An appropriate mitigation strategy and ratio will be agreed upon by the developer and lead agency to reduce project impacts to special-status natural communities to a less than significant level. Agreed-upon mitigation ratios will depend on the quality of the habitat and presence/absence of a special-status species. The specific mitigation for project level impacts will be determined on a case-by-case basis.	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
BIO-1.2: Implementation of the proposed Plan could result in mortality of Swainson's hawks.	S	BIO-1.2: Conduct a Preconstruction Survey for Swainson's Hawk Nests and Implement Avoidance Measures. If trees suitable for Swainson's hawk nesting are to be removed during the Swainson's hawk nesting season (March through August), a qualified biologist knowledgeable of the species will conduct a Swainson's hawk survey of the project site and the surrounding 0.5-mile-radius area, as described in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). This methodology divides the nesting season into five survey periods: January 1 to March 20, March 20 to April 5, April 5 to May 20, May 21 to June 10, and June 10 to July 30. The first survey period occurs before most Swainson's hawks return to California, so this survey is optional. The site should be surveyed at a minimum of 3 times in each of the two periods that precede project initiation. If an active Swainson's hawk nest is detected on the project site, CDFW will be consulted and site-specific avoidance or mitigation measures will be implemented consistent with CDFW recommendations (Swainson's Hawk Technical Advisory Committee 2000).	LTS
BIO-1.3: Implementation of the proposed Plan could result in mortality of San Joaquin kit fox.	S	BIO -1.3: Implement Standard Measures for Protection of San Joaquin Kit Fox. No less than 14 days and no more than 30 days prior to commencement of construction activities the project proponent shall retain a USFWS- and CDFW-approved biologist to conduct pre-construction surveys in potential habitat periphery of the Plan Area that has not been fragmented by agricultural-residential or urban development. The survey, reporting, and activities during construction shall adhere to the requirements contained in the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance*. As described in the standardized recommendations, if a natal/pupping den is discovered within the Plan Area or within 200-feet of the project boundary, the USFWS shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the USFWS immediately to obtain the necessary take authorization/permit.	LTS
BIO-1.4: Implementation of the proposed Plan could result in impacts to roosting habitat or maternity colonies of special-status bats.	S	BIO-1.4: Conduct Preconstruction Surveys for Special-status Bats and Implement Avoidance Measures. Any medium or larger (≥ 12-inch diameter) trees or snags selected for removal shall be inspected by a qualified biologist for presence of	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		potential day-roosting habitat (e.g., cavities exfoliating bark, or basal hollows) for special-status bats or a maternity colony. If feasible, cavities shall be examined for roosting bats using a portable camera probe or similar technology. Buildings with potential for roosting habitat for supporting special-status bats or a maternity colony shall be inspected by a qualified biologist for evidence of roosting colonies. If suitable roosting habitat is present and/or bat sign is observed, but no bats are detected, an evening exit count and acoustic survey using a full spectrum acoustic detector shall be conducted by a qualified bat biologist to determine if bats are present and what species are present. If present, roosts (including day roosts, winter hibernacula, and maternity colonies) and a 100- to 300-foot disturbance-free buffer surrounding each roost shall be flagged and avoided, as determined by a qualified bat biologist. If avoidance is not possible, replacement habitat appropriate for the species' roost requirements shall be created prior to the roost removal, and the roosting bats shall be passively evicted under the direction of a qualified biologist (as determined by a Memorandum of Understanding with the CDFG). The qualified biologist shall facilitate the removal of roosting bats outside of the winter hibernation (November 1 to February 28th) and maternity roosting (March 15 to August 31) periods through the following means: 1. Implementing eviction during a period of warm (nighttime low >50°F), dry weather, when bats are expected to be active. 2. Opening the roosting area to allow airflow through the cavity or building (air flow disturbance). 3. Waiting a minimum of three nights of warm weather, as defined above, for roosting bats to respond to air flow disturbance, thereby allowing bats to leave during nighttime hours when predation risk is relatively low and chances of finding a new roost is greater than in the daytime. 4. Conducting a follow-up survey prior to roost removal to ensure that bats have vacated the roost. 5. Disturbing roosts at dusk just prior to roost removal the same evening to allow bats to escape during nighttime hours.	
BIO-1.5: Potential development resulting from the proposed Plan could result in disruption of denning	S	BIO-1.5. Conduct Focused American Badger Surveys and Avoid or Minimize Impacts to American Badger Dens. No more than 30 days before the start of construction	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
badgers and mortality of badgers.		activities, a qualified biologist shall conduct pre-construction surveys for American badgers within suitable habitat. If a potentially active den is found in a construction area, the den openings may be monitored with tracking medium or an infrared-beam camera for three consecutive nights to determine current use. Potential (inactive) dens within the limits of disturbance shall be blocked with a one-way door or excavated to prevent use during construction. Blocking with one-way doors is preferable to excavation where feasible; potential dens blocked with doors will be made available to badgers after construction. If American badgers or active dens are detected during these surveys, the following shall be implemented: ▪ If present, occupied badger dens shall be flagged, and ground-disturbing activities avoided, within 50 feet of the occupied den during the nonbreeding season (1 July through 14 February). Flagging that is highly visible by construction crews shall encircle the occupied den at the appropriate buffer distance, and shall not prevent access to the den by badgers. Dens determined to be occupied during the breeding season (15 February through 30 June) shall be flagged, and ground-disturbing activities avoided, within 200 feet to protect adults and nursing young. Buffers may be modified by the qualified biologist, provided the badgers are protected, and shall not be removed until the qualified biologist has determined that the den is no longer in use. ▪ If avoidance of an active non-maternity den is not feasible, badgers shall be relocated by first incrementally blocking the den over a three-day period, followed by slowly excavating the den (either by hand or with mechanized equipment under the direct supervision of a qualified biologist, removing no more than 4 inches at a time) before or after the rearing season (15 February through 30 June). Any passive relocation of American badgers shall occur only under the direction of a qualified biologist.	
BIO-1.6: Implementation of the proposed Plan could result in mortality of, and loss of habitat for, burrowing owls.	S	BIO-1.6: Conduct a Preconstruction Survey for Burrowing Owl and Implement Avoidance Measures. No more than 15 days before the start of ground-disturbing activities for the project, a qualified biologist(s) knowledgeable of the species will conduct a focused, preconstruction survey for burrowing owls and their sign on the project site and within 250 feet where access allows. In conformance with federal and State regulations regarding the protection of raptors, the survey will be conducted per the *Staff Report on Burrowing Owl Mitigation*. All areas of suitable habitat proposed for ground disturbance will be surveyed. If burrowing owls are	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		detected, buffers and mitigation per the *Staff Report on Burrowing Owl Mitigation* will be implemented.	
BIO-1.7: Implementation of the proposed Plan could result in impacts to Western pond turtle nests and mortality of pond turtles.	S	BIO-1.7. Conduct Pre-construction Surveys for Western Pond Turtle, and Move Individuals to Safety. Prior to construction, a qualified biologist (i.e., a biologist approved by CDFW to handle western pond turtles) shall look for western pond turtles within 0.25-mile of aquatic and riparian habitat, where accessible. If any pond turtles are detected during these surveys, or during construction in an area where individuals could be affected, they shall be moved to a suitable location outside the area of impact. The candidate sites for relocation shall be identified before construction and shall be selected based on the size and type of habitat present, the potential for negative interactions with resident species, and the species' range. If any western pond turtle nests with eggs are found, the nests shall remain undisturbed until the eggs have hatched, if feasible. If avoidance of a nest is infeasible (e.g., if avoidance would result in an unacceptable delay in the project's schedule), or if the eggs are discovered only after the nest has been affected, any viable eggs shall be relocated to a suitable location outside the impact area. Egg relocation areas shall be identified based on pond turtle nesting biology. Any viable eggs shall be deposited in a hole and buried for thermal protection.	LTS
BIO-1.8: Implementation of the proposed Plan could result in take of birds or nests.	S	MEIR BIO-1.8. Proposed projects within the Plan Area should avoid, if possible, construction within the general nesting season of February through August for avian species protected under Fish and Game Code 3500 and the Migratory Bird Treaty Act (MBTA), if it is determined that suitable nesting habitat occurs on a project site. If construction cannot avoid the nesting season, a pre-construction clearance survey must be conducted to determine if any nesting birds or nesting activity is observed on or within 500 feet of a project site. If an active nest is observed during the survey, a biological monitor must be on site to ensure that no proposed project activities would impact the active nest. A suitable buffer will be established around the active nest until the nestlings have fledged and the nest is no longer active. Project activities may continue in the vicinity of the nest only at the discretion of the biological monitor.	LTS
BIO-2: Implementation of the proposed Plan would not have a substantial adverse effect on any riparian habitat or other sensitive natural community	S	MEIR BIO-2.1a: If a proposed project will result in the removal or impact to any riparian habitat and/or a special-status natural community with potential to occur in the Plan Area, compensatory habitat-based mitigation shall be required to reduce	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.		project impacts. Compensatory mitigation must involve the preservation or restoration or the purchase of off-site mitigation credits for impacts to riparian habitat and/or a special-status natural community. Mitigation must be conducted in-kind or within an approved mitigation bank in the region. The specific mitigation ratio for habitat based mitigation will be determined through consultation with the appropriate agency (i.e., CDFW or USFWS) on a case-by-case basis. MEIR BIO-2.1b: Project impacts that occur to riparian habitat may also result in significant impacts to streambeds or waterways protected under Section 1600 of Fish and Wildlife Code and Section 404 of the CWA. CDFW and/or USACE consultation, determination of mitigation strategy, and regulatory permitting to reduce impacts, as required for projects that remove riparian habitat and/or alter a streambed or waterway, shall be implemented. MEIR BIO-2.1c: Project-related impacts to riparian habitat or a special-status natural community may result in direct or incidental impacts to special-status species associated with riparian or wetland habitats. Project impacts to special-status species associated with riparian habitat shall be mitigated through agency consultation, development of a mitigation strategy, and/or issuing incidental take permits for the specific special-status species, as determined by the CDFW and/or USFWS.	
BIO-3: Implementation of the proposed Plan could result in loss of federally protected wetlands or waters.	S	MEIR BIO-3a: If a proposed project will result in the significant alteration or fill of a federally protected wetland, a formal wetland delineation conducted according to USACE accepted methodology is required for each project to determine the extent of wetlands on a project site. The delineation shall be used to determine if federal permitting and mitigation strategy are required to reduce project impacts. Acquisition of permits from USACE for the fill of wetlands and USACE approval of wetland mitigation plan would ensure a “no net loss” of wetland habitat within the Plan Area. Appropriate wetland mitigation/creation shall be implemented in a ratio according to the size of the impacted wetland. MEIR BIO-3b: In addition to regulatory agency permitting, Best Management Practices identified from a list provided by the USACE shall be incorporated into the design and construction phase of the project to ensure that no pollutants or siltation drain into a federally protected wetland. Project design features such as fencing, appropriate drainage and incorporating detention basins shall assist in	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		ensuring project-related impacts to wetland habitat are minimized to the greatest extent feasible.	
BIO-4: Implementation of the proposed Plan would not 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.	LTS	N/A	N/A
BIO-5: Implementation of the proposed Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	LTS	N/A	N/A
BIO-6: Implementation of the proposed Plan would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.	LTS	N/A	N/A
BIO-7: Implementation of the proposed Plan, in combination with past, present and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to biological resources	LTS	N/A	N/A
CULTURAL AND TRIBAL CULTURAL RESOURCES			
CUL-1: Implementation of the proposed Plan could cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines.	S	MEIR CUL-1: If previously unknown cultural resources are encountered during grading activities, construction shall stop in the immediate vicinity of the find and an archaeologist shall be consulted to determine whether the resource requires further study. The qualified archaeologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines and the City's Historic Preservation Ordinance. If the resources are determined to be unique historical resources as defined under Section 15064.5 of the CEQA Guidelines, measures shall be identified by the	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		archaeologist and recommended to the Lead Agency. Appropriate measures for significant resources could include avoidance or capping; incorporation of the site in green space, parks, or open space; or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these resources. Any historical artifacts recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study.	
CUL-2: Implementation of the proposed Plan could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines.	S	MEIR CUL-2: Subsequent to a preliminary City review of the project grading plans, if there is evidence that a project will include excavation or construction activities within previously undisturbed soils, a field survey and literature search for prehistoric archaeological resources shall be conducted. The following procedures shall be followed. If prehistoric resources are not found during either the field survey or a literature search, excavation and/or construction activities can commence. In the event that buried prehistoric archaeological resources are discovered during excavation and/or construction activities, construction shall stop in the immediate vicinity of the find and a qualified archaeologist shall be consulted to determine whether the resource requires further study. The qualified archaeologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines. If the resources are determined to be unique prehistoric archaeological resources as defined under Section 15064.5 of the CEQA Guidelines, mitigation measures shall be identified by the monitor and recommended to the Lead Agency. Appropriate measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these resources. Any prehistoric archaeological artifacts recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study. If prehistoric resources are found during the field survey or literature review, the	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		resources shall be inventoried using appropriate State record forms and submit the forms to the Southern San Joaquin Valley Information Center. The resources shall be evaluated for significance. If the resources are found to be significant, measures shall be identified by the qualified archaeologist. Similar to above, appropriate mitigation measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. In addition, appropriate mitigation for excavation and construction activities in the vicinity of the resources found during the field survey or literature review shall include an archaeological monitor. The monitoring period shall be determined by the qualified archaeologist. If additional prehistoric archaeological resources are found during excavation and/or construction activities, the procedure identified above for the discovery of unknown resources shall be followed.	
CUL-3: Implementation of the proposed Plan would have the potential to directly or indirectly affect a unique paleontological resource or site, or unique geologic feature.	S	MEIR CUL-3: Subsequent to a preliminary City review of the project grading plans, if there is evidence that a project will include excavation or construction activities within previously undisturbed soils, a field survey and literature search for unique paleontological/geological resources shall be conducted. The following procedures shall be followed: If unique paleontological/geological resources are not found during either the field survey or a literature search, excavation and/or construction activities can commence. In the event that unique paleontological/geological resources are discovered during excavation and/or construction activities, construction shall stop in the immediate vicinity of the find and a qualified paleontologist shall be consulted to determine whether the resource requires further study. The qualified paleontologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to, excavation of the finds and evaluation of the finds. If the resources are determined to be significant, mitigation measures shall be identified by the monitor and recommended to the Lead Agency. Appropriate mitigation measures for significant resources could include avoidance or capping; incorporation of the site in green space, parks, or open space; or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these resources. Any paleontological/geological resources recovered as a result of mitigation shall be provided to a City-approved institution	LTS

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Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		or person who is capable of providing long-term preservation to allow future scientific study. If unique paleontological/geological resources are found during the field survey or literature review, the resources shall be inventoried and evaluated for significance. If the resources are found to be significant, mitigation measures shall be identified by the qualified paleontologist. Similar to above, appropriate mitigation measures for significant resources could include avoidance or capping; incorporation of the site in green space, parks, or open space; or data recovery excavations of the finds. In addition, appropriate mitigation for excavation and construction activities in the vicinity of the resources found during the field survey or literature review shall include a paleontological monitor. The monitoring period shall be determined by the qualified paleontologist. If additional paleontological/ geological resources are found during excavation and/or construction activities, the procedure identified above for the discovery of unknown resources shall be followed.	
CUL-4: Implementation of the proposed Plan would have the potential to disturb human remains, including those interred outside of formal cemeteries.	S	MEIR CUL-4: In the event that human remains are unearthed during excavation and grading activities of any future development project, all activity shall cease immediately. Pursuant to Health and Safety Code (HSC) Section 7050.5, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98(a). If the remains are determined to be of Native American descent, the coroner shall within 24 hours notify the Native American Heritage Commission (NAHC). The NAHC shall then contact the most likely descendent of the deceased Native American, who shall then serve as the consultant on how to proceed with the remains. Pursuant to PRC Section 5097.98(b), upon the discovery of Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendants regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the descendants all reasonable options regarding the descendants' preferences for treatment. Applicable regulations and procedures described above, along with implementation of Mitigation Measure CUL-4, would ensure that any human remains discovered	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		during construction would be handled appropriately.	
CUL-5: Implementation of the proposed Plan would have the potential to impact TCRs the disturbance of which could result in a significant impact under CEQA.	S	CUL-5: Implement Fresno General Plan MEIR Mitigation Measures CUL-1, CUL-2, and CUL-4.	LTS
CUL-6: Implementation of the proposed Plan, in combination with past, present and reasonably foreseeable projects, would not result in less than significant cumulative impacts with respect to cultural resources.	LTS	N/A	N/A
GEOLOGY AND SOILS			
GEO-1: Development under the proposed Plan would not subject people or structures to hazards from surface rupture of a known active fault.	NI	N/A	N/A
GEO-2: Ground shaking can be expected to occur within the design lifetimes of buildings that would be constructed under the proposed Plan. Such developments would comply with building codes then in effect. Buildout of the proposed Plan would not subject people or structures to substantial hazards from ground shaking.	LTS	N/A	N/A
GEO-3: Buildout of the proposed Plan would subject people and structures to hazards from seismic-related ground failure including liquefaction.	LTS	N/A	N/A
GEO-4: The Plan Area and surroundings are nearly level, with a southwest slope of about 0.1 percent grade. Buildout of the proposed Plan would not subject people or structures to landslide hazards.	NI	N/A	N/A
GEO-5: Potential construction projects under the proposed Plan would disturb and expose large amounts of soil, thus dramatically increasing the potential for soil erosion on-site. Construction projects 1 acre or larger would be required to use	LTS	N/A	N/A

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Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
Best Management Practices (BMPs) to minimize erosion from the site.			
GEO-6: Buildout of the proposed Plan would not subject people or structures to substantial hazards from ground subsidence.	LTS	N/A	N/A
GEO-7: Shallow site soils are expected to be compressible and unsuitable for supporting structures for human occupancy. Implementation of the proposed Plan could pose hazards to people and structures arising from compressible soils.	LTS	N/A	N/A
GEO-8: Expansive soils may be present on-site, and buildout of the proposed Plan could pose hazards to people or structures arising from expansive soils.	LTS	N/A	N/A
GEO-9: Buildout of the proposed Plan would not add land uses to the Plan Area relying on septic tanks or other alternative wastewater disposal systems, and thus would have no impact respecting soils incapable of supporting such systems.	LTS	N/A	N/A
GEO-10: No significant cumulative impacts to geology and soils are anticipated, and impacts of buildout of the proposed Plan would not be cumulatively considerable.	LTS	N/A	N/A
GREENHOUSE GAS EMISSIONS			
GHG-1: Implementation of the proposed Plan would result in a substantial increase in GHG emissions.	S	GHG-1: Implement Mitigation Measure AQ-2b as follows. Mitigation Measure AQ-2b: During construction activities, for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects), the construction contractors shall ensure that the equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations; and, that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.	SU
GHG-2: Implementation of the proposed Plan would not conflict with an applicable plan, policy or	LTS	N/A	N/A

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
regulation adopted for the purpose of reducing the emissions of greenhouse gases (GHGs).			
GHG-3: GHG emissions associated with implementation of the proposed Plan would substantially cumulatively contribute to climate change impacts.	S	GHG-3: Implement Mitigation Measure AQ-2b.	SU
HAZARDOUS AND HAZARDOUS MATERIALS			
HAZ-1: Implementation of the proposed Plan would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	LTS	N/A	N/A
HAZ-2: Implementation of the proposed Plan would not 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.	LTS	N/A	N/A
HAZ-3: Implementation of the proposed Plan would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school.	PS/LTS	HAZ-3: Implementation of Mitigation Measures HAZ-4a through HAZ-4h, described later in the section under Impact HAZ-4, would reduce potential impacts to schools. In addition, as stated in the discussions of Impacts HAZ-1 and HAZ-2, compliance with existing federal, State, and local regulations, procedures, and policies would avoid potential impacts associated with hazardous materials handling, use, and storage in the Plan Area. Compliance with these regulations, procedures, and policies would ensure that hazardous materials are properly handled, thereby reducing potential risks to nearby schools.	LTS
HAZ-4: Implementation of the proposed Plan would occur 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, create a potentially significant hazard to the public or the environment.	PS	HAZ-4a: Prior to the issuance of a grading permit, the property owners and/or developers of properties shall ensure that a Phase I ESA (performed in accordance with the current ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process [E 1527]) shall be conducted for each individual property prior to development or redevelopment to ascertain the presence or absence of Recognized Environmental Conditions (RECs), Historical Recognized Environmental Condition (HRECs), and Potential Environmental Concerns (PECs) relevant to the property under consideration. The findings and conclusions of the Phase I ESA shall become the basis for potential	LTS

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Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		recommendations for follow-up investigation, if found to be warranted. HAZ-4b: In the event that the findings and conclusions of the Phase I ESA for a property result in evidence of RECs, HRECs and/or PECs warranting further investigation, the property owners and/or developers of properties shall ensure that a Phase II ESA shall be conducted to determine the presence or absence of a significant impact to the subject site from hazardous materials. The Phase II ESA may include but may not be limited to the following: (1) Collection and laboratory analysis of soils and/or groundwater samples to ascertain the presence or absence of significant concentrations of constituents of concern; (2) Collection and laboratory analysis of soil vapors and/or indoor air to ascertain the presence or absence of significant concentrations of volatile constituents of concern; and/or (3) Geophysical surveys to ascertain the presence or absence of subsurface features of concern such as USTs, drywells, drains, plumbing, and septic systems. The findings and conclusions of the Phase II ESA shall become the basis for potential recommendations for follow-up investigation, site characterization, and/or remedial activities, if found to be warranted. In the event the findings and conclusions of the Phase II ESA reveal the presence of significant concentrations of hazardous materials warranting further investigation, the property owners and/or developers of properties shall ensure that site characterization shall be conducted in the form of additional Phase II ESAs in order to characterize the source and maximum extent of impacts from constituents of concern. The findings and conclusions of the site characterization shall become the basis for formation of a remedial action plan and/or risk assessment. HAZ-4d: If the findings and conclusions of the Phase II ESA(s), site characterization and/or risk assessment demonstrate the presence of concentrations of hazardous materials exceeding regulatory threshold levels, prior to the issuance of a grading permit, property owners and/or developers of properties shall complete site remediation and potential risk assessment with oversight from the applicable regulatory agency including, but not limited to, the Cal-EPA Department of Toxic Substances Control (DTSC) or Regional Water Quality Control Board (RWQCB), and Fresno County Environmental Health Division (FCEHD). Potential remediation could include the removal or treatment of water and/or soil. If removal occurs, hazardous	

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Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		materials shall be transported and disposed at a hazardous materials permitted facility. HAZ-4e: Prior to the issuance of a building permit for an individual property within the Plan Area with residual environmental contamination, the agency with primary regulatory oversight of environmental conditions at such property ("Oversight Agency") shall have determined that the proposed land use for that property, including proposed development features and design, does not present an unacceptable risk to human health, if applicable, through the use of an Environmental Site Management Plan (ESMP) that could include institutional controls, site-specific mitigation measures, a risk management plan, and deed restrictions based upon applicable risk-based cleanup standards. Remedial action plans, risk management plans and health and safety plans shall be required as determined by the Oversight Agency for a given property under applicable environmental laws, if not already completed, to prevent an unacceptable risk to human health, including workers during and after construction, from exposure to residual contamination in soil and groundwater in connection with remediation and site development activities and the proposed land use. HAZ-4f: For those sites with potential residual volatile organic compounds (VOCs) in soil, soil gas, or groundwater that are planned for redevelopment with an overlying occupied building, a vapor intrusion assessment shall be performed by a licensed environmental professional. If the results of the vapor intrusion assessment indicate the potential for significant vapor intrusion into the proposed building, the project design shall include vapor controls or source removal, as appropriate, in accordance with Regional Water Quality Control Board (RWQCB), the Department of Toxic Substances Control (DTSC) or the Fresno County Environmental Health Division (FCEHD) requirements. Soil vapor mitigations or controls could include passive venting and/or active venting. The vapor intrusion assessment as associated vapor controls or source removal can be incorporated into the ESMP (Mitigation Measure HAZ4-4e). HAZ-4g: In the event of planned renovation or demolition of residential and/or commercial structures on the subject site, prior to the issuance of demolition permits, asbestos and lead based paint (LBP) surveys shall be conducted in order to determine the presence or absence of asbestos-containing materials (ACM) and/or	

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Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		LBP. Removal of friable ACM, and non-friable ACMs that have the potential to become friable, during demolition and/or renovation shall conform to the standards set forth by the National Emissions Standards for Hazardous Air Pollutants (NESHAPs). The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is the responsible agency on the local level to enforce the National Emission Standards for Hazardous Air Pollutants (NESHAPs) and shall be notified by the property owners and/or developers of properties (or their designee(s)) prior to any demolition and/or renovation activities. If asbestos-containing materials are left in place, an Operations and Maintenance Program (O&M Program) shall be developed for the management of asbestos containing materials. HAZ-4h: Prior to the import of a soil to a particular property within the Plan Area as part of that property's site development, such soils shall be sampled for toxic or hazardous materials to determine if concentrations exceed applicable Environmental Screening Levels for the proposed land use at such a property, in accordance with Regional Water Quality Control Board (RWQCB), the Department of Toxic Substances Control (DTSC) or the Fresno County Environmental Health Division (FCEHD)requirements, prior to importing to such a property.	
HAZ-5: The proposed Plan would be located within 2 miles of a public airport or public use airport, but would not result in a safety hazard for people residing or working in the Plan Area.	LTS	N/A	N/A
HAZ-6: For a project within the vicinity of a private airstrip, the proposed Plan would not result in a safety hazard for people residing or working in the Plan Area.	NI	N/A	N/A
HAZ-7: The proposed Plan would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LTS	N/A	N/A
HAZ-8: Implementation of the proposed Plan would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including	NI	N/A	N/A

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.			
HAZ-9: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to hazards and hazardous materials.	LTS	N/A	N/A
HYDROLOGY AND WATER QUALITY			
HYD-1: Buildout of the proposed Plan would not violate any water quality standards or discharge requirements.	LTS	N/A	N/A
HYD-2.1: Buildout of the proposed Plan would increase water demands in the City, thus increasing demands for groundwater.	LTS	N/A	N/A
HYD-2.2: Implementation of the proposed Plan would not substantially interfere with groundwater recharge.	LTS	N/A	N/A
HYD-3: Implementation of the proposed Plan would not substantially change the drainage pattern on and surrounding the Plan Area, and would not cause substantial erosion or siltation on- or off-site.	LTS	N/A	N/A
HYD-4: Implementation of the proposed Plan would not substantially change the drainage pattern on and surrounding the Plan Area and would not cause flooding on- or off-site.	LTS	N/A	N/A
HYD-5: Buildout of the proposed Plan would not generate runoff exceeding the capacity of existing or planned storm drainage systems, or generate a substantial increase in polluted runoff	LTS	N/A	N/A
HYD-6: Buildout of the proposed Plan would not substantially degrade water quality.	LTS	N/A	N/A
HYD-7: Buildout of the proposed Plan would not place housing in a 100-year flood hazard area.	LTS	N/A	N/A

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Impact	Significance Without Mitigation		Mitigation Measures	Significance With Mitigation
HYD-8: Buildout of the proposed Plan would not place structures which would redirect flood flows within a 100-year flood zone.	LTS	N/A		N/A
HYD-9: The Plan Area is not in dam inundation areas or mapped as protected from 100-year floods by levees. Buildout of the proposed Plan would not expose people or structures to flood hazard due to dam inundation.	LTS	N/A		N/A
HYD-10: The Plan Area is not susceptible to flooding due to seiche, tsunami, or mudflow. Buildout of the proposed Plan would not subject people or structures to such flood hazards.	LTS	N/A		N/A
HYD-11: Buildout of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not cause significant cumulative impacts to hydrology and water quality.	LTS	N/A		N/A
LAND USE AND PLANNING				
LU-1: Implementation of the proposed Plan would not physically divide an established community.	LTS	N/A		N/A
LU-2: Implementation of the proposed Plan would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	LTS	N/A		N/A
LU-3: Implementation of the proposed Plan would not conflict with any applicable habitat conservation plan or natural community conservation plan.	LTS	N/A		N/A
LU-4: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in less than significant cumulative impacts with respect to land	LTS	N/A		N/A

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Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
use and planning.			
NOISE			
NOISE-1: Development in accordance with the proposed Plan would cause increases in traffic along local roadways of more than 3 dBA over existing conditions.	SU/LTS	N/A	SU/LTS
NOISE-2: Construction activities could result in vibration-induced architectural damage at nearby structures or hardscape features, or could result in vibration-induced annoyance at nearby sensitive receptors.	PS	NOISE-2a: Prior to issuance of grading and construction permits, applicants for individual development projects that involve vibration-intensive construction activities—such as pile drivers, jack hammers, and vibratory rollers—within 50 feet of off-site structures, shall prepare and submit to the City of Fresno an acoustical study to evaluate potential construction-related vibration damage impacts. The vibration assessment shall be prepared by a qualified acoustical engineer and be based on the Federal Transit Administration (FTA) vibration-induced architectural damage criterion. If the acoustical study determines a potential exceedance of the FTA thresholds, measures shall be identified that ensure vibration levels are reduced to below the thresholds. Measures to reduce vibration levels can include use of less-vibration-intensive equipment (e.g., drilled piles and static rollers) and/or construction techniques (e.g., non-explosive rock blasting and use of hand tools) and preparation of a pre-construction survey report to assess the condition of the affected sensitive structure. Identified measures shall be included on all construction and building documents and submitted for verification to the City. NOISE-2b: Prior to issuance of grading and construction permits, applicants for individual development projects that involve vibration-intensive construction activities—such as pile drivers, jack hammers, and vibratory rollers—within 100 feet of sensitive receptors (e.g., residences and schools) shall prepare and submit to the City of Fresno an acoustical study to evaluate potential construction-related vibration annoyance impacts. The study shall be prepared by a qualified acoustical engineer and shall identify measures to reduce impacts to habitable structures to below the Federal Transit Administration (FTA) vibration-induced annoyance criterion. If construction-related vibration is determined in the acoustical study to be perceptible at vibration-sensitive uses, additional requirements, such as use of less-vibration-intensive equipment or construction techniques, shall be	LTS

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		implemented during construction (e.g., drilled piles, static rollers, and non-explosive rock blasting). Identified measures shall be included on all construction and building documents and submitted for verification to the City.	
NOISE-3: Implementation of the proposed Plan would cause a substantial permanent increase in ambient noise levels in the vicinity of the Plan Area above levels existing without the proposed Plan.	S	N/A	SU
NOISE-4: Construction activities would result in temporary noise increases in the vicinity of the Plan Area.	PS	NOISE-4a: As required by the City of Fresno Municipal Code, construction activity shall be limited to the hours between 7:00 a.m. and 10:00 p.m. on weekdays and Saturdays, and shall require a permit issued by the City. NOISE-4b: Prior to the issuance of demolition, grading, and/or construction permits, applicants for individual development projects within 500 feet of noise-sensitive receptors (e.g., residences, hospitals, schools) shall conduct a project-level construction noise analysis to evaluate potential impacts on sensitive receptors. The analysis shall be conducted once the final construction equipment list that will be used for demolition and grading activities is determined. The project-level noise analysis shall be prepared, reviewed, and approved by the City of Fresno Community Development Director. If the analysis determines that demolition and construction activities would result in an impact to identified noise-sensitive receptors, then specific measures to attenuate the noise impact shall be outlined in the analysis and reviewed and approved by the City of Fresno Community Development Director. Specific measures may include, but are not limited to, the following best management practices: ▪ Post a construction site notice near the construction site access point or in an area that is clearly visible to the public. The notice shall include the following: job site address; permit number, name, and phone number of the contractor and owner; dates and duration of construction activities; construction hours allowed; and the City of Fresno Community Development Director and construction contractor phone numbers where noise complaints can be reported and logged. ▪ Consider the installation of temporary sound barriers for construction activities immediately adjacent to occupied noise-sensitive structures. ▪ Restrict haul routes and construction-related traffic to the least noise-sensitive times of the day.	SU

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		▪ Reduce non-essential idling of construction equipment to no more than five minutes. ▪ Ensure that all construction equipment is monitored and properly maintained in accordance with the manufacturer's recommendations to minimize noise. ▪ Fit all construction equipment with properly-operating mufflers, air intake silencers, and engine shrouds, no less effective than as originally equipped by the manufacturer, to minimize noise emissions. ▪ If construction equipment is equipped with back-up alarm shut offs, switch off back-up alarms and replace with human spotters, as feasible. ▪ Stationary equipment (such as generators and air compressors) and equipment maintenance and staging areas shall be located as far from existing noise-sensitive land uses, as feasible. ▪ To the extent feasible, use acoustic enclosures, shields, or shrouds for stationary equipment such as compressors and pumps. ▪ Shut off generators when generators are not needed. ▪ Coordinate deliveries to reduce the potential of trucks waiting to unload and idling for long periods of time. ▪ Grade surface irregularities on construction sites to prevent potholes from causing vehicular noise. ▪ Minimize the use of impact devices such as jackhammers, pavement breakers, and hoe rams. Where possible, use concrete crushers or pavement saws rather than hoe rams for tasks such as concrete or asphalt demolition and removal. The final noise-reduction measures to be implemented and their associated details shall be determined by the construction-level noise analysis. The final noise-reduction measures shall be included on all construction and building documents and/or construction management plans and submitted for verification to the City; implemented by the construction contractor through the duration of the construction phase; and discussed at the pre-demolition, -grade, and/or -construction meetings.	
NOISE-5: Implementation of the proposed Plan would not cause exposure of people residing or working in the vicinity of the study area to excessive aircraft	LTS	N/A	N/A

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
noise levels, for a project located within an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport.			
NOISE-6: Implementation of the proposed Plan would not cause exposure of people residing or working in the Plan Area to excessive noise levels, for a project within the vicinity of a private airstrip.	LTS	N/A	N/A
NOISE-7: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in significant cumulative impacts with respect to noise.	SU/LTS/PS	N/A	SU/LTS
POPULATION AND HOUSING			
POP-1: Implementation of the proposed Plan would not induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	LTS	N/A	N/A
POP-2: Implementation of the proposed Plan would not displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.	LTS	N/A	N/A
POP-3: Implementation of the proposed Plan would not displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.	LTS	N/A	N/A
POP-4: Implementation of the proposed Plan, in combination with past, present and reasonably foreseeable projects, would not result in less than significant cumulative impacts with respect to population and housing.	LTS	N/A	N/A

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
PUBLIC SERVICES AND RECREATION			
PS-1: Implementation of the proposed Plan would not result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, the construction of which could cause significant environmental impacts.	LTS	N/A	N/A
PS-2: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to fire protection service.	LTS	N/A	N/A
PS-3: Implementation of the proposed Plan would not result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for police protection, the construction of which could cause significant environmental impacts.	LTS	N/A	N/A
PS-4: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to police protection services.	LTS	N/A	N/A
PS-5: Implementation of the proposed Plan would not result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for schools, the	LTS	N/A	N/A

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
construction of which could cause significant environmental impacts.			
PS-6: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to schools.	LTS	N/A	N/A
PS-7: Implementation of the proposed Plan would result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for parks, the construction of which could cause significant environmental impacts.	S	PS-7: As new development occurs in the Plan Area, the City shall periodically (every 5 years) monitor residential population growth compared to development of new parklands for the purpose of evaluating the strength of this Plan to meet the ratio of 3 acres of parkland per 1,000 population. If the ratio is not met, the City shall explore additional ways to increase the amount of dedicated parkland in the Plan Area, including but not limited to designating additional lands for parkland development.	LTS
PS-8: Implementation of the proposed Plan would contribute to cumulative parks and recreation impacts in the area.	LTS	PS-8: Implement Mitigation Measure PS-7.	LTS
PS-9: Implementation of the proposed Plan would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	LTS	N/A	N/A
PS-10: Implementation of the proposed Plan would not result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for libraries, the construction of which could cause significant environmental impacts.	LTS	N/A	N/A
PS-11: Implementation of the proposed Plan would not contribute to cumulative library impacts in the area.	LTS	N/A	N/A

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
TRANSPORTATION AND TRAFFIC			
TRANS-1: The proposed Plan would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit, non-motorized travel, and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	LTS	N/A	N/A
TRANS-2: The proposed Plan would not conflict with an applicable congestion management program, including, but not limited to, level of service standards, travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.	LTS	N/A	N/A
TRANS-3: The proposed Plan would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	LTS	N/A	N/A
TRANS-4: The proposed Plan would not increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	LTS	N/A	N/A
TRANS-5: The proposed Plan would not result in inadequate emergency access.	LTS	N/A	N/A
TRANS-6: The proposed Plan would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	LTS	N/A	N/A
TRANS-7.1: The addition of proposed Plan traffic to the roadway network, in combination with traffic	S	TRANS-7.1: Provide transportation improvements consistent with General Plan Policy MT-1-j in the Plan Area that would encourage non-vehicular transportation	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
generated by reasonably foreseeable projects, results in unacceptable roadway operations on City of Fresno study roadway segments under cumulative conditions.		and reduce auto traffic levels. These improvements shall be consistent with the goals and policies in the proposed Plan, which require the implementation of complete streets, bikeways, trails, sidewalks, and enhanced transit service to support transit use, biking, and walking as viable modes of travel. By supporting and encouraging these non-auto modes in lieu of auto travel, future traffic levels would be reduced. The City of Fresno shall also apply General Plan Policy MT-1-o, which allows LOS E or F conditions outside of identified multimodal districts if provisions are made to sufficiently improve the overall transportation system and promote non-vehicular transportation. With the application of General Plan policy MT-1-o, the LOS F conditions on Church Avenue and LOS E conditions on North Avenue would be considered acceptable.	
TRANS-7.2: The addition of project traffic to the roadway network, in combination with traffic generated by reasonably foreseeable projects, results in unacceptable intersection operations at Caltrans study intersections.	S	TRANS-7.2: Development within the proposed Plan shall pay its regional transportation mitigation fee (RTMF) towards funding improvements to the regional highways and streets system. The City of Fresno shall coordinate with Caltrans and the Fresno Council of Governments to recommend the following intersection and ramp improvements at the SR-99/Jensen Avenue interchange and SR-41/North Avenue interchange be incorporated into the RTMF program and any applicable future City of Fresno fee update applicable to roadway facilities and/or traffic signals: ▪ SR-99 Southbound Off-Ramp/Jensen Avenue intersection: - Widen the SR-99 southbound off-ramp to add an additional left-turn pocket. - Restripe the existing shared through-left turn lane on the SR-99 southbound off-ramp as a dedicated through lane. - The resulting lane configuration on the southbound off-ramp is: two left-turn lanes, one through lane, and one right-turn lane. - Add an overlap phase for the northbound right-turn movement. - Prohibit westbound U-turn movement to allow the northbound right-turn overlap. - Widen the eastbound approach to stripe a third through lane; add a third receiving lane on the east leg that traps into the SR-99 southbound on-ramp. ▪ SR-99 Northbound Off-Ramp/Jensen Avenue intersection: - Change the lane configurations on the northbound off-ramp to a dedicated left-turn pocket and shared through-right turn lane.	SU

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		- Add an overlap phase for the southbound right-turn movement. - Prohibit eastbound U-turn movement to allow the southbound right-turn overlap. - Widen the westbound approach to stripe a third through lane; add a third receiving lane on the west leg that traps into the SR-99 northbound on-ramp. - Change the phasing for the northbound and southbound approaches to protected left-turn movements and separate. ▪ SR-41 Southbound Off-Ramp/North Avenue intersection: - Widen the SR-41 southbound off-ramp to add a left-turn pocket. - Change the lane configurations on the southbound off-ramp to convert the existing shared through-left turn lane to a shared right turn-through-left turn lane. - Extend the right-turn pocket on the off-ramp to accommodate right-turn queue length shown in Table 4.14-16. - The resulting lane configuration on the southbound off-ramp is: one left-turn lane, one shared right turn-through-left turn lane, and one right-turn lane. - Widen the eastbound approach to add a third through lane that traps into the eastbound left-turn onto the SR-41 northbound on-ramp. In addition to addressing intersection operations, the changes identified above also address freeway off-ramp queuing impacts identified in Impact TRANS-7.3 below. With the implementation of the changes listed above, the operations at these three intersections would be improved to LOS D or better during both the AM and PM peak hours, as shown in Table 4.14-16 below (refer to Appendix H for calculations). While these changes would improve traffic operations to an acceptable LOS, these improvements require alterations to signals operated by Caltrans as well as physical expansion of intersections and ramps that are under Caltrans jurisdiction. Since these improvements are not within the City of Fresno's jurisdiction to control, it cannot be guaranteed that these improvements will be implemented. In addition to the three intersections at the SR-99/Jensen Avenue and SR-41/North Avenue interchanges that operate at LOS E or LOS F under cumulative conditions, the following improvements would address unacceptable LOS E operations at the SR-99/Fresno Street interchange: ▪ SR-99 Southbound Ramps/Fresno Street intersection:	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		- Widen the SR-99 southbound frontage road to add an additional right-turn pocket. - Restripe the existing through lane as a shared through-left turn lane on the SR-99 southbound off-ramp. - The resulting lane configuration on the southbound off-ramp is: one left-turn lane, one shared through left-turn lane, and two right-turn lanes. ▪ SR-99 Northbound Ramps/Fresno Street intersection: - Add a through lane to the westbound approach on Fresno Street that traps into the left-turn onto the SR-99 southbound on-ramp. - Adding the third through lane on Fresno Street would require removing the existing raised median and prohibiting eastbound left-turns at the Fresno Street/E Street intersection. With the implementation of the changes listed above, the operations at these two intersections would be improved to LOS D or better during both the AM and PM peak hours, as shown in Table 4.14-17 below (refer to Appendix H for calculations). While the intersection and ramp changes at the SR-99/Fresno Street interchange would improve intersection LOS, physical constraints on the SR-99 southbound frontage road would make the proposed widening of the southbound approach infeasible.	
TRANS-7.3: The addition of proposed Plan traffic to the roadway network in combination with traffic generated by reasonably foreseeable projects results in freeway off-ramp queues that extend back onto the freeway mainline.	S	TRANS-7.3: Development within the proposed Plan shall pay its regional transportation mitigation fee (RTMF) towards funding improvements to the regional highways and streets system. In addition to the recommended improvements listed in Mitigation Measure TRANS-7.2, the City of Fresno shall coordinate with Caltrans and the Fresno Council of Governments to recommend the following intersection and ramp improvements at the SR-41/Jensen Avenue interchange be incorporated into the RTMF program and any applicable future City of Fresno fee update applicable to roadway facilities and/or traffic signals: ▪ SR-41 Southbound Off-Ramp/Jensen Avenue intersection: - Change the existing shared left-right turn lane on the SR-41 southbound off-ramp as a dedicated right-turn lane SR-99 southbound off-ramp - The resulting lane configuration on the southbound off-ramp is: one left-turn lane and two right-turn lanes - Add a southbound right-turn phase to run concurrently with the eastbound	SU

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		through phase by taking green time from the westbound through phase The implementation of the changes to the SR-41 southbound off-ramp at Jensen Avenue listed above would reduce queuing on the SR-41 southbound off-ramp. These changes in combination with the improvements to the SR-99/Jensen Avenue, SR-41/North Avenue, and SR-99/Fresno Street interchange listed in Mitigation Measure TRANS-7.2, would reduce freeway off-ramp queuing under cumulative conditions. Table 4.14-18 in Chapter 4.14 presents the estimated freeway off-ramp queues with the improvements presented in Mitigation Measure TRANS-7.2 and TRANS-7.3 (refer to Appendix H for calculations). While these changes would reduce the 95th percentile queues on freeway off-ramps to within the available storage on the off-ramp, these improvements require alterations to signals operated by Caltrans as well as physical expansion of intersections and ramps that are under Caltrans jurisdiction. Since these improvements are not within the City of Fresno's jurisdiction to control, it cannot be guaranteed that these improvements will be implemented.	
UTILITIES AND SERVICE SYSTEMS			
UTIL-1: Implementation of the proposed Plan would exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	S	MEIR USS-1: The City shall develop and implement a wastewater master plan update. MEIR USS-2: Prior to exceeding existing wastewater treatment capacity, the City shall evaluate the wastewater system and shall not approve additional development that contributes wastewater to the wastewater treatment facility that could exceed capacity until additional capacity is provided. By approximately the year 2025, the City shall construct the following improvements. ▪ Construct an approximately 70 MGD expansion of the Regional Wastewater Treatment Facility and obtain revised waste discharge permits as the generation of wastewater is increased. ▪ Construct an approximately 0.49 MGD expansion of the North Facility and obtain revised waste discharge permits as the generation of wastewater is increased. MEIR USS-3: Prior to exceeding existing wastewater treatment capacity, the City shall evaluate the wastewater system and shall not approve additional development	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		that contributes wastewater to the wastewater treatment facility that could exceed capacity until additional capacity is provided. After approximately the year 2025, the City shall construct the following improvements. ▪ Construct an approximately 24 MGD Wastewater Treatment Facility within the Southeast Development Area and obtain revised waste discharge permits as the generation of wastewater is increased. ▪ Construct an approximately 9.6 MGD expansion of the Regional Wastewater Treatment Facility and obtain revised waste discharge permits as the generation of wastewater is increased.	
UTIL-2: Implementation of the proposed Plan would require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	S	MEIR USS-4: A Traffic Control/Traffic Management Plan to address traffic impacts during construction of water and sewer facilities shall be prepared and implemented subject to approval by the City prior to construction. The plan shall identify hours of construction and for deliveries, include haul routes, identify access and parking restrictions, plan for notifications, identify pavement markings and signage, and plan for coordination with emergency service providers and schools. MEIR USS-5: Prior to exceeding existing water supply capacity, the City shall evaluate the water supply system and shall not approve additional development that demand additional water until additional capacity is provided. By approximately the year 2025, the following capacity improvements shall be provided. ▪ Construct an approximately 80 million gallon per day (MGD) surface water treatment facility near the intersection of Armstrong and Olive Avenues, in accordance with Chapter 9 and Figure 9-1 of the City of Fresno Metropolitan Water Resources Management Plan Update Phase 2 Report, January 2012 (2012 Metro Plan Update). ▪ Construct an approximately 30 MGD expansion of the existing northeast surface water treatment facility for a total capacity of 60 MGD, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update. ▪ Construct an approximately 20 MGD surface water treatment facility in the southwest portion of the City, in accordance with Chapter 9 and Figure 9- 1 of the 2012 Metro Plan Update. MEIR USS-6: Prior to exceeding capacity within the existing wastewater collection system facilities, the City shall evaluate the wastewater collection system and shall	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		not approve additional development that would generate additional wastewater and exceed the capacity of a facility until additional capacity is provided. By approximately the year 2025, the following capacity improvements shall be provided. ▪ Orange Avenue Trunk Sewer: This facility shall be improved between Dakota and Jensen Avenues. Approximately 37,240 feet of new sewer main shall be installed and approximately 5,760 feet of existing sewer main shall be rehabilitated. The size of the new sewer main shall range from 27-inches to 42-inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are RS03A, RL02, C01-REP, C02-REP, C03-REP, C04-REP, C05-REP, C06-REL and C07-REP. ▪ Marks Avenue Trunk Sewer: This facility shall be improved between Clinton Avenue and Kearney Boulevard. Approximately 12,150 feet of new sewer main shall be installed. The size of the new sewer main shall range from 33- inches to 60-inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are CM1- REP and CM2-REP. ▪ North Avenue Trunk Sewer: This facility shall be improved between Polk and Fruit Avenues and also between Orange and Maple Avenues. Approximately 25,700 feet of new sewer main shall be installed. The size of the new sewer main shall range from 48-inches to 66- inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are CN1-REL1 and CN3-REL1. ▪ Ashlan Avenue Trunk Sewer: This facility shall be improved between Hughes and West Avenues and also between Fruit and Blackstone Avenues. Approximately 9,260 feet of new sewer main shall be installed. The size of the new sewer main shall range from 24-inches to 36-inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are CA1-REL and CA2-REP. MEIR USS-7: Prior to exceeding capacity within the existing 28 pipeline segment shown on Figures 1 and 2 in Appendix J-1 of the Fresno General Plan MEIR, the City shall evaluate the wastewater collection system and shall not approve additional development that would generate additional wastewater and exceed the capacity of one of the 28 pipeline segments until additional capacity is provided. MEIR USS-8: Prior to exceeding capacity within the existing water conveyance facilities, the City shall evaluate the water conveyance system and shall not approve	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		additional development that would demand additional water and exceed the capacity of a facility until additional capacity is provided. The following capacity improvements shall be provided by approximately 2025. ▪ Construct 65 new groundwater wells, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update. ▪ Construct a 2.0 million gallon potable water reservoir (Reservoir T2) near the intersection of Clovis and California Avenues, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update. ▪ Construct a 3.0 million gallon potable water reservoir (Reservoir T3) near the intersection of Temperance and Dakota Avenues, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update. ▪ Construct a 3.0 million gallon potable water reservoir (Reservoir T4) in the Downtown Planning Area, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update. ▪ Construct a 4.0 million gallon potable water reservoir (Reservoir T5) near the intersection of Ashlan and Chestnut Avenues, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update. ▪ Construct a 4.0 million gallon potable water reservoir (Reservoir T6) near the intersection of Ashlan Avenue and Highway 99, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update. ▪ Construct 50.3 miles of regional water transmission mains ranging in size from 24-inch to 48-inch, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update. ▪ Construct 95.9 miles of 16-inch transmission grid mains, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update. MEIR USS-9: Prior to exceeding capacity within the existing water conveyance facilities, the City shall evaluate the water conveyance system and shall not approve additional development that would demand additional water and exceed the capacity of a facility until additional capacity is provided. The following capacity improvements shall be provided after approximately the year 2025 and additional water conveyance facilities shall be provided prior to exceedance of capacity within the water conveyance facilities to accommodate full buildout of the General Plan Update.	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		▪ Construct a 4.0 million gallon potable water reservoir (SEDA Reservoir 1) within the northern part of the Southeast Development Area. ▪ Construct a 4.0 million gallon potable water reservoir (SEDA Reservoir 2) within the southern part of the Southeast Development Area. Additional water conveyance facilities shall be provided prior to exceedance of capacity within the water conveyance facilities to accommodate full buildout of the General Plan Update.	
UTIL-3: Implementation of the proposed Plan would result in a determination by the wastewater treatment provider which serves or may serve the proposed Plan that it has adequate capacity to serve the proposed Plan's projected demand in addition to the provider's baseline commitments.	S	UTIL-3: Implement MEIR Mitigation Measures USS-1 through USS-3.	LTS
UTIL-4: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in a significant cumulative impacts with respect to wastewater.	S	UTIL-4: Implement MEIR Mitigation Measures USS-1 through USS-9.	LTS
UTIL-5: Implementation of the proposed Plan would not require or result in the construction of new water or wastewater treatment facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.	LTS	N/A	N/A
UTIL-6: Implementation of the proposed Plan would not have sufficient water supplies available to serve the proposed Plan from baseline entitlements and resources, or are new or expanded entitlements needed.	LTS	N/A	N/A
UTIL-7: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would/would not result in significant cumulative impacts with respect to water supply.	LTS	N/A	N/A
UTIL-8: Implementation of the proposed Plan would not require or result in the construction of new	LTS	N/A	N/A

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
reclaimed water treatment facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.			
UTIL-9: Implementation of the proposed Plan would have sufficient reclaimed water supplies available to serve the proposed Plan from baseline entitlements and resources, or are new or expanded entitlements needed.	LTS	N/A	N/A
UTIL-10: Implementation of the proposed Plan, in combination with past, present and reasonably foreseeable projects, would/would not result in a significant cumulative impacts with respect to reclaimed water supply.	LTS	N/A	N/A
UTIL-11: Implementation of the proposed Plan would not exceed NPDES stormwater discharge requirements or applicable standards of the California Regional Water Quality Control Board.	LTS	N/A	N/A
UTIL-12: Implementation of the proposed Plan would not require or result in the construction of new stormwater treatment facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.	LTS	N/A	N/A
UTIL-13: Implementation of the proposed Plan would result in a determination by the stormwater treatment provider which serves or may serve the Plan Area that it has adequate capacity to serve the proposed Plan's projected demand in addition to the provider's baseline commitments.	LTS	N/A	N/A
UTIL-14: Implementation of the proposed Plan, in combination with past, present and reasonably foreseeable projects, would not result in a significant cumulative impacts with respect to stormwater.	LTS	N/A	N/A
UTIL-15: Implementation of the proposed Plan would not be served by a landfill with sufficient permitted	S	MEIR USS-22: Prior to exceeding landfill capacity, the City shall evaluate additional landfill locations and shall not approve additional development that could	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
capacity to accommodate the proposed Plan's solid waste disposal needs.		contribute solid waste to a landfill that is at capacity until additional capacity is provided.	
UTIL-16: Implementation of the proposed Plan would comply with federal, State, and local statutes and regulations related to solid waste.	LTS	N/A	N/A
UTIL-17: Implementation of the proposed Plan in combination with past, present, and reasonably foreseeable projects would not be served by a landfill with sufficient permitted capacity to accommodate the proposed Plan's solid waste disposal needs.	S	MEIR USS-22: Prior to exceeding landfill capacity, the City shall evaluate additional landfill locations and shall not approve additional development that could contribute solid waste to a landfill that is at capacity until additional capacity is provided.	LTS
UTIL-18: Implementation of the proposed Plan would not result in a substantial increase in natural gas and electrical service demands, would use appropriate energy conservation and efficiency measures, and would not require new energy supply facilities and distribution infrastructure or capacity enhancing alterations to baseline facilities.	LTS	N/A	N/A
UTIL-19: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to energy conservation.	LTS	N/A	N/A

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3. Project Description

This chapter of the Draft Environmental Impact Report (EIR) describes the proposed Southwest Fresno Specific Plan (referred to as the "proposed Plan"). The proposed Plan would guide future development in the Plan Area.

3.1 INTENDED USES OF THE EIR

This EIR is intended to disclose and assess potential environmental impacts associated with the adoption and implementation of the proposed Plan and associated General Plan and Zoning Ordinance Amendments.

As a programmatic-level review, this EIR does not evaluate the impacts of other future specific, individual developments that may be allowed under implementation of the proposed Plan. Future projects or phases may require additional, project-specific environmental analysis, as required by the California Environmental Quality Act (CEQA), to secure the necessary discretionary development permits. Therefore, while subsequent environmental review may be tiered off this EIR, this EIR may not address impacts of future individual projects. Subsequent projects will be reviewed by the City for consistency with the General Plan, Specific Plan, Zoning Ordinance, and this EIR, and subsequent project-level environmental review will be conducted if required by CEQA. Projects successive to this EIR may include, but are not limited to, the following:

- Approval and funding of major public projects and capital improvements.
- Issuance of permits and other approvals necessary for implementation of the proposed Plan
- Development plan approvals, such as tentative maps, variances, conditional use permits, and other land use permits.
- Permit issuances and other approvals necessary for public and private development projects.
- Development agreement processes and approvals.

See Chapter 1, Introduction, Section 1.3, Type of EIR, of this Draft EIR for a detailed discussion on the environmental review applied in this EIR, and the conditions that must apply in order to determine whether additional environmental analysis would be necessary for a future project under the proposed Plan.

3.2 PURPOSE OF THE PROPOSED PLAN

The purpose of a specific plan is to develop policies, programs, regulations, and guidelines to implement the jurisdiction's adopted General Plan. A specific plan effectively establishes a link between implementing policies of the General Plan and the individual development proposals in a defined area. The proposed Plan implements the goals and policies set forth in the City of Fresno General Plan (Fresno General Plan) by building upon its concepts for the Southwest Development Area. The proposed Plan also includes ideas and measures that have been extensively tailored and reviewed by the Southwest Fresno community and stakeholders, including a Steering Committee. The Committee was comprised of a representative cross-section of community leaders and stakeholders and participated in each critical decision during the planning process, along with City staff.[1]The proposed Plan provides guiding principles, policies, development criteria, and implementation strategies to coordinate private development and public improvements given the unique opportunities and characteristics of this important part of the City of Fresno. The proposed Plan is included as Appendix B of this Draft EIR.

3.2.1 EXISTING CONDITIONS

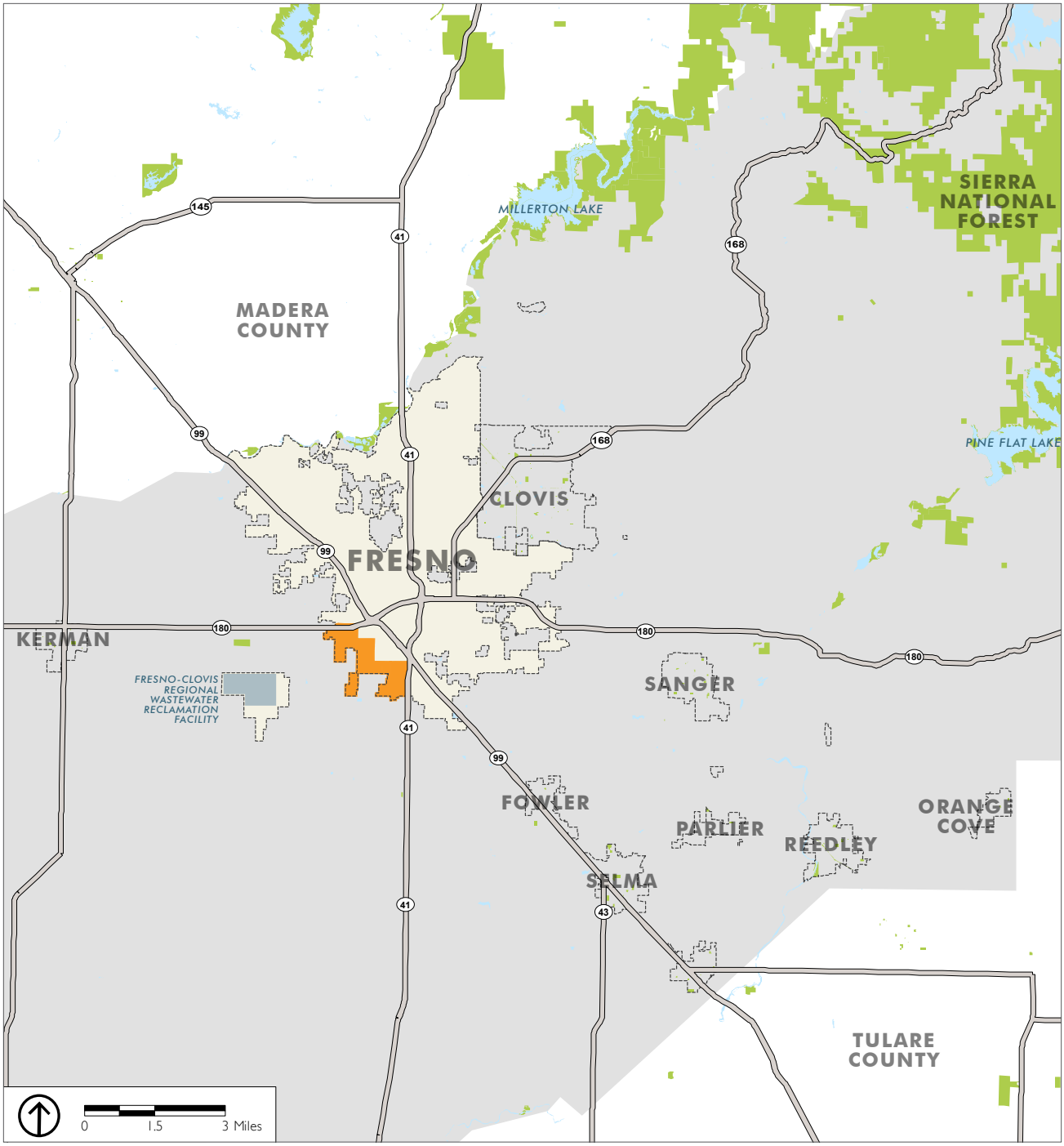
3.2.1.1 PLAN AREA LOCATION

The area addressed by the proposed Plan lies within the southwestern most part of the City of Fresno, as shown in Figure 3-1, Regional Location Map. The Specific Plan Area (Plan Area) is approximately 3,255 acres, bounded by Highway 180 in the north and by Highway 41 in the east. It does not include the Downtown Neighborhoods Community Plan Area, nor does it include (with one exception) the land currently in Fresno County that is within the Sphere of Influence (SOI) of the City's General Plan, but not yet within the City limits. The county land in the SOI is expected to be considered by the City of Fresno City Council and LAFCo. However, as shown in Figure 3-2, Plan Area Map, there is one area in the SOI that is part of the Plan Area: the Martin Luther King Junior Boulevard (MLK) Activity Center, identified as one of the "Magnet Cores" in the proposed Plan. The MLK Activity Center was identified in the Fresno General Plan as a higher density neighborhood district that would serve the Southwest Development Area, established neighborhoods in Southwest Fresno, and areas beyond Southwest Fresno and the city. Although the MLK Activity Center is currently located on SOI land, it was included into the Plan Area because of its proximity to the Plan Area and its role in providing retail and services to the Southwest Fresno community.

3.2.1.2 EXISTING USES

Land within the Plan Area is not clearly organized into distinct uses or patterns. Instead, there is a mixture of industrial, agricultural, commercial, and residential land uses throughout the Plan Area. Properties located at the eastern end of the Plan Area carry over the largely residential land use pattern found in

Downtown, west of Highway 99. The pattern transitions into land that is designated for agricultural uses towards the western end of the Plan Area, closer to land outside the City limit within the City's SOI and County-owned land. Pockets of commercial and employment uses are scattered throughout the Plan Area and SOI. Industrial uses, such as Foster Poultry Farms, are located immediately adjacent to, or enclosed by, residential neighborhoods, which have led to incompatible uses and noise and air quality concerns. Additionally, there are large areas of vacant lands across the Plan Area.

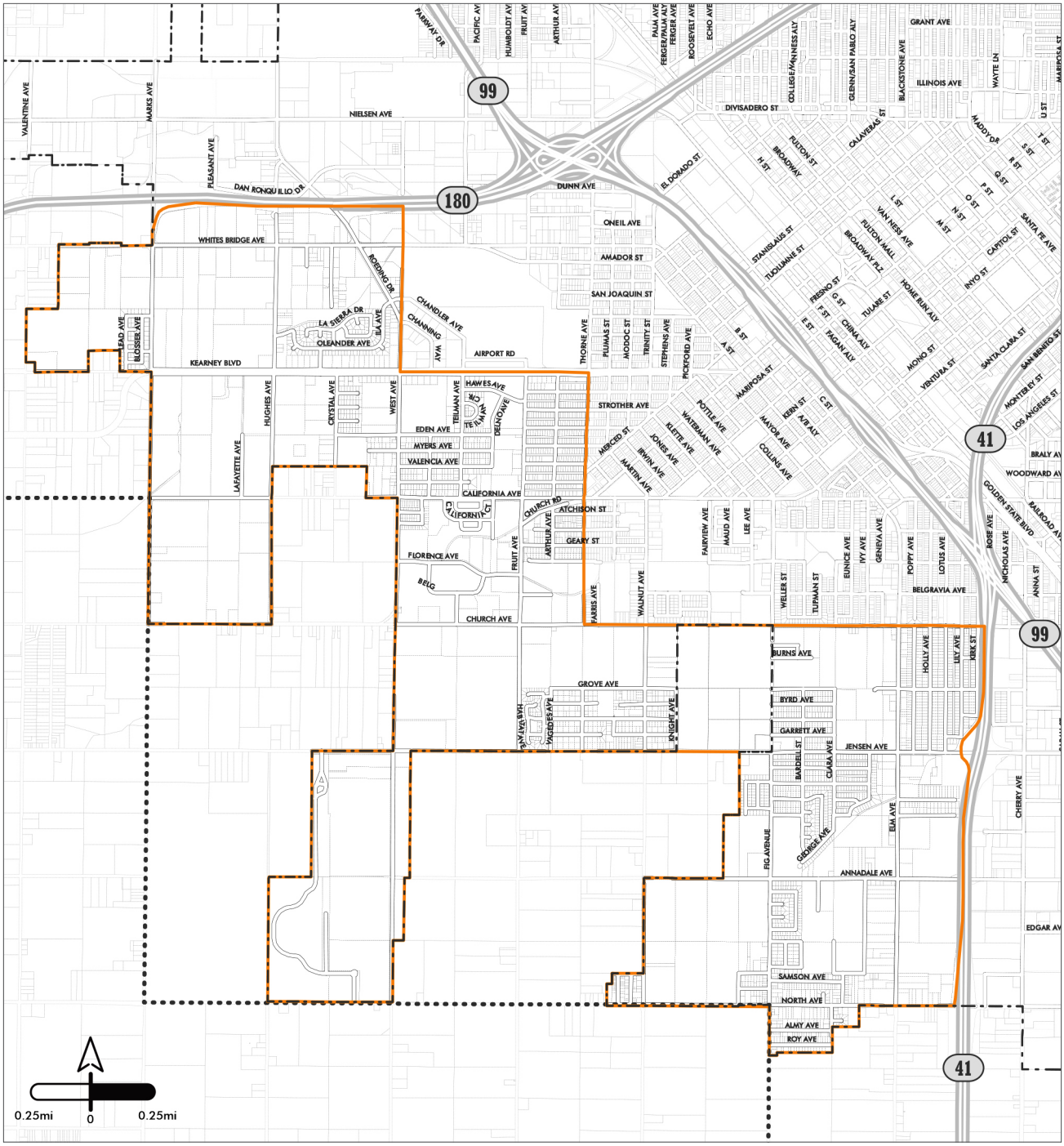


Source: PlaceWorks, 2017.

Southwest Fresno Specific Plan Area

Figure 3-1
Regional Location Map

PROJECT DESCRIPTION



Source: PlaceWorks, 2017.

City Limit

Sphere of Influence

Plan Area

Figure 3-2
Plan Area Map

Adopted in December 2014, the City's General Plan devotes much attention to the Plan Area and calls for a more cohesive land use pattern. The central theme for the Plan Area is to achieve what the General Plan defines as Complete Neighborhoods; in essence, neighborhoods that are self-sufficient, interconnected by multi-modal transit, and walkable. Planned land uses are envisioned to support new medium- and medium-low-density residential development adjacent to existing residential uses. New development is anticipated to be characterized as infill, served by local streets, centered by parks, a mix of housing types, and schools in order to encourage and incentivize, through policies and development regulations, building a network of Complete Neighborhoods. Major streets such as California Avenue are intended to support future expansion of the Bus Rapid Transit (BRT) and include Complete Street systems that will accommodate mixed use development located along the routes.

As described above, the existing land use pattern of the Plan Area can be characterized as a patchwork of residential, vacant, agriculture, commercial, and industrial uses. Overall, the proposed Plan would enhance the connectivity of existing land uses both within the Plan Area and to adjacent areas of the city through implementation of land use designations that center on two key ideas: 1) create unique, self-sustaining neighborhoods that provide residents with day-to-day services, and 2) create strong commercial arteries with a healthy street network that feeds into neighborhoods. For example, roadways would be improved for vehicular as well as pedestrian and bicycle access, while transit would be located on routes near residential areas and provide access to desired destinations, such as employment and services. Future commercial and residential development under the proposed Plan would be sited along improved roadways in a manner that connects the Plan Area to adjacent areas. For example, housing would be located close to amenities such as parks, schools, transit, services, retail and employment in the adjacent downtown.

3.2.1.3 GENERAL PLAN AND ZONING

Based on the City's Citywide Development Code Chapter of the Municipal Code (Chapter 15 of the Municipal Code), the Plan Area falls within the following zoning districts:

- Residential Single-Family, Low Density (RS-3)
- Residential Single-Family, Medium Low Density (RS-4)
- Residential Single-Family, Medium Density (RS-5)
- Residential Multi-Family, Medium High Density (RM-1)
- Residential Multi-Family, Urban Neighborhood (RM-2)
- Neighborhood Mixed-Use (NMX)
- Corridor/Center Mixed-Use (CMX)
- Commercial - Community (CC)
- Commercial - Regional (CR)
- Office (O)
- Office Restricted (O-No Auto)
- Office* (O*)
- Open Space (OS)
- Parks and Recreation (PR)
- Public and Institutional (PI)

3.2.2 CONTENTS OF THE PROPOSED SPECIFIC PLAN

The proposed Plan is organized into the following eight chapters. A set of objectives and implementing policies are provided in each relevant chapter. The Plan's chapters are as follows:

- Plan Introduction. This chapter defines a Specific Plan and explains its purpose, provides a brief narrative about Southwest Fresno's history and its context, explains the proposed Plan's relationship to previous and future planning efforts, and provides a summary of the planning process and outreach efforts. This chapter also describes the existing conditions of community environmental health related to physical health, community design, and the natural environment in Southwest Fresno, providing a snapshot of the regulatory framework, existing health conditions, and key issues that impact quality of life. The community environmental health section also calls out specific chapters in the Plan that address and strive to improve these existing health issues.
- Vision. This chapter describes the visioning process that culminated into the development of the Plan's conceptual vision and land use map. Guiding principles for various topics, including housing, retail, parks and open space, jobs and economic development, transportation, and industrial compatibility, helped shape the Plan's vision.
- Land Use. This chapter describes the land uses that make up the Plan Area. It also provides the anticipated development capacity from these land uses over the 25-year horizon of the proposed Plan for new single-family and higher-density housing units, retail, office, parks, schools, and other public facilities.
- Development Regulations. This chapter notes where zoning in the Plan Area differs from the Citywide Development Code. It provides development and design standards for the Kearney Boulevard Historic Overlay and the California Avenue Mixed-Use Corridor Overlay. It describes the objectives of three special corridors, two magnet cores, and complete neighborhood nodes. And finally, it includes a section on Crime Prevention Through Environmental Design (CPTED).
- Transportation. This chapter describes improvements for pedestrian, transit, auto, truck, and bicycle circulation throughout the area and to adjacent neighborhoods, including Downtown, the Fresno Area Express (FAX) bus terminal, and the future High-Speed Rail (HSR) station. The chapter also provides complete streets design standards that will promote walkability and livability in the Plan Area.
- Public Facilities. This chapter describes the existing context for public facilities within the Plan Area and identifies the Plan's proposed public facility improvements. Public facilities include existing parks, new parks, new K to 12 schools within complete neighborhoods, and a new community college within the MLK Activity Center.
- Utilities. This chapter summarizes utility infrastructure needs in the Plan Area for wet utilities such as water supply, wastewater, storm system, and recycled water use, as well as dry utilities such as electrical, fiber optic and gas systems.
- Implementation. The final chapter outlines a strategy to implement the Plan's vision, which includes identifying the public improvements, responsible parties, and funding sources necessary to implement the Plan. The chapter also addresses specific strategies for economic development,

including homeownership, business development, education, training, and retail anchor tenant recruitment.

3.2.3 OBJECTIVES OF THE PROPOSED PLAN

Pursuant to the CEQA Guidelines, Section 15124, the EIR must identify the objectives of the project. The stated objectives of this proposed Plan are to:

- Create a healthy community that offers a positive physical, social, natural and economic environment to support the health and wellbeing of all its members.
- Attract high quality new development while protecting existing neighborhoods.
- Provide a mix of high quality housing types, with an emphasis on single-family housing that is compatible with community character and located close to amenities such as parks, schools, transit, services, shopping and employment.
- Attract needed retail, such as department stores, restaurants, and grocery stores, in order to serve resident needs with fewer, shorter vehicle trips.
- Provide quality open space and recreational opportunities by improving existing parks and creating new parks within walking distance (1/2 mile radius) of all residences.
- Increase economic and educational opportunity through programs, services and facilities to prepare, mentor and train Southwest Fresno residents to access high quality employment opportunities.
- Enhance transportation connectivity both within Southwest Fresno and between Southwest Fresno and other Fresno neighborhoods in order to provide more access to economic, social, and educational opportunities.
- Improve the quality of life in Southwest Fresno through high quality investment, compatible land uses, increased park and recreational opportunities and a multi-modal and connected transportation system.

3.2.4 PROPOSED SPECIFIC PLAN

3.2.4.1 BUILDOUT OF THE PROPOSED SPECIFIC PLAN

As noted above, the proposed Plan is included in Appendix B of this Draft EIR. Development capacity numbers were calculated using the General Plan's dwelling unit per acre (du/acre) and floor area ratio (FAR) capacity factors. The General Plan's development capacity numbers are also shown in Table 3-1 for comparison.

Table 3-1 contains the development capacity of the land uses proposed in the Plan Area over the proposed Plan's 25-year timeframe. It should be noted that, like the General Plan, the development capacities are for new development and only take into account the development of parcels that have higher opportunities for development, such as parcels that are vacant, open agriculture, or rural residential (partially vacant). In order to provide a conservative analysis as required by CEQA, this Draft EIR assumes a more intense scenario for development capacity under the proposed Plan, unless specifically

noted otherwise. Known as the Dual Designation Scenario, it assumes the dual land uses discussed in Chapter 3 and shown on Figure 3-3 of the May 2017 draft Southwest Fresno Specific Plan. [2] The dual land use designation is applied to all land designated as new parks, open space and public facility so that if the facility is not needed, alternative private or public development consistent with zoning and development standards may be approved. The development capacities for the General Plan are also shown in the table for comparison against the proposed Plan's development capacities.

TABLE 3-1 DEVELOPMENT CAPACITIES FOR THE PROPOSED PLAN AND GENERAL PLAN IN THE PLAN AREA

	Single-Family Housing (DU)	Multi-Family Housing (DU)	Housing Total (DU)	Commercial (Bldg. SF)	Employment (Bldg. SF)	Parks/Open Space (Acre)[c]	Public Facilities (Acre)	Public Facilities (Bldg. SF)
Plan Area – Standard Development Scenario[a]	4,307	1,840	6,148	1,552,676	748,820	78	192	2,411,064
Plan Area – Dual Designation Development Scenario	4,221	2,910	7,131	1,220,596	2,489,065	0	32	325,482
Plan Area included in General Plan[b]	4,108	2,616	6,723	1,330,831	1,780,080	184[d]	57	643,377

Notes: DU = dwelling units. SF = square feet.
a. Includes the MLK Activity Center. Development capacities consistent with February 2017 Draft Specific Plan.
b. Development capacity numbers for the General Plan were calculated using the planned land uses shown in the General Plan Land Use map approved February 29, 2016.
c. Excludes land uses designated as "clear zone," "ponding basin," and "ponding basin park."
d. Includes approximately 112 acres of landfill located directly east of the Regional Sports Complex. During community outreach process as part of the development of this Plan, it was determined that the Regional Sports Complex is not to be designated as parkland.Therefore, the Plan shows this acreage designated as "public facility."

Some findings from the development capacity analysis are described below. A discussion of the development capacity under the Dual Designation Scenario is described in Section 3.2.4.2:

- **Housing.** The total number of projected housing units in the proposed Plan is lower than under the adopted General Plan. The General Plan's ratio of single-family housing to multi-family housing within the Plan Area is 61 percent single-family housing to 39 percent multi-family housing. The proposed Plan's ratio is 70 percent single-family housing to 30 percent multi-family housing in the Plan Area. Because the General Plan ratio includes a higher proportion of single-family housing to multi-family housing than the proposed Plan, there would be 575 fewer dwelling units developed under the proposed Plan than the total number of dwelling units proposed within the Plan Area under the General Plan.
- **Commercial.** The amount of commercial development in the Plan Area is greater in the proposed Plan than in the General Plan by approximately 222,000 square feet. Several factors contribute to this

[2] The dual land use designation was applied to all parcels within the Plan Area with such a designation, except for the parcel designated to be developed as a college near the MLK activity center. This exception was made based on the decision that the college would be a more intensive land use designation than the dual land use designation.

increase, including new corridor/center mixed-use, neighborhood mixed-use, regional commercial, and community commercial areas.

- Employment. The amount of employment space in the Plan Area (i.e., office, business park, regional business park, light industrial, and heavy industrial uses) in the proposed Plan is significantly less than in the General Plan; the proposed Plan shows approximately 1 million square feet less in employment uses in the Plan Area. The reason for this decrease is because of the change of business park and regional business park uses to other land uses such as residential, park, mixed use, and commercial.
- Parks/Open Space. The proposed Plan includes a refined definition of parkland than under the adopted General Plan. As a result, the Plan Area's total park acreage in the proposed Plan is less than in the General Plan because the General Plan counts the approximately 112 acres directly east of the Regional Sports Complex, as well as the 16-acre Hyde Park, as parkland. It was determined through the outreach process that this land should not be considered parkland since it was previously used as a landfill, and in order to provide a more accurate estimate of the amount of usable parkland in the Plan Area. With the exclusion of the 112-acre Regional Sports Complex from the General Plan's parks/open space development capacity, the amount of parkland within the Plan Area under the proposed Plan is slightly less than the General Plan's park acreage. In addition, the amount of parks/open space in the SOI increases more significantly in the proposed Plan by 55 acres, largely because of the new parkland located directly to the west of the Regional Sports Complex that is accessible to residents of the Plan Area.
- Public Facilities. The amount of public facilities development in the proposed Plan is significantly larger than the amount in the General Plan (1,767,687 square feet; 135 acres). The primary reasons for this increase include the re-designation of the aforementioned 112-acre landfill from park to public facilities, the inclusion of a new college in the MLK Activity Center, and the redesignation of single-family housing to public facilities along North Avenue in an effort to create a buffer between residential areas and nearby industrial uses.

3.2.4.2 DUAL DESIGNATION SCENARIO

As described in Section 3.2.4.1 above and shown in Table 3-1, the Dual Designation Scenario assumes the dual land uses discussed in Chapter 3 and shown on Figure 3-3 of the May 2017 draft Southwest Fresno Specific Plan are applied to the development capacity under the proposed Plan. Under this Scenario, new housing would be developed at a ratio of 59 percent single family to 41 percent multi-family housing units, which would result in 408 more dwelling units developed within the Plan Area than under the General Plan. The Dual Designation Scenario also assumes a lower amount of commercial development in the Plan Area, at 110,235 square feet, which is less than the amount developed under the General Plan. However, the amount of employment space would be 708,985 square feet more than the General Plan. As the Dual Designation Scenario assumes parkland would be developed for other types of land uses, zero acres of parkland would be developed within the Plan Area. The square footage and acreage of public facilities developed under the Dual Designation Scenario would be less than the amount developed under the General Plan (317,895 square feet; 25 acres).

3.2.4.3 IMPLEMENTATION

Implementation of the proposed Plan would involve the following:

Adoption of the proposed Plan is proposed to be enacted by resolution of the City Council. The following discretionary actions are anticipated:

- Repeal of the Edison Community Plan.
- Adoption of the Southwest Fresno Specific Plan.
- Amendment of the Fresno General Plan, including amendment of the land use map.
- Rezoning of property for consistency with the General Plan amendment.
- Adoption of Zoning Overlays for the proposed Historic Corridor and Mixed-Use Corridors
- Adoption of a Text amendment to the Development Code to establish regulations for the overlays.

3.3 REQUIRED APPROVALS

The proposed Plan is a policy-level document and does not include any specific development proposals. Therefore, the proposed Plan would be adopted solely by the Fresno City Council. The Planning Commission and other decision-making bodies would review the proposed Plan and make recommendations to City Council. In addition, Plan review and approval is required by the Airport Land Use Commission. While other agencies may be consulted during the adoption process, their approval is not required for adoption of the proposed Plan. However, subsequent development under the proposed Plan may require approval of State, federal and responsible trustee agencies that may rely on the program-level analysis in this EIR for decisions in their areas of expertise.

4. Environmental Analysis

This chapter of the Draft Environmental Impact Report (Draft EIR) is made up of 15 subchapters which evaluate the direct, indirect, and cumulative environmental impacts of the proposed Southwest Fresno Specific Plan (Plan). The following sections describe the format of the environmental analysis, the format of the thresholds of significance, and the methodology of the cumulative impact analysis.

FORMAT OF THE ENVIRONMENTAL ANALYSIS

The California Environmental Quality Act (CEQA) Guidelines Section 15128 allows for no analysis of environmental issues for which there is no likelihood of significant impact. Due to the location of the proposed Plan in an urbanized area in the city of Fresno, no impacts would occur to forestry or mineral resources. A brief discussion of each topic is provided as follows:

- Forestry Resources: According to 2006 mapping data from the California Department of Forestry and Fire Protection, the city of Fresno does not contain any woodland or forestland cover;[1] therefore, the city does not contain land zoned for Timberland Production. Consequently, there would be no impacts to forestry resources under CEQA.
- Mineral Resources: The City of Fresno permits mining only within the Mining (M) Overlay District (Citywide Development Code). Moreover, the boundaries of the Plan Area are classified as Mineral Resource Zone (MRZ)-3, which are defined as potential, but unproven mineral resource reserves (State of California, Division of Mines and Geology, Open File Report 99-02). MRZ-2 zones are those areas documented to have regionally significant mineral resources.

  Because neither the State nor the City of Fresno identifies the Plan Area as containing known regional mineral resource reserves, project implementation would not result in impacts to known mineral resources or locally important mineral resources.

Accordingly, this chapter of the Draft EIR is made up of 15 subchapters, which evaluate the direct, indirect, and cumulative environmental impacts of the proposed Plan. In accordance with Appendix F, Energy Conservation, and Appendix G, Environmental Checklist, of the CEQA Guidelines as amended per Assembly Bill 52 (Tribal Cultural Resources) and the California Supreme Court in a December 2015 opinion [*California Building Industry Association (CBIA) v. Bay Area Air Quality Management District (BAAQMD)*, 62 Cal. 4th 369 (No. S 213478)], the potential environmental effects of the proposed Plan are analyzed for

[1] California Department of Forestry and Fire Protection Fire and Resource Assessment Program, Land Cover Map, http://frap.fire.ca.gov/data/frapgismaps/pdfs/fvegwhr13b_map.pdf, accessed May 26, 2017.

potential significant impacts in the following 15 environmental issue areas, which are organized with the listed abbreviations:

- Aesthetics (AES)
- Agriculture (AG)
- Air Quality (AQ)
- Biological Resources (BIO)
- Cultural and Tribal Cultural Resources (CUL)
- Geology and Soils (GEO)
- Greenhouse Gas Emissions (GHG)
- Hazards and Hazardous Materials (HAZ)
- Hydrology and Water Quality (HYDRO)
- Land Use and Planning (LU)
- Noise (NOISE)
- Population and Housing (POP)
- Public Services and Recreation (PS)
- Transportation and Traffic (TRANS)
- Utilities and Service Systems (UTIL)

Each subchapter is organized into the following sections:

- Environmental Setting provides an overview of federal, State, regional and local laws and regulations relevant to each environmental issue, together with a description of the existing environmental conditions, providing a baseline against which the impacts of the proposed Plan can be compared.
- Standards of Significance refers to the quantitative or qualitative standards or conditions used to compare the existing setting with and without the proposed Plan to determine whether the impact is significant. These standards are based primarily on the CEQA Guidelines, and may reflect established health standards, ecological tolerance standards, public service capacity standards, and guidelines established by agencies or experts.
- Impact Discussion gives an overview of potential impacts of the proposed Plan and explains why impacts were found to be significant or less than significant prior to mitigation. This subsection also includes a discussion of cumulative impacts of the proposed Plan. Impacts and mitigation measures are numbered consecutively within each topical analysis and begin with an acronymic or abbreviated reference to the impact section.

LEVELS OF SIGNIFICANCE

As noted above, the significance criteria are identified before the impact discussion subsection, under the subsection, “Standards of Significance.” For each impact identified, a level of significance is determined using the following classifications:

- *Significant* (S) impacts describe effects that exceed an established or defined threshold.
- *Less-than-significant* (LTS) impacts describe effects that are noticeable, but do not exceed established or defined thresholds, or are mitigated below such thresholds.
- *No impact* describes the circumstances where there is no adverse effect on the environment.

For each impact identified as being significant, the EIR provides mitigation measures to reduce, eliminate, or avoid the adverse effect. If the mitigation measures would reduce the impact to a less-than-significant level successfully, this is stated in the EIR. However, *significant and unavoidable* (SU) impacts are described where mitigation measures would not diminish these effects to less-than-significant levels.

CUMULATIVE IMPACT ANALYSIS

A cumulative impact consists of an impact created as a result of the combination of the project evaluated in the EIR, together with other reasonably foreseeable impacts not caused by the proposed Plan. Section 15130 of the CEQA Guidelines requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable." Used in this context, cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

Where the incremental effect of a project is not "cumulatively considerable," a Lead Agency need not consider that effect significant, but must briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. Where the cumulative impact caused by the project's incremental effect and the effects of other reasonably foreseeable projects is not significant, the EIR must briefly indicate why the cumulative impact is not significant.

The cumulative impacts discussions in Chapters 4.1 through 4.15 explain the geographic scope of the area affected by each cumulative effect (e.g., immediate project vicinity, city, county, watershed, or air basin). The geographic area considered for each cumulative impact depends upon the impact that is being analyzed. For example, in assessing aesthetic impacts, the pertinent geographic study area is the vicinity of the areas of new development under the proposed Plan from which the new development can be publicly viewed and may contribute to a significant cumulative visual effect. In assessing macro-scale air quality impacts, on the other hand, all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions are the best tool for determining the cumulative effect.

Section 15130 of the CEQA Guidelines permits two different methodologies for completion of the cumulative impact analysis:

- The 'list' approach permits the use of a list of past, present, and probable future projects producing related or cumulative impacts, including projects both within and outside the city; and
- The 'projections' approach allows the use of a summary of projections contained in an adopted plan or related planning document, such as a regional transportation plan, or in an EIR prepared for such a plan. The projections may be supplemented with additional information such as regional modeling.

This EIR uses the projections approach and takes into account growth from the proposed Plan within the Fresno city boundary and Sphere of Influence (SOI), in combination with impacts from projected growth in the rest of Fresno County and the surrounding region. In each subsection of Chapter 4, the cumulative impacts discussion is based on the cumulative development described in Chapter 6, CEQA-Mandated Assessment, of this Draft EIR. The following provides a summary of the cumulative impact scope for each impact area:

- Aesthetics: The cumulative setting for visual impacts includes potential future development under the proposed Plan combined with effects of development on lands adjacent to the Plan Area within the city.

- Agriculture Resources: Cumulative impacts to agriculture resources occur from potential future development under the proposed Plan combined with effects of development on lands within the region.
- Air Quality: Cumulative air quality impacts could occur from a combination of the proposed Plan combined with regional growth within the San Joaquin Valley Air Basin.
- Biological Resources: The geographic scope of the cumulative analysis for biological resources considers the 5-mile radius surrounding the Plan Area.
- Cultural and Tribal Resources: Cumulative impacts to cultural resources occur from potential future development under the proposed Plan combined with effects of development on lands within the region.
- Geology, Soils, and Seismicity: Potential cumulative geological impacts could arise from a combination of the development of the proposed Plan together with future development in the immediate vicinity of the adjoining jurisdictions.
- Greenhouse Gas Emissions: The cumulative impact analyses for greenhouse gas (GHG) emissions are related to ongoing development in Fresno and the entire region. Because GHG emissions are not confined to a particular air basin but are dispersed worldwide, the cumulative analysis focuses on the global impacts.
- Hazards and Hazardous Materials: Potential cumulative hazardous impacts could arise from a combination of the development of the proposed Plan together with the regional growth in the immediate vicinity of the Plan Area.
- Hydrology and Water Quality: The geographic context used for the cumulative assessment of water quality and hydrology impacts is the Upper Dry Subbasin, which encompasses the entire Plan Area.
- Land Use and Planning: The cumulative setting for land use and planning includes the City planning regulations and regional planning, with which the City is required to comply to.
- Noise: The analysis addresses the operational and construction noise and vibration impacts of the proposed Plan on the noise environment in the Plan Area and the surrounding area. The traffic noise levels are based on cumulative traffic conditions that take into account cumulative development in the region.
- Population and Housing: Impacts from cumulative growth are considered in the context of their consistency with regional planning efforts.
- Public Services and Recreation: Cumulative impacts are considered in the context of the growth from development under the proposed Plan within the city combined with the estimated growth in the service areas of each service provider.
- Transportation and Traffic: The analysis of the proposed Plan addresses cumulative impacts to the transportation network in Fresno and the surrounding area.
- Utilities and Service Systems: Cumulative impacts are considered in the context of the growth from potential future development under the proposed Plan combined with the estimated growth in the service areas of each utility's service area.

4.1 AESTHETICS

This chapter describes the existing aesthetic character of the Plan Area and evaluates the potential environmental consequences of future development that could occur to the aesthetic character by adopting and implementing the proposed Plan.

4.1.1 ENVIRONMENTAL SETTING

4.1.1.1 REGULATORY FRAMEWORK

This section summarizes key State and local regulations and programs related to aesthetics in the Plan Area. There are no federal regulations pertaining to aesthetics that apply to the proposed Plan.

State Regulations

California Building Code

The California Building Code, Part 2 of Title 24 in the California Code of Regulations (CCR), is based on the International Building Code and combines three types of building standards from three different origins:

- Building standards that have been adopted by State agencies without change from building standards contained in the International Building Code.
- Building standards that have been adopted and adapted from the International Building Code to meet California conditions.
- Building standards, authorized by the California legislature, that constitute extensive additions not covered by the International Building Code that have been adopted to address particular California concerns.

The California Building Code includes standards for outdoor lighting that are intended to improve energy efficiency, and to reduce light pollution and glare by regulating light power and brightness, shielding, and sensor controls.

Local Regulations

Fresno General Plan

The Fresno General Plan is the City's primary policy planning document. Through its 12 elements, the General Plan provides the framework for the management and utilization of the City's physical, economic, and human resources. Each element contains goals, policies, and implementation measures that guide development within the City.

The Fresno General Plan includes the following objectives and policies that pertain to aesthetics and visual resources (Table 4.1-1).

TABLE 4.1-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO AESTHETICS

Objective/ Policy Number	Objective/Policy Text
Urban Form, Land Use and Design Element	
Policy UF-1-c	**Identifiable City Structure.** Focus integrated and ongoing planning efforts to achieve an identifiable city structure, comprised of a concentration of buildings, people, and pedestrian-oriented activity in Downtown; along a small number of prominent east-west and north-south transit-oriented, mixed-use corridors with distinctive and strategically located Activity Centers; and in existing and new neighborhoods augmented with parks and connected by multi-purpose trails and tree lined bike lanes and streets.
Policy UF-1-e	**Unique Neighborhoods.** Promote and protect unique neighborhoods and mixed use areas throughout Fresno that respect and support various ethnic, cultural and historic enclaves; provide a range of housing options, including furthering affordable housing opportunities; and convey a unique character and lifestyle attractive to Fresnans. Support unique areas through more specific planning processes that directly engage community members in creative and innovative design efforts.
Objective UF-2	*Enhance the unique sense of character and identity of the different subareas of the Downtown neighborhoods.*
Objective UF-8	*Develop each of Downtown's neighborhoods and districts, according to its unique character.*
Policy UF-12-g	**Impacts on Surrounding Uses.** Establish design standards and buffering requirements for high-intensity Activity Centers to protect surrounding residential uses from increased impacts from traffic noise and vehicle emissions, visual intrusion, interruption of view and air movement, and encroachment upon solar access.
Policy UF-13-a	**Future Planning to Require Design Principles.** Require future planning, such as Specific Plans, neighborhood plans or Concept Plans, for Development Areas designated by the General Plan to include urban design principles and standards consistent with the Urban Form, Land Use, and Design Element.
Policy UF-1-f	**Complete Neighborhoods, Densities, and Development Standards.** Use Complete Neighborhood design concepts, development standards, and project reviews outside the Downtown planning area to achieve the development of Complete Neighborhoods and the residential density targets of the General Plan.
Objective UF-14	*Create an urban form that facilitates multi-modal connectivity.*
Policy UF-14-a	**Design Guidelines for Walkability.** Develop and use design guidelines and standards for a walkable and pedestrian-scaled environment with a network of streets and connections for pedestrians and bicyclists, as well as transit and autos.
Objective LU-1	*Establish a comprehensive citywide land use planning strategy to meet economic development objectives, achieve efficient and equitable use of resources and infrastructure, and create an attractive living environment.*
Policy LU-1-b	**Land Use Definition and Compatibility.** Include zoning districts and standards in the Citywide Development Code that provide for the General Plan land use designations and create appropriate transitions or buffers between new development with existing uses, taking into consideration the health and safety of the community.
Policy LU-1-a	**Promote Development within the Existing City Limits as of December 31, 2012.** Promote new development, infill, and rehabilitation of existing building stock in the Downtown planning area, along BRT corridors, in established neighborhoods generally south of Herndon Avenue, and on other infill sites and vacant land within the City.
Objective LU-2	*Plan for infill development that includes a range of housing types, building forms, and land uses to meet the needs of both current and future residents.*
Policy LU-2-c	**Infill Design Toolkit.** Develop and distribute an infill design toolkit, consistent with the City's Infill Development Act to support and encourage infill development.
Policy LU-2-e	**Neighborhood Preservation.** Incorporate standards in the Citywide Development Code to preserve the existing small-scale residential quality of older neighborhoods.
Policy LU-3-b	**Mixed-Use Urban Corridors that Connect the Downtown Planning Area.** Support the development of mixed-use urban corridors that connect the Downtown planning area with the greater Fresno-Clovis Metropolitan Area with functional, enduring, and desirable urban qualities along the Blackstone Avenue, Shaw Avenue, California Avenue, and Ventura Avenue/Kings Canyon Road corridors.

TABLE 4.1-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO AESTHETICS

Objective/ Policy Number	Objective/Policy Text
Policy LU-4-a	**Neighborhood Nuisance Abatement.** Continue proactive and responsive code enforcement and nuisance abatement programs to improve the attractiveness of residential neighborhoods.
Policy LU-5-g	**Scale and Character of New Development.** Allow new development in or adjacent to established neighborhoods that is compatible in scale and character with the surrounding area by promoting a transition in scale and architectural character between new buildings and established neighborhoods, as well as integrating pedestrian circulation and vehicular routes.
Policy LU-6-a	**Design of Commercial Development.** Foster high quality design, diversity, and a mix of amenities in new development with uses through the consideration of guidelines, regulations and design review procedures.
Policy LU-6-b	**Commercial Development Guidelines.** Consider adopting commercial development guidelines to assure high quality design and site planning for large commercial developments, consistent with the Urban Form policies of the General Plan.
Policy LU-6-d	**Neighborhood and Community Commercial Center Design.** Plan for neighborhood mixed use and community commercial uses to implement the Urban Form concepts of the General Plan, promote the stability and identity of neighborhood and community shopping areas, and allow efficient access without compromising the operational effectiveness of the street system. ▪ Neighborhoods will be anchored by community commercial centers with a mix of uses that meet the area's needs and create a sense of place. ▪ Community commercial centers will be located within Activity Centers.
Policy LU-6-e	**Regional Center Planning and Design.** Promote economic growth with regional commercial centers. ▪ New regional commercial centers will be located with access to State Routes and/or other major transportation facilities to ensure access from throughout the region. ▪ Regional shopping centers will have internally-unified building design, landscaping, and signage standards.
Policy LU-6-f	**Auto-Oriented Commercial Uses.** Direct highway-oriented and auto-serving commercial uses to locations that are compatible with the Urban Form policies of the General Plan. Ensure adequate buffering measures for adjacent residential uses noise, glare, odors, and dust.
Policy LU-9-e	**Downtown Sightline.** Require new development to preserve existing sightlines to Downtown to the extent feasible.
Policy LU-9-f	**View Corridors.** Promote new view corridors that highlight the Downtown skyline.
Objective D-1	*Provide and maintain an urban image that creates a "sense of place" throughout Fresno.*
Policy D-1-d	**Public Art.** Continue to promote a citywide public art program that contributes to an awareness of the City's history and culture.
Policy D-1-e	**Graphic Identity.** Continue the preservation, promotion, procurement and strategic location of landmarks, monuments and artwork that provide orientation and represent Fresno's cultural heritage and artistic values.
Policy D-1-h	**Screening of Parking.** Continue requiring all new development with parking in Activity Centers and along corridors to be screened or concealed. Locate principal pedestrian entrances to new non-residential buildings on the sidewalk; any entrances from parking areas should be incidental or emergency use only.
Objective D-2	*Enhance the visual image of all "gateway" routes entering the Fresno Planning Area.*
Policy D-2-a	**Design Requirements for Gateways.** Consider unified design requirements for gateways to welcome travelers to the City's Activity Centers.
Policy D-2-c	**Highway Beautification.** Work with Caltrans, the Fresno Council of Governments, Tree Fresno, neighboring jurisdictions, and other organizations to obtain funding for highway beautification programs.
Objective D-3	*Create unified plans for Green Streets, using distinctive features reflecting Fresno's landscape heritage.*
Policy D-3-a	**Green Street Tree Planting.** Create a Green Street Tree Planting Program, with a well-balanced variety and spacing of trees to establish continuous shading and visual continuity for each streetscape. Strive to achieve coherent linkages between public and private spaces, prioritizing tree planting along tree-deficient Arterial and Collector Roadways in neighborhoods characterized by lower per capita rates of vehicle ownership.

TABLE 4.1-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO AESTHETICS

Objective/ Policy Number	Objective/Policy Text
Policy D-3-b	**Funding for Green Street Tree Planting Program.** Pursue funding for the Green Street Tree Planting Program, including landscaping of median islands.
Policy D-3-c	**Local Streets as Urban Parkways.** Develop local streets as "urban parkways," where appropriate, with landscaping and pedestrian spaces.
Policy D-3-d	**Undergrounding Utilities.** Partner with utility companies to continue to pursue the undergrounding of overhead utilities as feasible.
Objective D-4	*Preserve and strengthen Fresno's overall image through design review and create a safe, walkable and attractive urban environment for the current and future generations of residents.*
Policy D-4-f	**Design Compatibility with Residential Uses.** Strive to ensure that all new nonresidential land uses are developed and maintained in a manner complementary to and compatible with adjacent residential land uses, to minimize interface problems with the surrounding environment and to be compatible with public facilities and services.
Objective D-5	*Maintain and improve community appearance through programs that prevent and abate blighting influences.*
Policy D-5-a	**Code Enforcement.** Continue enforcement of the Fresno Municipal Code to remove or abate public nuisances in a timely manner.
Policy D-5-b	**Clean Streets.** Promote community partnerships and continued City efforts toward litter clean-up and abatement of trash stockpiles on public and private streets.
Policy D-5-c	**Facade Improvements.** Pursue funding for, and support of, building façade improvement programs.
Policy D-5-d	**Graffiti Prevention and Abatement.** Seek ways to end graffiti, continue and expand the City's effective Graffiti Abatement Program.
Policy D-6-b	Consider adopting and implementing incentives for, and support efforts by, private development to incorporate culturally-specific architectural elements in areas with a predominant ethnic population.
Mobility and Transportation Element	
Objective MT-3	*Identify, promote and preserve scenic or aesthetically unique corridors by application of appropriate policies and regulations.*
Policy MT-3-a	**Scenic Corridors.** Implement measures to preserve and enhance scenic qualities along scenic corridors or boulevards, including: ▪ Van Ness Boulevard—Weldon to Shaw Avenues ▪ Van Ness Extension—Shaw Avenue to the San Joaquin River Bluff ▪ Kearney Boulevard—Fresno Street to Polk Avenue ▪ Van Ness/Fulton couplet—Weldon Avenue to Divisadero ▪ Butler Avenue—Peach to Fowler Avenues ▪ Minnewawa Avenue—Belmont Avenue to Central Canal ▪ Huntington Boulevard—First Street to Cedar Avenue ▪ Shepherd Avenue—Friant Road to Willow Avenue ▪ Audubon Drive—Blackstone to Herndon Avenues ▪ Friant Road—Audubon to Millerton Roads ▪ Tulare Avenue—Sunnyside to Armstrong Avenues ▪ Ashlan Avenue—Palm to Maroa Avenues
Policy MT-3-b	Preserve street trees lining designated scenic corridors or boulevards. Replace trees of the predominant type and in a comparable pattern to existing plantings if there is no detriment to public safety.

4.1.1.2 EXISTING CONDITIONS

This section describes the existing visual character of the Plan Area, the scenic resources present in the surrounding area, as well as light and glare conditions.

Visual Character

Regional Character

The Plan Area is located in the southwestern portion of the city, generally between the urban downtown core of the City, and agriculture uses to the west and south. The Downtown area includes high-rise buildings, civic/institutional buildings, and industrial warehouses.

The Downtown area is the urban core of the city with high-rise buildings that contain a variety of land uses. The most common building types within Downtown are mixed-use buildings, theaters, civic/institutional buildings, and industrial warehouses. The Downtown area contains many structures that provide historic design elements. The suburbs contain low-rise neighborhood buildings that are primarily dominated by single-family residential uses.

Plan Area

Initially agricultural land, Southwest Fresno has gradually transitioned to house more residential, industrial, and commercial uses. As a result, the character of the housing, community buildings, and work places range in character and conditions. For the most part, they exhibit a very suburban character with large areas of parking and significant setbacks.

Many of the major streets in the Plan Area (e.g., California, Fig, and Church Avenues) were designed and built to accommodate transportation of industrial and agricultural products. Because Southwest Fresno was predominantly an area of farming, the roads allowed trucks to pass through and transport materials. Later on, large trucking businesses were introduced to the eastern side of the area. These streets cut through most of the established neighborhoods, with posted speeds of 45 MPH, and lead to agricultural areas. Most of the other local streets are also wide, and for the most part, provide on-street parking for the community. Sidewalks are narrow and offer little to no shade. In other cases, sidewalks are used as on-street parking for residents, or are nonexistent.

Most of the buildings in the Plan Area have been built between the 1950s and the 1990s. The prevalent architectural character for single-family homes is “American vernacular,” with altered Craftsman bungalows, modest Minimal Traditional, Mid-Century Modern, and contemporary tract homes, and mostly consists of one-story housing. Toward the center of the Plan Area, there are a few examples of older homes, which have been remodeled over time and thus lost their original architectural character.

In general, there is a lack of tree cover and mature vegetation on the streets that run north-south in the Plan Area. There is more landscaping on streets that run east-west such as Kearney Boulevard, California Avenue, and smaller residential streets.

Scenic Vistas

The Fresno General Plan does not identify or designate scenic vistas within the city. Although no scenic vistas have been designated, scenic vistas within the Plan Area could provide distant views of natural landscape features such as the Sierra Nevada Mountain Range. Distant views of man-made landscape features include the Downtown Fresno buildings that provide a unique skyline and can be seen from major thoroughfares including Elm Avenue in the Plan Area.

Light and Glare

Significant sources of light and glare, such as streetlights, parking lots, interior lights, and light emitted from residential and non-residential buildings throughout the Plan Area are located along major thoroughfares such as Elm Avenue and California Avenue. Limited lighting currently exists in areas closer to the City limit as single-story, rural residential and agricultural areas that are located within the Plan Area. Buildings and structures made with glass, metal, and polished exterior or roofing materials exist throughout the Plan Area. These surfaces as well as the natural and manmade light sources could result in localized glare.

4.1.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant aesthetic impact if it 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.
3. Substantially degrade the existing visual character or quality of the site and its surroundings.
4. Expose people on- or off-site to substantial light or glare, which would adversely affect day or nighttime views in the area.

4.1.3 IMPACT DISCUSSION

AES-1 Implementation of the proposed Plan would not have a substantial adverse effect on a scenic vista.

Future development under the proposed Plan would have the potential to affect scenic vistas and/or scenic corridors if new or intensified development blocks views of areas that provide or contribute to such vistas. Potential effects could include blocking views of a scenic vista/corridor from specific publicly accessible vantage points or altering the overall scenic vista/corridor itself. Such alterations could be positive or negative, depending on the characteristics of individual future developments and the subjective perception of observers.

As previously described, public views of scenic corridors are considered those views as seen along a linear transportation route, and public views of scenic vistas are views of specific scenic features. Scenic vistas

are generally interpreted as long-range views, while scenic corridors are comprised of short-, middle-, and long-range views.

The Fresno General Plan does not identify any scenic vistas from within the City. Although the General Plan identifies six locations as publicly valued scenic features along the San Joaquin River bluffs, the river bluffs are not visible from the Plan Area due to the flat topography of the city. The Fresno General Plan, as noted in Policy MT-3-a, identifies Kearney Boulevard from Fresno Street to Polk Avenue as a scenic corridor. Policy MT-3-b requires that street trees lining designated scenic corridors, such as the palm trees on Kearney Boulevard, be preserved. As a result, the project would result in a less-than-significant impact to scenic vistas.

Significance Without Mitigation: Less than significant.

AES-2	**Implementation of the proposed Plan would not substantially degrade the view from a scenic highway, including, but not limited to, trees, rock outcroppings, and historic buildings.**

Scenic highways are California highways designated by a local governing body and protected by the State Scenic Highway Program for the purpose of protecting and enhancing the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. There are no officially designated State Scenic Highways in the City of Fresno (California State Scenic Highway Program 2015). As a result, the project would result in a less-than-significant impact to scenic highways.

Significance Without Mitigation: Less than significant.

AES-3	**Implementation of the proposed Plan would not degrade the existing visual character or quality of the site and its surroundings.**

Future development allowed by the proposed Plan could degrade the visual character of the Plan Area if the form and appearance of new development deteriorate the quality of the existing setting.

As described above, the Plan Area exhibits a predominantly auto-oriented urban character and is largely comprised of single-story residential buildings, retail commercial, and light industrial uses in buildings that are not architecturally notable. Future development allowed by the proposed Plan would introduce building form and massing that is more intense than the current character of the area but would generally be consistent with the overall urban character of the area.

In addition, as described in Chapter 3, Project Description, the proposed Plan contains Development and Design Guidelines that regulate new site and building development through standards for intensity, building height, and setbacks. These standards and guidelines would require all new development be more visually pleasing to pedestrians than existing uses, most of which are auto-oriented and include surface parking lots along the sidewalk. In addition, the Plan includes Goal LU-4 which requires that the use and character of existing residential neighborhoods be maintained, while improving the quality of housing and encouraging homeownership, and remediates Southwest Fresno's blighting conditions to

improve the community's image, attract private investment, and create a pleasant living environment. Furthermore, Policy LU-4.5 requires the creation of design standards that promote high-quality, aesthetically-attractive, and architecturally-consistent building design for building improvements.

Although future development allowed by the proposed Plan would change the existing visual character on individual sites, compliance with these regulations would ensure that the bulk, mass, height, and architectural character of future development under the proposed Plan would be compatible with surrounding uses and would not substantially degrade the visual quality of the site or its surroundings and associated impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

AES-4	**Implementation of the proposed Plan would expose people on- or off-site to substantial light or glare which would adversely affect day or nighttime views in the area.**

Development in accordance with the General Plan and Development Code will result in land use changes within the Plan Area. These land use changes include the development of new residential and non-residential land uses.

New development within the City limit could increase the amount of light from street lights, exterior lighting systems on private and public property, exterior lighting from buildings, and vehicular headlights. New development could also increase light with new illuminated signs and lighting systems to illuminate active play areas. The increase in lighting within the City limit could result in light spillover onto adjacent properties. In addition, the increase in light will substantially illuminate the sky at night. This increase in light illumination is considered a significant impact.

Many areas outside of the existing City limit and within the Plan Area, as well as directly adjacent to the Plan Area, are exposed to a nominal amount of light due to the rural and agricultural setting. New urban development will substantially alter these existing rural and agricultural areas. Increases in lighting systems will occur within new development throughout this area and could result in an increase in lighting adjacent to the Plan Area. Residential development will include lighting systems on properties to provide safety and security. Non-residential development will include lighting system for parking areas, buildings, and signs. Public facilities including active use parks will increase lighting to illuminate play areas for evening activities. With the increase in development in this area, there will be increases in nighttime traffic that will increase lighting from car headlights. Together, new development will increase the amount of light that could cause light spillover onto adjacent properties within and adjacent to the Plan Area and increase the illumination of the sky at night. This increase in light is considered a significant impact.

Development in accordance with the General Plan and Development Code will increase the amount of structures that could create new sources of glare within the Plan Area and directly adjacent to the Plan Area. These new sources of glare could be from materials used on building façades, parking lots, signs, roadway surfaces, and motor vehicles. As a result, due to the amount of new building square footage

planned for the Plan Area, new buildings will result in a substantial increase in glare. This increase could result in significant glare impacts.

Significance Without Mitigation: Significant.

The following mitigation measures were included in the MEIR and remain applicable to this project:

Impact AES-4: Implementation of the proposed Plan would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

MEIR Mitigation Measure AES-1: Lighting systems for street and parking areas shall include shields to direct light to the roadway surfaces and parking areas. Vertical shields on the light fixtures shall also be used to direct light away from adjacent light sensitive land uses such as residences.

MEIR Mitigation Measure AES-2: Lighting systems for public facilities such as active play areas shall provide adequate illumination for the activity; however, low-intensity light fixtures and shields shall be used to minimize spillover light onto adjacent properties.

MEIR Mitigation Measure AES-3: Lighting systems for non-residential uses, not including public facilities, shall provide shields on the light fixtures and orient the lighting system away from adjacent properties. Low-intensity light fixtures shall also be used if excessive spillover light onto adjacent properties will occur.

MEIR Mitigation Measure AES-4: Lighting systems for freestanding signs shall not exceed 100 foot-Lamberts (FT-L) when adjacent to streets which have an average light intensity of less than 2.0 horizontal footcandles and shall not exceed 500 FT-L when adjacent to streets that have an average light intensity of 2.0 horizontal footcandles or greater.

Mitigation Measure AES-5: Materials used on building façades shall be non-reflective.

Significance With Mitigation: Significant and unavoidable. The increase in sources of light would result in impacts to nighttime sky that could not be mitigated through the implementation of MEIR Mitigation Measures AES-1 through AES-4.

4.1.4 CUMULATIVE IMPACTS

AES-5	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to aesthetics.**

The methodology used for the cumulative impact analysis is described in Section 4, Environmental Analysis, of this Draft EIR. The cumulative setting for aesthetics includes past, present, and reasonably foreseeable projects within the immediate vicinity of the Plan Area.

As previously discussed, there are no designated scenic vistas or State-designated scenic highways in the Plan Area or the City of Fresno. As such, there would be no cumulative impacts to scenic vistas or visual resources along scenic highways.

Because of the developed nature of the proposed Plan, future development under the proposed Plan, in combination with other new development, would not negatively impact the visual character of Southwest Fresno.

As discussed above, implementation of the proposed Plan would increase the amount of structures that could create new sources of glare within the Plan Area and directly adjacent to the Plan Area. These new sources of glare could be from materials used on building façades, parking lots, signs, roadway surfaces, and motor vehicles. As a result, due to the amount of new building square footage planned for the Plan Area, new buildings will result in a substantial increase in glare. This increase could result in cumulatively-considerable significant glare impacts and illumination of the nighttime sky.

Significance Without Mitigation: Significant.

Impact AES-5: Implementation of the proposed Plan would result in an increase in glare.

Mitigation Measure AES-5: Implement Mitigation Measures AES-4a through AES-4e of the MEIR.

Significance With Mitigation: Significant and Unavoidable. The increase in sources of light would result in impacts to nighttime sky that could not be mitigated through the implementation of MEIR Mitigation Measures AES-4a through AES-4e.

4.2 AGRICULTURE

This section describes the regulatory framework and existing conditions of the Plan Area related to agricultural resources, and the potential impacts of the proposed Plan on agricultural resources.

4.2.1 ENVIRONMENTAL SETTING

4.2.1.1 REGULATORY FRAMEWORK

Federal Regulations

Farmland Protection Policy Act

The Farmland Protection and Policy Act (FPPA) was designed to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. This act 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. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. This act does not authorize the federal government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners. For the purposes of the act, "farmland" includes prime farmland, unique farmland, and farmland of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban/built-up land.[1]

State Regulations

Williamson Act

The California Land Conservation Act of 1965 (Williamson Act) allows local governments to enter into voluntary contracts with private landowners to restrict specific parcels of land to agricultural uses. In return, restricted parcel property taxes are assessed at a rate consistent with their actual use rather than potential market value. The minimum length of Williamson Act contracts is ten years. Because the contract term automatically renews on each anniversary date of the contract, the actual contract length is essentially indefinite.

Farmland Mapping and Monitoring Program

Within the California Natural Resources Agency, the State Department of Conservation (CDC) provides services and information that promote informed land use decisions and sound management of the State's natural resources. The Department manages the Farmland Mapping and Monitoring Program (FMMP),

[1] Natural Resources Conservation Service, Farmland Protection Policy Act.

which supports agriculture throughout California by developing maps and statistical data for analyzing land use impacts to farmland.

The developed maps are called the Important Farmlands Inventory (IFI). The IFI categorizes land based on the productive capabilities of the land. There are many factors that determine the agricultural value of land, including the suitability of soils for agricultural use, whether soils are irrigated, the depth of soil, water-holding capacity, and physical and chemical characteristics. To categorize soil capabilities, two soil classification systems are used: the Capability Classification System and the Storie Index. The Capability Classification System categorizes soils from Class I to Class VIII based on their capability to produce common cultivated crops and pasture plants without deteriorating over a long period of time (Class I soils have few limitations for agriculture; Class VIII soils are unsuitable for agriculture).[2] The Storie Index takes into account other factors, such as slope and texture.

FMMP rates the production potential of agricultural land according to the following classifications:

- Prime Farmland has the best combination of physical and chemical features able to sustain long-term agricultural production. Prime Farmland has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agriculture production at some time during the four years prior to the mapping date.
- Farmland of Statewide Importance is similar to Prime Farmland but with minor shortcomings, such as steeper slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Unique Farmland consists of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- Farmland of Local Importance is land that is important to the local agricultural economy. It is determined by each county's board of supervisors and a local advisory committee.
- Grazing Land is the land on which the existing vegetation is suited to the grazing of livestock.
- Urban and Built-Up Land is occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.
- Other Land is land not included in any other mapping category. Common examples include low density rural developments; wetlands and riparian areas not suitable for livestock grazing; confined livestock, poultry, and aquaculture facilities; and strip mines. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as other land. The Rural Land Mapping Project provides more detail on the distribution of various land uses within

[2] Natural Resources Conservation Service, http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/about/history/?cid=nrcs143_021436, accessed April 21, 2017.

the Other Land category in all eight San Joaquin Valley counties. The Rural Land categories include: Rural Residential Land, Semi-Agricultural and Rural Commercial Land, Vacant or Disturbed Land, Confined Animal Agriculture, and Nonagricultural or Natural Vegetation.

- Water is used to describe perennial water bodies with an extent of at least 40 acres.

California Government Code Section 56064

This section of the Government Code defines "Prime Agricultural Land" as follows:

- Prime agricultural land means an area of land, whether single parcel or contiguous parcels, that has not been developed for a use other than an agricultural use and that meets any of the following qualifications:
  - Land that qualifies, if irrigated, for rating as class I or class II in the United States Department of Agriculture (USDA) Natural Resources Conservation Service land use capability classification, whether or not land is actually irrigated, provided that irrigation is feasible.
  - Land that qualifies for rating 80 through 100 Storie Index Rating.
  - Land that supports livestock used for the production of food and fiber that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the USDA in the National Range and Pasture Handbook, Revision 1, December 2003.
  - Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than $400.00 dollars per acre.
  - Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than $400.00 dollars per acre for three of the previous five calendar years.

Local Regulations

Fresno General Plan

The Fresno General Plan contains objectives and policies related to agricultural resources within the City of Fresno (Table 4.2-1).

4.2.1.2 EXISTING CONDITIONS

As shown in Table 5.2-2 of the Fresno General Plan Master EIR, adopted December 2014, the Planning Area of the city contains approximately 9,550 acres of Prime Farmland, and 9,070 acres of Farmland of Local Importance. The Master EIR contemplated the conversion of this farmland to non-agricultural uses, and determined the impact to be significant and unavoidable, as no feasible mitigation measures in

addition to Policies RC-9-a, RC-9-b, and RC-8-c under Objective RC-9 are available.[3] The Findings of Fact for the General Plan Master EIR state that due to the substantial amount of development that would occur through buildout of the Plan, and since no new farmlands would be created, the implementation of the project would result in a loss of farmland, which is considered significant and unavoidable.[4] The City of Fresno issued a Statement of Overriding Considerations for this and other impacts determined to be significant and unavoidable as a result of implementation of the project. The Statement describes the benefits of the project and determined that the unavoidable adverse environmental impacts identified in the Master EIR may be considered "acceptable" due to several considerations. For example, the project will facilitate reinvestment in existing neighborhoods and commercial areas within the city, and promote land uses that conserve resources and will make efficient use of existing infrastructure.[5]

The Plan Area is located within the City's Sphere of Influence (SOI) within the area planned for urbanization, and within the city limit. Therefore, Objective RC-9 and Policies RC-9-a, RC-9-b, and RC-9c (described in Table 4.2-1) do not apply to the proposed Plan. According to FMMP data, 406 acres of Farmland of Local Importance and 744 acres of Prime Farmland are located within the Plan Area, for a total of 1,150 acres. Further, Figure 4.2-1 shows that existing land uses within the Plan Area include areas designated for agricultural use. This use is spread intermittently throughout the Plan Area. Specifically, agricultural use is located in the far northwestern portion of the Plan Area north of Kearney Boulevard, west of Marks Avenue; north of Jensen Avenue, west of Fairview Avenue, south of Church Avenue, and east of West Avenue; and in the far southeastern portion of the

[3] Fresno General Plan Master EIR, Section 5.2, Agricultural Resources, Impact AG-1.

[4] Findings of Fact, General Plan and Development Code Update Master Environmental Impact Report, City of Fresno, County of Fresno, California, Section 2.2.1, Convert Farmland to Non-Agricultural Use.

[5] Resolution of the Council of the City of Fresno certifying environmental impact report SCH no. 2012111015, Exhibit 3, Statement of Overriding Considerations.

AGRICULTURE

Source: City of Fresno.

RESIDENTIAL
- Mobile Home Park
- Low Density
- Medium-low Density
- Medium Density
- Medium-high Density
- High Density

COMMERCIAL
- Neighborhood/Neighborhood Center
- Community/Neighborhood Limited
- Heavy/Regional
- Office
- Professional Services Office

INDUSTRIAL
- Light
- Heavy

- School
- Community Services/Institutional
- Agriculture
- Open Space/Park
- Airport
- Utility
- Parking
- Vacant

Figure 4.2-1
Existing Land Use

TABLE 4.2-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO AGRICULTURE AND FORESTRY RESOURCES

Objective/ Policy Number	Objective/Policy Text
Objective RC-9	*Preserve agricultural land outside of the area planned for urbanization under this General Plan.*
Policy RC-9-a	**Regional Cooperation.** Work to establish a cooperative research and planning program with the Counties of Fresno and Madera, City of Clovis, and other public agencies to conserve agricultural land resources.
Policy RC-9-b	**Land Outside SOI.** Express opposition to residential and commercial development proposals in unincorporated areas (excluding County Islands) within or adjacent to the planning area when these proposals would do any of the following: ▪ Make it difficult or infeasible to implement the General Plan; ▪ Contribute to the premature conversion of agricultural, open space, or grazing lands; or Constitute a detriment to the management of resources and/or facilities important to the Fresno Metropolitan Area (such as air quality, water quantity and quality, traffic circulation, and riparian habitat).
Policy RC-9-c	**Farmland Preservation Program.** In coordination with regional partners or independently, establish a Farmland Preservation Program. When Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is converted to urban uses outside City limits, this program would require that the developer of such a project permanently protect an equal amount of similar farmland elsewhere through easement.
Policy HC-5-f	**Urban Agriculture.** Promote a full range of urban agriculture activities, including farmers' markets, farm stands, community gardens, on-site garden produce market stands, and urban farms. Support associations involved in these activities, which can be accomplished by a combination of the following: ▪ Amend the Fresno Municipal Code (FMC) to provide clear and concise permitting procedures regarding Community Gardens, On-site Garden Produce Market Stands, and Urban Farms that allow sale of foods grown locally. ▪ Create a policy for reduced planning entitlements and plan check fees. ▪ Make publically available an inventory of City-owned surplus land that could be used for urban agriculture. ▪ Continue to allow and promote community gardens in City-owned parks. ▪ Support the planning of community gardens within walking distance of high-density residential areas to compensate for the reduced amount of open space in these areas. ▪ Emphasize opportunities for urban agriculture in all areas of the city, schools, parks, residential food deserts, and especially in areas of the city with a relatively high proportion of "food insecure" individuals.
Policy HC-5-g	**Commercial Agriculture.** Continue to develop policies to allow agriculture on land greater than 50 acres in area.

Plan Area west of Fig Avenue. The City completed an update to its zoning code effective March 7, 2016. Under existing zoning, there are lands within the Plan Area that are zoned for exclusive 20-acre agricultural use. Those lands are located between Highway 180 and Whites Bridge Avenue, between West Chandler Avenue and Kearney Boulevard, and between Kearney Boulevard and West Church Avenue.

The Healthy Communities Element of the Fresno General Plan includes a goal to provide opportunities for urban agriculture. The City defines urban agriculture as the practice of cultivating, processing, and distributing food in or around a city or town for local consumption. Urban agriculture includes farmers' markets, farm stands, community gardens, on-site garden produce market stands, and urban farms.[6] Specifically, Policy HC-5-f encourages the implementation of small-scale agricultural uses within urban

[6] City of Fresno, Healthy Communities Element, 2014.

areas. Therefore, this policy would apply to the Plan Area. Policy HC-5-g allows commercial agriculture on land greater than 50 acres in area, which would not apply to the Plan Area, as no parcel is greater than 50 acres in size.

According to the FMMP California Important Farmland Finder, there is no Unique Farmland within the Plan Area. However, there are areas of Prime Farmland and Farmland of Local Importance scattered throughout the Plan Area. These include parcels located south of California Avenue and east of Fruit Avenue, parcels located northwest of California and West Avenues as well as the MLK Activity Center located at Jensen Avenue and MLK Jr. Boulevard (see Figure 4.2-1).. Just west of the Plan Area, in the SOI, there is Prime Farmland located west of Hughes Avenue. Some of the parcels designated as Prime Farmland and Farmland of Local Importance are in use as Open Agriculture, including land at the far western portion of the Plan Area at California and Valentine Avenues, as well as in the central portion of the Plan Area at Fruit and Church Avenues. The parcels at Marks and Kearney Avenue are in use as Rural Residential. The parcel at Walnut and Church Avenues is in use as a Public Facility, partly being prepared for agricultural use. The remaining parcels that contain Prime Farmland and Farmland of Local Importance are not currently under active agricultural use and not considered important on a local level.

The Fresno General Plan, adopted in 2014, depicts existing farmland within the city's SOI in its Map Atlas. According to the Atlas's associated Prime Farmland map, the Plan Area is designated as Urban Developed, Farmland of Local Importance, Prime Farmland, Rural Residential, as well as some Farmland of Local Importance and Unique Farmland. The Fresno General Plan Map Atlas describes some of the area containing the Farmland of Local Importance as Vacant, indicating that there are no active agricultural uses on-site. Other areas, as described above, are designated Open Agriculture, Public Facility and Rural Residential uses.

According to the Natural Resources Conservation Service (NRCS) soil survey data, the area within the Plan Area that is designated as Farmland of Local Importance contains soils in the Atwater series. The Atwater soils series is used mainly for production of truck crops, grapes, tree fruits, nuts, grain, and alfalfa (USDA 2003). However, no such uses currently occur on these designated areas.

4.2.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact to agriculture or forestry resources 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.

4.2.3 IMPACT DISCUSSION

AG-1	**Implementation of the proposed Plan would 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.**

According to the FMMP California Important Farmland Finder, there are areas of "Prime Farmland" and "Farmland of Local Importance" scattered throughout the Plan Area. The remainder of the Plan Area is considered Urban Built-Up Land. As a result, implementation of the proposed Plan would result in the conversion of Prime Farmland to non-agriculture use. As discussed in Section 4.2.1.2, the conversion of Prime Farmland to non-agriculture use was found to be significant and unavoidable, with no mitigation measure available to reduce the impact to less than significant. Therefore, there would be *a significant impact* related to the conversion of prime or unique farmland, or farmland of statewide importance.

Impact AG-1: Implementation of the proposed Plan would 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.

Significance Without Mitigation: Significant and unavoidable. Consistent with the findings of the adopted General Plan MEIR, the proposed Plan includes land use changes that would result in the conversion of farmland to non-agriculture uses, and no feasible mitigation measures are available.

AG-2	**Implementation of the proposed Plan would not conflict with existing zoning for agricultural use, or a Williamson Act contract.**

The Fresno General Plan depicts existing farmland within the City's SOI in the Map Atlas Existing Conditions Report. According to the associated Williamson Act Property map, there are no Williamson Act properties within the Plan Area. Further, the proposed Plan does not contain zoning designations that pertain to agriculture. Thus, no impact to Williamson Act lands would occur.

Existing land use designations within the Plan Area include agriculture. Under the proposed Plan, there are no land use designations that include agriculture, and no areas that would be zoned for agricultural use. However, community gardens are encouraged by the following Policy:

Policy LU-1.1 Increase access to fresh, affordable, and nutritious food sources with an emphasis on attracting and encouraging small and large food retailers such as grocery stores, farmers' markets, nutrition programs, community gardens, and food stands to provide fresh, affordable, and nutritious foods.

Community gardens would accommodate urban agriculture in a variety of physical contexts and provide areas for garden plots available to the general public for the cultivation of vegetables, fruit, and flowers. Because the areas under existing agricultural zoning are not currently under active agricultural production and are located in an urban/residential setting that is designated for urban/residential development under the Fresno General Plan, and because the proposed Plan would promote urban agriculture, as feasible, including community gardens, impacts associated with agricultural zoning conflicts are considered *less than significant*.

Significance Without Mitigation: Less than significant.

AG-3	**Implementation of the proposed Plan would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use.**

As discussed above under Impact AG-1, future development under the proposed Plan would result in the conversion of farmland to non-agricultural use. Except for direct conversion, the implementation of the Plan would not result in other changes in the existing environment that would impact agricultural land outside of the Plan Area. In addition, the development in accordance with the proposed Plan would not impact forest land, as discussed in Chapter 2, Executive Summary. Therefore, the proposed Plan would result in *no impact* on farmland or forest land involving other changes to the existing environment.

Significance Without Mitigation: Less than significant.

4.2.4 CUMULATIVE IMPACTS

AG-4	**Implementation of the proposed Plan, in combination with past, present and reasonably foreseeable projects, would result in significant and unavoidable cumulative impacts with respect to agriculture resources.**

As discussed above, implementation of the proposed Plan would result in a significant impact related to the conversion of farmland of concern under CEQA. As such, the proposed Plan would contribute to a cumulative impact with respect to agriculture resources. Although the proposed Plan includes a policy to promote urban agriculture, consistent with the adopted Fresno General Plan, future development in areas outside of the Plan Area, in combination of the loss of prime farmland within the Plan Area would result in the conversion of farmland to non-agriculture uses. To reduce potential cumulative impacts on agricultural zoning and Williamson Act Contracts, the General Plan Update includes Objective RC-9 and Policies RC-9-a through RC-9-c, shown in Table 4.2-1, that will reduce the premature conversion of agricultural land within the Plan Area and outside the sphere-of-influence and could reduce conflicts with agricultural zoning and Williamson Act Contracts. However, this policy will not prevent owners of farmland to enter into Williamson Act Contract non-renewals. Therefore, the implementation of the proposed project will result in a significant and unavoidable impact on agricultural zoning and Williamson Act Contracts. Therefore, this impact would be *significant.*

Impact AG-4: Implementation of the proposed Plan would 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.

Significance Without Mitigation: Significant and unavoidable. Consistent with the findings of the adopted General Plan MEIR, the proposed Plan includes land use changes that would result in the conversion of farmland to non-agriculture uses, and no feasible mitigation measures are available.

4.3 AIR QUALITY

This chapter of the Draft Environmental Impact Report (Draft EIR) evaluates the potential for the proposed Southwest Fresno Specific Plan (proposed Plan) to impact air quality in a local and regional context. This evaluation is based on the methodology recommended by the San Joaquin Valley Air Pollution Control District (SJVAPCD). The analysis focuses on air pollution from regional emissions and localized pollutant concentrations. Criteria air pollutant emissions modeling for the proposed Plan is included in Appendix C of this Draft EIR. Transportation-sector impacts are based on trip generation and vehicle miles traveled (VMT) provided by Fehr and Peers (see Appendix H). Cumulative impacts related to air quality are based on the regional boundaries of the San Joaquin Valley Air Basin (SJVAB).

4.3.1 ENVIRONMENTAL SETTING

4.3.1.1 REGULATORY FRAMEWORK

Federal, state, and local air districts have passed laws and regulations intended to control and enhance air quality. Land use in the Plan Area is subject to the rules and regulations imposed by SJVAPCD, California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA). The regulatory framework that is potentially applicable to the proposed Plan is also summarized below.

Federal and State Regulations

Ambient air quality standards have been adopted at federal and State levels for criteria air pollutants. In addition, both the federal and State governments regulate the release of toxic air contaminants (TACs). The City of Fresno is in the SJVAB and is subject to the rules and regulations imposed by the SJVAPCD, the national Ambient Air Quality Standards (AAQS) adopted by the US EPA, and the California AAQS adopted by CARB. Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed Plan are summarized below.

Ambient Air Quality Standards

The Clean Air Act was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The Clean Air Act allows states to adopt more stringent standards or to include other pollutants. The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect “sensitive receptors” most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy

adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 4.3-1. These pollutants are ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- **AB 1493:** Pavley Fuel Efficiency Standards
- **Title 20 California Code of Regulations (CCR)**: Appliance Energy Efficiency Standards
- **Title 24, Part 6, CCR:** Building Energy Efficiency Standards
- **Title 24, Part 11, CCR:** Green Building Standards Code

Tanner Air Toxics Act and Air Toxics "Hot Spot" Information and Assessment Act

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 US Code Section 7412[b]) is a toxic air contaminant. Under State law, the California Environmental Protection Agency (CalEPA), acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets up a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs that are identified as having no safe threshold.

Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

TABLE 4.3-1 AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard[a]	Federal Primary Standard[b]	Major Pollutant Sources
Ozone (O_3)[c]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20.0 ppm	35.0 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9.0 ppm	
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Particulate Matter (PM_{10})[d]	Annual Arithmetic Mean	20.0 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50.0 µg/m^3	150.0 µg/m^3	
Respirable Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12.0 µg/m^3	12.0 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35.0 µg/m^3	
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarterly	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[e]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo[f] =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

TABLE 4.3-1 AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard[a]	Federal Primary Standard[b]	Major Pollutant Sources
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydro-carbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Notes: ppm: parts per million; $\mu g/m^3$: micrograms per cubic meter
* Standard has not been established for this pollutant/duration by this entity.
a. California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
b. National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
c. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
d. On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM_{10} standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
e. On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual arithmetic mean standards were revoked.
Source: California Air Resources Board, 2015, Ambient Air Quality Standards, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, accessed on April 20, 2017.

CARB has promulgated the following specific rules to limit TAC emissions:

- **13 CCR Chapter 10, Section 2485**, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- **13 CCR Chapter 10, Section 2480**, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- **13 CCR Section 2477 and Article 8**, Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

Air Pollutants of Concern

Criteria Air Pollutants

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_x), sulfur dioxide (SO_2), coarse inhalable particulate

matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that AAQS have been established for them. ROG and NO_x are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants. Each of the primary and secondary criteria air pollutants and its known health effects is described here.

- Carbon Monoxide (CO) is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.[1] The SJVAB is designated under the California and National AAQS as being in attainment of CO criteria levels.[2]
- Volatile Organic Compounds (VOCs) are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of VOCs. Other sources of VOCs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of O_3, the SJVAPCD has established a significance threshold for this pollutant.
- Nitrogen Oxides (NO_x) are a by-product of fuel combustion and contribute to the formation of ground-level O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen quickly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and is more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO_2 is only potentially irritating. NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 exposure concentrations near roadways are of particular concern for susceptible individuals, including people with asthma, children, and the elderly. Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between breathing elevated short-term NO_2 concentrations and increased

[1] United States Environmental Protection Agency (EPA). Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed June 28, 2017.

[2] California Air Resources Board (CARB), 2015. Area Designations Maps: State and National, http://www.arb.ca.gov/desig/adm/adm.htm, accessed July 31, 2017. San Joaquin Valley Air Pollution Control District, 2017. Ambient Air Quality Standards & Valley Attainment Status. http://www.valleyair.org/aqinfo/attainment.htm, accessed July 31, 2017.

visits to emergency departments and hospital admissions for respiratory issues, especially asthma.[3] The SJVAB is designated an attainment area for NO_2 under the National and California AAQS.[4]

- **Sulfur Dioxide (SO_2)** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects including bronchoconstriction and increased asthma symptoms. These effects are particularly important for asthmatics at elevated ventilation rates (e.g., while exercising or playing.) At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency departments and hospital admissions for respiratory illnesses, particularly in at-risk populations including children, the elderly, and asthmatics.[5] The SJVAB is designated attainment under the California and National AAQS.[6]
- **Suspended Particulate Matter (PM_{10} and $PM_{2.5}$)** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. EPA scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing). Diesel particulate matter (DPM) is classified by the CARB as a carcinogen. Particulate matter can also cause environmental effects such as visibility impairment,[7] environmental damage,[8] and aesthetic

[3] United States Environmental Protection Agency (EPA). Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed June 28, 2017.

[4] California Air Resources Board (CARB), 2015. Area Designations Maps: State and National. http://www.arb.ca.gov/desig/adm/adm.htm, accessed July 31, 2017. San Joaquin Valley Air Pollution Control District, 2017. Ambient Air Quality Standards & Valley Attainment Status. http://www.valleyair.org/aqinfo/attainment.htm, accessed July 31, 2017.

[5] United States Environmental Protection Agency (EPA). Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants, accessed , June 28, 2017.

[6] California Air Resources Board (CARB), 2015. Area Designations Maps: State and National. http://www.arb.ca.gov/desig/adm/adm.htm, accessed July 31, 2017. San Joaquin Valley Air Pollution Control District, 2017. Ambient Air Quality Standards & Valley Attainment Status. http://www.valleyair.org/aqinfo/attainment.htm, accessed July 31, 2017.

[7] $PM_{2.5}$ is the main cause of reduced visibility (haze) in parts of the United States.

damage.[9,10] The SJVAB is a nonattainment area for PM_{10} under the California AAQS and nonattainment for $PM_{2.5}$ under the California and National AAQS.[11]

- **Ozone (O_3)** is commonly referred to as "smog" and is a gas that is formed when VOCs and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation, including forest trees and plants during the growing season.[12] The SJVAB is designated severe nonattainment under the California AAQS (1-hour and 8-hour) and extreme nonattainment under the National AAQS (8-hour).[13]
- **Lead (Pb)** is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from on-road motor vehicle gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions to the air today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. Once taken into the body, lead distributes throughout the body in the blood and is accumulated in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The lead effects most commonly encountered in current populations are neurological effects in children and cardiovascular effects (e.g., high blood pressure and heart disease) in adults. Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits,

[8] Particulate matter can be carried over long distances by wind and then settle on ground or water. The effects of this settling include: making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

[9] Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

[10] United States Environmental Protection Agency (EPA). Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants, accessed June 28, 2017.

[11] California Air Resources Board (CARB), 2015. Area Designations Maps: State and National, http://www.arb.ca.gov/desig/adm/adm.htm, accessed July 31, 2017. San Joaquin Valley Air Pollution Control District, 2017. Ambient Air Quality Standards & Valley Attainment Status. http://www.valleyair.org/aqinfo/attainment.htm, accessed July 31, 2017.

[12] United States Environmental Protection Agency (EPA). Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants, accessed June 28, 2017.

[13] California Air Resources Board (CARB), 2015. Area Designations Maps: State and National, http://www.arb.ca.gov/desig/adm/adm.htm, accessed July 31, 2017. San Joaquin Valley Air Pollution Control District, 2017. Ambient Air Quality Standards & Valley Attainment Status. http://www.valleyair.org/aqinfo/attainment.htm, accessed July 31, 2017.

and lowered IQ.[14] The SJVAB is designated in attainment of the California and National AAQS for lead.[15] Because emissions of lead are found only in projects that are permitted by SJVAPCD, lead is not an air quality of concern for the proposed Plan.

Toxic Air Contaminants

At the time of the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs.[16] Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified DPM as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs.

Regional Regulations

San Joaquin Valley Air Pollution Control District

The primary role of SJVAPCD is to develop plans and implement control measures in the SJVAB to control air pollution. These controls primarily affect stationary sources such as industry and power plants. Rules and regulations have been developed by SJVAPCD to control air pollution from a wide range of air pollution sources. SJVAPCD also provides uniform procedures for assessing potential air quality impacts of proposed projects and for preparing the air quality section of environmental documents.[17]

Air Quality Planning

The EPA requires states that have areas that do not meet the National AAQS to prepare and submit air quality plans showing how the National AAQS will be met. If the states cannot show how the National AAQS will be met, then the states must show progress toward meeting the National AAQS. These plans are referred to as the State Implementation Plans (SIP). California's adopted *2007 State Strategy* was

[14] United States Environmental Protection Agency (EPA). Criteria Air Pollutants, https://www.epa.gov/criteria-air-pollutants, accessed June28, 2017.

[15] California Air Resources Board (CARB), 2015. Area Designations Maps: State and National, http://www.arb.ca.gov/desig/adm/adm.htm, accessed July 31, 2017. San Joaquin Valley Air Pollution Control District, 2017. Ambient Air Quality Standards & Valley Attainment Status. http://www.valleyair.org/aqinfo/attainment.htm, accessed July 31, 2017.

[16] California Air Resources Board (CARB), 1999. Final Staff Report: Update to the Toxic Air Contaminant List.

[17] San Joaquin Valley Air Pollution Control District (SJVAPCD). Guidance for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, accessed July 31, 2017.

submitted to the EPA as a revision to its SIP in November 2007.[18] In addition, CARB requires regions that do not meet California AAQS for ozone to submit clean air plans (CAPs) that describe measures to attain the standard or show progress toward attainment. To ensure federal CAA compliance, SJVAPCD is currently developing plans for meeting new National AAQS for ozone and $PM_{2.5}$ and the California AAQS for PM_{10} in the SJVAB (for California CAA compliance).[19] The following describes the air plans prepared by the SJVAPCD, which are incorporated by reference per CEQA Guidelines Section 15150.

1-Hour Ozone Plan

Although US EPA revoked its 1979 1-hour ozone standard in June 2005, many planning requirements remain in place, and SJVAPCD must still attain this standard before it can rescind CAA Section 185 fees. The SJVAPCD's most recent 1-hour ozone plan, the *2013 Plan for the Revoked 1-hour Ozone Standard*, demonstrated attainment of the 1-hour ozone standard by 2017. However, on July 18, 2016, the EPA published in the Federal Register a final action determining that SJVAB has attained the 1-hour ozone NAAQS based on the 2012 to 2014 three-year period allowing nonattainment penalties to be lifted under federal Clean Air Act section 179b.[20]

8-Hour Ozone Plan

The SJVAPCD's Governing Board adopted the *2007 Ozone Plan* on April 30, 2007. This far-reaching plan, with innovative measures and a "dual path" strategy, assures expeditious attainment of the federal 8-hour ozone standard as set by EPA in 1997. The plan projects that the valley will achieve the 8-hour ozone standard for all areas of the SJVAB no later than 2023. CARB approved the plan on June 14, 2007. EPA approved the 2007 Ozone Plan effective April 30, 2012. SJVAPCD adopted the *2016 Ozone Plan* to address the federal 2008 8-hour ozone standard, which must be attained by end of 2031.[21,22]

PM_{10} Plan

Based on PM_{10} measurements from 2003 to 2006, EPA found that the SJVAB has reached federal PM_{10} standards. On September 21, 2007, the SJVAPCD's Governing Board adopted the 2007 PM_{10} Maintenance Plan and Request for Redesignation. This plan demonstrates that the valley will continue to meet the PM_{10} standard. EPA approved the document and on September 25, 2008, the SJVAB was redesignated to attainment/maintenance.[23]

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[18] Note that the plan was adopted by CARB on September 27, 2007; California Air Resources Board. 2007. Air Resources Board's Proposed State Strategy for California's 2007 State Implementation Plan.

[19] San Joaquin Valley Air Pollution Control District (SJVAPCD), 2012. 2012 $PM_{2.5}$ Plan, December 20.

[20] San Joaquin Valley Air Pollution Control District (SJVAPCD). Ozone Plans. http://www.valleyair.org/Air_Quality_Plans/Ozone_Plans.htm, accessed July 31, 2017.

[21] San Joaquin Valley Air Pollution Control District (SJVAPCD). Ozone Plans. http://www.valleyair.org/Air_Quality_Plans/Ozone_Plans.htm, accessed July 31, 2017.

[22] San Joaquin Valley Air Pollution Control District. 2016 Plan for the 2008 8-Hour Ozone Standard, http://www.valleyair.org/Air_Quality_Plans/Ozone-Plan-2016.htm, accessed July 31, 2017.

[23] San Joaquin Valley Air Pollution Control District (SJVAPCD). Guidance for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, accessed July 31, 2017.

$PM_{2.5}$ Plan

The SJVAPCD adopted the 2012 $PM_{2.5}$ Plan on December 20, 2012 (SJVAPCD 2012). This plan was approved by CARB on January 24, 2013. This plan will assure that the valley will attain the 2006 $PM_{2.5}$ National AAQS. The plan uses control measures to reduce NO_X, which also leads to fine particulate formation in the atmosphere. The plan incorporates measures to reduce direct emissions of $PM_{2.5}$, including a strengthening of regulations for various SJVAB industries and the general public through new rules and amendments. The plan estimates that the SJVAB will reach the $PM_{2.5}$ standard by 2019.[24] In addition, SJVAPCD also adopted the 2015 $PM_{2.5}$ Plan for the 1997 $PM_{2.5}$ Standard on April 16, 2015 to achieve attainment for the EPA 1997 annual and 24-hour $PM_{2.5}$ standards by end of 2020. Furthermore, SJVAPCD adopted the 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard on September 15, 2016 which requests a new attainment deadline of 2025.[25]

All of the above-referenced plans include measures (i.e., federal, state, and local) that would be implemented through rule making or program funding to reduce air pollutant emissions in the SJVAB. Transportation control measures are part of these plans.

Applicable SJVAPCD Rules and Regulations

Assembly Bill 170

Assembly Bill 170, Reyes (AB 170), was adopted by state lawmakers in 2003, creating Government Code Section 65302.1, which requires cities and counties in the San Joaquin Valley to amend their general plans to include data and analysis, comprehensive goals, policies, and feasible implementation strategies designed to improve air quality. The elements to be amended include, but are not limited to, those elements dealing with land use, circulation, housing, conservation, and open space. Section 65302.1.c identifies four areas of air quality discussion required in these amendments:

- A report describing local air quality conditions, attainment status, and state and federal air quality and transportation plans;
- A summary of local, district, state, and federal policies, programs, and regulations to improve air quality;
- A comprehensive set of goals, policies, and objectives to improve air quality;
- Feasible implementation measures designed to achieve these goals.

[24] San Joaquin Valley Air Pollution Control District (SJVAPCD). Guidance for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, accessed July 31, 2017.

[25] San Joaquin Valley Air Pollution Control District (SJVAPCD). Particulate Matter Plans, http://www.valleyair.org/Air_Quality_Plans/PM_Plans.htm, accessed July 31, 2017.

SJVAPCD Indirect Source Review

On December 15, 2005, SJVAPCD adopted the Indirect Source Review Rule (ISR or Rule 9510) to reduce ozone precursors (i.e., VOC and NO_X) and PM_{10} emissions from new land use development projects.[26] Specifically, Rule 9510 targets the indirect emissions from vehicles and construction equipment associated with these projects and applies to both construction and operational-related impacts. The rule applies to any applicant that seeks to gain a final discretionary approval for a development project, or any portion thereof, which upon full buildout would include any one of the following:

- 50 residential units.
- 2,000 square feet of commercial space.
- 25,000 square feet of light industrial space.
- 100,000 square feet of heavy industrial space.
- 20,000 square feet of medical office space.
- 39,000 square feet of general office space.
- 9,000 square feet of educational space.
- 10,000 square feet of government space.
- 20,000 square feet of recreational space.
- 9,000 square feet of space not identified above.
- Transportation/transit projects with construction exhaust emissions of two or more tons of NO_x or two or more tons of PM_{10}.
- Residential projects on contiguous or adjacent property under common ownership of a single entity in whole or in part, that is designated and zoned for the same development density and land use, regardless of the number of tract maps, and has the capability of accommodating more than 50 residential units.
- Nonresidential projects on contiguous or adjacent property under common ownership of a single entity in whole or in part, that is designated and zoned for the same development density and land use, and has the capability of accommodating development projects that emit two or more tons per year of NO_X or PM_{10} during project operations.

The rule requires all subject, nonexempt projects[27] to mitigate both construction and operational period emissions by (1) applying feasible SJVAPCD-approved mitigation measures, or (2) paying any applicable fees to support programs that reduce emissions. Off-site emissions reduction fees (off-site fee) are required for projects that do not achieve the required emissions reductions through on-site emission

[26] San Joaquin Valley Air Pollution Control District (SJVAPCD), 2005. Final Staff Report: Rule 9510 – Indirect Source Review (ISR), Rule 3180 – Administrative Fees for Indirect Source Review, December 15, http://www.valleyair.org/ISR/Documents/Rule_9510_StaffReport.pdf, accessed July 31, 2017.

[27] Development projects that have a mitigated baseline below 2 tons per year of NO_X and 2 tons per year of PM_{10} are exempt.

reduction measures. Phased projects can defer payment of fees in accordance with an Off-site Emissions Reduction Fee Deferral Schedule (FDS) approved by the SJVAPCD.

To determine how an individual project would satisfy Rule 9510, each project would submit an air quality impact assessment (AIA) to the SJVAPCD as early as possible, but no later than prior to the project's final discretionary approval, to identify the project's baseline unmitigated emissions inventory for indirect sources: on-site exhaust emissions from construction activities and operational activities from mobile and area sources of emissions (excludes fugitive dust and permitted sources).[28] Rule 9510 requires the following reductions, which are levels that the SJVAPCD has identified as necessary, based on their air quality management plans, to reach attainment for ozone and particulate matter:

Construction Equipment Emissions. The exhaust emissions for construction equipment greater than 50 horsepower (hp) used or associated with the development project shall be reduced by the following amounts from the statewide average as estimated by CARB:

- 20 percent of the total NO_X emissions
- 45 percent of the total PM_{10} exhaust emissions

Mitigation measures may include those that reduce construction emissions on-site by using less polluting construction equipment, which can be achieved by utilizing add-on controls, cleaner fuels, or newer, lower emitting equipment.

Operational Emissions.

- NO_x Emissions. Applicants shall reduce 33.3 percent of the project's operational baseline NO_X emissions over a period of 10 years as quantified in the approved AIA.
- PM_{10} Emissions. Applicants shall reduce of 50 percent of the project's operational baseline PM_{10} emissions over a period of 10 years as quantified in the approved AIA.

These requirements listed above can be met through any combination of on-site emission reduction measures. In the event that a project cannot achieve the above standards through imposition of mitigation measures, then the project would be required to pay the applicable off-site fees. These fees are used to fund various incentive programs that cover the purchase of new equipment, engine retrofit, and education and outreach.

New and Modified Stationary Source Review

SJVAPCD adopted Rule 2201, *New and Modified Stationary Source Review*, to control emissions from new stationary sources and all modifications to existing stationary sources which are subject to SJVAPCD's permit requirements (i.e., "permit projects" for which the SJVAPCD is the lead agency). Permit projects that exceed the Source Performance Standards are required to install Best Available Control Technology (BACT) to control emissions to the maximum extent practicable.

[28] Stationary sources of air pollutant emissions are covered separately under SJVAPCD's Rule 2201, New and Modified Stationary Source Review.

Fugitive PM_{10} Prohibitions

SJVAPCD controls fugitive PM_{10} through Regulation VIII, *Fugitive PM10 Prohibitions*. The purpose of this regulation is to reduce ambient concentrations of PM_{10} and $PM_{2.5}$ by requiring actions to prevent, reduce, or mitigate anthropogenic (human caused) fugitive dust emissions.

- Regulation VIII, Rule 8021 applies to any construction, demolition, excavation, extraction, and other earthmoving activities, including, but not limited to, land clearing, grubbing, scraping, travel on-site, and travel on access roads to and from the site.
- Regulation VIII, Rule 8031 applies to the outdoor handling, storage, and transport of any bulk material.
- Regulation VIII, Rule 8041 applies to sites where carryout or trackout has occurred or may occur on paved roads or the paved shoulders of public roads.
- Regulation VIII, Rule 8051 applies to any open area having 0.5 acre or more within urban areas or 3.0 acres or more within rural areas, and contains at least 1,000 square feet of disturbed surface area.
- Regulation VIII, Rule 8061 applies to any new or existing public or private paved or unpaved road, road construction project, or road modification project.
- Regulation VIII, Rule 8071 applies to any unpaved vehicle/equipment traffic area.
- Regulation VIII, Rule 8081 applies to off-field agricultural sources.

Sources regulated are required to provide Dust Control Plans that meet the regulation requirements. Under Rule 8021, a Dust Control Plan is required for any residential project that will include 10 or more acres of disturbed surface area, a nonresidential project with 5 or more acres of disturbed surface area, or a project that relocates 2,500 cubic yards per day of bulk materials for at least three days. The Dust Control Plan is required to be submitted to SJVAPCD prior to the start of any construction activity. The Dust Control Plan must also describe fugitive dust control measure to be implemented before, during, and after any dust-generating activity. For sites smaller than those listed above, the project is still required to notify SJVAPCD a minimum of 48 hours prior to commencing earthmoving activities.

Nuisance Odors

SJVAPCD controls nuisance odors through implementation of Rule 4102, *Nuisance*. Pursuant to this rule, "a person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health, or safety of any such person or the public or which cause or have a natural tendency to cause injury or damage to business or property."

Employer Based Trip Reduction Program

SJVAPCD has implemented Rule 9410, Employer Based Trip Reduction. The purpose of this rule is to reduce VMT from private vehicles used by employees to commute to and from their worksites to reduce emissions of NO_x, VOC, and particulate matter (PM_{10} and $PM_{2.5}$). The rule applies to employers with at least 100 employees. Employers are required to implement an Employer Trip Reduction Implementation

Plan (ETRIP) for each worksite with 100 or more eligible employees to meet applicable targets specified in the rule. Employers are required to facilitate the participation of the development of ETRIPs by providing information to its employees explaining the requirements and applicability of this rule. Employers are required to prepare and submit an ETRIP for each worksite to the District. The ETRIP must be updated annually. Under this rule, employers shall collect information on the modes of transportation used for each eligible employee's commutes both to and from work for every day of the commute verification period, as defined in using either the mandatory commute verification method or a representative survey method. Annual reporting includes the results of the commute verification for the previous calendar year along with the measures implemented as outlined in the ETRIP and, if necessary, any updates to the ETRIP.

Local Regulations

City of Fresno General Plan

The Fresno General Plan includes objectives and policies within its Resource Conservation and Resilience Element that pertain directly to air quality. However, various objectives and policies included in the other General Plan Elements related to land use development patterns (e.g., infill and mixed-use development), transportation and transit, and urban form would also contribute in improving air quality within the proposed Plan Area and SJVAB. Table 4.3-2 includes examples of General Plan objectives and policies that pertain to improving air quality.

4.3.1.2 EXISTING CONDITIONS

San Joaquin Valley Air Basin

The City of Fresno (City) is in the central portion of the SJVAB. SJVAB consists of eight counties: Fresno, Kern (western and central), Kings, Tulare, Madera, Merced, San Joaquin, and Stanislaus. Air pollution from significant activities in the SJVAB includes a variety of industrial-based sources as well as on- and off-road mobile sources. These sources, coupled with geographical and meteorological conditions unique to the area, stimulate the formation of unhealthy air.

The SJVAB is approximately 250 miles long and an average of 35 miles wide. It is bordered by the Sierra Nevada in the east, the Coast Ranges in the west, and the Tehachapi mountains in the south. There is a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where the valley opens to the San Francisco Bay at the Carquinez Straits. At its northern end is the Sacramento Valley, which comprises the northern half of California's Central Valley. The bowl-shaped topography inhibits movement of pollutants out of the valley.[29]

[29] San Joaquin Valley Air Pollution Control District (SJVAPCD). Guidance for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, accessed July 31, 2017.

TABLE 4.3-2 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO AIR QUALITY

Objective/ Policy Number	Objective/Policy Text
Urban Form, Land Use and Design Element	
Policy UF-1-c	**Identifiable City Structure.** Focus integrated and ongoing planning efforts to achieve an identifiable city structure, comprised of a concentration of buildings, people, and pedestrian-oriented activity in Downtown; along a small number of prominent east-west and north-south transit-oriented, mixed-use corridors with distinctive and strategically located Activity Centers; and in existing and new neighborhoods augmented with parks and connected by multi-purpose trails and tree lined bike lanes and streets.
Policy UF-1-e	**Unique Neighborhoods.** Promote and protect unique neighborhoods and mixed use areas throughout Fresno that respect and support various ethnic, cultural and historic enclaves; provide a range of housing options, including furthering affordable housing opportunities; and convey a unique character and lifestyle attractive to Fresnans. Support unique areas through more specific planning processes that directly engage community members in creative and innovative design efforts.
Objective UF-12	*Locate roughly one-half of future residential development in infill areas – defined as being within the City on December 31, 2012 – including the Downtown core area and surrounding neighborhoods, mixed-use centers and transit-oriented development along major BRT corridors, and other non-corridor infill areas, and vacant land.*
Policy UF-12-a	**BRT Corridors.** Design land uses and integrate development site plans along BRT corridors, with transit-oriented development that supports transit ridership and convenient pedestrian access to bus stops and BRT station stops.
Policy UF-12-b	**Activity Centers.** Mixed-use designated areas along BRT and/or transit corridors are appropriate for more intensive concentrations of urban uses. Typical uses could include commercial areas; employment centers; schools; compact residential development; religious institutions; parks; and other gathering points where residents may interact, work, and obtain goods and services in the same place.
Policy UF-12-d	**Appropriate Mixed-Use.** Facilitate the development of vertical and horizontal mixed-uses to blend residential, commercial, and public land uses on one site or adjacent sites. Ensure land use compatibility between mixed-use districts in Activity Centers and the surrounding residential neighborhoods.
Policy UF-12e	**Access to Activity Centers.** Promote adoptions and implementation of standards supporting pedestrian activities and bicycle linkages from surrounding land uses and neighborhoods into Activity Centers and to transit stops. Provide for priority transit routes and facilities to serve the Activity Centers.
Policy UF-12-f	**Mixed-Use in Activity Centers.** Update the Development Code to include use regulations and standards to allow for mixed-uses and shared parking facilities, including multi-story and underground parking facilities, within Activity Centers.
Objective UF-14	*Create an urban form that facilitates multi-modal connectivity.*
Policy UF-14-a	**Design Guidelines for Walkability.** Develop and use design guidelines and standards for a walkable and pedestrian-scaled environment with a network of streets and connections for pedestrians and bicyclists, as well as transit and autos.
Policy UF-14-b	**Local Street Connectivity.** Design local roadways to connect throughout neighborhoods and large private developments with adjacent major streets and pathways of existing adjacent development. Create access for pedestrians and bicycles where a local street must dead end or be designed as a cul-de-sac to adjoining uses that provide services, shopping, and connecting pathways for access to the greater community area.
Objective LU-2	*Plan for infill development that includes a range of housing types, building forms, and land uses to meet the needs of both current and future residents.*
Policy LU-2-a	**Infill Development and Redevelopment.** Promote development of vacant, underdeveloped, and redevelopable land uses within the City Limit where urban services are available considering the establishment and implementation of supportive regulations and programs.
Policy LU-2-b	**Infill Development for Affordable Housing.** Consider a priority infill incentive program for residential infill development of existing vacant lots and underutilized sites within the City as a strategy to help to meet the affordable housing needs of the community.

TABLE 4.3-2 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO AIR QUALITY

Objective/ Policy Number	Objective/Policy Text
Policy LU-3-c	**Zoning for High Density on Major BRT Corridors.** Consider the adoption of supportive zoning regulations for compact development along BRT corridors leading to the Downtown Core that will not diminish the long-term growth and development potential for Downtown.
Policy LU-5-f	**High Density Residential Uses.** Promote high-density residential uses to support Activity Centers and BRT Corridors, affordable housing and walkable access to transit stops.
Policy LU-6-d	**Neighborhood and Community Commercial Center Design.** Plan for neighborhood mixed use and community commercial uses to implement the Urban Form concepts of the General Plan, promote the stability and identity of neighborhood and community shopping areas, and allow efficient access without compromising the operational effectiveness of the street system. ▪ Neighborhoods will be anchored by community commercial centers with a mix of uses that meet the area's needs and create a sense of place. ▪ Community commercial centers will be located within Activity Centers.
Policy LU-6-f	**Auto-Oriented Commercial Uses.** Direct highway-oriented and auto-serving commercial uses to locations that are compatible with the Urban Form policies of the General Plan. Ensure adequate buffering measures for adjacent residential uses noise, glare, odors, and dust.
Policy LU-8-b	**Access to Public Facilities.** Ensure that major public facilities and institutions have adequate multi-modal access and can be easily reached by public transit.
Resource Conservation and Resiliency Element	
Objective RC-4	*In cooperation with other jurisdictions and agencies in the San Joaquin Valley Air Basin, take necessary actions to achieve and maintain compliance with State and federal air quality standards for criteria pollutants.*
Policy RC-4-a	**Support Regional Efforts.** Support and lead, where appropriate, regional, State and federal programs and actions for the improvement of air quality, especially the SJVAPCD's efforts to monitor and control air pollutants from both stationary and mobile sources and implement Reasonably Available Control Measures in the Ozone Attainment Plan.
Policy RC-4-b	**Conditions of Approval.** Develop and incorporate air quality maintenance requirements, compatible with Air Quality Attainment and Maintenance Plans, as conditions of approval for General Plan amendments, community plans, Specific Plans, neighborhood plans, Concept Plans, and development proposals.
Policy RC-4-c	**Evaluate Impacts with Models.** Continue to require the use of computer models used by SJVAPCD to evaluate the air quality impacts of plans and projects that require such environmental review by the City.
Policy RC-4-d	**Forward Information.** Forward information regarding proposed General Plan amendments, community plans, Specific Plans, neighborhood plans, Concept Plans, and development proposals that require air quality evaluation, and amendments to development regulations to the SJVAPCD for their review of potential air quality and health impacts.
Policy RC-4-e	**Support Employer-Based Efforts.** Support and promote employer implementation of staggered work hours and employee incentives to use carpools, public transit and other measures to reduce vehicular use and traffic congestion.
Policy RC-4-f	**Municipal Operations and Fleet Actions.** Continue to control and reduce air pollution emissions from vehicles owned by the City operations and municipal operations and facilities by undertaking the following: ▪ Expand the use of alternative fuel, electric, and hybrid vehicles in City fleets. ▪ Create preventive maintenance schedules that will ensure efficient engine operation. ▪ Include air conditioning recycling and charging stations in the City vehicle maintenance facilities, to reduce freon gases being released into the atmosphere and electrostatic filtering systems in City maintenance shops, when feasible or when required by health regulations. ▪ Use satellite corporation yards for decentralized storage and vehicle maintenance. ▪ Convert City-owned emergency backup generators to natural gas fuels whenever possible, and ▪ Create an advanced energy storage system.

TABLE 4.3-2 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO AIR QUALITY

Objective/ Policy Number	Objective/Policy Text
Policy RC-4-g	**FAX Actions.** Continue efforts to improve Fresno Area Express (FAX) bus transit system technical performance, reduce emission levels, streamline system operations, and implement BRT where supportive land uses are proposed by Figure LU-1: Land Use Diagram.
Policy RC-4-h	**Airport Actions.** Support Airport efforts to develop and maintain programs and policies to support City, State and Federal efforts to achieve and maintain air quality standards.
Policy RC-4-j	**All Departments.** Continue to develop and implement in all City departments, operational policies to reduce air pollution.
Policy RC-4-k	**Electric Charging.** Develop standards to facilitate electric charging infrastructure in both new and existing public and private buildings, in order to accommodate these vehicles as the technology becomes widespread.
Policy RC-8-j	**Alternative Fuel Network.** Support the development of a network of integrated charging and alternate fuel station for both public and private vehicles, and if feasible, open up municipal stations to the public as part of network development.
Healthy Communities Element	
Policy HC-3-d	**Green Standards for Affordable Housing.** Provide appropriate incentives for affordable housing providers, agencies, non-profit and market rate developers to use LEED and CalGreen Tier 1 or Tier 2 standards or third party equivalents.
Policy HC-3-f	**New Drive-Through Facilities.** Include in the Development Code design review to reduce vehicle emissions resulting from queued idling vehicles at drive-through facilities in proximity to residential neighborhoods.
Mobility and Transportation Element	
Objective MT-3	*Identify, promote and preserve scenic or aesthetically unique corridors by application of appropriate policies and regulations.*
Policy MT-1-f	**Match Travel Demand with Transportation Facilities.** Designate the types and intensities of land uses at locations such that related travel demands can be accommodated by a variety of viable transportation modes and support Complete Neighborhoods while avoiding the rerouting of excessive or incompatible traffic through local residential streets.
Policy MT-1-g	**Complete Streets Concept Implementation.** Provide transportation facilities based upon a Complete Streets concept that facilitates the balanced use of all viable travel modes (pedestrians, bicyclists, motor vehicle and transit users), meeting the transportation needs of all ages, income groups, and abilities and providing mobility for a variety of trip purposes, while also supporting other City goals.
Policy MT-1-m	**Standards for Planned Bus Rapid Transit Corridors and Activity Centers.** Independent of the Traffic Impact Zones identified in MT-2-I and Figure MT-4, strive to maintain the following vehicle LOS standards on major roadway segments and intersections along Bus Rapid Transit Corridors and in Activity Centers: ▪ LOS E or better at all times, including peak travel times, unless the City Traffic Engineer determines that mitigation to maintain this LOS would be infeasible and/or conflict with the achievement of other General Plan policies. ▪ Accept LOS F conditions in Activity Centers and Bus Rapid Transit Corridors only if provisions are made to improve the overall system and/or promote non-vehicular transportation and transit as part of a development project or a City-initiated project. In accepting LOS F conditions, the City Traffic Engineer may request limited analyses of operational issues at locations near Activity Centers and along Bus Rapid Transit Corridors, such as queuing or left-turn movements. ▪ Give priority to maintaining pedestrian service first, followed by transit service and then by vehicle LOS, where conflicts between objectives for service capacity between different transportation modes occur. ▪ Identify pedestrian-priority and transit-priority streets where these modes would have priority in order to apply a multi-modal priority system, as part of the General Plan implementation.

TABLE 4.3-2 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO AIR QUALITY

Objective/ Policy Number	Objective/Policy Text
Policy MT-2-b	**Reduce Vehicle Miles Traveled and Trips.** Partner with major employers and other responsible agencies, such the San Joaquin Valley Air Pollution Control District and the Fresno Council of Governments, to implement trip reduction strategies, such as eTRIP, to reduce total vehicle miles traveled and the total number of daily and peak hour vehicle trips, thereby making better use of the existing transportation system.
Policy MT-2-c	**Reduce VMT through Infill Development.** Provide incentives for infill development that would provide jobs and services closer to housing and multi-modal transportations corridors in order to reduce citywide vehicle miles travelled (VMT).
Policy MT-2-g	**Transportation Demand Management and Transportation System Management.** Pursue implementation of Transportation Demand Management and Transportation System Management strategies to reduce peak hour vehicle traffic and supplement the capacity of the transportation system.
Objective MT-4	To establish and maintain a continuous, safe, and easily accessible bikeways system throughout the metropolitan area to reduce vehicle use, improve air quality and the quality of life, and provide public health benefits.
Policy MT-4-b	**Bikeway Improvements.** Establish and implement property development standards to assure that projects adjacent to designated bikeways provide adequate right-of-way and that necessary improvements are constructed to implement the planned bikeway system shown on Figure MT-2 to provide for bikeways, to the extent feasible, when existing roadways are reconstructed; and alternative bikeway alignments or routes where inadequate right-of-way is available.
Policy MT-4-d	**Prioritization of Bikeway Improvements.** Prioritize bikeway components that link existing separated sections of the system, or that are likely to serve the highest concentration of existing or potential cyclists, particularly in those neighborhoods with low vehicle ownership rates, or that are likely to serve destination areas with the highest demand such as schools, shopping areas, recreational and park areas, and employment centers.
Policy MT-5-a	**Sidewalk Development.** Pursue funding and implement standards for development of sidewalks on public streets, with priority given to meeting the needs of persons with physical and vision limitations; providing safe routes to school; completing pedestrian improvements in established neighborhoods with lower vehicle ownership rates; or providing pedestrian access to public transportation routes.
Policy MT-5-b	**Sidewalk Requirements.** Assure adequate access for pedestrians and people with disabilities in new residential developments per adopted City policies, consistent with the California Building Code and the Americans with Disabilities Act.
Policy MT-8-c	**New Development Facilitating Transit.** Continue to review development proposals in transportation corridors to ensure they are designed to facilitate transit. Coordinate all projects that have residential or employment densities suitable for transit services, so they are located along existing or planned transit corridors or that otherwise have the potential for transit orientation to FAX, and consider FAX's comments in decision-making.

Climate

The SJVAB is in a Mediterranean climate zone and is influenced by a subtropical high-pressure cell most of the year. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in winter. Summers are hot and dry. Summertime maximum temperatures often exceed 100°F in the valley.

The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air, which can result in temperature inversions in the valley. A temperature inversion can act like a lid, inhibiting vertical mixing of the air mass at the surface. Any emissions of pollutants can be trapped below the inversion. Most of the surrounding mountains are above the normal height of summer inversions (1,500 to 3,000 feet).

Winter-time high pressure events can often last many weeks, with surface temperatures often lowering into the 30°F. During these events, fog can be present and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet.[30]

Wind Patterns

Wind speed and direction play an important role in dispersion and transport of air pollutants. Wind at the surface and aloft can disperse pollution by mixing and transporting it to other locations.

Especially in summer, winds in the valley most frequently blow from the northwest. The region's topographic features restrict air movement and channel the air mass towards the southeastern end of the valley. Marine air can flow into the basin from the San Joaquin River Delta and over Altamont Pass and Pacheco Pass, where it can flow along the axis of the valley, over the Tehachapi pass, into the Southeast Desert Air Basin. This wind pattern contributes to transporting pollutants from the Sacramento Valley and the Bay Area into the SJVAB. Approximately 27 percent of the total emissions in the northern portion, 11 percent of total emissions in the central region, and 7 percent of total emission in the south valley of the SJVAB are attributed to air pollution transported from these two areas.[31] The Coastal Range is a barrier to air movement to the west and the high Sierra Nevada range is a significant barrier to the east (the highest peaks in the southern Sierra Nevada reach almost halfway through the Earth's atmosphere). Many days in the winter are marked by stagnation events where winds are very weak. Transport of pollutants during winter can be very limited. A secondary but significant summer wind pattern is from the southeast and can be associated with nighttime drainage winds, prefrontal conditions, and summer monsoons.

Two significant diurnal wind cycles that occur frequently in the valley are the sea breeze and mountain-valley upslope and drainage flows. The sea breeze can accentuate the northwest wind flow, especially on summer afternoons. Nighttime drainage flows can accentuate the southeast movement of air down the valley. In the mountains during periods of weak synoptic scale winds, winds tend to be upslope during the day and downslope at night. Nighttime and drainage flows are especially pronounced during the winter when flow from the easterly direction is enhanced by nighttime cooling in the Sierra Nevada. Eddies can form in the valley wind flow and can recirculate a polluted air mass for an extended period. Such an eddy occurs in the Fresno area during both winter and summer.[32]

Temperature

Solar radiation and temperature are particularly important in the chemistry of ozone formation. The SJVAB averages over 260 sunny days per year. Photochemical air pollution (primarily ozone) is produced by the atmospheric reaction of organic substances (such as volatile organic compounds) and nitrogen dioxide

[30] San Joaquin Valley Air Pollution Control District (SJVAPCD). Guidance for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, accessed July 31, 2017.

[31] San Joaquin Valley Air Pollution Control District (SJVAPCD). Frequently Asked Questions, http://www.valleyair.org/general_info/frequently_asked_questions.htm#What%20is%20being%20done%20to%20improve%20air%20quality%20in%20the%20San%20Joaquin%20Valley, accessed July 31, 2017.

[32] San Joaquin Valley Air Pollution Control District (SJVAPCD). Guidance for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, accessed July 31, 2017.

under the influence of sunlight. Ozone concentrations are very dependent on the amount of solar radiation, especially during late spring, summer, and early fall. Ozone levels typically peak in the afternoon. After the sun goes down, the chemical reaction between nitrous oxide and ozone begins to dominate. This reaction tends to scavenge and remove the ozone in the metropolitan areas through the early morning hours, resulting in the lowest ozone levels, possibly reaching zero at sunrise in areas with high nitrogen oxides emissions. At sunrise, nitrogen oxides tend to peak, partly due to low levels of ozone at this time and also due to the morning commuter vehicle emissions of nitrogen oxides.

Generally, the higher the temperature, the more ozone formed, since reaction rates increase with temperature. However, extremely hot temperatures can "lift" or "break" the inversion layer. Typically, if the inversion layer does not lift to allow the buildup of contaminants to be dispersed, the ozone levels will peak in the late afternoon. If the inversion layer breaks and the resultant afternoon winds occur, the ozone will peak in the early afternoon and decrease in the late afternoon as the contaminants are dispersed or transported out of the SJVAB.

Ozone levels are low during winter periods when there is much less sunlight to drive the photochemical reaction.[33]

Precipitation, Humidity, and Fog

Precipitation and fog may reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog can block the required solar radiation. Wet fogs can cleanse the air during winter as moisture collects on particles and deposits them on the ground. Atmospheric moisture can also increase pollution levels. In fogs with less water content, the moisture acts to form secondary ammonium nitrate particulate matter. This ammonium nitrate is part of the valley's $PM_{2.5}$ and PM_{10} problem. The winds and unstable air conditions experienced during the passage of winter storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure and light winds allow cold moist air to pool on the SJVAB floor. This creates strong low-level temperature inversions and very stable air conditions, which can lead to tule fog. Wintertime conditions favorable to fog formation are also conditions favorable to high concentrations of $PM_{2.5}$ and PM_{10}.[34]

Inversions

The vertical dispersion of air pollutants in the San Joaquin Valley can be limited by persistent temperature inversions. Air temperature in the lowest layer of the atmosphere typically decreases with altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. The height of the base of the inversion is known as the "mixing height." This is the level to which pollutants can mix vertically. Mixing of air is minimized above and below the inversion base. The inversion base represents an abrupt density change where little air movement occurs.

[33] San Joaquin Valley Air Pollution Control District (SJVAPCD). Guidance for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, accessed July 31, 2017.

[34] San Joaquin Valley Air Pollution Control District (SJVAPCD). Guidance for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, accessed July 31, 2017.

Inversion layers are significant in determining pollutant concentrations. Concentration levels can be related to the amount of mixing space below the inversion. Temperature inversions that occur on the summer days are usually 2,000 to 2,500 feet above the valley floor. In winter months, overnight inversions occur 500 to 1,500 feet above the valley floor.[35]

Attainment Status

The air quality management plans (AQMP) prepared by SJVAPCD provide the framework for SJVAB to achieve attainment of the State and federal AAQS through the SIP. Areas are classified as attainment or nonattainment areas for particular pollutants, depending on whether they meet the ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

At the federal level, the SJVAPCD is designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM_{10} and CO, and nonattainment for $PM_{2.5}$. At the State level, the SJVAB is designated nonattainment for the 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards. Although the federal 1-hour ozone standard was revoked in 2005, the SJVAB attained the federal 1-hour ozone in 2016 allowing for penalties that were still in place to be lifted under federal CCA Section 179b.[36] The attainment status for the SJVAB with respect to various pollutants of concern is displayed in Table 4.3-3.

Existing Ambient Air Quality

CARB, in cooperation with SJVAPCD, monitors air quality throughout the SJVAB. The closest monitoring station to the proposed Plan Area is the Fresno – Drummond Street Monitoring Station in the City. This station monitors O_3, CO, NO_2, and PM_{10}. Data from the Fresno – Hamilton and Winery and Fresno – 1st Street Monitoring Stations was utilized to supplement data for CO and $PM_{2.5}$, respectively. Data from these stations was summarized in Table 4.3-4. In general, the ambient air quality measurements from these stations are representative of the air quality in the vicinity of the City. The topographical features and meteorological conditions specific to the region and to the City of Fresno are variables that can have an effect on the level of air quality as recorded at the aforementioned monitoring stations.

As shown in the table, the area regularly exceeds the California and National AAQs for O_3. In addition, the area regularly exceeds the National $PM_{2.5}$ AAQS and the California PM_{10} AAQS. The area has not exceeded the CO or NO_2 standards in the last five years.

[35] San Joaquin Valley Air Pollution Control District (SJVAPCD). Guidance for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, accessed July 31, 2017.

[36] San Joaquin Valley Air Pollution Control District (SJVAPCD). Ozone Plans. http://www.valleyair.org/Air_Quality_Plans/Ozone_Plans.htm, accessed July 31, 2017.

TABLE 4.3-3 ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SAN JOAQUIN VALLEY AREA AIR BASIN

Pollutant	Federal	State
Ozone – 1-hour	Revoked in 2005[a]	Nonattainment/Severe
Ozone – 8-hour	Nonattainment/Extreme[b]	Nonattainment
Respirable Particulate Matter (PM_{10})	Attainment[c]	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment[d]	Nonattainment
Carbon Monoxide (CO)	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide (NO_2)	Attainment/Unclassified	Attainment
Sulfur Dioxide (SO_2)	Attainment/Unclassified	Attainment
Lead	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

a. Effective June 15, 2005, the US EPA revoked the federal 1-hour ozone standard, including associated designations and classifications. On July 18, 2016, USEPA determined the SJVAB to be in attainment.
b. Though the SJVAB was initially classified as serious nonattainment for the 1997 8-hour ozone standard, USEPA approved reclassification of SJVAB to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).
c. The USEPA redesignated the SJVAB to attainment and approved the PM_{10} Maintenance Plan on September 25, 2008.
d. The USEPA designated the SJVAB as nonattainment on November 13, 2009 (effective December 14, 2009).
Source: San Joaquin Valley Air Pollution Control District. Ambient Air Quality Standards & Valley Attainment Status. 2017. http://www.valleyair.org/aqinfo/attainment.htm; California Air Resources Board. 2015, December. Area Designations Maps: State and National. http://www.arb.ca.gov/desig/adm/adm.htm.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases.

Residential areas are also considered sensitive receptors to air pollution because residents, including children and the elderly, tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

TABLE 4.3-4 AMBIENT AIR QUALITY MONITORING SUMMARY

	Number of Days Threshold Were Exceeded and Maximum Levels During Such Violations				
Pollutant/Standard	2012	2013	2014	2015	2016
Ozone (O_3)[a]					
State 1-Hour ≥ 0.09 ppm	19	9	9	12	13
State 8-hour ≥ 0.07 ppm	75	46	44	41	60
Federal 8-Hour > 0.075 ppm[b]	46	24	20	21	32
Maximum 1-Hour Conc. (ppm)	0.127	0.107	0.110	0.135	0.117
Maximum 8-Hour Conc. (ppm)	0.108	0.094	0.094	0.110	0.093
Carbon Monoxide (CO)[c]					
State 8-Hour > 9.0 ppm	0	*	*	*	*
Federal 8-Hour ≥ 9.0 ppm	0	*	*	*	*
Maximum 8-Hour Conc. (ppm)	2.22	*	*	*	*
Nitrogen Dioxide (NO_2)[a]					
State 1-Hour ≥ 0.18 (ppm)	0	0	0	0	0
Maximum 1-Hour Conc. (ppb)	0.07	0.06	0.07	0.10	0.06
Sulfur Dioxide (SO_2)					
State 1-Hour ≥ 0.04 ppm	*	*	*	*	*
Max. 1-Hour Conc. (ppm)	*	*	*	*	*
Coarse Particulates (PM_{10})[a]					
State 24-Hour > 50 µg/m^3	8	20	46	13	17
Federal 24-Hour > 150 µg/m^3	0	0	0	0	0
Maximum 24-Hour Conc. (µg/ m^3)	114.0	138.1	102.9	120.7	88.3
Fine Particulates ($PM_{2.5}$)[d]					
Federal 24-Hour > 35 µg/m^3	7	12	8	5	5
Maximum 24-Hour Conc. (µg/m^3)	59.0	95.4	74.5	70.3	48.6

Notes: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; * = insufficient data; NA = Not Available
a. Data obtained from the Fresno – Drummond Street Monitoring Station in the City of Fresno.
b. On October 1, 2015 the EPA adopted a new 8-hour national AAQS for ozone of 0.070 ppm (70 ppb).
c. Data obtained from the Fresno – 1st Street Monitoring Station in the City of Fresno.
d. Data obtained from the Fresno – Hamilton and Winery Monitoring Station in the City of Fresno.
Source: California Air Resources Board, 2015, Air Pollution Data Monitoring Cards (2012, 2013, 2014, 2015, and 2016), http://www.arb.ca.gov/adam/index.html.

4.3.2 STANDARDS OF SIGNIFICANCE

According to Appendix G of the CEQA Guidelines, the proposed Plan would have a significant effect on the environment with respect to air quality if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
4. Expose sensitive receptors to substantial pollutant concentrations.
5. Create objectionable odors affecting a substantial number of people.

4.3.2.1 SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT THRESHOLDS

As stated in Appendix G of the CEQA Guidelines, the significance criteria established by the applicable air quality management district may be relied on to make the above determinations. Thus, this analysis also evaluates the project's air quality impacts pursuant to SJVAPCD's recommended guidelines and thresholds of significance, as discussed further below.

The SJVAPCD has developed the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) and recently adopted the latest version on March 19, 2015.[37] The current GAMAQI represents the latest guidance for addressing air quality impacts in the SJVAB. Changes to the GAMAQI are primarily administrative in nature to update air basin information, attainment status, and general guidance to reflect updated conditions. The following thresholds of significance from the SJVAPCD's GAMAQI are used to determine whether a proposed project would result in a significant air quality impact.

Regional Significance Thresholds

SJVACD has identified regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SJVAB. Specifically, these thresholds gauge whether a project would significantly contribute to a nonattainment designation based on the mass emissions generated. Mass emissions from a project are not correlated with concentrations of air pollutants. Table 4.3-5 lists SJVAPCD's regional significance thresholds. It should be noted that SJVAPCD Rule 9510 and Regulation VIII may not reduce project-specific construction and operational emissions to below the SJVAPCD thresholds.

Ambient Air Quality Analysis

The need to perform air quality dispersion modeling for typical urban development projects is determined on a case-by-case basis, depending on project size. SJVAPCD applies the following guidance in determining whether an ambient air quality analysis should be conducted for development projects. Compliance with Rule 9510 frequently reduces project-specific emissions to less than significant levels. However, for large construction projects, additional mitigation may be required. SJVAPCD recommends that an ambient air quality analysis be performed for all pollutants when on-site emissions of any criteria pollutant from construction activities would equal or exceed any applicable threshold of significance for criteria pollutants, or 100 pounds per day of any criteria pollutant, after compliance with Rule 9510 requirements and implementation of all enforceable mitigation measures.

[37] San Joaquin Valley Air Pollution Control District (SJVAPCD). Guidance for Assessing and Mitigating Air Quality Impacts. http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, accessed July 31, 2017.

TABLE 4.3-5 SJVAPCD REGIONAL CRITERIA AIR POLLUTANTS SIGNIFICANCE THRESHOLDS

Pollutant	Construction and Operational Phase Significance Thresholds (Tons/Year)
Carbon Monoxide (CO)	100
Nitrous Oxide (NO_X)	10
Volatile Organic Compounds (VOC)	10
Sulfur Oxides (SO_X)	27
Coarse Particulate Matter (PM_{10})	15
Fine Particulate Matter ($PM_{2.5}$)	15

Source: San Joaquin Valley Air Pollution Control District. 2015. *Guidance for Assessing and Mitigating Air Quality Impacts.* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf.

However, air dispersion modeling is not applicable at a program level. Consequently, for the purpose of this program-level EIR, emissions of any criteria air pollutant that would exceed the applicable threshold of significance identified in Table 4.3-5 is considered to result in elevated concentrations of air pollutants that have the potential to exceed the AAQS. It should be noted that CO hotspot monitoring was previously required under the GAMAQI. However, emissions from motor vehicles, by far the largest source of CO emissions, have been declining since 1985 despite increases in VMT, the introduction of new automotive emission controls, and fleet turnover. Consequently, no CO hotspots have been reported in the SJVAB even at the most congested intersections.

Consistency with the Applicable Air Quality Plan

SJVAPCD has prepared plans to attain federal and State AAQS. The significance thresholds in Table 4.3-5 are based on SJVAPCD's New Source Review (NSR) offset requirements for stationary sources. Emission reductions achieved through implementation of District offset requirements are a major component of SJVAPCD's air quality plans. Thus, projects with emissions below the thresholds of significance for criteria pollutants (see Table 4.3-5) would be determined to "not conflict or obstruct implementation of the District's air quality plan." Because dispersion modeling is not applicable for a program EIR, projects with emissions that exceed these values are considered to have the potential to exceed the AAQS, resulting in a potentially significant impact.

Odors

Odor impacts associated with a proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors. There are two general scenarios where a project could expose people to substantial odors:

- **Odor Generator.** Projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate.

- Odor Receiver. Residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative or formulaic methodologies to determine if potential odors would have a significant impact. Rather, projects must be assessed on a case-by-case basis. As shown in Table 4.3-6, the SJVAPCD has identified buffer distances for common types of facilities that have been known to produce odors in the SJVAB. The degree of odors could be significant and may be based on a review of SJVAPCD's complaint records.

TABLE 4.3-6 SJVAPCD SCREENING LEVELS FOR POTENTIAL ODOR SOURCES

Land Use/Type of Operation	Screening Distance
Wastewater Treatment Plan	2 miles
Sanitary Landfill	1 miles
Transfer Station	1 miles
Composting Facility	1 miles
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 miles
Chemical Manufacturing	1 miles
Fiberglass Manufacturing	1 miles
Painting/Coating Operations	1 miles
Food Processing Facility	1 miles
Feed Lot/ Dairy	1 miles
Rendering Plant	1 miles

Source: San Joaquin Valley Air Pollution Control District. 2012a, April. Draft Guidance for Assessing and Mitigating Air Quality Impacts - 2012. http://www.valleyair.org/workshops/postings/2012/4-25-12GAMAQI/draft_GAMAQI_2012_April11.pdf.

For a project locating near an existing source of odors, California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District* (CBIA), ruled that CEQA generally does not require an evaluation of impacts of the environment on a project unless a project will exacerbate an existing environmental hazard. As shown in Table 4.3-6, sensitive receptors such as residential, commercial, office, and institutional uses (such as the hospital land uses) would not be the types of land uses that are associated with generating substantial odors and would not be anticipated to exacerbate existing odor impacts. Thus, evaluation of this scenario is not considered for purposes of this analysis.

Health Risk

From a health risk perspective, there are two types of land use projects that have the potential to cause long-term public health risk impacts.

- Type A Projects. Land use projects that will place new toxic sources in the vicinity of existing receptors. Examples of Type A projects include gasoline dispensing facilities, asphalt batch plants, warehouse distribution centers, new freeways or high traffic roads, and other stationary sources that emit toxic substance.
- Type B Projects. Land use projects that will place new receptors in the vicinity of existing toxics sources. Examples of Type B projects includes residential, commercial, and institutional developments proposed in the vicinity of existing toxic emission sources such as stationary sources, freeways or high traffic roads, rail yards, and warehouse distribution centers.

Whenever a project would require use of chemical compounds that have been identified in SJVAPCD's Rule 2201, placed on CARB's air toxics list pursuant to Assembly Bill 1807 (AB 1807), Toxic Air Contaminant Identification and Control Act (1983), or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is warranted. In addition, if a project would place sensitive land uses proximate to major sources of TACs (roadways with over 50,000 vehicles per day or major stationary sources), a health risk assessment may also be warranted. Table 4.3-7 lists the SJVAPCD's TAC incremental risk thresholds for operation of a project or placement of sensitive land uses proximate to major sources of air pollution. As stated, under the *CBIA* ruling, while CEQA is generally not required to analyze impacts of the environment on a project, where a project will exacerbate an existing environmental hazard, CEQA requires an analysis of the worsened condition on future project residents and the public at large. However, projects that do not generate emissions that exceed the values in Table 4.3-6 would not substantially contribute to cumulative air quality hazards or exacerbate an existing environmental hazard. Residential, commercial, office, and institutional uses (such as the hospital land uses) do not use substantial quantities of TACs and typically do not exacerbate existing hazards. Thus, for purposes of this analysis, evaluation of the Type B Projects scenario impacts is not included in the impacts discussion below.

TABLE 4.3-7 SJVAPCD TOXIC AIR CONTAMINANTS INCREMENTAL RISK THRESHOLDS

Cancer Risk[a]	≥ 10 in 1 million
Hazard Index[b]	≥ 1.0

a. For the Maximum Exposed Individuals (MEI).
b. Ground-level concentrations of noncarcinogenic TACs for the MEI.
Source: San Joaquin Valley Air Pollution Control District. 2015, March. *Guidance for Assessing and Mitigating Air Quality Impacts.* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf.

Cumulative Impacts

By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development. Future attainment of federal and State AAQS is a function of successful implementation of the SJVAPCD's attainment plans. Consequently, the District's

application of thresholds of significance for criteria pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. Pursuant to the SJVAPCD's guidance, if project-specific emissions would be less than the thresholds of significance for criteria pollutants, the project would not be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the SJVAPCD is in nonattainment under applicable federal or State AAQS.

4.3.3 IMPACT DISCUSSION

4.3.3.1 METHODOLOGY

This air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur in conjunction with future development that would be accommodated by the proposed Plan. SJVAPCD has published the GAMAQI that provides local governments with guidance for analyzing and mitigating air quality impacts and was used in this analysis. The City's criteria air pollutant emissions inventory includes the following sectors:

- Transportation. Based on the annual average trip generation and VMT data provided by Fehr and Peers (see Appendix G of this Draft EIR). An average trip distance of 8.04 miles per trip is utilized for the proposed Plan buildout scenario. Based on the estimated net increase of 182,853 average daily trips (ADT) generated associated with the new proposed land uses, an approximately 1,470,179 additional vehicle miles per day would be generated.
- Area Sources. Area and stationary sources are based on the California Emissions Estimator Model (CalEEMod) defaults for emissions generated from use of consumer products and cleaning supplies.
- Energy. Criteria air pollutant emissions from energy use (natural gas used for cooking, heating, etc.) are based on the CalEEMod defaults for natural gas usage by residential and nonresidential land uses. New buildings are assumed to comply with the 2016 Building Energy Efficiency Standards, which are 28 percent more energy efficient for residential buildings and 5 percent more energy efficient for nonresidential buildings and residential buildings of four stories or more than the 2013 Building Energy Efficiency Standards.
- Construction. It is assumed that development of the proposed Plan would generally commence beginning of 2018. For purposes of this analysis, the construction phasing utilizes the CalEEMod default schedule based on the anticipated new land uses and the duration of each activity is normalized to a 25-year buildout period. In addition, while the specific timeline in how the land uses accommodated in the proposed Plan would be developed is unknown, this analysis assumes that the various construction activities (e.g., site preparation, demolition, building construction) would overlap. Furthermore, it is assumed that all of the existing residential and non-residential land uses within the proposed Plan Area remain under the proposed future buildout scenario. Construction assumptions were based on CalEEMod defaults such as construction equipment mix and worker, vendor, and haul trips. Table 4.3-8 shows the assumed construction activities and the start and end dates (based on 25-year buildout) and equipment mix for each of the activities.

TABLE 4.3-8 CONSTRUCTION ACTIVITIES, PHASING, AND EQUIPMENT

Activities	Start/End Dates[a]	Equipment[b]
Demolition	1/1/2018 – 3/19/2019	1 concrete/industrial saw; 3 excavators; 2 rubber tired dozers; 1 water truck
Site Preparation	1/1/2018 – 9/21/2018	3 rubber tired dozers; 4 tractors/loaders/backhoes; 1 water truck
Grading	1/1/2018 – 11/18/2019	2 excavators; 1 grader; 1 rubber tired dozer; 2 scrapers; 2 tractors/loaders/backhoes; 1 water truck
Building Construction	1/1/2018 – 10/20/2036	1 crane; 3 forklifts; 1 generator set; 3 tractors/loaders/ backhoes; 1 welder
Asphalt Paving	1/1/2018 – 5/1/2019	2 pavers; 2 paving equipment; 2 rollers
Architectural Coating	1/1/2018 – 3/14/2024	1 air compressor

a. Based on CalEEMod defaults and normalized to a 25-year buildout duration.
b. Based on CalEEMod defaults.

AQ-1 The proposed Plan would be inconsistent with the SJVAPCD air quality management plans as its buildout would substantially increase long-term criteria air pollutants and would cumulatively contribute to the nonattainment designations of the SJVAB.

CEQA requires that projects be evaluated for consistency with the AQMPs. A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the AQMPs. It fulfills the CEQA goal of informing decision makers of the environmental effects of a project under consideration at a stage early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals of the AQMPs. The regional emissions inventory for the SJVAB is compiled by SJVAPCD and Fresno Council of Governments (COG). Regional population, housing, and employment projections developed by Fresno COG are based, in part, on the local jurisdictions' general plan land use designations. These projections form the foundation for the emissions inventory of the AQMP. These demographic trends are incorporated into the 2014–2040 Regional Transportation Plan/Sustainable Communities Strategy, compiled by Fresno COG to determine priority transportation projects within the Fresno COG region. Projects that are consistent with the local general plan are considered consistent with the air quality–related regional plan. Typically, only new or amended general plan elements, specific plans, and major projects that have the potential to affect the regional population and employment forecasts need to undergo a consistency review.

SJVAPCD is tasked with implementing programs and regulations required by the Clean Air Act and the California Clean Air Act. SJVAPCD has prepared several plans to attain the National AAQS and California AAQS. Emission reductions achieved through implementation of SJVAPCD's NSR offset requirements are a major component of SJVAPCD's air quality plans. The established thresholds of significance for criteria pollutant emissions are based on SJVAPCD offset requirements for stationary sources. Therefore, projects

with emissions below the thresholds of significance for criteria pollutants would be determined to "not conflict or obstruct implementation of the District's air quality plan."

CEQA Guidelines Section 15206(b) states that a project is of statewide, regional, or area-wide significance if it is a residential development of more than 500 dwelling units or a commercial office building of 250,000 square feet or more or that employs 1,000 or more employees. Specifically, the proposed Plan would introduce up to 4,512,586 square feet of non-residential building space and 7,131 new dwelling units in addition to 8,671[38] new jobs over existing conditions in the Plan Area, and is therefore a project of statewide, regional, or area-wide significance. Thus, implementation of the proposed Plan would have the potential to substantially affect Fresno COG's demographic projections beyond what is already anticipated for the Plan Area.

In addition, the analyses in the response to Impact AQ-3 demonstrate that the proposed Plan would generate long-term emissions of criteria air pollutants that would exceed SJVAPCD's regional operation-phase significance thresholds, which were established to determine whether a project has the potential to cumulatively contribute to the SJVAB's nonattainment designations. Thus, implementation of the proposed Plan would result in an increase in the frequency or severity of existing air quality violations; cause or contribute to new violations; or delay timely attainment of the AAQS.

Summary

As discussed above, while the proposed Plan would result in a substantial increase in long-term criteria pollutant emissions compared to existing conditions, it would support a more sustainable development pattern for the Plan area. As the improvements, objectives, and policies under the proposed Plan would support a more sustainable development pattern in accommodating future growth for the Plan area, they would contribute in minimizing long-term emissions of criteria air pollutants. Various policies of the proposed Plan would promote complete streets, mixed-use and transit oriented neighborhoods, and increased capacity for alternative transportation modes, which would help reduce air pollutant emissions. For example, policies include:

Policy LU-2.5 Attract and encourage higher-density mixed use development along California Avenue, connecting to Downtown Fresno, Fresno Area Express (FAX), and High-Speed Rail (HSR) with a future bus-rapid transit line, to support a mixed-use corridor.

Policy LU-3.1 Encourage the development of centers, or nodes, within walking and biking distance of residents and surrounded by residences. Nodes should consist of a park, and quality neighborhood retail and services.

Policy LU-8.4 In collaboration with appropriate local, State, and/or federal agency, regularly enforce and evaluate performance and performance standards on the operation of existing industrial activity related to air quality, odor, and noise in order to maintain compatibility with adjacent neighborhoods and uses.

[38] See Table 4.12-4 of Section 4.12, Population and Housing.

Policy LU-9.1	Create active street frontages by providing wide sidewalks with pedestrian-scaled streetscape amenities and orienting building entrances toward the street.
Policy LU 10.1	Provide a walkable environment within neighborhoods by slowing down traffic, providing wide sidewalks with drought-tolerant vegetation and street trees, and creating an interconnected pedestrian network.
Policy LU-10.2	Encourage buildings within neighborhoods to be compatible in scale with surrounding residential development.
Policy T-1.1	Implement the pedestrian recommendations from the City of Fresno Active Transportation Plan, focusing on the high priority areas first.
Policy T-4.4	Ensure that all roadway widening projects in Southwest Fresno includes Class II or Class IV bicycle facilities.
Policy T-4.5	Provide secure, high-quality bicycle parking per the Citywide Development Code Section 15-2429 on Bicycle Parking such as racks and lockers, at key locations along the bicycle network, including transit stops, in front of retail and services, for employment offices, parks, and offices.
Policy T-6.1	Improve the reliability, quality, and efficiency of transit service within Southwest Fresno and to regional destinations.
Policy T-8.1	Consider and prioritize the comfort of pedestrians, bicyclists, and transit riders when planning vehicular improvements on roadways through implementation of complete streets improvements.
Policy T-10.1	When feasible, design new roadways and retrofit existing roadways within magnet cores, complete neighborhoods, and along special corridors to prioritize travel by walking, bicycling, and riding transit, using the complete streets design guidelines contained in the Southwest Fresno Specific Plan. For example, if adequate or excessive vehicle traffic capacity is available, create wide sidewalks, provide pedestrian amenities, and install bicycle facilities such as separated bikeways or bike lanes, bike parking, and signage. This could be in the form of a “road diet” to transform certain corridors into multi-modal streets.
Policy T-11.1	Prioritize the implementation of facilities that encourage walking and biking, such as sidewalks, multi-use trails, and bikeways.
Policy T-11.3	Support Transportation Demand Management programs to encourage alternative modes of travel to the single-occupancy vehicle such as transit use, vanpool, rideshare, and telecommuting.

The above policies would promote active transit and support the reduction in average vehicle trip distances, which would contribute in reducing overall vehicle trips and VMT. However, despite furthering

the regional transportation and planning objectives, as stated, buildout of the proposed Plan would represent a substantial increase in emissions compared to existing conditions and would exceed SJVAPCD's regional operational significance thresholds (see Impact AQ-3). As a result, the proposed Plan could potentially exceed the assumptions in the AQMPs and would not be considered consistent with the AQMPs. Therefore, impacts are considered *significant*.

Impact AQ-1: Implementation of the proposed Plan would result in the generation of substantial long-term criteria air pollutant emissions that would exceed the SJVAPCD regional significance thresholds and would therefore not be considered consistent with the existing AQMPs.

Significance Without Mitigation: Significant and unavoidable. No further measures to reduce operation-phase criteria air pollutant emissions are available beyond the applicable SJVAPCD rules and regulations in addition to proposed Plan policies and design guidelines. The various goals and policies of the proposed Plan, such as those outlined above, would contribute to reducing long-term criteria air pollutant emissions to the extent feasible. However, due to the magnitude and intensity of development accommodated by the proposed Plan, Impact AQ-1 would remain significant and avoidable.

AQ-2 Construction activities associated with buildout of the proposed Plan could exceed SJVAPCD's regional significance thresholds.

Construction activities would temporarily increase PM_{10}, $PM_{2.5}$, VOC, NO_X, SO_X, and CO regional emissions within the SJVAB. The primary source of NO_x, CO, and SO_x emissions is the operation of construction equipment. The primary sources of particulate matter (PM_{10} and $PM_{2.5}$) emissions are activities that disturb the soil, such as grading and excavation, road construction, and building demolition and construction. The primary source of VOC emissions is the application of architectural coating and off-gas emissions associated with asphalt paving.

Construction activities associated with buildout of the proposed Plan are anticipated to occur sporadically over an approximately 25-year period or longer. Buildout would be comprised of multiple smaller projects, each having its own construction timeline and activities. Development of multiple properties could occur at the same time. However, there is no defined development schedule for these future projects at this time. For this analysis, the maximum daily emissions are based on a very conservative scenario, where several construction projects are occurring at one time and overlap of all construction phases occur at the same time. The amount of construction assumed is consistent with the 25-year anticipated buildout of the proposed Plan. An estimate of maximum daily construction emissions is provided in Table 4.3-9. The table shows the annual emissions that would be generated over the anticipated development period.

As shown in the table, construction activities associated with implementation of the proposed Plan could potentially exceed the SJVAPCD regional threshold for VOC and NO_X. NO_X is a precursor to the formation of both O_3 and particulate matter (PM_{10} and $PM_{2.5}$). VOC is a precursor to the formation of O_3. Project-related emission of NO_X would contribute to the O_3, PM_{10}, and $PM_{2.5}$ nonattainment designations of the SJVAB. As part of the development process, individual, site-specific projects accommodated under the

TABLE 4.3-9 CONSTRUCTION-RELATED CRITERIA AIR POLLUTANT EMISSIONS ESTIMATES

	Criteria Air Pollutants (tons/year)[a]					
Year	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
2018	105	54	486	<1	13	5
2019	38	40	34	<1	10	3
2020	4	29	25	<1	7	2
2021	3	26	22	<1	7	2
2022	3	19	19	<1	7	2
2023	3	19	19	<1	7	2
2024	3	19	17	<1	7	2
2025	3	19	16	<1	7	2
2026	2	19	15	<1	7	2
2027	2	18	15	<1	7	2
2028	2	18	14	<1	7	2
2029	2	18	13	<1	7	2
2030	2	17	13	<1	7	2
2031	2	17	12	<1	7	2
2032	2	17	12	<1	7	2
2033	2	17	11	<1	7	2
2034	2	17	11	<1	7	2
2035	1	17	10	<1	7	2
2036	1	13	8	<1	5	1
Maximum Annual Emissions	105	54	48	<1	13	5
SJVAPCD Annual Construction Threshold	10	10	100	27	15	15
Exceeds Annual Threshold?	**Yes**	**Yes**	No	No	No	No

Note: Emissions may not total to 100 percent due to rounding.
a. Construction phasing based on CalEEMod default generated schedule normalized to a 25-year buildout. For purposes of this analysis, construction activities are assumed to overlap. Construction equipment were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast Air Quality Management District of construction equipment and phasing for comparable projects.
Source: CalEEMod 2016.3.1.

proposed Southwest Fresno Specific Plan that meet the criteria of Rule 9510 would be required to prepare a detailed air quality impact assessment (AIA). To the extent applicable under Rule 9510 for each such individual development, SJVAPCD would require calculation of the construction emissions from the development. The purpose of the AIA is to confirm a development's construction exhaust emissions, and

therefore be able to identify appropriate mitigation, either through implementation of specific mitigation measures (e.g., use of construction equipment with Tier 4-rated engines) or payment of applicable off-site fees. As stated, under Rule 9510, each project that is subject to this Rule would be required to reduce construction exhaust emissions by 20 percent for NO_x or pay offset mitigation fees for emissions that do not achieve the mitigation requirements. While adherence to Rule 9510 would contribute to reducing exhaust NO_X emissions, it would not be applicable to reducing VOC emissions generated operation of equipment and from off-gassing from asphalt and paints. Therefore, project-related construction activities would result in *significant* regional air quality impacts.

Significance Without Mitigation: Significant.

Impact AQ-2: Construction activities associated with implementation of the proposed Plan would exceed the SJVAPCD regional significance thresholds for VOC and NO_X.

Mitigation Measure AQ-2a: In order to contribute in minimizing exhaust emission from construction equipment, prior to issuance of grading, demolition or building permits whichever occurs first, the property owner/developer shall provide a list of all construction equipment proposed to be used on the project site for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects). This list may be provided on the building plans. The construction equipment list shall state the make, model, and equipment identification number of all the equipment.

Mitigation Measure AQ-2b: During construction activities, for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects), the construction contractors shall ensure that the equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations; and, that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.

Mitigation Measure AQ-2c: In order to reduce VOC emissions from construction activities, prior to issuance of a building permit for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects), the property owner/developer shall require the construction contractor and provide a note on construction plans indicating that:

- All coatings and solvents will have a volatile organic compound (VOC) content lower than required under Rule 4601 (i.e., super compliant paints).
- All architectural coatings shall be applied either by (1) using a high-volume, low-pressure spray method operated at an air pressure between 0.1 and 10 pounds per square inch gauge to achieve a 65 percent application efficiency; or (2) manual application using a paintbrush, hand-roller, trowel, spatula, dauber, rag, or sponge, to achieve a 100 percent applicant efficiency.
- The construction contractor shall also use precoated/natural colored building materials, where feasible.

Significance With Mitigation: Significant and unavoidable. Buildout of the proposed Plan would occur over a period of approximately 25 years. Construction activities associated with buildout of the proposed Plan could generate short-term emissions that exceed the SJVAPCD's significance thresholds during this time

and cumulatively contribute to the nonattainment designations of the SJVAB. Implementation of Mitigation Measures AQ-2a through AQ-2c in addition to application of SJVAPCD Rules 9510 and Regulation VIII would reduce criteria air pollutant emissions from construction-related activities to the extent feasible and may result in reducing construction-related regional air quality impacts of subsequent individual projects to less than significant. However, due to the programmatic nature of the proposed Project, construction time frames and equipment for individual site specific projects are not available and there is a potential for multiple developments to be constructed at any one time, resulting in significant construction-related emissions. Therefore, despite adherence to Mitigation Measures AQ-2a through AQ-2c, Impact AQ-2 would remain significant and unavoidable.

AQ-3 Long-term operation of the proposed Plan would generate emissions that would exceed SJVAPCD's regional significance thresholds.

Buildout of the proposed Plan would result in direct and indirect criteria air pollutant emissions from transportation, energy (e.g., natural gas use), and area sources (e.g., aerosols and landscaping equipment). Mobile-source criteria air pollutant emissions are based on the traffic analysis conducted by Fehr and Peers (see Appendix G). Per the traffic analysis, implementation of the proposed Plan would generate a net increase of 182,853 ADT and 1,470,179 daily VMT. The net change of emissions from buildout of the proposed Plan is shown in Table 4.3-10. The net change in emissions is based on the new emissions associated with the new land uses.

TABLE 4.3-10 OPERATION-RELATED CRITERIA AIR POLLUTANT EMISSIONS ESTIMATES

	Criteria Air Pollutants (tons/year)[a]					
Year	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Area	74	3	54	<1	1	1
Energy	1	9	5	<1	1	1
Mobile	30	529	296	3	206	56
Total Annual Emissions	105	542	355	3	207	57
SJVAPCD Annual Operation Threshold	10	10	100	27	15	15
Exceeds Annual Threshold?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

a. Totals may not total to 100 percent due to rounding.
Source: CalEEMod 2016.3.1.

As shown in this table, operation of the project at buildout would generate air pollutant emissions that exceed SJVAPCD's regional significance thresholds for VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$ at buildout. Emissions of VOC and NO_x that exceed the SJVAPCD regional threshold would cumulatively contribute to the O_3 nonattainment designation of the SJVAB. Emissions of NO_x that exceed SJVAB's regional significance thresholds would cumulatively contribute to the O_3 and particulate matter (PM_{10} and $PM_{2.5}$) nonattainment designations of the SJVAB. Emissions of PM_{10} and $PM_{2.5}$ would contribute to the PM_{10} and $PM_{2.5}$ nonattainment designations.

Similar to construction-related emissions, application of SJVAPCD Rule 9510 to future individual projects would contribute in reducing NO_X and particulate matter emissions. In addition, application of SJVACPD Rule 9410 would contribute in reducing mobile-source emissions. Furthermore, as stated, the planned improvements, guidelines, objectives, and policies under the proposed Plan would generally support a more sustainable development pattern to accommodate growth within the area by creating complete neighborhoods and providing more transit options through improvements to the pedestrian, bicycle, public transportation, and alternative fueled vehicle networks and infrastructure, which would contribute in minimizing long-term criteria air pollutant emissions. However, while SJVAPCD rules and policies of the proposed Plan may contribute in reducing operation-related regional air quality impacts of individual projects accommodated under the proposed Southwest Specific Plan to less than significant, the projected cumulative emissions associated with future development projects would be in exceedance. Therefore, implementation of the proposed Plan would result in a *significant* impact because it would significantly contribute to the nonattainment designations of the SJVAB.

Impact AQ-3: Operation of development projects accommodated under the proposed Plan would generate emissions that would exceed the SJVAPCD regional significance thresholds for VOC, NOX, CO, PM_{10}, and $PM_{2.5}$.

Significance Without Mitigation: Significant and unavoidable. No further measures to reduce operation-phase criteria air pollutant emissions are available beyond the applicable SJVAPCD rules and regulations in addition to proposed Plan policies and design guidelines. Application of State and SJVAPCD rules and regulations, such as Rules 9510 and 9410, implementation of the proposed Plan's roadway, bicycle, and trail improvements, policies (e.g., Policies LU-1.1, LU-4.4, T-10.1, and T-11.3), and complete streets design guidelines, and implementation of applicable General Plan policies (e.g., Policies RC-4-e, RC-4-k, MT-2-b, and MT-4-b) would reduce operation-related criteria air pollutants generated from energy, stationary, and mobile sources to the extent feasible. As stated, the aforementioned improvements, design guidelines, and policies could contribute in reducing operation-phase regional air quality impacts of future individual projects to a less than significant level. However, despite implementation of the policies and design guidelines, Impact AQ-3 would remain significant and unavoidable due to the magnitude of the overall land use development associated with the proposed Plan.

AQ-4 Construction and operation of future development projects accommodated under the proposed Plan could cause or contribute to a violation of the ambient air quality standards.

Development that would be accommodated by the proposed Plan could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevating those levels. Unlike the mass of construction emissions shown in Table 5.2-8, described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or µg/m3) and can be correlated to potential health effects.

Tables 4.3-9 and 4.3-10 provides an estimate of the magnitude of short- and long-term criteria air pollutant emissions generated by the development that would be accommodated by the proposed Plan. Buildout of the proposed Plan would occur over a period of approximately 25 years or longer and would

comprise of smaller projects with their own construction time frames and construction equipment and operational characteristics. Construction and operation of future individual development projects accommodated under the proposed Plan could potentially result in an exceedance of SJVAPCD's ambient air quality screening threshold of 100 pounds per day. As stated, the planned improvements, objectives and policies under the proposed Plan would generally support a sustainable development pattern in accommodating future growth within the Plan area, which would generally contribute in reducing long-term criteria air pollutant emissions. In addition, application of SJVAPCD Rule 9510 and Regulation VIII would contribute in reducing operation- and construction-related NO_X and particulate matter emissions. Furthermore, Rule 9410 would also contribute in reducing operation-related mobile-source emissions. However, while individual development projects may not result in exceeding the screening threshold of 100 pounds per day, the projected cumulative emissions associated with future development projects accommodated under the proposed Plan would be in exceedance and could result in causing an exceedance of the AAQS. Therefore, as construction and operation of future individual development projects accommodated under the proposed Plan could result in causing or contribute to a violation of the ambient air quality standards, impacts to air quality would be *significant*.

Significance Without Mitigation: Significant.

Impact AQ-4: Development of land uses accommodated under the proposed Plan could result in short- and long-term emissions that could cause or contribute to a violation of the AAQS.

Mitigation Measure AQ-4a: Implement Mitigation Measures AQ-2a through AQ-2c to further reduce construction-related criteria air pollutant emissions.

Mitigation Measure AQ-4b: In order to reduce fugitive dust particulate matter emissions during construction activities, prior to issuance of grading, demolition or building permits, whichever occurs first, for projects subject to the California Environmental Quality Act (i.e., non-exempt projects), but that would be outside the purview of San Joaquin Valley Air Pollution Control District's (SJVAPCD) Regulation VIII, the property owner/developer shall submit a dust control plan consistent with SJVAPCD Regulation VIII requirements that includes, but not limited to the following measures during ground-disturbing activities to further reduce PM_{10} and $PM_{2.5}$ emissions:

- Disturbed areas (including storage piles) that are not being actively utilized for construction purposes shall be effectively stabilized using water, chemical stabilizer/suppressant, or covered with a tarp or other suitable cover (e.g., revegetated).
- On-site unpaved roads and off-site unpaved access roads shall be effectively stabilized using water or chemical stabilizer/suppressant.
- Land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled utilizing application of water or by presoaking.
- Material shall be covered, or effectively wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained when materials are transported off-site.
- Operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited

except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.)

- Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day shall prevent carryout and trackout.
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.
- Install wheel washers for all exiting trucks or wash off all trucks and equipment leaving the Plan Area.
- Adhere to Regulation VIII's 20 percent opacity limitation, as applicable.

Significance With Mitigation: Significant and unavoidable. Application of State and SJVAPCD rules and regulations, implementation of the proposed Plan's policies (e.g., Policies LU-1.1, LU-4.4, T-10.1, and T-11.3) and complete streets design guidelines in addition to applicable General Plan policies and objectives (e.g., Policies UF-12-a and UF-14-a and Objective RC-4), and incorporation of Mitigation Measures AQ-4a and AQ AQ-4b, would reduce construction and operation-related criteria air pollutants to the extent feasible. However, despite implementation of the proposed plans, policies, and design guidelines and adherence to these mitigation measures, Impact AQ-4 would remain significant and unavoidable due to the magnitude of land use development associated with the proposed Plan.

AQ-5 Implementation of the proposed Plan would not expose sensitive receptors to substantial toxic air contaminant concentrations.

Operation of new land uses consistent with the land use plan of the project would generate new sources of criteria air pollutants and TACs. The following describes potential localized operational air quality impacts from the implementation of the proposed Plan.

CO Hotspot

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the State 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. The GAMAQI previously required CO hotspot monitoring. However, emissions from motor vehicles, the largest source of CO emissions, have been declining since 1985 despite increases in VMT due to the introduction of new automotive emission controls and fleet turnover. Consequently, no CO hotspots have been reported in the SJVAB even at the most congested intersections. Furthermore, under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more

than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.[39]

Buildout of the proposed Plan would result in approximately 215,196 average daily trips, which would be an increase of only 182,853 total daily vehicle trips over existing conditions. However, distributing the total daily vehicle trips within the proposed Plan Area and region and by peak hour would result in smaller traffic volumes at the various intersections. Thus, implementation of the proposed Plan is not anticipated to produce the volume of traffic required to generate a CO hotspot. Therefore, implementation of the proposed Plan would not have the potential to substantially increase CO hotspots at intersections in the vicinity of the planning area, and impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

TACs

In general, land uses that would require a permit from SJVAPCD for emissions of TACs include chemical processing facilities, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. As the proposed Plan is a program-level document, it is currently unknown which types of stationary sources may be installed, if any. However, the proposed Plan would generally prohibit the development of large industrial-type land uses (e.g., manufacturing, warehousing, etc.), which is consistent with proposed Plan Policy LU-8.1, which directs employment areas within the Plan Area to be planned and zoned for non-industrial businesses. Additionally, this policy also supports previously designated industrial areas be planned and zoned for offices uses. While development of land uses may result in stationary source emissions such as dry cleaners and restaurants with charbroilers or buildings with emergency generators, these types of land uses would not be large emitters. Additionally, they would be controlled by SJVAPCD through permitting and would be subject to further study and health risk assessment prior to the issuance of any necessary air quality permits under Regulation II. According to SJVAPCD's GAMAQI, Regulation II ensures that stationary source emissions (permitted sources) would be reduced or mitigated below SJVAPCD significance thresholds of ten in one million cancer risk and one for acute risk at the maximally exposed individual. Though these sources would incrementally contribute to the project's inventory individually, they would be mitigated to the standards identified above. Therefore, overall, impacts related to TACs are considered *less than significant*.

Significance Without Mitigation: Less than significant.

AQ-6 New land uses accommodated under the proposed Plan would not create objectionable odors that could affect a substantial number of people.

The following discusses potential operation- and construction-related odor impacts associated with implementation of the proposed Plan.

[39] Bay Area Air Quality Management District (BAAQMD), 2017. California Environmental Quality Act: Air Quality Guidelines, May.

Operation-Related Odors

Growth within the proposed Plan Area could generate new sources of odors.Odors from the types of land uses that could generate objectional odors (see Table 4.3-6) are regulated under Regulation IV, Prohibitions, Rule 4102, Nuisance, which states:

> A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such person or the public or which cause or have a natural tendency to cause injury or damage to business or property.

As shown in Table 4.3-6, industrial land uses are the primary types of land uses that have the potential to generate objectionable odors. Industrial-type land uses would generally be prohibited within the proposed Plan Area. Residential and other non-residential (excluding industrial) land uses could result in generation of odors such as exhaust from landscaping equipment. However, unlike industrial land uses, these are not considered potential generators of odor that could affect a substantial number of people. In addition, as stated previously in the Impact AQ-5 discussion pertaining to TACs, proposed Plan Policy LU-8.1 would support the overall reduction of industrial land uses, such as those listed in Table 4.3-6, within the proposed Plan. This policy directs employment areas to be planned and zoned for non-industrial businesses and supports re-designating previously designated industrial areas to be planned and zoned for offices uses. Thus, the effect of Policy LU-8.1 would contribute to limiting both the development of new industrial uses and the expansion of existing industrial uses. Therefore, impacts from potential odors generated from residential and other non-residential land uses associated with the proposed Plan are considered *less than significant*.

Significance Without Mitigation: Less than significant.

Construction-Related Odors

During construction activities, construction equipment exhaust and application of asphalt and architectural coatings would temporarily generate odors. Any construction-related odor emissions would be temporary and intermittent in nature. Additionally, noxious odors would be confined to the immediate vicinity of the construction equipment. By the time such emissions reach any sensitive receptor sites, they would be diluted to well below any level of air quality concern. Furthermore, short-term construction-related odors are expected to cease upon the drying or hardening of the odor-producing materials. Therefore, impacts associated with construction-generated odors are considered *less than significant*.

Significance Without Mitigation: Less than significant.

4.3.4 CUMULATIVE IMPACTS

AQ-7 Operation and construction of development projects accommodated by the proposed Plan would generate short- and long-term emissions that would cumulatively contribute to the nonattainment designations of the SJVAB.

In accordance with SJVAPCD's methodology, any project that produces a significant project-level regional air quality impact in an area that is in nonattainment contributes to the cumulative impact. Cumulative projects within the local area include new development and general growth within the Plan Area. The greatest source of emissions within the SJVAB is mobile sources. Due to the extent of the area potentially impacted from cumulative project emissions (i.e., the SJVAB); SJVAPCD considers a project cumulatively significant when project-related emissions exceed the regional emissions thresholds shown in Table 4.3-5. No significant cumulative impacts were identified with regard to CO hotspots.

Construction

The SJVAB is designated nonattainment for O_3 and $PM_{2.5}$, under the California and National AAQS and nonattainment for PM_{10} under the California AAQS. Construction of cumulative projects will further degrade the regional and local air quality. Air quality will be temporarily impacted during construction activities. As shown in Table 4.3-9, construction emissions associated with the proposed Plan would exceed the SJVAPCD's regional construction emissions thresholds for VOC and NO_X. Thus, the project's contribution to cumulative air quality impacts would be cumulatively considerable and therefore *significant*.

Operation

For operational air quality emissions, any project that does not exceed or can be mitigated to less than the daily regional threshold values is not considered by the SJVAPCD to be a substantial source of air pollution and does not add significantly to a cumulative impact. As discussed, SJVAPCD Rules 9510 and 9410 would contribute in reducing emissions of NO_X and particulate matter associated with future individual projects accommodated under the proposed Plan and may reduce impacts for these individual development projects to a less than significant level. In addition, the planned improvements, design guidelines, objectives, and policies under the proposed plan would generally support a more sustainable development pattern for the Plan area. Creation of more complete neighborhoods in addition to improving the public transit, pedestrian, and bicycle networks and infrastructure would contribute to the overall reduction in vehicle trips and VMT, which would reduce mobile-source emissions. However, as shown in Table 4.3-10, due to the amount of growth for the proposed Plan area, operation of the cumulative projects accommodate under the proposed Plan would result in emissions in excess of the SJVAPCD regional emissions thresholds for VOC, NO_X, CO_2, PM_{10}, and $PM_{2.5}$. Thus, the proposed Plan's air pollutant emissions would be cumulatively considerable and therefore *significant*.

Significance Without Mitigation: Significant.

Impact AQ-7: Construction activities associated with implementation of the proposed Plan would exceed the SJVAPCD regional significance thresholds for VOC and NO_X.

Mitigation Measure AQ-7: Implement Mitigation Measures AQ-2a through AQ-4b of the Draft EIR.

Significance With Mitigation: Significant and unavoidable. Application of State and SJVAPCD rules and regulation in addition to incorporation of Mitigation Measures AQ-2a through AQ-4b and adherence to the proposed Plan goals, policies, and design guidelines would reduce short- and long-term emissions to the extent feasible. However, due to the magnitude and intensity of development planned under the proposed Plan, Impact AQ-7 would remain significant and unavoidable.

4.4 BIOLOGICAL RESOURCES

This chapter describes the regulatory framework and existing conditions of the Plan Area related to biological resources, and the potential impacts of the proposed Plan on biological resources. Information in this chapter is based in part on the availability of existing reports and information relevant to the Plan Area, and database searches (i.e., California Natural Diversity Database, Environmental Conservation Online System, and Google Earth).

4.4.1 ENVIRONMENTAL SETTING

4.4.1.1 REGULATORY FRAMEWORK

This section describes the federal, State, regional, and local regulations that provide for the protection and management of sensitive biological resources.

Federal Regulations

Federal Endangered Species Act

The US Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) are responsible for implementation of the federal Endangered Species Act (ESA). The ESA protects fish and wildlife species that are listed as threatened or endangered, as well as their habitats. Endangered species, subspecies, or distinct population segments are those that are in danger of extinction throughout all or a significant portion of their range; threatened species, subspecies, or distinct population segments are those that are likely to become endangered in the near future.

Section 9 of the ESA prohibits the “take” of any fish or wildlife species listed as endangered, including the destruction of habitat that prevents the species’ recovery. Take is defined as an action or attempt to hunt, harm, harass, pursue, shoot, wound, capture, kill, trap, or collect a species. Section 9 prohibitions also apply to threatened species unless a special rule has been defined with regard to take at the time of listing. Under Section 9 of the ESA, the take prohibition applies only to wildlife and fish species. However, Section 9 does prohibit the unlawful removal and reduction to possession, or malicious damage or destruction, of any endangered plant from federal land. Section 9 prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in nonfederal areas in knowing violation of any State law or in the course of criminal trespass. Candidate species and species that are proposed, or under petition for listing, receive no protection under Section 9.

Clean Water Act

The federal Clean Water Act (CWA) is administered by the US Environmental Protection Agency (EPA) and the US Army Corps of Engineers (USACE). USACE is responsible for regulating the discharge of fill material into waters of the United States, including lakes, rivers, streams, and their tributaries, as well as wetlands that are navigable or adjacent to a navigable waterway or that have an interstate or foreign commerce connection. In 2008, USACE published the Wetlands Regulatory Assistance Program: Regional

Supplements to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), which provides detailed information for the Arid West Region. Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

The discharge of dredged or fill material into waters of the United States is subject to permitting under Section 404 (Discharges of Dredge or Fill Material) of the CWA. Section 401 (Certification) specifies additional requirements for permit review, particularly at the State level. Project proponents must obtain a permit from USACE for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed action. USACE permits must be certified by the State Water Resources Control Board (SWRCB) in order to be valid. Thus, certification from the SWRCB should be requested at the same time an application is filed with USACE. Certification from the local Regional Water Quality Control Board (RWQCB) is also required when a proposed activity may result in discharge into navigable waters, pursuant to Section 401 of the CWA and EPA 404(b)(1) Guidelines.

National Pollutant Discharge Elimination System Program

The 1972 amendments to the federal Water Pollution Control Act established the National Pollutant Discharge Elimination System (NPDES) permit program to control discharges of pollutants from point sources (Section 402). The NPDES permit program is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States. The SWRCB issues both general and individual NPDES permits for certain activities.

Migratory Bird Treaty Act

The USFWS is also responsible for implementing the Migratory Bird Treaty Act (MBTA). The MBTA implements a series of treaties between the United States, Mexico, and Canada that provide for the international protection of migratory birds. Wording in the MBTA makes it clear that most actions that result in "taking" or possession (permanent or temporary) of a protected species can be a violation of the Act. The word "take" is defined as "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." The provisions of the MBTA are nearly absolute; "except as permitted by regulations" is the only exception. Examples of permitted actions that do not violate the law are the possession of a hunting license to pursue specific game birds, legitimate research activities, display in zoological gardens, bird-banding, and similar activities.

State Regulations

California Endangered Species Act

The California Endangered Species Act (CESA) establishes State policy to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that State agencies should not approve projects that jeopardize the continued existence of threatened or endangered species, if reasonable and prudent alternatives are available that would avoid jeopardy. For projects that would affect species that are on the federal and State endangered species lists, compliance with the federal ESA

satisfies CESA if the California Department of Fish and Wildlife (CDFW) determines that the federal incidental take authorization is consistent with CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of species that are only State-listed, the project proponent must apply for a take permit under Section 2081(b) of the California Fish and Game Code.

California Fish and Game Code

Under the California Fish and Game Code, CDFW provides protection from “take” for a variety of species, including Fully Protected species. "Fully Protected" is a legal protective designation administered by the CDFW, intended to conserve wildlife species that risk extinction within California. Lists have been created for birds, mammals, fish, amphibians, and reptiles. The Fish and Game Code sections dealing with Fully Protected species state that these animals "...may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected" species, although take may be authorized for necessary scientific research. In 2003, the code sections dealing with fully protected species were amended to allow CDFW to authorize take resulting from recovery activities for State-listed species. The CDFW also protects streams, water bodies, and riparian corridors through the streambed alteration agreement process under Section 1601 to 1606 of the California Fish and Game Code. The Fish and Game Code stipulates that it is “unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake” without notifying CDFW, incorporating necessary mitigation, and obtaining a streambed alteration agreement. Through policy, CDFW asserts jurisdiction to the top of banks of all streams, including intermittent and ephemeral streams, extending laterally to the upland edge of adjacent riparian vegetation. The CDFW uses the Cowardin system for wetland identification and classification, which typically results in a larger jurisdictional area than federal jurisdiction under the CWA. Under this system, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year.

California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (CNPPA) prohibits importation of rare and endangered plants into California, “take” of rare and endangered plants, and sale of rare and endangered plants. CESA defers to the CNPPA, which ensures that State-listed plant species are protected when State agencies are involved in projects subject to California Environmental Quality Act (CEQA). In this case, plants listed as rare under the CNPPA are not protected under CESA; however, impacts to endangered, rare, or threatened species, including plants, are evaluated under CEQA.

Porter-Cologne Water Quality Act

The SWRCB and RWQCB maintain independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Water Quality Act of 1969. This Act is similar to and largely based off the federal Clean Water Act, and is intended to preserve and enhance all beneficial uses of the waters of the State. The RWQCB currently employs the USACE procedures and definitions for defining the physical boundaries of wetlands and waters. However, there are differences in

the State and federal ability to regulate these features. In order to be subject to federal regulation as waters of the United States, wetlands and waters must demonstrate that water is, or is adjacent to, a navigable waterway or a tributary to a navigable waterway, or have an interstate or foreign commerce connection. Under the Porter-Cologne Act, the State has regulatory authority over what are termed "isolated" waters and wetlands, in addition to waters of the United States.

Local Regulations

Fresno General Plan

The City of Fresno's General Plan was adopted in 2014.[1] The General Plan includes specific implementing policies pertaining to biological resources (see Table 4.4-1) that must be adhered to for development within the Plan Area, specifically within the Open Space and Biological Resources Section of Chapter 5, the Parks, Open Space, and Schools Element (POSS). Specifically, POSS Objective 5, and Implementation Policies POSS-5-a through POSS-5-f are applicable to the proposed Plan.

City of Fresno Municipal Code

The City of Fresno Municipal Code details the code of ordinances governing city and municipal services, construction, development, vehicles, traffic, taxation, and other subjects.[2] In particular, the City of Fresno Municipal Code Section 13-305 protects all public trees in the city, including but not limited to trees that are affecting surface improvements or underground facilities, or which are diseased, or located where construction is being considered or will occur. No person, except authorized City personnel, shall remove, destroy, deface or injure any tree on public property by any means including but not limited to: pouring material on or immediately adjacent to any tree, attaching any sign or notice to a tree without supervision of the Director, causing or encouraging fire around any tree, or covering the ground within a 4-foot radius around any tree with concrete or other unnatural surface. Any removal of trees shall be conducted only after an evaluation and inspection by the Director, and written authorization.

Regional and Local Plans

Pacific Gas & Electric Company's San Joaquin Valley Operation and Maintenance Habitat Conservation Plan

Any Pacific Gas & Electric Company (PG&E) gas and electrical transmission and distribution facilities, easements, private access routes, or lands owned by PG&E, some of which may occur within the Plan

[1] Dyett & Bhatia, 2014. Fresno General Plan. Adopted December 18, 2014. Prepared for Development and Resource Management Department, City of Fresno.

[2] City of Fresno, 2017. Code of Ordinances. Updated June 8, 2017, https://library.municode.com/ca/fresno/codes/code_of_ordinances, accessed 13 July 2017.

TABLE 4.4-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO BIOLOGICAL RESOURCES

Objective/ Policy Number	Objective/Policy Text
Objective POSS-5	*Provide for long-term preservation, enhancement, and enjoyment of plant, wildlife, and aquatic habitat.*
Policy POSS-5-a	**Habitat Area Acquisition.** Support federal, State, and local programs to acquire significant habitat areas for permanent protection and/or conjunctive educational and recreational use.
Policy POSS-5-b	**Habitat Conservation Plans.** Participate in cooperative, multi-jurisdictional approaches for area-wide habitat conservation plans to preserve and protect rare, threatened, and endangered species.
Policy POSS-5-c	**Buffers for Natural Areas.** Require development projects, where appropriate and warranted, to incorporate natural features (such as ponds, hedgerows, and wooded strips) to serve as buffers for adjacent natural areas with high ecological value.
Policy POSS-5-d	**Guidelines for Habitat Conservation.** Establish guidelines for habitat conservation and mitigation programs, including: ▪ Protocols for the evaluation of a site's environmental setting and proposed design and operating parameters of proposed mitigation measures. ▪ Methodology for the analysis depiction of land to be acquired or set aside for mitigation activities. ▪ Parameters for specification of the types and sources of plant material used for any re-vegetation, irrigation requirements, and post-planting maintenance and other operational measures to ensure successful mitigation. ▪ Monitoring at an appropriate frequency by qualified personnel and reporting of data collected to permitting agencies.
Policy POSS-5-e	Pursue development of conjunctive habitat and recreational trail uses in flood control and drainage projects.
Policy POSS-5-f	**Regional Mitigation and Habitat Restoration.** Coordinate habitat restoration programs with responsible agencies to take advantage of opportunities for a coordinated regional mitigation program.

Area, are covered under PG&E's San Joaquin Valley Operation and Maintenance Habitat Conservation Plan (HCP).[3]

The HCP allows for a regional, activity-based approach to protect endangered plants and animals in full compliance with the CESA and ESA. The HCP covers almost all of PG&E's routine operations and maintenance within the Plan Area, as well as minor new construction.

Recovery Plan for Upland Species of the San Joaquin Valley

The Plan Area is located in the planning area for the Recovery Plan for Upland Species of the San Joaquin Valley.[4] This plan covers 34 species of plants and animals that occur in the San Joaquin Valley, 11 of which are endangered, including the San Joaquin kit fox, giant kangaroo rat, and blunt-nosed leopard lizard. The

[3] Jones & Stokes, 2006. Pacific Gas & Electric Company San Joaquin Valley Operations and Maintenance Habitat Conservation Plan (includes updated Chapter 4 and Tables 5-3, 5-4 and 5-5, December 2007). December. (J&S 02067.) Sacramento, CA.

[4] U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon. Queried via http://ecos.fws.gov/ecp0/reports/implementation-activity-status-ore-report?documentId=400360&entityId=151 on October 18, 2016.

remaining 23 species are either candidate species or species of special concern. The ultimate goal of the Recovery Plan is to delist the 11 endangered species and ensure the long-term survival of the candidates and species of special concern. The plan has defined six key elements to achieve these two goals, one of which is habitat protection. The plan recommends that, whenever possible, blocks of conservation land and natural land should be connected through linkages. If specific projects require consultation with the USFWS, the project would be evaluated in relation to the goals and objectives of the Recovery Plan.

4.4.1.2 EXISTING CONDITIONS

Vegetation and Wildlife Habitat

Four biotic habitats/land use types occur in the Plan Area: developed, agricultural, open space/disturbed annual grassland, and aquatic. These habitats are described in detail below, and their distribution within the Plan Area is shown in Figure 4.4-1. Table 4.4-2 provides the approximate acreage of each habitat and land use type within the Plan Area. The Plan Area is also highly fragmented by roads, and as such, it does not contain suitable migratory wildlife corridors or migration routes for wildlife species.

TABLE 4.4-2 BIOTIC HABITAT TYPES AND SURFACE AREAS IN THE PLAN AREA

Biotic Habitat Types	Area (Acres)
Developed	1,417.7
Agricultural	843.4
Open Space/Disturbed Annual Grassland	776.4
Aquatic	100.8
Total Surface Area	**3,138.3**

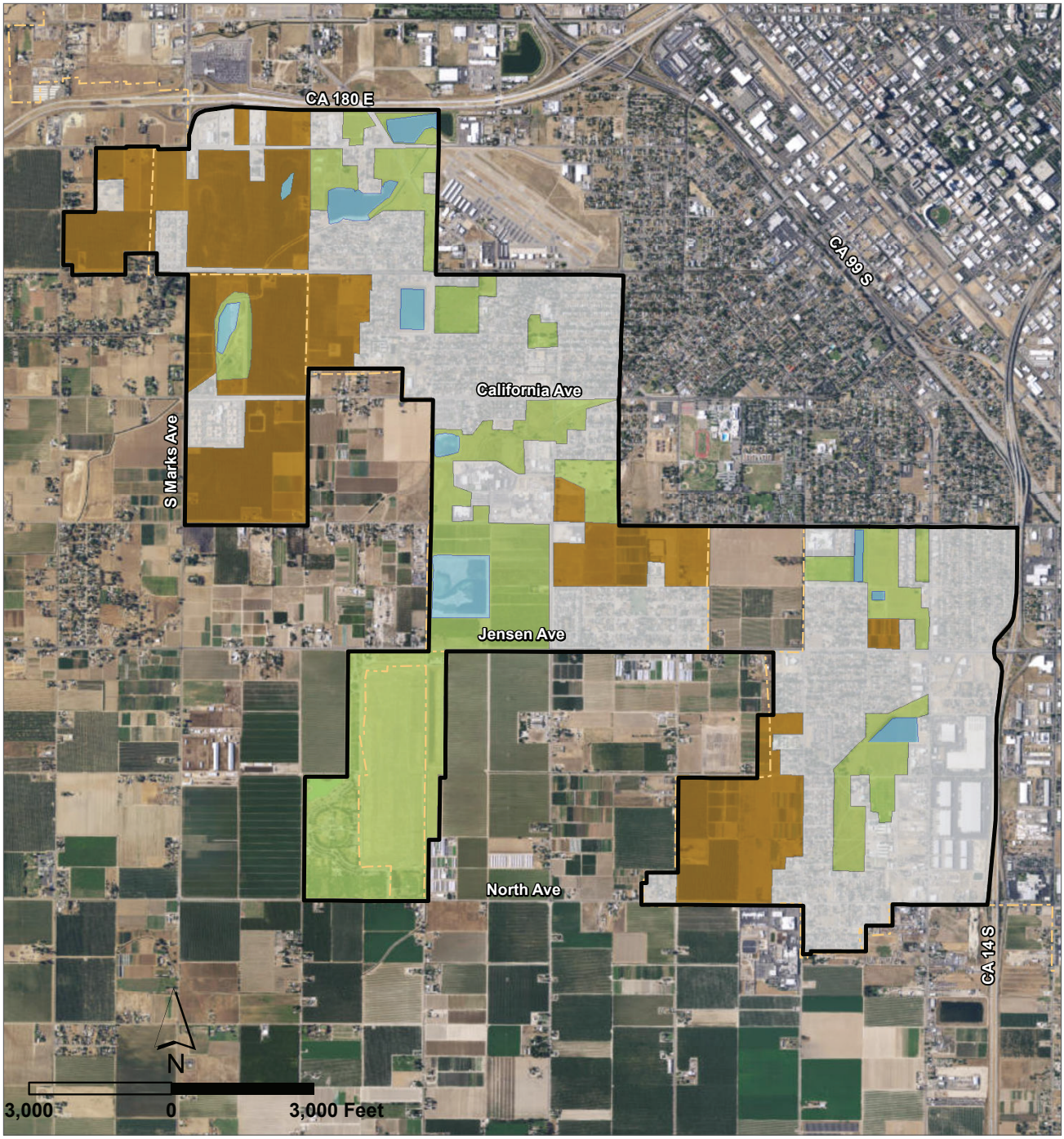
Source: H.T. Harvey Associates, 2017.

Developed Areas

Approximately 45.2 percent of the Plan Area is developed and comprised of residential, commercial, and industrial buildings; roads; and parking lots. Vegetation may include a wide variety of ornamental and non-native tree, shrub, and grassland species. These areas typically provide habitat for common species that are accustomed to human disturbance, such as California scrub-jay (*Aphelocoma californica*), American robin (*Turdus migratorius*), northern mockingbird (*Mimus polyglottos*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), raccoon (*Procyon lotor*), squirrel (*Sciurus* spp.), opossum (*Didelphis virginiana*), Norway rat (*Rattus norvegicus*), and house mouse (*Mus musculus*).

Agricultural

Approximately 26.9 percent of the Plan Area is comprised of agricultural uses, including orchards (e.g., almonds, peaches, and citrus fruits), vineyards, and irrigated row and field crops. Agricultural lands provide limited habitat for native plants and animals due to frequent disturbances associated with crop production. Opportunistic species that may occur in agricultural lands include side-blotched lizard (*Uta stansburiana*), American crow (*Corvus brachyrhynchos*), California scrub-jay, yellow-billed magpie (*Pica nuttalli*), house finch, small mammals, and raptors that prey on them. The edges of fields and orchards where stands of weeds, blackberry brambles, and brush are left undisturbed may provide protective cover for wildlife and food for birds. Burrowing animals such as California ground squirrels and gophers may be actively discouraged because of damage these animals can cause to irrigation systems, although their presence may be more likely in fallow fields.



Source: PlaceWorks, 2017.

City Limit
Sphere of Influence
Plan Area

Habitat
Agricultural (843.4 ac)
Aquatic (100.8 ac)
Developed (1,417.7 ac)
Open Space/Disturbed Annual Grassland (776.4 ac)

Figure 4.4-1
Habitat Map

Open Space/Disturbed Annual Grassland

The open spaces, which include vacant lots and parks comprising approximately 24.7 percent of the Plan Area, may be comprised by disturbed annual grassland species such as ripgut brome (*Bromus diandrus*), wild oat (*Avena fatua*), soft brome (*Bromus hordeaceus*), black mustard (*Brassica nigra*), and filaree (*Erodium cicutarium*). Wildlife that may occur and forage in disturbed annual grasslands include desert cottontail *(Sylvilagus audubonii)*, California ground squirrel *(Otospermophilus beecheyi)*, deermouse (*Peromyscus maniculatus)*, western harvest mouse (*Reithrodontomys megalotis*), side-blotched lizard, western fence lizard (*Sceloperus occidentalis*), gopher snake (*Pituophis catenifer*), and southern pacific rattlesnake (*Crotalis oreganus helleri*). California horned larks (*Eremophila alpestris actia*) and burrowing owls (*Athene cunicularia*) may use disturbed grassland habitat for foraging and nesting, and red-tailed hawks (*Buteo jamaicensis*), Swainson's hawks (*Buteo swainsoni*), American kestrel (*Falco sparverius*), and common raven (*Corvus corax*) may soar over and forage in the grasslands, depending on the size and location of the habitat patch relative to other habitat types.

Aquatic

Approximately 3.2 percent of the Plan Area is comprised of aquatic habitat, which includes irrigation canals, ponds, wetlands, and small reservoirs (e.g., <20 acres in size). These aquatic habitats appear to be largely devoid of riparian vegetation and are generally isolated, surrounded by agricultural fields, disturbed annual grasslands, parklands, or developed areas. The aquatic habitats may provide some limited habitat for wildlife such as waterfowl, red-winged blackbird (*Agelaius phoeniceus*), and western pond turtle (*Emys marmorata*). These habitats likely lack persistent emergent vegetation, but surrounding vegetation may include hydrophytic plants and grasses.

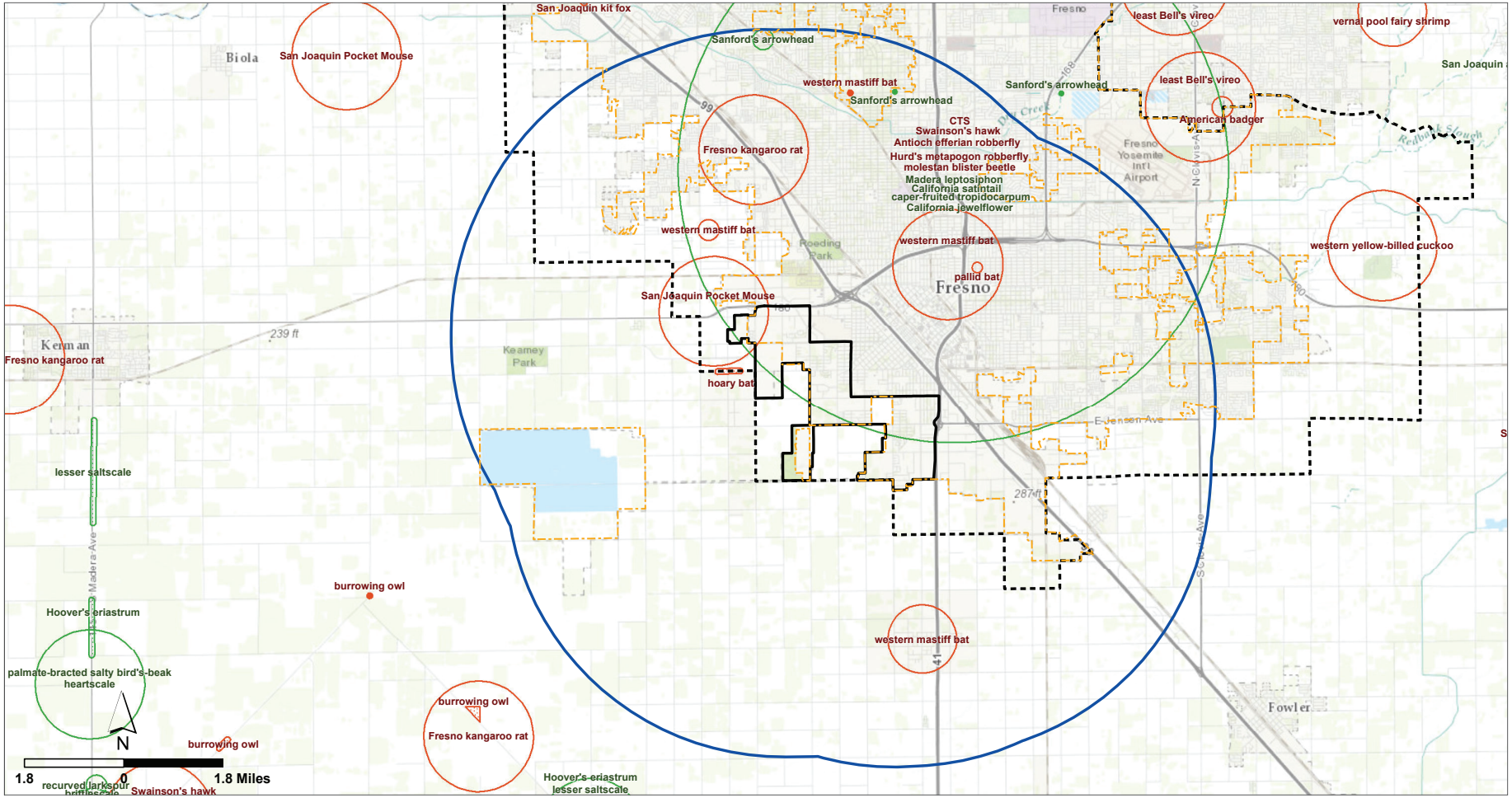
Special-Status Species

The potential for the Plan Area to support special-status plant and wildlife species is discussed below. The legal status and likelihood of occurrence of these species is presented in Table 4.4-3. Figure 4.4-2 shows the records for special-status plants and animals contained within the California Natural Diversity Data Base (CNDDB) as of July 12, 2017 within a 5-mile radius of the Plan Area.

Plant Species

According to the CNDDB, five special-status plants have the potential to occur in the Plan Area.[5] After comparing these species habitat preferences to the site-specific conditions, it was determined that one of the special-status plant species (*Madera linanthus*) is associated with habitat that does not occur in the Plan Area; the remaining four species, described below, are unlikely to occur in the Plan Area due to extensive land disturbance, a lack of suitable habitat, and a lack of recent records in the vicinity.

[5] California Natural Diversity Data Base (CNDDB), 2017. Rarefind. California Department of Fish and Game. Queried July 12, 2017.



Source: PlaceWorks, 2017.

City Limit
Sphere of Influence
Plan Area
5-mile Radius of Plan Area

CNDDB Animal Records
Specific Location
Approximate Location
General Area

CNDDB Plant Records
Specific Location
Approximate Location
General Area

Figure 4.4-2
CNDDB Plants and Wildlife in the Plan Area

TABLE 4.4-3 SPECIAL-STATUS PLANT AND WILDLIFE SPECIES, THEIR STATUS, AND POTENTIAL OCCURRENCE IN THE PLAN AREA

Name	Status*	Habitat	Occurrence On-Site
Federal or State Endangered or Threatened Species			
California jewel-flower (*Caulanthus californicus)*	FE, SE CNPS 1B.1	Chenopod scrub, valley and foothill grasslands, often on sandy soil, pinyon-juniper woodland.	Unlikely. Habitat within the Plan Area is marginal for the species.
California tiger salamander *(Ambystoma californiense)*	FT, ST	Vernal or temporary pools in annual grasslands or open woodlands with upland aestivation habitat (e.g., CA ground squirrel burrows).	Absent. Seasonally flooded areas present in the Plan Area are unsuitable for breeding because they are disconnected from potential upland habitat.[6] A CNDDB record from 1936 represents a population considered extirpated and there are no recent records within a 5-mile radius of the Plan Area.
Swainson's hawk (*Buteo swainsoni*)	ST	Nests in trees near foraging areas that include grasslands and agricultural croplands, especially alfalfa.	Possible. Grasslands and agricultural areas on the periphery of the Plan Area that have not been fragmented by agricultural-residential or urban development may provide foraging habitat, and trees in the open space may provide nesting habitat.
Fresno kangaroo rat (*Dipodomys nitratoides exilis*)	FE, SE	Sands and saline sandy soils in chenopod scrub and annual grasslands.	Absent. The CNDDB record is from 1891 and 1898 and represents a population considered extirpated due to habitat conversion, and there are no recent records within a 5-mile radius of the Plan Area.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, SE	Valley and foothills grassland; chenopod scrub.	Unlikely. Grasslands and agricultural areas on the periphery of the Plan Area that have not been fragmented by agricultural-residential or urban development may provide marginal habitat for dispersal.
California Special-Status Species			
Pallid bat (*Antrozous pallidus*)	SSC	Rocks, caves, trees, snags, bridges, and buildings for roosting. Grasslands, shrublands, woodlands, and conifer forests near water for foraging.	Possible. Suitable foraging and roosting habitat present.
Townsend's big-eared bat (*Corynorhinus townsendii*)	SSC	Roosts in abandoned mines, caves, and cave-like structures such as buildings, bridges, and basal tree hollows. Forages along forest and riparian edges, and desert canyons with water and riparian vegetation.	Possible. Suitable foraging and roosting habitat present.
Western mastiff bat (*Eumops perotis californicus*)	SSC	Roosts in tall cliff faces, and may roost in tall buildings. Many open, semi-arid habitats, including conifer and	Likely. Suitable foraging habitat is present. Potential roosting habitat is present. There are 4 CNDDB records of the species within

[6] U.S. Fish and Wildlife Service (USFWS), 2017. Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California, v + 69 pp.

TABLE 4.4-3 SPECIAL-STATUS PLANT AND WILDLIFE SPECIES, THEIR STATUS, AND POTENTIAL OCCURRENCE IN THE PLAN AREA

Name	Status*	Habitat	Occurrence On-Site
		deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Forages over open areas including agricultural fields, open desert, and riparian forests.	5 miles of the Plan Area.
Western red bat (*Lasiurus blossevillii*)	SSC	Winters along riparian areas with large cottonwoods, sycamores, blue gum, and river gum eucalyptus. Day roosts in hanging clumps of dense tree leaves, and sometimes roosts under leaf litter on cold nights.	**Unlikely.** Strongly associated with intact cottonwood and sycamore valley riparian habitats in low elevations, which is absent from the Plan Area.
American badger (*Taxidea taxus*)	SSC	Large areas of open fields, meadows, shrublands, and desert scrub.	**Unlikely.** Grasslands and agricultural areas on the periphery of the Plan Area that have not been fragmented by agricultural-residential or urban development may provide marginal habitat.
Burrowing owl (*Athene cunicularia*)	SSC	Flat open grassland, gentle slopes, and sparse shrublands.	**Unlikely.** Grasslands, open space, and agricultural fields in the Plan Area that have not been highly fragmented by urban development may provide suitable nesting and foraging habitat.
Western pond turtle (*Emys marmorata*)	SSC	Occurs in and around a wide variety of permanent or nearly permanent aquatic habitats, including canals, stock ponds, lakes, streams, and rivers. Basking and upland habitat as breeding habitat.	**Possible.** Suitable habitat present where perennial water is present.
California Native Plant Society (CNPS) Species			
California satintail (*Imperata brevifolia*)	CNPS 2B.1	Riparian scrub, coastal scrub, Mojavean scrub, meadows, and seeps.	**Unlikely.** Suitable habitat may be present in riparian areas of the Plan Area. CNDDB record (from 1893) was mapped as best guess around Fresno.
Madera linanthus (*Leptosiphon serrulatus*)	CNPS 1B.2	Cismontane woodland; lower montane coniferous forest.	**Absent**. Suitable habitat not present in the Plan Area.
Sanford's arrowhead (*Sagittaria sanfordii*)	CNPS 1B.2	Marshes, swamps, and slow-moving freshwater ponds, marshes, and ditches	**Unlikely.** Wetlands in the Plan Area may provide suitable habitat. Two CNDDB records (from 1958) are reported within a 5-mile radius of the Plan Area, although no plants were found during a search in 1980 and population is likely extirpated.
Caper-fruited tropidocarpum (*Tropidocarpum capparideum*)	CNPS 1B.1	Valley and foothill grassland on alkaline and clay soils.	**Unlikely.** Habitat within the Plan Area is marginal for the species. CNDDB record (from 1930) was from a nonspecific location centered on the City of Fresno.

***Listing Status**
FE = Federally Listed Endangered
FT = Federally Listed Threatened
FC = Federal Species of Concern
SE = State Listed Endangered
ST = State Listed Threatened
SR = State Rare
SSC = California Species of Special Concern
SP = State Fully Protected Species

Definitions Regarding Potential Occurrence:
Present: Species or sign of their presence observed on the site
Likely: Species or sign not observed on the site, but reasonably certain to occur on the site
Possible: Species or sign not observed on the site, but conditions suitable for occurrence
Unlikely: Species or sign not observed on the site, conditions marginal for occurrence
Absent: Species or sign not observed on the site, conditions unsuitable for occurrence

TABLE 4.4-3 SPECIAL-STATUS PLANT AND WILDLIFE SPECIES, THEIR STATUS, AND POTENTIAL OCCURRENCE IN THE PLAN AREA

Name	Status*	Habitat	Occurrence On-Site

CNPS LISTS:
1A – Plants presumed extinct in California
1B – Plants rare, threatened, or endangered in California and elsewhere
2 – Plants rare, threatened, or endangered in California, but more common elsewhere
3 – Plants about which more information is needed – a review list
4 – Plants of limited distribution – a watch list

CNPS THREAT CODE EXTENSIONS:
.1 – Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

Source: H.T. Harvey Associates, 2017.

California jewelflower (*Caulanthus californicus*). Federal Listing Status: Endangered; State Listing Status: Endangered; CNPS List 1B.1. California jewelflower is an annual herb belonging to the mustard family (Brassicaceae) that blooms from February to May. This plant occurs in chenopod scrub, valley and foothill grasslands, and pinyon and juniper woodland on sandy soils, at elevations between 200 and 3,281 feet. This species is found in Fresno, Kern, Santa Barbara, and San Luis Obispo counties. Over 35 historical occurrences are extirpated, including those in Kings and Tulare counties. Experimental reintroductions have occurred in Kern, Santa Barbara, and Tulare counties, but all have failed.[7] A historic CNDDB record (undated) documents the species in the Fresno area. The grasslands and open space in the Plan Area may provide marginal habitat for the California jewelflower. However, given a lack of recent records and that the open spaces in the Plan Area are generally disturbed, the species' presence is unlikely.

California satintail (*Imperata brevifolia*). Federal Listing Status: None; State Listing Status: None; CNPS List 2.1. California satintail is a rhizomatous herb belonging to the grass family (Poaceae) that blooms from September to May. This plant occurs in coastal scrub, chaparral, riparian scrub, mojavean scrub, and meadows and sinks on mesic, alkaline soils, at elevations between 0 and 1,640 feet. This species is found in Butte, Fresno, Imperial, Inyo, Kern, Lake, Los Angeles, Orange, Riverside, San Bernardino, Tehama, Tulare, and Ventura counties, and ranges into Arizona, Baja California, New Mexico (where it is possibly extirpated), Nevada, Texas, and Utah. The Butte, Tehama, and Lake County records may represent escaped ornamentals. This species is threatened by development and agriculture, and was mistakenly classified as a noxious weed in California from 1960 to 2004.[8] A historic CNDDB record (1893) documents the species in the vicinity of "Fresno", and suitable habitat occurs in the Plan Area. The California satintail could occur in the riparian and wetland areas of the Plan Area. However, given a lack of recent records and that the open spaces in the Plan Area are generally disturbed, the species' presence is unlikely.

Sanford's arrowhead (*Sagittaria sanfordii*). Federal Listing Status: None; State Listing Status: None; CNPS List 1B.2. Sanford's arrowhead is an emergent rhizomatous herb belonging to the water plantain family (Alismataceae) that blooms from May to October. This plant occurs in standing or slow-moving freshwater ponds, marshes, and ditches at elevations between 0 and 2,133 feet. This species has been reported from Butte, Del Norte, El Dorado, Fresno, Merced, Mariposa, Orange, Placer, Sacramento, Shasta, San Joaquin, Tehama, and Ventura counties. Sanford's arrowhead is extirpated from southern California (Orange and Ventura counties) and is mostly extirpated from its historical range in the Central Valley. The species is threatened by grazing, development, recreational activities, non-native plants, road widening, and channel alteration.[9] There are two CNDDB records from 1958 within a 5-mile radius of the Plan Area, although none were reported from a search conducted in 1980, and potentially suitable habitat occurs in the wetlands in the Plan Area (Figure 4.4-2). However, given a lack of recent records and that the wetlands in the Plan Area are generally disturbed, the species' presence is unlikely.

[7] California Native Plant Society (CNPS), Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39), http://www.rareplants.cnps.org, accessed 12 July 2017.

[8] California Native Plant Society (CNPS), Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39), http://www.rareplants.cnps.org, accessed 12 July 2017.

[9] California Native Plant Society (CNPS), Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39), http://www.rareplants.cnps.org, accessed 12 July 2017.

Caper-fruited tropidocarpum (*Tropidocarpum capparideum*). Federal Listing Status: None; State Listing Status: None; CNPS List 1B.1. Caper-fruited tropidocarpum is an annual herb belonging to the mustard family (Brassicaceae) that blooms from March to April. This plant occurs in alkaline clay soils in valley and foothill grasslands at elevations between 3 and 1,493 feet. Caper-fruited tropidocarpum was thought to be extinct, but in 2000 was rediscovered on Fort Hunter Liggett. Historic occurrences are reported from Alameda, Contra Costa, Fresno, Glenn, Monterey, Santa Clara, San Joaquin, and San Luis Obispo counties. The species is possibly threatened by grazing, military activities, trampling, and non-native plants.[10] A historic CNDDB record (1930) documents the caper-fruited tropidocarpum in the vicinity of "Fresno," but no recent records are reported. Suitable habitat may occur in the open spaces and grasslands of the Plan Area. However, given a lack of recent records and that the open spaces in the Plan Area are generally disturbed, the species' presence is unlikely.

Wildlife Species

According to the CNDDB, 11 special-status wildlife species have the potential to occur in the Plan Area.[11] Two of these species, California tiger salamander (*Ambystoma californiense*) and Fresno kangaroo rat (*Dipodomys nitratoides exilis*), were judged to be absent from the Plan Area because no suitable habitat occurs in the Plan Area, and/or recent species occurrence records were lacking in the vicinity. The remaining nine species and their potential to occur in the Plan Area are described below.

Swainson's Hawk (*Buteo swainsoni*). Federal Listing Status: None; State Listing Status: Threatened. Swainson's hawk was listed as threatened by the State of California in 1983 due to population declines likely precipitated by significant losses of riparian habitat and conversion of open foraging habitats to developed lands.[12,13] Swainson's hawks are distributed throughout western North America during the breeding season, but in California they are primarily limited to the Central Valley and the southeastern Great Basin region.[14] Swainson's hawks in California are strongly associated with riparian habitats, though they are also found in oak woodlands and other open habitats.[15,16] Prime breeding habitat encompasses

[10] California Native Plant Society (CNPS), Rare Plant Program, 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39), http://www.rareplants.cnps.org, accessed 12 July 2017.

[11] California Natural Diversity Data Base (CNDDB), 2017. Rarefind. California Department of Fish and Game. Queried July 12, 2017.

[12] Woodbridge, B., 1988. California Partners in Flight riparian bird conservation plan for the Swainson's Hawk. PRBO Conservation Science, 16 pp.

[13] England, A.S., M.J. Bechard, and C.S. Houston, 1997. Swainson's Hawk (*Buteo swainsoni*). *In* A. Poole, and F. Gill, editors. The Birds of North America. The Academy of Natural Sciences and The American Ornithologists' Union, Washington, D. C. and Philadelphia PA.

[14] Woodbridge, B., 1988. California Partners in Flight riparian bird conservation plan for the Swainson's Hawk. PRBO Conservation Science, 16 pp.

[15] Woodbridge, B., 1988. California Partners in Flight riparian bird conservation plan for the Swainson's Hawk. PRBO Conservation Science, 16 pp.

[16] England, A.S., M.J. Bechard, and C.S. Houston, 1997. Swainson's Hawk (*Buteo swainsoni*). *In* A. Poole, and F. Gill, editors. The Birds of North America. The Academy of Natural Sciences and The American Ornithologists' Union, Washington, D. C. and Philadelphia PA.

riparian draws or clumps of trees surrounded by open grassland or oak savannah for foraging.[17,18] Swainson's hawks build sturdy stick nests in low willows, box elders, oaks, or other trees, breeding from early March through July.[19] They are neotropical migratory birds, flying south after the breeding season to spend their winter months on the Pampas of Argentina.[20] Stresses on winter populations, including pesticide poisoning, on the winter grounds have contributed to declines in North American breeding populations.

Swainson's hawks could forage in the grasslands and agricultural areas in the Plan Area where prey species including California voles and pocket gopher occur. Swainson's hawk foraging habitat value is greater in the larger, more expansive open spaces and agricultural areas within the Plan Area, than in the smaller, isolated grasslands and agricultural areas in the Plan Area. As of July 12, 2017, there are no CNDDB records of nesting by this species within the Plan Area, although potential nesting trees exist within the Plan Area.

San Joaquin Kit Fox (*Vulpes macrotis mutica*). Federal Status: Endangered; State Status: Threatened. The kit fox is the smallest canid species in North America, and the San Joaquin kit fox is the largest subspecies. The San Joaquin kit fox was listed as endangered by the USFWS in 1967[21] and by the State of California in 1971. Grinnell et al. (1937)[22] believed that by 1930, the range of the San Joaquin kit fox had been reduced by half. Loss of habitat from urban, agricultural, and industrial development is the principal factor in the decline of the San Joaquin kit fox since at least the 1950s.[23] The USFWS[24] estimated that by 1958, 50 percent of the Valley's original natural communities had been converted to other types of land use.

The San Joaquin kit fox is primarily nocturnal and typically occurs in annual grassland or mixed shrub/grassland habitats throughout low, rolling hills and in the valleys. The diet of kit foxes varies geographically, seasonally, and annually, but throughout most of its range, the diet consists primarily of kangaroo rats (*Dipodomys* spp.), pocket mice (*Perognathus* spp.), white-footed mice (*Peromyscus* spp.), Nelson's antelope squirrels (*Ammospermophilus nelsoni*), California ground squirrels, rabbits (*Sylvilagus*

[17] England, A.S., M.J. Bechard, and C.S. Houston, 1997. Swainson's Hawk (*Buteo swainsoni*). *In* A. Poole, and F. Gill, editors. The Birds of North America. The Academy of Natural Sciences and The American Ornithologists' Union, Washington, D. C. and Philadelphia PA.

[18] Woodbridge, B., 1988. California Partners in Flight riparian bird conservation plan for the Swainson's Hawk. PRBO Conservation Science. 16 pp.

[19] England, A.S., M.J. Bechard, and C.S. Houston, 1997. Swainson's Hawk (*Buteo swainsoni*). *In* A. Poole, and F. Gill, editors. The Birds of North America. The Academy of Natural Sciences and The American Ornithologists' Union, Washington, D. C. and Philadelphia PA.

[20] Canavelli, S.B., M.J. Bechard, B. Woodbridge, M.N. Kochert, J.J. Maceda, and M.E. Zaccagnini, 2003. Habitat use by Swainson's hawks on their austral wintering grounds in Argentina. Journal of Raptor Research 37:125-134.

[21] U.S. Fish and Wildlife Service (USFWS), 1967. Native fish and wildlife. Endangered species. Federal Register 32:4001.

[22] Grinnell, J., J.S. Dixon, and J.M. Linsdale, 1937. Furbearing Mammals of California: Their natural history, systematic stats, and relations to man. UC Press.

[23] Morrell, S., 1972. Life history of the San Joaquin kit fox (*Vulpes macrotis mutica*). California Fish and Game Bulletin 58:162-174.

[24] U.S. Fish and Wildlife Service (USFWS), 1980. Blunt-nosed leopard lizard recovery plan. Portland, Oregon, 62 pp.

spp.), black-tailed jackrabbits, ground nesting birds, and insects.[25,26,27,28] Kit foxes require underground dens for temperature regulation, shelter, reproduction, and predator avoidance,[29] and they commonly modify and use dens constructed by other animals and structures made by humans.[30]

The CNDDB (2017) does not list any records within a 5-mile radius and the majority of the Plan Area contains unsuitable habitat, lacking suitable escape and denning structures and an adequate prey base to support permanent occupancy by the San Joaquin kit fox. Grasslands and agricultural areas on the periphery of the Plan Area that have not been fragmented by agricultural-residential or urban development may provide marginal dispersal habitat for this species. Both adult and juvenile San Joaquin kit foxes are known to move through a variety of partially disturbed habitats such as farm lands, oil fields, and areas with low density roads and highways. [31,32] This behavior combined with a reported average dispersal distance of approximately 5 miles and occasional dispersal distances of approximately 25 to 76 miles[33, 34] result in a low potential for kit foxes to occur in the Plan Area on rare occasions. Therefore, the San Joaquin kit fox is unlikely to occur in the Plan Area.

Pallid bat (*Antrozous pallidus*). Federal Listing Status: None; State Listing Status: Species of Special Concern.The pallid bat occurs throughout most of California, except in the high Sierra Nevada from Shasta to Kern counties and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County. The pallid bat inhabits a variety of habitats, including coniferous forests, deciduous woodlands, brushy terrain, rocky canyons, open farm land, and desert.[35] The species is most

[25] Morrell, S., 1972. Life history of the San Joaquin kit fox (*Vulpes macrotis mutica*). California Fish and Game Bulletin 58:162-174.

[26] Orloff, S., F. Hall, and L. Spiegel, 1986. Distribution and habitat requirements of the San Joaquin kit fox in the northern extreme of their range. Transactions of the Western Section of the Wildlife Society 22:60-70.

[27] Scrivner, J.H., T.P. O'Farrell, T.T. Kato, and M.K. Johnson, 1987. Dispersal of San Joaquin kit foxes, *Vulpes macrotis mutica*, on Naval Petroleum Reserve #1, Kern County, California, 1980-184. Rep. No. EGG 10282-2168, EG&G Energy Measurements, Goleta, California, 32 pp.

[28] Cypher, B.L. and K.A. Spencer, 1998. Competitive interactions between coyotes and San Joaquin kit foxes. Journal of Mammalogy 79:204-214.

[29] Golightly, R.T. and R.D. Ohmart, 1984. Water economy of two desert canids: coyote and kit fox. Journal of Mammalogy 65:51-58.

[30] U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon, 319 pp.

[31] Scrivner, J.H., T.P. O'Farrell, T.T. Kato, and M.K. Johnson, 1987. Dispersal of San Joaquin kit foxes, *Vulpes macrotis mutica*, on Naval Petroleum Reserve #1, Kern County, California, 1980-184. Rep. No. EGG 10282-2168, EG&G Energy Measurements, Goleta, California, 32 pp.

[32] Haight, R.G., B. Cypher, P.A. Kelly, S. Phillips, H.P. Possingham, K. Ralls, A.M. Starfield, P.J. White, and D. Williams, 2002. Optimizing habitat protection using demographic models of population viability. Conservation Biology 16:1386-1397.

[33] Scrivner, J.H., T.P. O'Farrell, T.T. Kato, and M.K. Johnson, 1987. Dispersal of San Joaquin kit foxes, *Vulpes macrotis mutica*, on Naval Petroleum Reserve #1, Kern County, California, 1980-184. Rep. No. EGG 10282-2168, EG&G Energy Measurements, Goleta, California, 32 pp.

[34] U.S. Fish and Wildlife Service (USFWS), 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, Oregon, 319 pp.

[35] Pierson, E.D. and W.E. Rainey. 1998. Pallid bat, Antrozous pallidus. In B.C. Bolster (Editor), Terrestrial Mammal Species of Special Concern in California. Drafeet Bird and Mammal Conservation Program Report No. 98–14. Sacramento, CA: California Department of Fish and Game.

common in open, dry habitats with rocky areas for roosting. Pallid bats are primarily a crevice-roosting species and select daytime roosting sites where they can retreat from view.[36] The prey of the pallid bat consists of a wide variety of insects and arachnids, including beetles, orthopterans, homopterans, moths, spiders, scorpions, solpugids, and Jerusalem crickets. It is unusual among North American bats in that most of its prey is taken off the ground, although a few are taken aerially.[37] The pallid bat is highly social and usually occurs in colonies of 12 to 100 individuals[38] that cluster to share body heat.[39] The pallid bat roosts both during the day and at night, spending 60 to 80 percent of a 24-hour cycle in the roost environment.[40] During the day this species shelters inside crevices or cavities found in natural features such as trees, cliffs, caves and rocky outcrops, and in manmade features such as barns, bridges, mines, and attics.[41,42,43] Roost temperature may be a limiting factor in roost selection. Pallid bats are intolerant of roost temperatures above 104° F,[44] and often occupy roosts that offer a varied temperature regime. Pallid bats are very sensitive to disturbance at the roost. When disturbed, they generally retreat into crevices, and with repeated disturbance, may abandon the roost.[45] Recent radio-tracking efforts in the west, including California, suggest that the pallid bat is far more dependent on tree roosts than was previously realized.[46] Pallid bats are also one of the species most predictably associated with bridges. No CNDDB (2017) records occur within a 5-mile radius of the Plan Area; however, suitable foraging and roosting habitat is present within the Plan Area. Therefore, the species may occur within the Plan Area.

Townsend's big-eared bat (*Corynorhinus townsendii*). Federal Listing Status: None; State Listing Status: Species of Special Concern. Pierson and Rainey (1998) identified 39 active Townsend's big-eared bat maternity colonies and 55 maternity roost sites scattered throughout California. The distribution is

[36] Pierson, E.D. and W.E. Rainey. 1998. Pallid bat, Antrozous pallidus. In B.C. Bolster (Editor), Terrestrial Mammal Species of Special Concern in California. Drafeet Bird and Mammal Conservation Program Report No. 98–14. Sacramento, CA: California Department of Fish and Game.

[37] Pierson, E.D. and W.E. Rainey. 1998. Pallid bat, Antrozous pallidus. In B.C. Bolster (Editor), Terrestrial Mammal Species of Special Concern in California. Drafeet Bird and Mammal Conservation Program Report No. 98–14. Sacramento, CA: California Department of Fish and Game.

[38] Barbour, R.W. and W.H. Davis, 1969. Bats of America. Lexington, KY: University of Kentucky Press.

[39] Vaughn, T.A. and T.J. O'Shea, 1976. Roosting ecology of the pallid bat, Antrozous pallidus. Journal of Mammalogy 57: 19-42.

[40] Vaughn, T.A. and T.J. O'Shea, 1976. Roosting ecology of the pallid bat, Antrozous pallidus. Journal of Mammalogy 57: 19-42.

[41] Barbour, R.W. and W.H. Davis, 1969. Bats of America. Lexington, KY: University of Kentucky Press.

[42] Hermanson, J.W. and T.J. O'Shea, 1983. Antrozous pallidus. The American Society of Mammalogists, Mammalian Species No. 213:1–8.

[43] Pierson, E.D. and W.E. Rainey, 1998. Distribution, status, and management of Townsend's big-eared bat (*Corynorhinus townsendii*) in California. State of California Department of Fish and Game. Bird and Mammal Conservation Program Technical Report Number 96-7.

[44] Licht, P. and P. Leitner, 1967. Behavior response to high temperatures in 3 species of California bats. Journal of Mammalogy 48:52–61.

[45] Pierson, E.D. and W.E. Rainey, 1998. Distribution, status, and management of Townsend's big-eared bat (*Corynorhinus townsendii*) in California. State of California Department of Fish and Game. Bird and Mammal Conservation Program Technical Report Number 96-7.

[46] Pierson, E.D. and W.E. Rainey, 1998. Distribution, status, and management of Townsend's big-eared bat (*Corynorhinus townsendii*) in California. State of California Department of Fish and Game. Bird and Mammal Conservation Program Technical Report Number 96-7.

strongly correlated with the availability of roosting habitat and the absence of human disturbance at roost sites.[47,48]

Townsend's big-eared bat is a colonial species, and females aggregate in the spring at maternity colonies to begin their breeding season, which may extend through the end of August. Females give birth to one young, and females and young show a high fidelity to both their group and their specific roost site. Although the Townsend's big-eared bat is usually a cave dwelling species, many colonies are found in anthropogenic structures, such as the attics of buildings or old abandoned mines. Known roost sites in California include limestone caves, lava tubes, mine tunnels, buildings, and other structures.[49] This species also roosts in deep crevices of redwood trees. Radio tracking studies suggest that movement from a colonial roost during the maternity season is confined to the area within 9 miles of the roost.[50] This species is easily disturbed while roosting in buildings, and females are known to abandon their young when disturbed.[51] Townsend's big-eared bats feed primarily on moths and other soft-bodied insects.[52] No CNDDB (2017) records occur within a 5-mile radius of the Plan Area; however, suitable foraging and roosting habitat is present within the Plan Area. Therefore, the species may occur within the Plan Area.

Western mastiff bat (*Eumops perotis californicus*). Federal Listing Status: None; State Listing Status: Species of Special Concern. Western mastiff bats are the largest of all of North America species of bats with a forearm length of 2.87 to 3.27 inches and weigh up to 3.53 ounces. Individuals can forage at elevations of 1,968 to 2,296 feet above ground level and may forage for seven hours and 15 miles from their roost.[53] This species roosts primarily in cliffs or high buildings where there is a minimum of 9.84 feet of vertical drop at the entrance to roosts.[54] This species is found in the central and south coastal California, the San Joaquin Valley, the southern half of the Sierra foothills, and throughout desert regions. This species may utilize bridges or buildings as night roosts, day roosts, or maternity roosts. Suitable foraging and roosting habitat is present within the Plan Area and there are four CNDDB (2017) records of the species within 5 miles of the Plan Area.

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[47] Pierson, E.D. and W.E. Rainey, 1998. Distribution, status, and management of Townsend's big-eared bat (*Corynorhinus townsendii*) in California. State of California Department of Fish and Game. Bird and Mammal Conservation Program Technical Report Number 96-7.

[48] Sherwin, R. and A. Piaggio, 2005. Corynorhinus townsendii. Western Bat Working Group, http://wbwg.org/species_accounts/vespertilonidae/coto.pdfm, accessed May 2011.

[49] Williams, D.F., 1986. Mammalian species of special concern in California. Prepared for the State of California, The Resources Agency, Department of Fish and Game.

[50] Pierson, E.D. and W.E. Rainey, 1998. Distribution, status, and management of Townsend's big-eared bat (*Corynorhinus townsendii*) in California. State of California Department of Fish and Game. Bird and Mammal Conservation Program Technical Report Number 96-7.

[51] Humphrey, S.R. and T.H. Kunz, 1976. Ecology of a Pleistocene relict, the western big-eared bat (*Plecotus townsendi*) in the southern Great Plains. Journal of Mammalogy 57:470-494.

[52] Kunz, T.H. and R.A. Martin, 1982. Plecotus townsendii. Mammalian Species 175:1-6.

[53] Vaughn, T.A., 1959. Functional morphology of three bats: Eumops, Myotis, Macrotus. University of Kansas Publications, Museum of Natural History 12:1–153.

[54] Wilson, D.E. and S. Ruff, 1999. The Smithsonian Book of North American Mammals. Washington DC: Smithsonian Institute Press.

Western red bat (*Lasiurus blossevillii*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The western red bat is a migratory species that occurs from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts.[55] Western red bats are strongly associated with intact cottonwood and sycamore valley riparian habitats in low elevations.[56] Both day and night roosts usually are located in the foliage of trees; red bats in the Central Valley show a preference for large trees and extensive, intact riparian habitat.[57] Day roosts often are located along the edges of riparian areas, near streams, grasslands, and even urban areas (Western Bat Working Group 2005). During the breeding season, western red bats establish individual tree roosts and occasionally small maternity colonies in riparian habitats.[58] Little is known about the habitat use of western red bats during the non-breeding season.[59] Western red bats breed in August and September, but fertilization does not occur until spring. Young are typically born in June with litter sizes ranging from 1 to 5 young. [60,61] No CNDDB (2017) records occur within a 5-mile radius of the Plan Area. The species is strongly associated with intact cottonwood and sycamore valley riparian habitats in low elevations, which is absent from the Plan Area. Therefore, the species is unlikely to occur within the Plan Area.

American badger (*Taxidea taxus*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The American badger occurs throughout western North America, including much of California. It is most abundant in grasslands and other habitats dominated by herbaceous vegetation, but it will also use the drier open stages of scrub and woodland habitats. Badgers are generally associated with treeless regions, prairies, park lands, and cold desert areas. They need friable soils suitable for excavation of their burrows and a prey base of small burrowing mammals. Badgers dig dens with single, 8- to 21-inch elliptical entrances in for cover. These animals frequently reuse old burrows; although, some have been known to dig a new den each night, especially in summer. Soil excavated during formation of the den is piled at the entrance.

The American badger is somewhat tolerant of human activities, and clearing of woody vegetation for range may have benefited the species historically. However, intensive cultivation destroys their burrows and makes areas unsuitable for denning; thus, badgers are associated more with rangeland and areas with

[55] California Department of Fish and Game (CDFG), 2008. CWHR Version 8.2 personal computer program in California Department of Fish and Game, California Interagency Wildlife Task Group.

[56] Pierson, E.D., W. E. Rainey, and C. Corben, 2006. Distribution and status of western red bats (Lasiurus blossevillii) in California. California Department of Fish and Game, Habitat Conservation Branch, Species Conservation and Recovery Program Report 2006-04.

[57] Pierson, E.D., W. E. Rainey, and C. Corben, 2006. Distribution and status of western red bats (Lasiurus blossevillii) in California. California Department of Fish and Game, Habitat Conservation Branch, Species Conservation and Recovery Program Report 2006-04.

[58] Zeiner, D.C., W.F. Laudenslayer Jr., K.E. Mayer, and M. White, Editors, 1990. California's wildlife. Volume III: Mammals. California Department of Fish and Game, Sacramento, California.

[59] Pierson, E.D., W. E. Rainey, and C. Corben, 2006. Distribution and status of western red bats (Lasiurus blossevillii) in California. California Department of Fish and Game, Habitat Conservation Branch, Species Conservation and Recovery Program Report 2006-04.

[60] Wilson, D.E. and S. Ruff, 1999. The Smithsonian Book of North American Mammals. Washington DC: Smithsonian Institute Press.

[61] Bolster, Betsy C., 2005. Western Bat Working Group species accounts Lasiurus blossevillii, http://www.wbwg.org/speciesinfo/species_accounts/species_accounts.html, accessed April 26, 2011.

uncultivated refugia than with broad expanses of cultivated land.[62] Grasslands and agricultural areas on the periphery of the Plan Area that have not been fragmented by agricultural-residential or urban development may provide marginal habitat; however, these conditions are limited within the Plan Area making it unlikely that American badgers occur within the Plan Area.

Burrowing Owl (*Athene cunicularia*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The burrowing owl is a small, terrestrial owl of open country. These owls prefer annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, burrowing owls are found in close association with California ground squirrels; owls use abandoned ground squirrel burrows for shelter and nesting. The nesting season as recognized by the California Department of Fish and Game (CDFG) (1995) runs from February 1 through August 31. After nesting is completed, adult owls may remain in their nesting burrows or in nearby burrows, or they may migrate;[63] young birds disperse across the landscape from 0.1 to 35 miles from their natal burrows.[64] Burrowing owl populations have declined substantially in the portions of their range in recent years, with declines estimated at 4 to 6 percent annually.[65]

The CNDDB (2017) does not list any records within a 5-mile radius of the Plan Area; however, there are a few records within a 5- to 10-mile radius. The Plan Area may provide a small amount of suitable annual grassland habitat for the burrowing owl and for their prey, the California ground squirrel. Protocol-level surveys for this species, which would entail a series of site visits in accordance with the CDFG's protocol to determine presence/absence of this species have not been conducted. Therefore, the burrowing owl could potentially occur in the Plan Area, but the species' presence is unlikely.

Western pond turtle (*Emys marmorata*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The western pond turtle is a medium-sized brown or olive-colored aquatic turtle, and is found west of the Sacramento-San Joaquin Delta, and south to northern Baja, except in desert areas. The pond turtle is normally found in and along riparian areas, although females have been reported up to 1 mile away from water in search of appropriate nest sites. The preferred habitat for these turtles includes ponds or slow-moving relatively deep water with numerous basking sites (e.g., logs, rocks, etc.), food sources (e.g., plants, aquatic invertebrates, and carrion), and few predators (e.g., raccoons, introduced fishes, and bullfrogs). Juvenile and adult turtles are commonly seen basking in the sun at appropriate sites, although they are extremely wary animals and often dive into the water at any perception of danger.

[62] California Department of Fish and Game (CDFG), 2009. Species Account of the American Badger, http://www.delta.dfg.ca.gov/gallery/badger.asp, accessed September 2009.

[63] Gorman, L.R., D.K. Rosenberg, N.A. Ronan, K.L. Haley, J.A. Gervais, and V. Franke, 2003. Estimation of reproductive rates of Burrowing Owls. Journal of Wildlife Management 67:493-500.

[64] Rosier, J.R., N.A. Ronan, and D.K. Rosenberg, 2006. Post-breeding dispersal of burrowing owls in an extensive California grassland. American Midland Naturalist 155:162-167.

[65] DeSante, D.F., Ruhlen, E.D., and Scalf, R., 2007. The distribution and relative abundance of Burrowing Owls in California during 1991–1993: Evidence for a declining population and thoughts on its conservation, in Proceedings of the California Burrowing Owl Symposium, November 2003 (J.H. Barclay, K.W. Hunting, J.L. Lincer, J. Linthicum, and T.A. Roberts, eds.), pp. 1-41. Bird Populations Monogr. 1. The Institute for Bird Populations and Albion Environmental, Inc.

No CNDDB (2017) records occur within a 5-mile radius of the Plan Area; however, suitable aquatic habitat is present for the western pond turtle within the Plan Area. Therefore, the species may occur within the Plan Area.

Nesting Migratory Birds. A variety of common birds, such as black phoebes (*Sayornis nigricans*), northern mockingbirds (*Mimus polyglottos*), American robins (*Turdus migratorius*), and house finches (*Haemorhous mexicanus*) could potentially nest within the Plan Area and be subject to take of birds and the destruction of nests or eggs during project activities. Although take of these relatively common species would not be considered a significant impact under CEQA, it would be in violation of the Migratory Bird Treaty Act and California Fish and Game Code.

Wetlands

There are several unnamed creeks or drainages in the Plan Area (Figure 4.4-3) that may have hydrologic connectivity to a navigable or perennial surface water source or tributary. These features may be subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). They may also qualify as “waters of the state” and could potentially be impacted directly by construction or by uncontrolled runoff from Plan activities. Those activities that require a permit under Section 404 of the Clean Water Act will also require a State water quality certification from the RWQCB under Section 401 of the Clean Water Act. The extent and limits of such habitats have not yet been established, but would need to be determined through formal wetland delineation before any construction activities begin.

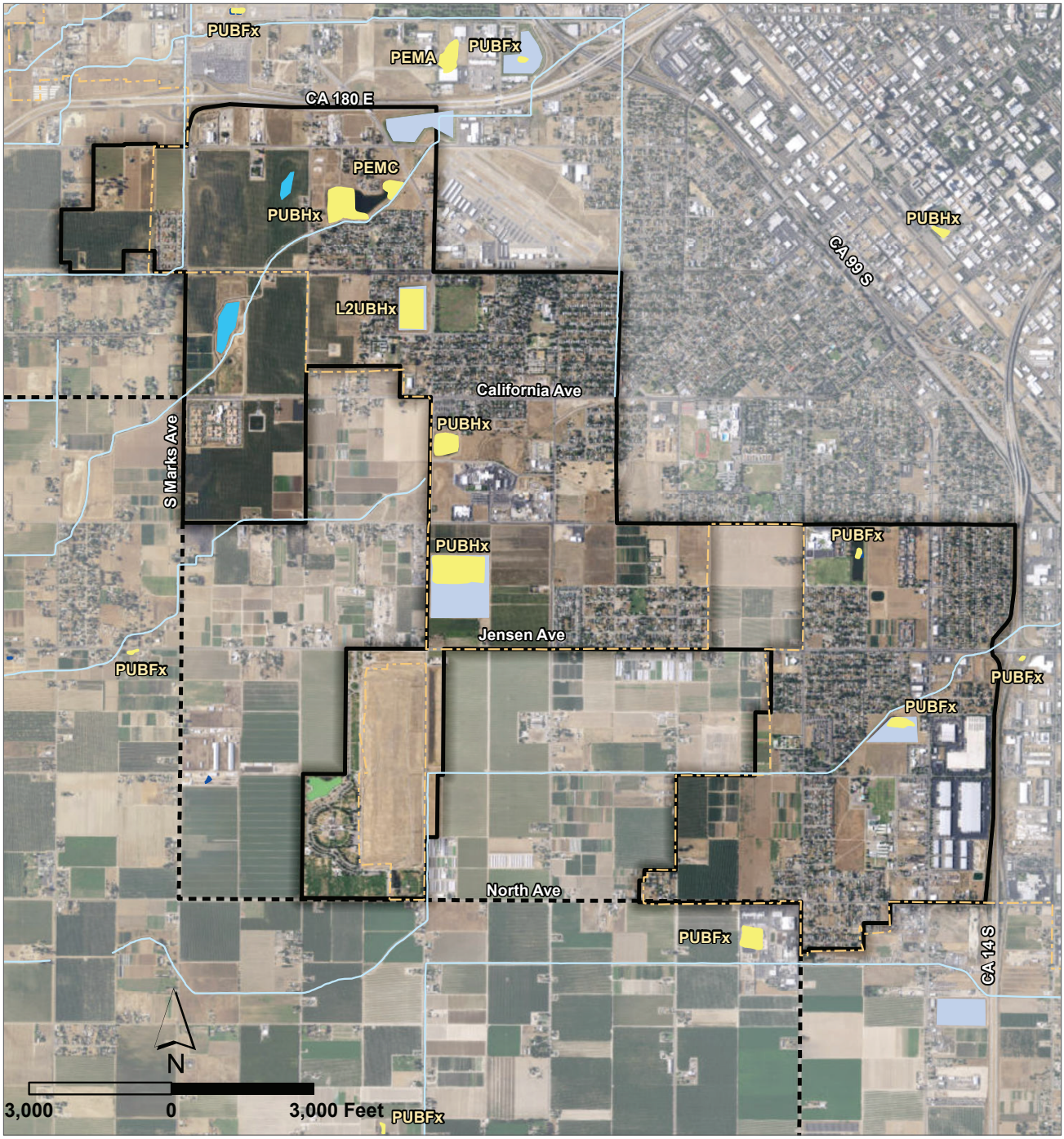
Special-Status Natural Communities

In general, "special-status natural communities" include those communities that are of limited distribution statewide or within a county or region; communities that are of special concern to resource agencies; and communities that, because they are vulnerable to the environmental effects of projects, are assessed or protected under CEQA Section 1600 of the California Department of Fish and Game Code, and/or Section 404 of the Clean Water Act, among others. The most current version of the CDFW’s List of Vegetation Alliances and Associations (or "Natural Communities List") (2010) indicates which natural communities are considered "special-status" in the state of California. There are no special-status natural communities in the Plan Area.

4.4.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact with respect to 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 Game or USFWS.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or USFWS.



Source: PlaceWorks, 2017.

City Limit
Sphere of Influence
Plan Area

National Hydrography Dataset (NHD)
Intermittent Lake/Pond
Perennial Lake/Pond
Reservoir
Canal/Ditch

National Wetlands Inventory (NWI)
L2UBHx - Lacustrine, Littoral, Unconsolidated Bottom, Permanently Flooded, Excavated
PEMA - Palustrine, Emergent, Temporarily Flooded
PEMC - Palustrine, Emergent, Seasonally Flooded
PUBFx - Palustrine, Unconsolidated Bottom, Semipermanently Flooded, Excavated
PUBHx - Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated

Figure 4.4-3
Potential Jurisdictional Habitats Map

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

4.4.3 IMPACT DISCUSSION

BIO-1	**Implementation of the proposed Plan would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.**

Rare Plants

Rare plant surveys were not conducted within the Plan Area. While unlikely, four rare plant species (*California jewelflower, California satintail, Sanford's arrowhead, and Caper-fruited tropidocarpum*), including a State and federally endangered species, have limited potential to occur in the Plan Area. If individuals of these species are present in in the Plan Area, plants could be lost due to trampling or earth-moving. Clearing, grading or paving could result in removal or modification of seed banks. Indirect effects from construction could result from soil compaction that adversely affects soil conditions. Mobilization of dust during construction could reduce the survivorship and productivity of individual plants close to dust sources by decreasing photosynthetic output, reducing transpiration, and adversely affecting reproductive success.

The General Plan includes specific implementing policies pertaining to biological resources that must be adhered to for development within the Plan Area, specifically within the Open Space and Biological Resources Section of Chapter 5, the Parks, Open Space, and Schools Element (POSS). Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f will reduce potential project impacts to special-status plant species and their associated habitats. Further, incorporation of the General Plan Mitigation Measures BIO-1.1a to BIO-1.1c into the conditions of approval would ensure that if one or more of these rare plants occur in the Plan Area, their presence would be detected, the risk of mortality would be avoided to the maximum extent feasible, and impacts would be reduced to a *less-than-significant* level.

Significance Without Mitigation: Significant.

Impact BIO-1.1: Implementation of the proposed Plan could result in the loss of rare plant species.

MEIR Mitigation Measure BIO-1.1a: Construction of a proposed project should avoid, where possible, vegetation communities that provide suitable habitat for a special-status species known to occur within the Plan Area. If construction within potentially suitable habitat must occur, the presence/absence of any special-status plant or wildlife species must be determined prior to construction, to determine if the habitat supports any special-status species. If a special-status species are determined to occupy any portion of a project site, avoidance and minimization measures shall be incorporated into the construction phase of a project to avoid direct or incidental take of a listed species to the greatest extent feasible.

MEIR Mitigation Measure BIO-1.1b: Direct or incidental take of any State- or federally-listed species should be avoided to the greatest extent feasible. If construction of a proposed project will result in the direct or incidental take of a listed species, consultation with the resources agencies and/or additional permitting may be required. Agency consultation through the CDFW 2081 and USFWS Section 7 or Section 10 permitting processes must take place prior to any action that may result in the direct or incidental take of a listed species. Specific mitigation measures for direct or incidental impacts to a listed species will be determined on a case-by-case basis through agency consultation.

MEIR Mitigation Measure BIO-1.1c: Development within the Plan Area should avoid, where possible, special-status natural communities and vegetation communities that provide suitable habitat for special-status species. If a proposed project will result in the loss of a special-status natural community or suitable habitat for special-status species, compensatory habitat-based mitigation is required under CEQA and CESA. Mitigation will consist of preserving on-site habitat, restoring similar habitat, or purchasing off-site credits from an approved mitigation bank. Compensatory mitigation will be determined through consultation with the City and/or resource agencies. An appropriate mitigation strategy and ratio will be agreed upon by the developer and lead agency to reduce project impacts to special-status natural communities to a less than significant level. Agreed-upon mitigation ratios will depend on the quality of the habitat and presence/absence of a special-status species. The specific mitigation for project level impacts will be determined on a case-by-case basis.

Significance With Mitigation: Less than significant.

Swainson's Hawks

Grasslands and agricultural areas on the periphery of the Plan Area that have not been fragmented by agricultural-residential or urban development may provide foraging habitat for Swainson's hawks and trees in the open space may provide nesting habitat. If Swainson's hawks nest in trees in the Plan Area, tree removal may result in injury or mortality of individuals, displacement of breeding birds, or the abandonment of active nests. Specifically, tree removal could contribute to the incidental loss of fertile eggs or nestlings or otherwise lead to reproductive failure.

Any reduction in the numbers of this rare species, directly or indirectly (through nest abandonment or reproductive suppression) caused by the proposed Plan, would constitute a significant impact. In addition, this species is protected under CESA as a threatened species. Furthermore, raptors and their nests are

protected under both federal and State laws and regulations, including the MBTA and California Fish and Game Code Section 3503.5.

Trees in the Plan Area may be removed without adversely affecting nesting Swainson's hawks as long as they are determined not to contain a Swainson's hawk nest or be in close proximity to a tree with a Swainson's hawk nest during the nesting season (March through August).

Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f will reduce potential project impacts to Swainson's hawk and their associated habitats. Further, incorporation of the General Plan Mitigation Measures BIO-1.1a to BIO-1.1c and the following mitigation measure into the conditions of approval would ensure that if Swainson's hawks nest on or near the Plan Area, their presence would be detected, the risk of mortality would be avoided to the maximum extent feasible, and impacts would be reduced to a less-than-significant level.

Significance Without Mitigation: Significant.

Impact BIO-1.2: Implementation of the proposed Plan could result in mortality of Swainson's hawks.

> Mitigation Measure BIO-1.2: Conduct a Preconstruction Survey for Swainson's Hawk Nests and Implement Avoidance Measures. If trees suitable for Swainson's hawk nesting are to be removed during the Swainson's hawk nesting season (March through August), a qualified biologist knowledgeable of the species will conduct a Swainson's hawk survey of the project site and the surrounding 0.5-mile-radius area, as described in the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000). This methodology divides the nesting season into five survey periods: January 1 to March 20, March 20 to April 5, April 5 to May 20, May 21 to June 10, and June 10 to July 30. The first survey period occurs before most Swainson's hawks return to California, so this survey is optional. The site should be surveyed at a minimum of 3 times in each of the two periods that precede project initiation.
>
> If an active Swainson's hawk nest is detected on the project site, CDFW will be consulted and site-specific avoidance or mitigation measures will be implemented consistent with CDFW recommendations (Swainson's Hawk Technical Advisory Committee 2000).
>
> Significance With Mitigation: Less than significant.

San Joaquin Kit Fox

San Joaquin kit fox that are dispersing or foraging in the periphery of the Plan Area that have not been fragmented by agricultural-residential or urban development could be subject to injury or mortality from construction-related activities. Dispersing or transient individuals could be directly affected by construction, during which vehicle and equipment traffic would increase over baseline conditions. Although unlikely, there is potential that individual kit foxes could be killed by vehicles or construction equipment, particularly because construction may occur at night when the kit fox is most active. The

proposed Plan would not have any direct effects on kit fox natal dens: San Joaquin kit foxes are not expected to raise pups in the marginally suitable habitat present in the Plan Area.

Dispersing or transient individuals could be indirectly affected by construction activities. Spills or leaks of industrial chemicals, fuels, and lubricants could result in poisoning of kit foxes and contamination of their habitat, and if prey are poisoned by chemicals, kit foxes could be poisoned by ingesting them. Transient or dispersing individuals also could be indirectly lost or harmed by predation or competition with species such as the red fox, feral dogs, or coyote, which might be attracted to the Plan Area if trash were discarded improperly by construction personnel.

This impact could be significant because it could result in the injury or loss of a federally and state-listed species. Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f will reduce potential project impacts to San Joaquin kit fox and their associated habitat. Further, incorporation of the General Plan Mitigation Measures BIO-1.1a to BIO-1.1c and the following mitigation measure into the conditions of approval will ensure that if San Joaquin kit fox occur in the Plan Area, their presence would be detected, the risk of mortality would be avoided, and impacts would be reduced to a less-than-significant level.

Significance Without Mitigation: Significant.

Impact BIO-1.3: Implementation of the proposed Plan could result in mortality of San Joaquin kit fox.

> Mitigation Measure BIO -1.3: Implement Standard Measures for Protection of San Joaquin Kit Fox. No less than 14 days and no more than 30 days prior to commencement of construction activities the project proponent shall retain a USFWS- and CDFW-approved biologist to conduct pre-construction surveys in potential habitat periphery of the Plan Area that has not been fragmented by agricultural-residential or urban development. The survey, reporting, and activities during construction shall adhere to the requirements contained in the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance.*[66] As described in the standardized recommendations, if a natal/pupping den is discovered within the Plan Area or within 200-feet of the project boundary, the USFWS shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the USFWS immediately to obtain the necessary take authorization/permit.
>
> Significance With Mitigation: Less than significant.

Bats

The Plan Area provides suitable roosting habitat for four special-status bat species. If any special-status bats occupy the construction zone or immediately adjacent areas at the time of construction, disturbance

[66] U.S. Fish and Wildlife Service (USFWS), 2011. Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or during Ground Disturbance, January. Sacramento, California.

could destroy occupied roost sites or maternity colonies suitable trees or buildings. Reductions in the numbers of these species, through roost site destruction or disturbance or destruction of maternity colonies, would constitute a significant impact. Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f will reduce potential project impacts to special-status bat species and their associated habitats. Further, incorporation of the General Plan Mitigation Measures BIO-1.1a to BIO-1.1c and the following mitigation measure be included in the conditions of approval to reduce the potential impact on these species to a *less-than-significant l*evel.

Significance Without Mitigation: Significant.

Impact BIO-1.4: Implementation of the proposed Plan could result in impacts to roosting habitat or maternity colonies of special-status bats.

Mitigation Measure BIO-1.4: Conduct Preconstruction Surveys for Special-status Bats and Implement Avoidance Measures. Any medium or larger (≥ 12-inch diameter) trees or snags selected for removal shall be inspected by a qualified biologist for presence of potential day-roosting habitat (e.g., cavities exfoliating bark, or basal hollows) for special-status bats or a maternity colony. If feasible, cavities shall be examined for roosting bats using a portable camera probe or similar technology.

Buildings with potential for roosting habitat for supporting special-status bats or a maternity colony shall be inspected by a qualified biologist for evidence of roosting colonies. If suitable roosting habitat is present and/or bat sign is observed, but no bats are detected, an evening exit count and acoustic survey using a full spectrum acoustic detector shall be conducted by a qualified bat biologist to determine if bats are present and what species are present. If present, roosts (including day roosts, winter hibernacula, and maternity colonies) and a 100- to 300-foot disturbance-free buffer surrounding each roost shall be flagged and avoided, as determined by a qualified bat biologist.

If avoidance is not possible, replacement habitat appropriate for the species' roost requirements shall be created prior to the roost removal, and the roosting bats shall be passively evicted under the direction of a qualified biologist (as determined by a Memorandum of Understanding with the CDFG). The qualified biologist shall facilitate the removal of roosting bats outside of the winter hibernation (November 1 to February 28th) and maternity roosting (March 15 to August 31) periods through the following means:

1. Implementing eviction during a period of warm (nighttime low >50°F), dry weather, when bats are expected to be active.
2. Opening the roosting area to allow airflow through the cavity or building (air flow disturbance).
3. Waiting a minimum of three nights of warm weather, as defined above, for roosting bats to respond to air flow disturbance, thereby allowing bats to leave during nighttime hours when predation risk is relatively low and chances of finding a new roost is greater than in the daytime.
4. Conducting a follow-up survey prior to roost removal to ensure that bats have vacated the roost.
5. Disturbing roosts at dusk just prior to roost removal the same evening to allow bats to escape during nighttime hours.

Significance With Mitigation: Less than significant.

American Badgers

Extensive grasslands and the periphery of agricultural fields adjacent to extensive grasslands on the periphery of the Plan Area may provide habitat for American badger. Therefore, the American badger could potentially occur in the Plan Area and implementing the proposed Plan could result in injury or mortality of individual badgers during construction. Although badgers are somewhat tolerant of human activities, urbanization and fragmentation of habitat continue to threaten the species. A loss of only marginally suitable habitat within the Plan Area would not constitute a significant impact. However, disturbance of habitat could result in potential mortality (such as through vehicle strikes), injury, displacement, and harassment of badgers. During the denning season construction could result in displacement of denning badgers and the abandonment of active dens. If American badgers occupy the Plan Area, any reductions in the numbers of this State species of special concern, directly or indirectly (such as through reproductive suppression), would constitute a significant impact.

Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f will reduce potential project impacts to American badgers and their associated habitats. Further, incorporation of the General Plan Mitigation Measures BIO-1.1a to BIO-1.1c and the following mitigation measure into the conditions of approval would ensure that if American badger are present, the risk of mortality would be avoided to the maximum extent feasible, and impacts would be reduced to a *less-than-significant* level.

Significance Without Mitigation: Significant.

Impact BIO-1.5: Implementation of the proposed Plan could result in disruption of denning badgers and mortality of badgers.

> Mitigation Measure 1.5. Conduct Focused American Badger Surveys and Avoid or Minimize Impacts to American Badger Dens. No more than 30 days before the start of construction activities, a qualified biologist shall conduct pre-construction surveys for American badgers within suitable habitat. If a potentially active den is found in a construction area, the den openings may be monitored with tracking medium or an infrared-beam camera for three consecutive nights to determine current use. Potential (inactive) dens within the limits of disturbance shall be blocked with a one-way door or excavated to prevent use during construction. Blocking with one-way doors is preferable to excavation where feasible; potential dens blocked with doors will be made available to badgers after construction. If American badgers or active dens are detected during these surveys, the following shall be implemented:
>
> - If present, occupied badger dens shall be flagged, and ground-disturbing activities avoided, within 50 feet of the occupied den during the nonbreeding season (1 July through 14 February). Flagging that is highly visible by construction crews shall encircle the occupied den at the appropriate buffer distance, and shall not prevent access to the den by badgers. Dens determined to be occupied during the breeding season (15 February through 30 June) shall be flagged, and ground-disturbing activities avoided, within 200 feet to protect adults and nursing young. Buffers may be modified by the qualified biologist, provided the badgers are protected, and shall not be removed until the qualified biologist has determined that the den is no longer in use.

- If avoidance of an active non-maternity den is not feasible, badgers shall be relocated by first incrementally blocking the den over a three-day period, followed by slowly excavating the den (either by hand or with mechanized equipment under the direct supervision of a qualified biologist, removing no more than 4 inches at a time) before or after the rearing season (15 February through 30 June). Any passive relocation of American badgers shall occur only under the direction of a qualified biologist.

Significance With Mitigation: Less than significant.

Burrowing Owl

The Plan Area may support a limited amount of suitable habitat for burrowing owl and their prey where grasslands, open space, and agricultural fields in the Plan Area have not been highly fragmented by urban development. Therefore, the burrowing owl could potentially occur in the Plan Area and implementing the proposed Plan could impact suitable burrowing owl habitat and/or result in injury or mortality of individual burrowing owls during construction. Disturbance of habitat during the breeding season (February 1 through August 31) could result in displacement of breeding birds and the abandonment of active nests. Specifically, ground disturbance during construction could contribute to the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment.

A loss of only marginally suitable habitat in the Plan Area would not constitute a significant impact. However, if owls occupy the site, any reductions in the numbers of this rare species, directly or indirectly (through nest abandonment or reproductive suppression), would constitute a significant impact. Furthermore, raptors, including owls, and their nests are protected under both federal and state laws and regulations, including the MBTA and California Fish and Game Code Section 3503.5.

Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f will reduce potential project impacts to burrowing owls and their associated habitats. Further, incorporation of the General Plan Mitigation Measures BIO-1a to BIO-1.1c and the following mitigation measure into the conditions of approval would ensure that if burrowing owls are present, their presence would be detected, the risk of mortality would be avoided to the maximum extent feasible, and impacts would be reduced to a *less-than-significant* level.

Significance Without Mitigation: Significant.

Impact BIO-1.6: Implementation of the proposed Plan could result in mortality of, and loss of habitat for, burrowing owls.

Mitigation Measure BIO-1.6: Conduct a Preconstruction Survey for Burrowing Owl and Implement Avoidance Measures. No more than 15 days before the start of ground-disturbing activities for the project, a qualified biologist(s) knowledgeable of the species will conduct a focused, preconstruction survey for burrowing owls and their sign on the project site and within 250 feet where access allows.

In conformance with federal and State regulations regarding the protection of raptors, the survey will be conducted per the *Staff Report on Burrowing Owl Mitigation*.[67] All areas of suitable habitat proposed for ground disturbance will be surveyed. If burrowing owls are detected, buffers and mitigation per the *Staff Report on Burrowing Owl Mitigation* will be implemented.

Significance With Mitigation: Less than significant.

Western Pond Turtles

The Plan Area provides both breeding (aquatic) and upland habitat for western pond turtle on the periphery of the developed areas. Construction has the potential to affect this species, and may result in injury or mortality of individual western pond turtles or their eggs during construction. Construction could result from collision or crushing of turtles, eggs, or nests by construction, or by any activity that compacts or disturbs soil in suitable habitat areas. Any increased mortality of this State species of special concern, destruction of their nests or eggs could be considered significant.

Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f will reduce potential project impacts to western pond turtles and associated habitats. Further, incorporation of the General Plan Mitigation Measures BIO-1.1a to BIO-1.1c and following mitigation measure would reduce the potential for impacting western pond turtles and their nests or eggs to less than significant levels.

Significance Without Mitigation: Significant.

Impact BIO-1.7: Implementation of the proposed Plan could result in impacts to Western pond turtle nests and mortality of pond turtles.

Mitigation Measure BIO-1.7. Conduct Pre-construction Surveys for Western Pond Turtle, and Move Individuals to Safety. Prior to construction, a qualified biologist (i.e., a biologist approved by CDFW to handle western pond turtles) shall look for western pond turtles within 0.25-mile of aquatic and riparian habitat, where accessible. If any pond turtles are detected during these surveys, or during construction in an area where individuals could be affected, they shall be moved to a suitable location outside the area of impact. The candidate sites for relocation shall be identified before construction and shall be selected based on the size and type of habitat present, the potential for negative interactions with resident species, and the species' range.

If any western pond turtle nests with eggs are found, the nests shall remain undisturbed until the eggs have hatched, if feasible. If avoidance of a nest is infeasible (e.g., if avoidance would result in an unacceptable delay in the project's schedule), or if the eggs are discovered only after the nest has been affected, any viable eggs shall be relocated to a suitable location outside the impact area. Egg relocation areas shall be identified based on pond turtle nesting biology. Any viable eggs shall be deposited in a hole and buried for thermal protection.

[67] California Department of Fish and Game (CDFG), 2012. Staff Report on Burrowing Owl Mitigation, March 7.

Significance With Mitigation: Less than significant.

Nesting Birds

CDFW has jurisdiction over actions that could result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Sections of the Fish and Game Code that protect birds, their eggs and nests include Sections 3503 (regarding unlawful take, possession, or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession, or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f will reduce potential project impacts to nesting birds and their associated habitats. Further, incorporation of the General Plan Mitigation Measures BIO-1.1a to BIO-1.1c and General Plan Mitigation Measure BIO-1.8 would reduce any potential impacts to nesting birds and their associated habitats.

Significance Without Mitigation: Significant.

Impact BIO-1.8: Implementation of the proposed Plan could result in take of birds or nests.

MEIR Mitigation Measure BIO-1.8. Proposed projects within the Plan Area should avoid, if possible, construction within the general nesting season of February through August for avian species protected under Fish and Game Code 3500 and the Migratory Bird Treaty Act (MBTA), if it is determined that suitable nesting habitat occurs on a project site. If construction cannot avoid the nesting season, a pre-construction clearance survey must be conducted to determine if any nesting birds or nesting activity is observed on or within 500 feet of a project site. If an active nest is observed during the survey, a biological monitor must be on site to ensure that no proposed project activities would impact the active nest. A suitable buffer will be established around the active nest until the nestlings have fledged and the nest is no longer active. Project activities may continue in the vicinity of the nest only at the discretion of the biological monitor.

Significance With Mitigation: Less than significant.

BIO-2	**Implementation of the proposed Plan would not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.**

No sensitive natural communities were identified in the Plan Area. There are potential CDFW jurisdictional features within the Plan Area that may be protected by the Section 1600 provisions of the California Fish and Game Code. If any CDFW jurisdictional features could be impacted by implementation of the proposed Plan, a streambed alteration agreement would be completed with CDFW in compliance with the California Fish and Game Code for that portion of the plan. Any project-related impacts to riparian habitat and/or a special-status natural community are considered a significant impact and require mitigation. Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f will reduce potential

impacts to riparian habitat or special-status natural communities. Implementation of General Plan Mitigation Measures BIO-5 through BIO-7 would reduce any potential impacts on riparian habitat.

Significance Without Mitigation: Significant.

Impact BIO-2: Implementation of the proposed Plan could result in the loss of riparian habitat.

MEIR Mitigation Measure BIO-2.1a: If a proposed project will result in the removal or impact to any riparian habitat and/or a special-status natural community with potential to occur in the PlanArea, compensatory habitat-based mitigation shall be required to reduce project impacts. Compensatory mitigation must involve the preservation or restoration or the purchase of off-site mitigation credits for impacts to riparian habitat and/or a special-status natural community. Mitigation must be conducted in-kind or within an approved mitigation bank in the region. The specific mitigation ratio for habitat based mitigation will be determined through consultation with the appropriate agency (i.e., CDFW or USFWS) on a case-by-case basis.

MEIR Mitigation Measure BIO-2.1b: Project impacts that occur to riparian habitat may also result in significant impacts to streambeds or waterways protected under Section 1600 of Fish and Wildlife Code and Section 404 of the CWA. CDFW and/or USACE consultation, determination of mitigation strategy, and regulatory permitting to reduce impacts, as required for projects that remove riparian habitat and/or alter a streambed or waterway, shall be implemented.

MEIR Mitigation Measure BIO-2.1c: Project-related impacts to riparian habitat or a special-status natural community may result in direct or incidental impacts to special-status species associated with riparian or wetland habitats. Project impacts to special-status species associated with riparian habitat shall be mitigated through agency consultation, development of a mitigation strategy, and/or issuing incidental take permits for the specific special-status species, as determined by the CDFW and/or USFWS.

Significance With Mitigation: Less than significant.

BIO-3	**Implementation of the proposed Plan would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

There are several unnamed creeks or drainages in the Plan Area (Figure 4.4-3) that could be defined as federally protected wetlands and may be impacted by plan activities and subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act. The extent and limits of such habitats have not yet been established, but would need to be determined through formal wetland delineation before any construction activities begin. Any project-related impacts to federally protected wetlands are considered a significant impact and require mitigation. Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f will reduce potential project impacts to federally protected wetlands.

Incorporation of the following General Plan mitigation measures will ensure that if jurisdictional wetlands are present, impacts would be reduced to a less-than-significant level.

Significance Without Mitigation: Significant.

Impact BIO-3: Implementation of the proposed Plan could result in loss of federally protected wetlands or waters.

MEIR Mitigation Measure BIO-3a: If a proposed project will result in the significant alteration or fill of a federally protected wetland, a formal wetland delineation conducted according to USACE accepted methodology is required for each project to determine the extent of wetlands on a project site. The delineation shall be used to determine if federal permitting and mitigation strategy are required to reduce project impacts. Acquisition of permits from USACE for the fill of wetlands and USACE approval of wetland mitigation plan would ensure a "no net loss" of wetland habitat within the Plan Area. Appropriate wetland mitigation/creation shall be implemented in a ratio according to the size of the impacted wetland.

MEIR Mitigation Measure BIO-3b: In addition to regulatory agency permitting, Best Management Practices identified from a list provided by the USACE shall be incorporated into the design and construction phase of the project to ensure that no pollutants or siltation drain into a federally protected wetland. Project design features such as fencing, appropriate drainage and incorporating detention basins shall assist in ensuring project-related impacts to wetland habitat are minimized to the greatest extent feasible.

Significance With Mitigation: Less than significant.

BIO-4	**Implementation of the proposed Plan would not 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.**

A wildlife corridor is an area of habitat, generally native, connecting wildlife populations, and a nursery site can be defined broadly as a place where young animals grow or are cared for. The Plan Area is highly fragmented by roads and within a landscape dominated by agriculture, residential, industrial, and commercial land uses. Due to the fragmentation, the Plan Area lacks corridors for wildlife movement or exchange of individuals between populations, and there is likely little use of the Plan Area as native wildlife nursery sites as a result of existing land uses. The Plan Area provides little existing habitat value for native wildlife species in the agricultural, residential, industrial, and commercial land use areas, so land conversion as a result of the proposed Plan would not be expected to substantially degrade the existing conditions for native resident or migratory fish or wildlife species, wildlife corridors, or nursery sites.

Significance Without Mitigation: Less than significant.

BIO-5 Implementation of the proposed Plan would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

The proposed Plan may result in the removal or alteration of existing trees within the boundaries of the Plan Area. Fresno Municipal Code Section13-305 states that existing preserved and landscaped trees within public property, including parkways, must be preserved. Project development within the Plan Area has the potential to impact trees on public property; however, future development would be required to comply with Fresno Municipal Code Section13-305. Therefore, potential impacts to the City's public tree would be less than significant.[68]

Significance Without Mitigation: Less than significant.

BIO-6 Implementation of the proposed Plan would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

The Plan Area overlaps with areas that are covered by PG&E's San Joaquin Valley Operation and Maintenance HCP.[69] The HCP covers PG&E's routine operations and maintenance activities, as well as minor new construction, on any PG&E gas and electrical transmission and distribution facilities, easements, private access routes, or lands owned by PG&E. The proposed Plan would not be expected to conflict or interfere with the HCP activities. The proposed Plan, however, would likely result in a need for PG&E gas and electrical transmission and distribution facilities to support new residential and industrial land uses not covered by the HCP, but these activities in the Plan Area would be covered by General Plan Policies POSS-5-a through POSS-5-f, and both the General Plan and proposed Plan mitigation measures described herein.

The Plan Area is also located in the planning area of the Recovery Plan for Upland Species of the San Joaquin Valley, which addresses recovery needs and goals for the San Joaquin kit fox, among other species. Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f and Mitigation Measures BIO-1 to BIO-3, and proposed Plan Mitigation Measures BIO-1.3, will reduce potential project impacts to the San Joaquin kit fox and other wildlife covered by the Recovery Plan and their associated habitat, and require consultation with the USFWS if take of federally-listed species would occur. Thus, with implementation of these measures, the proposed Plan would not be expected to conflict with the goals of the Recovery Plan.

[68] City of Fresno, 2017. Code of Ordinances. Updated June 8, 2017, https://library.municode.com/ca/fresno/codes/code_of_ordinances, accessed July 13, 2017.

[69] Jones & Stokes, 2006. Pacific Gas & Electric Company San Joaquin Valley Operations and Maintenance Habitat Conservation Plan (includes updated Chapter 4 and Tables 5-3, 5-4 and 5-5, December 2007) (J&S 02067), Sacramento, CA.

There are no other approved local, regional, or State habitat conservation plans that would conflict with the proposed Plan.

Significance Without Mitigation: Less than significant.

4.4.4 CUMULATIVE IMPACTS

BIO-7	Implementation of the proposed Plan, in combination with past, present and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to biological resources

A cumulative effect is a change in the environment resulting from the incremental effect of the project when added to other closely related past, present, and reasonably foreseeable projects. Past actions within the Fresno area include, but are not limited to, agriculture, and the construction of housing, commercial, industrial, and infrastructural projects.

As discussed in Section 4.4.3, the proposed Plan could have significant impacts on special-status species prior to the incorporation of mitigation measures. Most direct and indirect impacts would result from construction-related disturbances and residential, industrial, and commercial development. However, the incremental effect of the proposed Plan, when combined with the effects created by other past and reasonably foreseeable projects, would not be cumulatively considerable or significant because future projects under implementation of the proposed Plan would be required to obtain regulatory approvals and implement the mitigation measures identified throughout this chapter, as well as existing mitigation measures included in the General Plan Master EIR. These mitigation measures include Mitigation Measures BIO-1.1 through BIO-1.8, POSS-5-a through POSS-5-f, and Mitigation Measures BIO-1 through BIO-3, which would ensure protection of existing habitat, special-status plant and animal species, and potential wetlands, and ensure there are no conflicts with existing policies and regulations related to the protection of biological resources within the Plan Area. Also, because it would be speculative to assume the exact location and extent of development that would occur during implementation of the proposed Plan, future projects would be subject to project-level CEQA analysis which would further identify project specific impacts and mitigation measures at that time to ensure protection of biological resources. Therefore, because future projects would be subject to similar policies, mitigation, and regulations as the proposed Plan, for the protection of biological resources, as well as future CEQA analysis, a less-than-significant cumulative impact would occur.

Significance Without Mitigation: Less than significant.

4.5 CULTURAL AND TRIBAL CULTURAL RESOURCES

This chapter describes the regulatory framework and existing conditions on the project site related to cultural and tribal resources, and the potential impacts of the project on cultural and tribal cultural resources.

4.5.1 ENVIRONMENTAL SETTING

4.5.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State and local regulations and programs related to cultural and tribal cultural resources in the Plan Area.

Federal Regulations

National Historic Preservation Act

The National Register of Historic Places (National Register) established by the National Historic Preservation Act (NHPA) of 1966, as amended, recognizes properties that are significant at local, State, and national levels. Officially designated historical resources include districts, sites, buildings, structures, and objects.

Properties that are eligible for listing in the National Register are afforded the same protection given to properties that are listed in the National Register.

For a property to be eligible for listing in the National Register, it must be significant in American history, architecture, archaeology, engineering, or culture, and must retain integrity in terms of location, design, setting, materials, workmanship, feeling, and association. Resources less than 50 years in age, unless of exceptional importance, are not eligible for the National Register. Though a listing in the National Register does not prohibit demolition or alteration of a property, California Environmental Quality Act (CEQA) requires the evaluation of project effects on properties that are listed in the National Register.

American Indian Religious Freedom Act and Native American Graves and Repatriation Act

The American Indian Religious Freedom Act recognizes that Native American religious practices, sacred sites, and sacred objects have not been properly protected under other statutes. It establishes as national policy that traditional practices and beliefs, sites (including right of access), and the use of sacred objects shall be protected and preserved. Additionally, Native American remains are protected by the Native American Graves and Repatriation Act of 1990.

Paleontological Resources Preservation Act

The Federal Paleontological Resources Preservation Act of 2002 codifies the generally accepted practice of limited vertebrate fossil collection and limited collection of other rare and scientifically significant fossils

by qualified researchers. Researchers must obtain a permit from the appropriate State or federal agency and agree to donate any materials recovered to recognized public institutions, where they will remain accessible to the public and to other researchers.

State Regulations

California Environmental Quality Act

California State law provides for the protection of cultural resources by requiring evaluations of the significance of prehistoric and historic resources identified in documents prepared consistent with CEQA. The CEQA Statute is contained in Public Resources Code (PRC) 21000 to 21177 and the CEQA Guidelines are contained in CCR, Title 14, Division 6, Chapter 3, Sections 15000 to 15387.

Under CEQA, a cultural resource is considered a "historical resource" if it meets any of the criteria found in Section 15064.5(a) of the CEQA Guidelines. Under CEQA, the lead agency determines whether projects may have a significant effect on archaeological and historical resources. CEQA Guidelines Section 15064.5 defines what constitutes a historical resource, including: (1) a resource determined by the State Historical Resources Commission to be eligible for the California Register of Historical Resources (including all properties on the National Register); (2) a resource included in a local register of historical resources, as defined in Public Resources Code (PRC) Section 5020.1(k); (3) a resource identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (4) any object, building, structure, site, area, place, record, or manuscript that the City determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the City's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered to be historically significant if it meets the criteria for listing on the California Register.

If the lead agency determines that a project may have a significant effect on a historical resource, the project is determined to have a significant effect on the environment, and these effects must be addressed. However, no further environmental review needs to be completed if, under the qualifying criteria, a cultural resource is not found to be a historical resource or unique archaeological resource.

Public Resources Code Section 5097.5

California Public Resources Code (PRC) Section 5097.5 prohibits "knowing and willful" excavation or removal of any "vertebrate paleontological site…or any other archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the State or any city, county, district, authority, or public corporation, or any agency thereof.

State Laws Pertaining to Human Remains

Any human remains encountered during ground-disturbing activities are required to be treated in accordance with California Code of Regulations Section 15064.5(e) (CEQA), Public Resources Code Section 5097.98, California Health and Safety Code Section 7050.5. California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity, and provides for the

sensitive treatment and disposition of those remains. Specifically, 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 whether or not the remains are subject to the coroner's authority. If the human remains are determined to be of Native American origin, the county coroner must contact the California Native American Heritage Commission (NAHC) within 24 hours of this identification. An NAHC representative will then identify a Native American Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. In addition, CEQA Guidelines Section 15064.5 specifies the procedures to be followed in case of the discovery of human remains on non-federal land. The disposition of Native American burials falls within the jurisdiction of the NAHC.

Senate Bill 18

Senate Bill (SB) 18, signed into law in September 2004, requires local (city and county) governments to consult with California Native American tribes to aid in the protection of traditional tribal cultural places through local land use planning.[1] The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting or mitigating impacts to cultural places. The consultation and notice requirements apply to adoption and amendment of both general plans (Government Code Section 65300 et seq.) and specific plans (Government Code Section 65450 et seq.). Specifically, Government Code Section 65352.3 requires local governments, prior to making a decision to adopt or amend a general plan, to consult with California Native American tribes identified by the NAHC for the purpose of protecting or mitigating impacts to cultural places. As previously discussed, the NAHC is the State agency responsible for the protection of Native American burial and sacred sites.

Assembly Bill 52

Assembly Bill 52 (AB 52), the Native American Historic Resource Protection Act, sets forth a proactive approach intended to reduce the potential for delay and conflicts between Native American and development interests. Projects subject to AB 52 are those that file a notice of preparation for an EIR or notice of intent to adopt a negative or mitigated negative declaration on or after July 1, 2015. AB 52 adds tribal cultural resources (TCR) to the specific cultural resources protected under CEQA. Under AB 52, a TCR is defined as a site, feature, place, cultural landscape (must be geographically defined in terms of size and scope), sacred place, or object with cultural value to a California Native American tribe that is either included or eligible for inclusion in the California Register, or included in a local register of historical resources. A Native American Tribe or the lead agency, supported by substantial evidence, may choose at its discretion to treat a resource as a TCR. AB 52 also mandates lead agencies to consult with tribes, if requested by the tribe, and sets the principles for conducting and concluding consultation.

[1] The Governor's Office of Planning and Research, Local and Tribal Intergovernmental Consultation, https://www.opr.ca.gov/s_localandtribalintergovernmentalconsultation.php, accessed July 24, 2017.

Local Regulations

Municipal Code

- Chapter 12, Article 16: Historic Preservation Ordinance. The Ordinance is used to provide local levels of control over the historical aesthetics of cultural resources within the City, and to ensure that the potential impact to locally significant historical resources that may be the subject of redevelopment are given reasonable consideration. Locally identified historical resources include: Heritage Properties, Historic Resources, Local Historic Districts, and the National Register Historic Districts.

Certified Local Government

The City has been certified as a CLG since September 1996. The CLG Program, administered by the OHP, is a partnership among local governments, the State of California (OHP), and the National Park Service (NPS). The CLG encourages the direct participation of local governments in the identification, evaluation, registration, and preservation of historic properties within their jurisdiction and integrates local, State, and federal levels of review.[2] As a participant, the City has adopted the Secretary of the Interior's Standards, and allows the use of categorical exemptions under CEQA. The use of these criteria and standards make environmental review faster, more efficient, and reduces costs and delays.

Fresno General Plan

The City of Fresno General Plan includes the following objectives and policies that relate to cultural resources as shown in Table 4.5-1.

4.5.1.2 EXISTING CONDITIONS

Methodology

The cultural resources analysis conducted by Sierra Valley Cultural Planning, included as Appendix D, Cultural Resources Data, of this Draft EIR, consists of archival research at the Northwest Information Center (NWIC) at CSU Bakersfield, examination of the library and files, windshield survey, and contact with the Native American community.

Record Searches

Records searches were conducted to identify cultural resources within the Plan Area. Records searches were conducted at the Southern San Joaquin Valley Information Center (SSJVIC) at CSU Bakersfield. The SSJVIC, an affiliate of the State of California Office of Historic Preservation, is the official State repository of cultural resources records and reports for Fresno County. The SSJVIC maintains the Sacred Lands File, which includes the locations of sites with cultural significance to Native American groups. The CSU Bakersfield database includes information on locations where fossils have been identified,

[2] California State Parks, Office of Historic Preservation, Certified Local Government Program, http://ohp.parks.ca.gov/?page_id=21239, accessed July 24, 2017.

TABLE 4.5-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO CULTURAL AND TRIBAL CULTURAL RESOURCES

Objective/ Policy Number	Objective/Policy Text
Objective HCR-1	*Maintain a comprehensive, citywide preservation program to identify, protect and assist in the preservation of Fresno's historic and cultural resources.*
Policy HCR-1-a	Certified Local Government. Maintain the City's status as a Certified Local Government (CLG), and use CLG practices as the key components of the City's preservation program.
Policy HCR-1-b	Preservation Office, Commission and Program. Maintain the Preservation Office, Historic Preservation Commission, and preservation program to administer the City's preservation functions and programs.
Policy HCR-1-c	Historic Preservation Ordinance. Maintain the provisions of the City's Historic Preservation Ordinance, as may be amended, and enforce the provisions as appropriate.
Objective HCR-2	*Identify and preserve Fresno's historic and cultural resources that reflect important cultural, social, economic, and architectural features so that residents will have a foundation upon which to measure and direct physical change.*
Policy HCR-2-a	Identification and Designation of Historic Properties. Work to identify and evaluate potential historic resources and districts and prepare nomination forms for Fresno's Local Register of Historic Resources and California and National registries, as appropriate.
Policy HCR-2-b	Historic Surveys. Prepare historic surveys according to California Office of Historic Preservation protocols and City priorities as funding is available.
Policy HCR-2-c	Project Development. Prior to project approval, continue to require a project site and its Area of Potential Effects (APE), without benefit of a prior historic survey, to be evaluated and reviewed for the potential for historic and/or cultural resources by a professional who meets the Secretary of Interior's Qualifications. Survey costs shall be the responsibility of the project developer. Council may, but is not required, to adopt an ordinance to implement this policy.
Policy HCR-2-d	Native American Sites. Work with local Native American tribes to protect recorded and unrecorded cultural and sacred sites, as required by State law, and educate developers and the community-at-large about the connections between Native American history and the environmental features that characterize the local landscape.
Policy HCR-2-g	Demolition Review. Review all demolition permits to determine if the resource scheduled for demolition is potentially eligible for listing on the Local Register of Historic Resources. Consistent with the Historic Preservation Ordinance, refer potentially eligible resources to the Historic Preservation Commission and as appropriate to the City Council.
Policy HCR-2-h	Minimum Maintenance Standards. Continue to support enforcement of the minimum maintenance provisions of the Historic Preservation Ordinance, as may be amended, and enforce the provisions as appropriate.
Policy HCR-2-i	Preservation Mitigation Fund. Consider creating a Preservation Mitigation Fund to help support efforts to preserve and maintain historic and cultural resources.
Policy HCR-2-j	Window Replacement. City staff will evaluate potential opportunities for identification of window replacements to ensure historic integrity is maintained while encouraging sustainability. In addition, city staff will evaluate window replacements in federally funded housing projects on a project-by-project basis with consideration for health, safety, historic values, sustainability, and financial feasibility.
Policy HCR-2-k	City-Owned Resources. Maintain all City-owned historic and cultural resources in a manner that is consistent with the U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties, as appropriate.
Policy HCR-2-m	Local Register Listing. Recommend that property owners, who receive funds from the City of Fresno for rehabilitation of a property, consent to listing it on the Local Register of Historic Resources if the property meets the criteria for age, significance, and integrity. Publicly funded rehabilitation properties which may meet Local Register criteria will be presented to the City's Historic Preservation Commission for review.
Policy HCR-2-n	Property Database and Informational System. Identify all historic resources within the city designated on the Local, State, or National register, and potential significant resources (building, structure, object or site) in existence for at least 45 years, and provide this information on the City's website.
Objective HCR-3	*Promote a "New City Beautiful" ethos by linking historic preservation, public art, and planning principles for Complete Neighborhoods with green building and technology.*

TABLE 4.5-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO CULTURAL AND TRIBAL CULTURAL RESOURCES

Objective/ Policy Number	Objective/Policy Text
Policy HCR-3-a	**Adaptive Reuse.** Promote the adaptive reuse and integration of older buildings into new projects as part of the City's commitment to nurturing a sustainable Fresno.
Policy HCR-3-b	**Public Art.** Collaborate with the arts community to promote the integration of public art into historic buildings and established neighborhoods. Link arts activities (such as Art Hop) with preservation activities.
Policy HCR-3-c	**Context Sensitive Design.** Work with architects, developers, business owners, local residents and the historic preservation community to ensure that infill development is context-sensitive in its design, massing, setbacks, color, and architectural detailing.
Objective HCR-4	*Foster an appreciation of Fresno's history and cultural resources.*
Policy HCR-4-d	**Public Archives.** Maintain public archives that include information on all designated historic properties, as well as historic surveys, preservation bulletins, and general local history reference materials. Post survey reports, Historic Preservation Commission minutes and agendas, and other information of public interest on the historic preservation page of the City's website.

the taxa of fossils found at a particular location, and the geological formations associated with a fossil locality.

Windshield Survey

A windshield survey was conducted of the Plan Area to confirm information gathered from the Assessor's online database. This survey was conducted to look at previously documented resources, and to look at the built environment to see if there were any distinctive individual buildings or groups of buildings that could represent a district within the Plan Area. A minimum of 50 buildings, predominately residential, appear potentially significant and warrant further investigation. Also included in potentially significant property is a segment of a 1890s canal. There are a number of housing subdivisions within the study area that date to the mid- 1900s. From an architectural standpoint, none of them appear to meet criteria for historic district, mainly because so many of them have been altered subsequent to construction. As the Plan Area is a highly developed and urbanized area, no archaeological survey was completed for this Project.

Native American Consultation

In compliance with SB 18, as part of the preparation of this EIR, the City of Fresno sent a Notice of Preparation (NOP) to the NAHC on February 23, 2017. NOPs were also sent to 13 local Native American tribes/individuals. Responses were received from the North Fork Mono and Table Mountain Rancheria tribes. Table Mountain Rancheria requested copies of any cultural resources report produced as part of the project. In addition, the NAHC was contacted in writing on June 30, 2017 to identify any areas of importance to Native peoples within the Plan Area that have been documented in the Commission's Sacred Lands files. To date, no response has been received. Copies of correspondence letters are included in Appendix D, Cultural Resources Data, of this Draft EIR.

Setting

Environmental Setting

Initially agricultural land, the Plan Area has gradually transitioned with more residential, industrial, and commercial uses sprinkled throughout. Native American occupants of the region describe abundant sedge beds, along with rich areas of deer grass, plants that figure prominently in the construction of Native American basketry items. Prior to EuroAmerican exploration and settlement in the region, the central San Joaquin Valley was extensive grassland covered with spring-flowering herbs. Today, the Plan Area is made up of a patchwork of land uses that abut each other, including subdivisions, industry, and farmland.

Topography of the Plan Area is relatively level, sloping gradually from east to west. Soils within the area include mainly well-developed sandy loams of the Ramona, Atwater, Greenfield, Borden, Pachappa and San Joaquin series, with lesser inclusions of younger soils of the Delhi, Hanford, and Hesperia series. Elevation ranges from approximately 260 to 290 feet above mean sea level.

Prehistory and Ethnography

The San Joaquin Valley and adjacent Sierran foothills and Coast Range have a long and complex cultural history with distinct regional patterns that extend back more than 11,000 years. The first generally agreed-upon evidence for the presence of prehistoric peoples in the region is represented by the distinctive basally-thinned and fluted projectile points, found on the margins of extinct lakes in the San Joaquin Valley. These projectiles, often compared to Clovis points, have been found at three localities in the San Joaquin Valley including along the Pleistocene shorelines of former Tulare Lake. Based on evidence from these sites and other well-dated contexts elsewhere, these Paleo-Indian hunters who used these spear points existed during a narrow time range of 11550 cal B.C. to 8550 cal B.C.

Prior to Euro American settlement, most of the San Joaquin Valley and its bordering foothills of the Sierra Nevada and Diablo Range were inhabited by speakers of Yokutsan languages. The majority of the Valley Yokuts people lived on the eastern side of the San Joaquin Valley. The study area falls within the territory of the *Gashowu* (also referred to as Casson) in the 1851 Treaty of Camp Barbour and in the 1933 Roll of California Indians. The *Gashowu*, a Tribe of the Kings River Yokuts group of the Foothill Yokuts division, occupied Auberry Valley and the drainages that flowed into the Fresno-Clovis area including Little Dry Creek, Sales Creek, Dog Creek, Big Dry Creek, Red Bank Creek, and Fancher Creek. Some of these creeks also fed into the San Joaquin Valley near the present day cities of Fresno and Clovis. Known ethnographic villages included *Pohoniu*, near Letcher; *Yokau*, on Auberry Road two and half miles north of its intersection with Millerton Road; and *Oto* at the present day Table Mountain Rancheria.

The Native American occupants of the San Joaquin Valley and adjoining Sierran foothills were hunters and gatherers who depended upon the seasonal procurement of locally abundant vegetal and faunal resources. As with their neighboring tribes, the Gashowu lived in permanently established villages during most of the year, usually between the months of October and May. During the rest of the year, the Gashowu would move across their territory, tracking seasonally available plant resources as well as game and fish.

Their principal villages were situated along permanent stream courses, while temporary camp sites and special use areas were scattered throughout their territory. Bedrock milling sites, the most visible vestige of Native American occupation, were located in rock boulders and outcrops above perennial stream courses and in scattered locations throughout the Fresno Plains along intermittent stream courses where conditions favored the presence of localized pools or wells of fresh water. At the time of contact in the late 1700s, the abundance of resources in the valley and adjoining foothills provided a nearly sedentary life, with high population density typically limited elsewhere to agricultural adaptations.

General History

Fresno County, formed in 1856, was carved from portions of Mariposa, Merced, and Tulare counties. The original county seat for the county was established at Millerton in 1856. In 1874, the city of Fresno – established in 1872 by the Central Pacific Railroad – became the county seat and was incorporated by 1885. The Central Pacific Railroad, having completed the western segment of the Transcontinental Railroad, decided to connect the northern part of the state with Los Angeles. The railroad line would traverse Fresno County with its principal stop being located at Sycamore (now Herndon) on the San Joaquin River. While the city's beginnings are directly linked to the presence of the railroad in the San Joaquin Valley, it was the development of the colony system and agriculture that made Fresno the leading agricultural center of the San Joaquin Valley.

The colony system involved land speculation where investors, generally not from the San Joaquin Valley, purchased large tracts of land and divided them into 20- and 40-acre lots and sold them to prospective buyers from the east. The Fresno Colony was established by Thomas E. Hughes. The colony was bounded by California Avenue on the north, Fruit Avenue on the west, North Avenue to the south and East Avenue on the east. The colony acreage totaled 2,880 acres and was subdivided into 144 20-acre lots. In 1885, several other colonies were established in the general vicinity of the current study area. These included the California Colony (later known as the West Park Colony), the Union Colony, and the Fruitvale Estate. By 1903, 48 separate colonies or tracts were established in Fresno County representing approximately 71,080 acres. These colonies helped break up the vast estates and initiated what agricultural historian Donald Pisani has termed "the horticultural small-farm phase" of California agriculture.

Small farms continued to dominate the project area up to 1945; however, during this period it became evident that famers were willing to sell their land to investors who were intent on developing both residential and commercial/industrial properties. In 1888 Block 9 of the Fresno Colony was once again subdivided into what was known as the Long Brothers Addition. This new subdivision consisted of four blocks containing 50 parcels on each block (200 lots total). By the mid-1940s less than half of the lots in the Long Brothers Addition had buildings located on them, with most of these being concentrated around California Avenue. By 1961 most of the lots were developed with single-family residences. In the 1990s many of the extant buildings were demolished. By 1998 only approximately 10 historic-era buildings remained; today there are none.

By the late 1930s, a boom occurred in residential construction in southwest Fresno. A number of housing tracts were being laid out, ultimately resulting in the construction of new housing. In 1964, the largest housing developments were concentrated along Jensen Avenue between Elm and Fig avenues, as well as between South Knight and South Fruit avenues north of Jensen Avenue. On North Avenue, in 1964, the

largest concentration of residential tracts was located between West Roy and East Samson avenues. Beyond these housing developments, most of the project area remained dedicated to agriculture. Along with residential development within the project area, commercial and light industrial development was beginning to expand into West Fresno from the downtown area. Areas of industrial expansion after World War II increased especially along Elm Avenue west of present day State Route 99 and along Whitesbridge Road from Thorne Avenue to Marks Avenue. Most of this development came following World War II. Commencing in the late 1980s, southwest Fresno saw a significant increase in both commercial and light industrial development as property values in this area have remained relatively stable due to the availability of land.

The study area initially had its beginnings in the colony system – an area dedicated to 20 and 40-acre parcels that were home to many of Fresno's new arrivals from other parts of the world. It was here that families of many different ethnic backgrounds were able to purchase land and raise families on their farms. It was here that families were able to experience both social and economic freedoms not afforded to them in their native lands.

Consequently, most families continued to farm their lands for several generations. Land ownership was slow to change.

While there were some residential tracts established in the study area prior to 1940, it was not until after WWII that residential and commercial development began to take hold in the study area. Today, there is greater investment in the Southwest Fresno study area in both residential and commercial development. Although there are still large parts of the study area that remains dedicated to farming, urban sprawl seems to finally be making its mark on the land.

Archaeological Resources

Archaeological resources may be considered to be either "unique archaeolo*gical resources" or "historical* resources" as defined by CEQA and described previously. CEQA Section 21083.2 defines a "unique archaeological resource" as an archaeological 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:

- Contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information;
- Has a special and particular quality, such as being the oldest of its type or the best available example of its type; and/or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

As discussed in the General Plan MEIR, sites in the nearby foothills exhibit groundstone assemblages suggest that acorns and pine nuts were harvested when ripe by bands of mobile groups. Comparative ethnographic data suggests that mobile peoples with a seasonal round may have created a home base (village) in winter during these periods, then travelled to exploit pockets of certain resources in temporary encampments.

Lowland groups may have predominated in the Fresno area during the late Middle Holocene and archaeological sites dated to this time would likely exhibit foodstuff and processing tools more focused on lakeshore resources than grinding implements seen in upland sites. Soil strata found in the northwestern portion of the City has been defined as a Late Pleistocene non-marine alluvial fan covered with a veneer of late Holocene soil. In general, early and Middle Holocene alluvial deposits with cultural resources in them would typically be exposed only after several feet of soil has been removed. Soils near active stream channels are younger and are less likely to exhibit sites from this period except on intact dunes and at some depth. Thus, sites from this period are likely located in the Plan Area, but are more likely to be found at depth after a disturbed topsoil horizon has been removed.

Further, a cultural resources study found that no archaeological resources have been discovered within the Plan Area. Known resources within a half-mile radius of the Plan Area include buildings and structures and not buried resources. No pre-historic resources have been recorded in the vicinity and no ethnographic villages or camps are reported within or near the Plan Area. The SSJVIC has no record of pre-historic or historical archaeological sites with the Plan Area; however, only a small portion of the Plan Area has been surveyed for the presence of archaeological resources.

Paleontological Resources

Paleontological resources, or fossils, are any evidence of past life, including remains, traces, and imprints of once-living organisms preserved in rocks and sediments that provide information about the history of life on earth dating back billions of years ago. According to the Society of Vertebrate Paleontology, significant paleontological resources include identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils. Fossils are nonrenewable paleontological resources that are afforded protection by federal, State, and local environmental laws and regulations (Paleontological Resources Preservation Act). Accordingly, the potential of a particular area to produce a valuable paleontological resource is largely dependent on the geologic age and origin of the underlying rocks.

As stated in the Fresno MEIR, the geological subgrade of the land within the City of Fresno is entirely alluvial consisting of gravels, sands and clays. Current geological maps indicate that land within the City of Fresno consists of Quaternary alluvium with two primary surficial deposits: 1) Pleistocene non-marine and, 2) Quaternary non-marine fan deposits. The Pleistocene non-marine deposits have been more recently referred to as the Riverbank Formation, and are considered to have high potential sensitivity. The Quaternary non-marine terrace deposits consist of undifferentiated Pleistoscene-Holocene alluvial sediments and are also considered to have high potential sensitivity.

Also, as land within the Plan Area has been built upon or disturbed by farming, it is difficult to predict when prehistoric resources will be uncovered as a result of new development. Researchers have shown that when reliable water is available, prehistoric people may have lived nearby and exploit local resources. They could have built permanent villages. Based on the geological study provided in Appendix E-1 of the MEIR, it may be possible to detect certain types of Pleistocene and Holocene ground surfaces once the disturbed horizons have been removed by earthmoving equipment during development activities. Finally, the NAHC characterized the City of Fresno as being “very sensitive” for potential impacts to Native American sacred sites and prehistoric deposits.

Historical Architectural Resources

In 1937, The City of Fresno established the Fresno Sanitary Landfill (FSL) on 20 acres located in the southwest portion of the SFSP study area. By the time of its closure in 1987, it had expanded to 140 acres bounded on the north by Jensen Avenue, on the east by West Avenue, on the south by North Avenue, and on the west by agricultural lands east of Marks Avenue. The FSL was designed by Jean Vincenz who served as commissioner of public works, city engineer, and manager of utilities in Fresno from 1931 to 1941. The FSL established the prototype for the modern sanitary landfill in the United States. The FSL is a National Historic Landmark and listed on the National Register of Historic Places.

As shown in Table 4.5-2 below, forty-eight cultural resources, consisting primarily of historic-era single family homes, have been previously identified and recorded within the study area. No Native American sites have been previously documented within the study area. A minimum of 28 projects have been completed within portions of the study area.[3]

The 48 historic-era structures/facilities documented within the study area include 39 single-family residences (11 of which include ancillary structures such as detached garages and/or storage sheds), two multiple-family complexes, a vacant dairy barn, an industrial repair yard with three buildings, a miscellaneous industrial building, a commercial building, an educational complex, a military complex, and a park with pool and recreation facilities.

Previously recorded structures date to two main building periods, the 1910s (12 structures) and the 1940s (15 structures). Two residential dwellings date to the early 1900s, with seven dating to the 1920s and three to the 1930s. Nine structures date to the 1950s. The refuse scatter concentration noted above is estimated to date to the late 19th/early 20th century based on artifact types present. A concrete foundation, which may be the remains of a backyard kitchen typically constructed by Volga German families, is estimated to date to the 1920s based on examination of Sanborn records. In addition, the Teilman Home at 919 W. Kearney Boulevard is listed on the Local Register of Historic Resources.

4.5.2 STANDARDS OF SIGNIFICANCE

The proposed Project would result in a significant cultural and tribal cultural resources impact if it would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
3. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
4. Disturb any human remains, including those interred outside of formal cemeteries.

[3] Sierra Source: Sierra Valley Cultural Planning, Existing Conditions Assessment: Cultural Resources, Table 2, July 2017,

TABLE 4.5-2 IDENTIFIED CULTURAL RESOURCES SITES

Street Number	Street Name	APN	Comm/Res/Vacant	Year Built	Additional Studies
2070	W. Whitesbridge Avenue	45809018	residential	1890	yes
2010	W. Whitesbridge Avenue	45809017	residential	1900	yes
633	S. Hughes Avenue	45809020	residential	1930s	yes
1807	W. Whitesbridge Avenue	46404012	residential	1900s	yes
830	W. Whitesbridge Avenue	46404037	residential	1920	yes
836	Crystal Avenue	46404066	residential		yes
388	S. Valentine Avenue	32610046	residential/commercial	1990s	yes
3162	W. Madison Avenue	32610054	residential		yes
3144	W. Madison Avenue	32610030	residential		yes
1624	Kearney Frontage	46406017	residential		yes
1819	Kearney Frontage	46407008	residential	1950s	yes
1647	Kearney Frontage	46426036	residential		yes
1529	Kearney Frontage	46426044	residential		yes
707	W. Eden Avenue	46417108	residential	1910	yes
1731	S. Teilman Avenue	46417116	residential	1950s	yes
1484	S. Arthur Avenue	46413110	church	1960s	yes
144	W. Hawes Avenue	46413214	residential	1940s	yes
140	W. Hawes Avenue	46413214	residential	1940s	yes
134	W. Hawes Avenue	46413215	residential	1940s	yes
124	W. Hawes Avenue	46413215	residential	1940s	yes
114	W. Hawes Avenue	46413221	residential	1940s	yes
104	W. Hawes Avenue	46413221	residential	1940s	yes
426	W. Valencia Avenue	46418118	residential	1950s	yes
312	W. Valencia Avenue	46418121	residential	1950s	yes
129	W. Valencia Avenue	46418409	residential	1950s	yes
1208	W. Woodward Avenue	46419113	residential	1950s	yes
1136	W. Woodward Avenue	46419111	residential	1950s	yes
2042	S. Fruit Avenue	46420030	commercial	1940s	yes
316	W. Geary Street	47713116	residential	1940s	yes
135	E. Byrd Avenue	47720019	residential	1960s	yes
N/A	S. Marks Avenue	46406014	canal	1890s	yes

TABLE 4.5-2 IDENTIFIED CULTURAL RESOURCES SITES

Street Number	Street Name	APN	Comm/Res/Vacant	Year Built	Additional Studies
318	W. Roy Avenue	32920008	residential	1950s	yes
1104	W. North Avenue	32813114	church	1940s	yes
2945	S. Walnut Avenue	32808007	residential		yes
126	W. North Avenue	32815014	residential	1940s	yes
2993	S. Elm Avenue	32821125	commercial	1950s	yes
86	E. North Avenue	32821121	residential	1940s	yes
140	E North Avenue	32821117	residential	1940s	yes

Source: Sierra Valley Cultural Planning, Existing Conditions Assessment: Cultural Resources, July 2017.

5. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: 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
6. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.5.3 IMPACT DISCUSSION

CUL-1 Implementation of the proposed Plan could cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5

The types of cultural resources that meet the definition of historical resources under CEQA generally consist of districts, sites, buildings, structures, and objects that are significant for their traditional, cultural, and/or historical associations. Under CEQA, both prehistoric and historic-period archaeological sites may qualify as historical resources.[4] As such, future development under the proposed Plan could impact historical architectural resources and historical archaeological deposits.[5] Historic archaeological deposits are addressed in CUL-2, and human remains are addressed below in impact discussion CUL-4, below.

[4] California Code of Regulations, Title 14, Chapter 3, Section 15064.5(c), Determining the Significance of Impacts on Historical and Unique Archaeological Resources.

5 Public Resources Code Section 21083.2(g) defines historical archaeological deposits.

As described in Section 4.5.1.2, Existing Conditions, there are known historic resources identified within the Plan Area, including the FSL that is listed on the National Register of Historic Places. However, future development under the proposed Plan would not destroy or redevelop this site. The proposed Plan includes Land Use Policy 2.4, which calls for the City to attract and encourage low-density residential development with enhanced design and landscaping standards along Kearney Boulevard to support a Historic Corridor. Potential future development adjacent to the FSL would be required to comply with General Plan Policy HCR-2h, which requires enforcement of the minimum maintenance provisions of the Historic Preservation Ordinance for nearby historic structures. Therefore, impacts to the historic FSL would be *less than significant* and no mitigation measures are required.

As described in Section 4.4.1.2 Environmental Setting, several buildings within the Plan Area date to the mid-20th century and have the potential to meet criteria for inclusion on the California Register of Historical Resources. Potential future development, including site preparation, grading, demolition, and construction activities, allowed under the proposed Plan could have the potential to result in the physical demolition, destruction, relocation or alteration of these potential resources; thus, adversely impacting buildings and structures that may be historical resources.

Several existing regulations would ensure that development and redevelopment activities associated with the proposed Plan do not cause a substantial adverse change to a historic resource. As described in Section 4.5.1.1, Regulatory Framework, the California Historical Building Code provides regulations and standards for the rehabilitation, preservation, restoration (including related reconstruction), or relocation of historical buildings, structures, and properties deemed by any level of government as having importance to the history, architecture, or culture of an area. In addition, the City of Fresno Historic Preservation Ordinance provides a process to preserve, promote, and improve the Historic Resources and Historic Districts within its jurisdiction. Further, potential future development in the Plan Area would also be required to comply with General Plan Objectives HCR-1, HCR-2, and HCR-3, as well as Policies HCR-1c, HCR-2a, HCR-2b, HCR-2f, and HCR-3c, which require the City to identify, designate and preserve sites and structures of historical, archaeological, and cultural significance. General Plan Policies HCR-2c and 2g would require future development to evaluate the project site and its Area of Potential Effects (APE), for the potential historic and/or cultural resources by a professional who meets the Secretary of the Interior's Qualifications.

The implementation of the Historic Preservation Ordinance and the above objectives and policies would reduce the potential impacts on historical resources. However, in some instances, historical resources may need to be demolished due to health and safety reasons. In addition, modifications to historical resources may be proposed and as discussed in the Historic Preservation Ordinance, the Secretary of the Interior's Standards for the Treatment of Historic Properties would need to be implemented. However, after the procedures identified in the Historic Preservation Ordinance are followed and all feasible mitigation measures are imposed, potential significant impacts to an historic resource could remain. Since the Historic Preservation Ordinance or the objectives or policies identified above do not prevent the City from approving a project posing a significant impact to an historical resource, the potential impact is considered *significant.*

In addition to known historical resources, development in accordance with the proposed Plan and could result in potential impacts to unknown resources that are located below the ground surface. Based on

data from the MEIR, there is a potential for buried historic deposits in the Southwest Fresno area. Therefore, during grading and construction activities associated with future developments in accordance with the proposed Plan, potential impacts to historic deposits could be significant.

Significance Without Mitigation: Significant.

The following mitigation measure was included in the MEIR and remains applicable to this project.

Impact CUL-1: Implementation of the Specific Plan could cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines.

> MEIR Mitigation Measure CUL-1: If previously unknown cultural resources are encountered during grading activities, construction shall stop in the immediate vicinity of the find and an archaeologist shall be consulted to determine whether the resource requires further study. The qualified archaeologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines and the City's Historic Preservation Ordinance.
>
> If the resources are determined to be unique historical resources as defined under Section 15064.5 of the CEQA Guidelines, measures shall be identified by the archaeologist and recommended to the Lead Agency. Appropriate measures for significant resources could include avoidance or capping; incorporation of the site in green space, parks, or open space; or data recovery excavations of the finds.
>
> No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these resources. Any historical artifacts recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study.
>
> Significance With Mitigation: Less than significant.

CUL-2 Implementation of the proposed Plan could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.

Prehistoric archaeological resources are those cultural resources deposited before Europeans established a Franciscan Mission in California (1769) and include any deposits, features, or isolated artifacts. Under PRC 21083.2(h), prehistoric archaeological resources can be divided into two classes, unique and non-unique. Unique resources must be treated as if they are significant and avoidance of those resources is the first choice, while non-unique resources do not meet criteria in 21083.2(g) and therefore need not be avoided under CEQA Guidelines.

The records search conducted by Sierra Valley Cultural Planning did not identify any previously recorded prehistoric archaeological resources within the project area or within the vicinity of the Planning Area. However, as there have been few large-scale pedestrian surveys within the project area, and no recorded

subsurface testing, this is not an accurate determination of archaeological sensitivity within the region. The region, and the Plan Area itself, contains several geological features that would have been ideal for prehistoric temporary or seasonal encampments.

The northern boundary of the Plan Area is several miles from the banks of the San Joaquin River; therefore, no impacts would occur to resources in the vicinity of the river. However, additional sources of fresh water, such as creeks and tributaries, may have permeated the project area in prehistoric times. As such, it is possible that grading and construction activities may uncover previously unrecorded archaeological resources. Therefore, it is probable that future projects allowed under the proposed Plan that occur where known cultural resources existing or require substantial excavation that could reach significant depths below the ground surface where no such excavation has previously occurred, could disturb unidentified subsurface materials that have the potential to contain prehistoric archaeological resources, including unrecorded Native American prehistoric archaeological sites. Therefore, impacts to unknown historical archeological resources would be *significant*. Mitigation Measure CULT-1 is required in order to assess the prehistoric archaeological sensitivity of specific project developments. If no previously recorded prehistoric resources are identified and no additional mitigation measures are proposed, Mitigation Measure CUL-4 is required to address potential inadvertent finds.

Significance Without Mitigation: Significant.

The following mitigation measure was included in the MEIR and remains applicable to this project.

Impact CUL-2: Implementation of the Specific Plan could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines.

> MEIR Mitigation Measure CUL-2: Subsequent to a preliminary City review of the project grading plans, if there is evidence that a project will include excavation or construction activities within previously undisturbed soils, a field survey and literature search for prehistoric archaeological resources shall be conducted. The following procedures shall be followed.
>
> If prehistoric resources are not found during either the field survey or literature search, excavation and/or construction activities can commence. In the event that buried prehistoric archaeological resources are discovered during excavation and/or construction activities, construction shall stop in the immediate vicinity of the find and a qualified archaeologist shall be consulted to determine whether the resource requires further study. The qualified archaeologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines. If the resources are determined to be unique prehistoric archaeological resources as defined under Section 15064.5 of the CEQA Guidelines, mitigation measures shall be identified by the monitor and recommended to the Lead Agency. Appropriate measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these resources. Any prehistoric archaeological artifacts recovered as a result of mitigation shall be provided

to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study.

If prehistoric resources are found during the field survey or literature review, the resources shall be inventoried using appropriate State record forms and submit the forms to the Southern San Joaquin Valley Information Center. The resources shall be evaluated for significance. If the resources are found to be significant, measures shall be identified by the qualified archaeologist. Similar to above, appropriate mitigation measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. In addition, appropriate mitigation for excavation and construction activities in the vicinity of the resources found during the field survey or literature review shall include an archaeological monitor. The monitoring period shall be determined by the qualified archaeologist. If additional prehistoric archaeological resources are found during excavation and/or construction activities, the procedure identified above for the discovery of unknown resources shall be followed.

Significance With Mitigation: Less than significant.

CUL-3 Implementation of the proposed Plan could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

As discussed in Section 4.5.1.2, Existing Conditions, based on a review of geologic maps of the Planning Area, there are two primary surficial deposits: 1) Pleistocene non-marine and 2) Quaternary non-marine fan deposits. The Pleistoscene non-marine deposits are considered to have a high potential sensitivity. The Quaternary non-marine deposits consist of Pleistocene-Holocene alluvial sediments. Since these deposits include Pleistocene sediments, they are also considered to have a high potential for sensitivity. Therefore, excavation and/or construction activities within the Plan Area have the potential to impact paleontological/geological resources during excavation and construction activities within previously undisturbed soils. Although many areas have been previously disturbed by farming activities or previous structural development, the project could include future development that will require excavations or construction within previously undisturbed soils. The potential to impact paleontological/geological resources is considered *significant*.

Significance Without Mitigation: Significant.

The following mitigation measure was included in the MEIR and remains applicable to this project:

Impact CUL-3: Implementation of the Specific Plan would have the potential to directly or indirectly affect a unique paleontological resource or site, or unique geologic feature.

MEIR Mitigation Measure CUL-3: Subsequent to a preliminary City review of the project grading plans, if there is evidence that a project will include excavation or construction activities within previously undisturbed soils, a field survey and literature search for unique paleontological/geological resources shall be conducted. The following procedures shall be followed:

If unique paleontological/geological resources are not found during either the field survey or literature search, excavation and/or construction activities can commence. In the event that unique paleontological/geological resources are discovered during excavation and/or construction activities, construction shall stop in the immediate vicinity of the find and a qualified paleontologist shall be consulted to determine whether the resource requires further study. The qualified paleontologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to, excavation of the finds and evaluation of the finds. If the resources are determined to be significant, mitigation measures shall be identified by the monitor and recommended to the Lead Agency. Appropriate mitigation measures for significant resources could include avoidance or capping; incorporation of the site in green space, parks, or open space; or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these resources. Any paleontological/geological resources recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study.

If unique paleontological/geological resources are found during the field survey or literature review, the resources shall be inventoried and evaluated for significance. If the resources are found to be significant, mitigation measures shall be identified by the qualified paleontologist. Similar to above, appropriate mitigation measures for significant resources could include avoidance or capping; incorporation of the site in green space, parks, or open space; or data recovery excavations of the finds. In addition, appropriate mitigation for excavation and construction activities in the vicinity of the resources found during the field survey or literature review shall include a paleontological monitor. The monitoring period shall be determined by the qualified paleontologist. If additional paleontological/ geological resources are found during excavation and/or construction activities, the procedure identified above for the discovery of unknown resources shall be followed.

Significance With Mitigation: Less than significant.

CUL-4 Implementation of the proposed Plan could disturb any human remains, including those interred outside of formal cemeteries.

As described in Section 4.5.1.2, Existing Conditions, no known buried resources, pre-historic resources, or ethnographic villages or camps have been reported within or near the Plan Area. However, since the Plan Area has not been surveyed, the potential exists that construction requiring substantial excavation, could result in the disturbance of unknown human remains. Since the proposed Plan would allow taller buildings than existing development, which would require substantially greater excavation of the area that has previously occurred, unknown resources could be found within previously developed sites. Therefore, future projects under the proposed Plan would have the potential to disturb human remains and the impact is considered *significant*.

Significance Without Mitigation: Significant.

The following mitigation measure was included in the MEIR and remains applicable to this project:

Impact CUL-4: Implementation of the Specific Plan would have the potential to disturb human remains, including those interred outside of formal cemeteries.

MEIR Mitigation Measure CUL-4: In the event that human remains are unearthed during excavation and grading activities of any future development project, all activity shall cease immediately. Pursuant to Health and Safety Code (HSC) Section 7050.5, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98(a). If the remains are determined to be of Native American descent, the coroner shall within 24 hours notify the Native American Heritage Commission (NAHC). The NAHC shall then contact the most likely descendent of the deceased Native American, who shall then serve as the consultant on how to proceed with the remains. Pursuant to PRC Section 5097.98(b), upon the discovery of Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendants regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the descendants all reasonable options regarding the descendants' preferences for treatment.

Applicable regulations and procedures described above, along with implementation of Mitigation Measure CUL-4, would ensure that any human remains discovered during construction would be handled appropriately.

Significance With Mitigation: Less than significant.

CUL-5 Implementation of the proposed Plan could cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Sections, 21074, 5020.1(k), or 5024.1.

As previously described in Section 4.5.1.1, Regulatory Framework, under subheading "Assembly Bill 52," a TCR is defined as a site, feature, place, cultural landscape (must be geographically defined in terms of size and scope), sacred place, or object with cultural value to a California Native American tribe that is either included or eligible for inclusion in the California Register, or included in a local register of historical resources, or if the City of Fresno, acting as the lead agency, supported by substantial evidence, chooses at its discretion to treat the resources as a TCR.

As discussed under impact discussions CUL-2 and CUL-4, impacts from future development on the project site could impact unknown archaeological resources including Native American artifacts and human remains. Impacts would be reduced to a *less-than-significant* level with implementation of MEIR Mitigation Measures CUL-1, CUL-2, and CUL-4.

Therefore, compliance with existing federal, State, and local laws and regulations, and the General Plan policies (listed above), would protect unrecorded TCR's on the project site by providing for the early detection of potential conflicts between development and resource protection, and by preventing or

minimizing the material impairment of the ability of archaeological deposits to convey their significance through excavation or preservation.

Significance Without Mitigation: Significant.

Impact CUL-5: Implementation of the proposed project would have the potential to impact TCRs the disturbance of which could result in a significant impact under CEQA.

Mitigation Measure CUL-5: Implement MEIR Mitigation Measures CUL-1, CUL-2 and CUL-4.

Significance With Mitigation: Less than significant.

4.5.4 CUMULATIVE IMPACTS

CUL-6	**Implementation of the proposed Plan, in combination with past, present and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to cultural resources.**

The methodology used for the cumulative impact analysis is described in Chapter 4.0, Environmental Analysis, of this Draft EIR. This section analyzes potential cumulative impacts on cultural resources that could occur from development allowed by the proposed Project in combination with effects of development on lands within the region.

There is the possibility of encountering buried archaeological and paleontological deposits and human remains throughout the City of Fresno. Impacts to those resources would need to be assessed on a case-by-case basis. Future projects in Fresno would be required to comply with General Plan Objectives HCR-1, HCR-2, and HCR-3, as well as Policies HCR-1c, HCR-2a, HCR-2b, HCR-2f, and HCR-3c, which require the City to identify, designate and preserve sites and structures of historical, archaeological, and cultural significance. General Plan Policies HCR-2c and 2g would require future development to evaluate the project site and its Area of Potential Effects (APE), for the potential historic and/or cultural resources by a professional who meets the Secretary of the Interior's Qualifications.

Furthermore, with implementation of Mitigation Measures identified under CUL-1 through CUL-3, shown above, in combination with applicable federal and State regulations, would help to reduce impacts to cultural resources as a result of the proposed Project. However, due to the potential to impact future unknown historic resources, the proposed Project could contribute to a significant cumulative impact on such resources. Additionally, it is anticipated that other cumulative projects would similarly be required to comply with all applicable existing regulations, procedures, and policies that are intended to address cultural resources impacts. Therefore, the proposed Project's contribution to cultural resource impacts is considered cumulatively considerable, and cumulative cultural resources impacts would be *significant.* Therefore, compliance with Mitigation Measures in this Chapter would reduce the impact to a *less-than-significant* level.

Significance With Mitigation: Less than significant.

4.6 GEOLOGY AND SOILS

This section describes the regulatory framework and existing conditions in the Plan Area related to geology and soils, and the potential impacts resulting from implementation of the proposed Plan.

The information in this Section is based in part on the following documents:

- Geologic Hazards Investigation, Fresno General Plan, City and Sphere of Influence, Fresno, Fresno County, California. Prepared by Krazan and Associates, Inc., June 12, 2012. This document is available at https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf.
- Fresno County Multi-Hazard Mitigation Plan. County of Fresno, January 2009.

4.6.1 ENVIRONMENTAL SETTING

4.6.1.1 REGULATORY FRAMEWORK

State Regulations

California Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (California Public Resources Code Sections 2621 et seq.) requires the state geologist to delineate earthquake fault zones along faults that are “sufficiently active” and “well defined.” The act requires that cities and counties withhold development permits for a site in an earthquake fault zone until geologic investigations demonstrate that the site is not threatened by surface displacements from future faulting. An active fault is one showing expression of surface rupture within the last 11,000 years. Pursuant to this act, structures for human occupancy are not allowed within 50 feet of the trace of an active fault.

Seismic Hazard Mapping Act

The Seismic Hazard Mapping Act (SHMA) was adopted by the State in 1990 to protect the public from the effects of non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, seismically induced landslides, or other ground failure caused by earthquakes. The goal of the act is to minimize loss of life and property by identifying and mitigating seismic hazards. The California Geological Survey prepares seismic hazard zone maps and provides them to local governments; these maps identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. SHMA requires responsible agencies to only approve projects within seismic hazard zones following a site-specific investigation to determine if the hazard is present, and if so, the inclusion of appropriate mitigation(s). In addition, the SHMA requires real estate sellers and agents at the time of sale to disclose whether a property is within one of the designated seismic hazard zones.

2016 California Building Code

Current law states that every local agency enforcing building regulations, such as cities and counties, must adopt the provisions of the California Building Code (CBC) within 180 days of its publication. The publication date of the CBC is established by the California Building Standards Commission, and the code is updated every three years. The CBC is in Title 24, Part 2, of the California Code of Regulations. The most recent building standard adopted by the legislature and used throughout the state is the 2016 CBC, which took effect on January 1, 2017. Local jurisdictions may add amendments based on local geographic, topographic, or climatic conditions. These codes provide minimum standards to protect property and people by regulating the design and construction of excavations, foundations, building frames, retaining walls, and other building elements to mitigate the effects of seismic shaking and adverse soil conditions. The CBC's provisions for earthquake safety are based on factors such as occupancy type, the types of soil and rock on-site, and the strength of ground motion with a specified probability at the site.

California Building Code Section 1802 (Requirements for Geotechnical Investigations)

Requirements for geotechnical investigations for subdivisions requiring tentative and final maps and for other types of structures are in California Health and Safety Code, Sections 17953 to 17955, and in Section 1802 of the CBC. Testing of samples from subsurface investigations is required, such as from borings or test pits. Studies must be done as needed to evaluate slope stability, soil strength, position, and adequacy of load-bearing soils, the effect of moisture variation on load-bearing capacity, compressibility, liquefaction, differential settlement, and expansiveness.

Local Regulations

City of Fresno Building Code

The City of Fresno has incorporated and adopted the 2016 CBC with the City's amendments as Municipal Code Section 11- 102, referred to as the Fresno Building Code.

A preliminary soils report is required under Municipal Code Section 12-1022 for every subdivision for which a final map is required. Grading and erosion control requirements are set forth in Section 12-1023.

Fresno General Plan

The Fresno General Plan is the City's primary policy planning document. Through its 12 elements, the General Plan provides the framework for the management and utilization of the City's physical, economic, and human resources. Each element contains goals, policies, and implementation measures that guide development within the City.

The Fresno General Plan includes the following objectives and policies that pertain to geology and soils (Table 4.6-1).

TABLE 4.6-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO GEOLOGY AND SOILS

Objective/ Policy Number	Objective/Policy Text
Noise and Safety	
Objective NS-2	*Minimize risks of property damage and personal injury posed by geologic and seismic risks.*
Policy NS-2-a	Seismic Protection. Ensure seismic protection is incorporated into new and existing construction, consistent with the Fresno Municipal Code.
Policy NS-2-b	Soil Analysis Requirement. Identify areas with potential geologic and/or soils hazards, and require development in these areas to conduct a soil analysis and mitigation plan by a registered civil engineer (or engineering geologist specializing in soil geology) prior to allowing on-site drainage or disposal for wastewater, stormwater runoff, or swimming pool/spa water.
Public Utilities and Services	
Objective PU-5	*Preserve groundwater quality and ensure that the health and safety of the entire Fresno community is not impaired by use of private, on-site disposal systems.*
Policy PU-5-a	Mandatory Septic Conversion. Continue to evaluate and pursue where determined appropriate the mandatory abatement of existing private wastewater disposal (septic) systems and mandatory connection to the public sewage collection and disposal system.
Policy PU-5-b	Non-Regional Treatment. Discourage, and when determined appropriate, oppose the use of private wastewater (septic) disposal systems, community wastewater disposal systems, or other nonregional sewage treatment and disposal systems within or adjacent to the Metropolitan Area if these types of wastewater treatment facilities would cause discharges that could result in groundwater degradation.

4.6.1.2 EXISTING CONDITIONS

Regional Geology

The Plan Area is in the Great Valley Geomorphic Province, which is about 400 miles long and 50 miles wide. The site is in the San Joaquin Valley, the southerly of two large valleys comprising the province; the Sacramento Valley is the northerly. The San Joaquin Valley is surrounded by the Sierra Nevada to the east, the Coast Ranges to the west, the Tehachapi Mountains to the south, and the Sacramento Valley to the north.[1] The Fresno Metropolitan area is set on gently southwest-sloping alluvial fans and plains formed by the San Joaquin and Kings rivers.[2]

[1] California Geological Survey (CGS). 2002, December. Note 36: California Geomorphic Provinces. http://www.conservation.ca.gov/cgs/information/publications/cgs_notes/Pages/index.aspx.

[2] City of Fresno, 2014. Master Environmental Impact Report General Plan and Development Code Update City of Fresno, Fresno County, California, Section 5.6, Geology and Soils, July 22. https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/Sec-05-06-Geo-Fresno-MEIR.pdf, accessed July 11, 2017.

Faulting

No active faults are mapped within the City of Fresno.[3] Active faults are those showing evidence of surface displacement within the last 11,000 years.[4] The nearest fault to the Plan Area mapped by the California Geological Survey (CGS) is the Clovis Fault about 13.5 miles to the northeast (see Figure 4.6-1). The Clovis Fault is mapped as pre-Quaternary in age—that is, older than 1.6 million years, and is not considered an active fault. The nearest active faults to the Plan Area mapped by the CGS are the Nunez Fault about 50 miles to the southwest; the San Andreas Fault about 65 miles to the southwest; and the Ortigalita Fault Zone about 59 miles to the west. The Sierra Nevada Fault Zone is about 83 miles east of the Plan Area in the eastern slopes of the Sierra Nevada, and the Owens Valley Fault Zone is about 91 miles east of the Plan Area in the Owens Valley. The Sierra Nevada and Owens Valley fault zones are both considered active (see Figure 4.6-1).[5,6]

The nearest Alquist-Priolo Earthquake Fault Zone to the Plan Area is along the Nunez Fault about 50 miles to the southwest.[7]

Plan Area Geology

The Plan Area has a southwest slope of about 0.1 percent grade; elevations on-site range from about 283 feet above mean sea level (amsl) at the east site boundary to 263 feet amsl at the southwest corner of the site.

The site is underlain by two types of sediments:

- Recent Great Valley river deposits of Modesto Formation granitic sand and silt deposited by rivers and streams emerging from highlands surrounding the Great Valley (that is, the Sierra Nevada, regarding the Plan Area).[8] These sediments are mapped as Quaternary in age, that is, within the last approximately 2.59 million years.[9]

[3] City of Fresno, 2014. Master Environmental Impact Report General Plan and Development Code Update City of Fresno, Fresno County, California, Section 5.6, Geology and Soils, July 22. https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/Sec-05-06-Geo-Fresno-MEIR.pdf, accessed July 11, 2017.

[4] California Geological Survey, 2017a. Alquist-Priolo Earthquake Fault Zoning Act, http://www.conservation.ca.gov/cgs/rghm/ap/pages/main.aspx, accessed July 11, 2017.

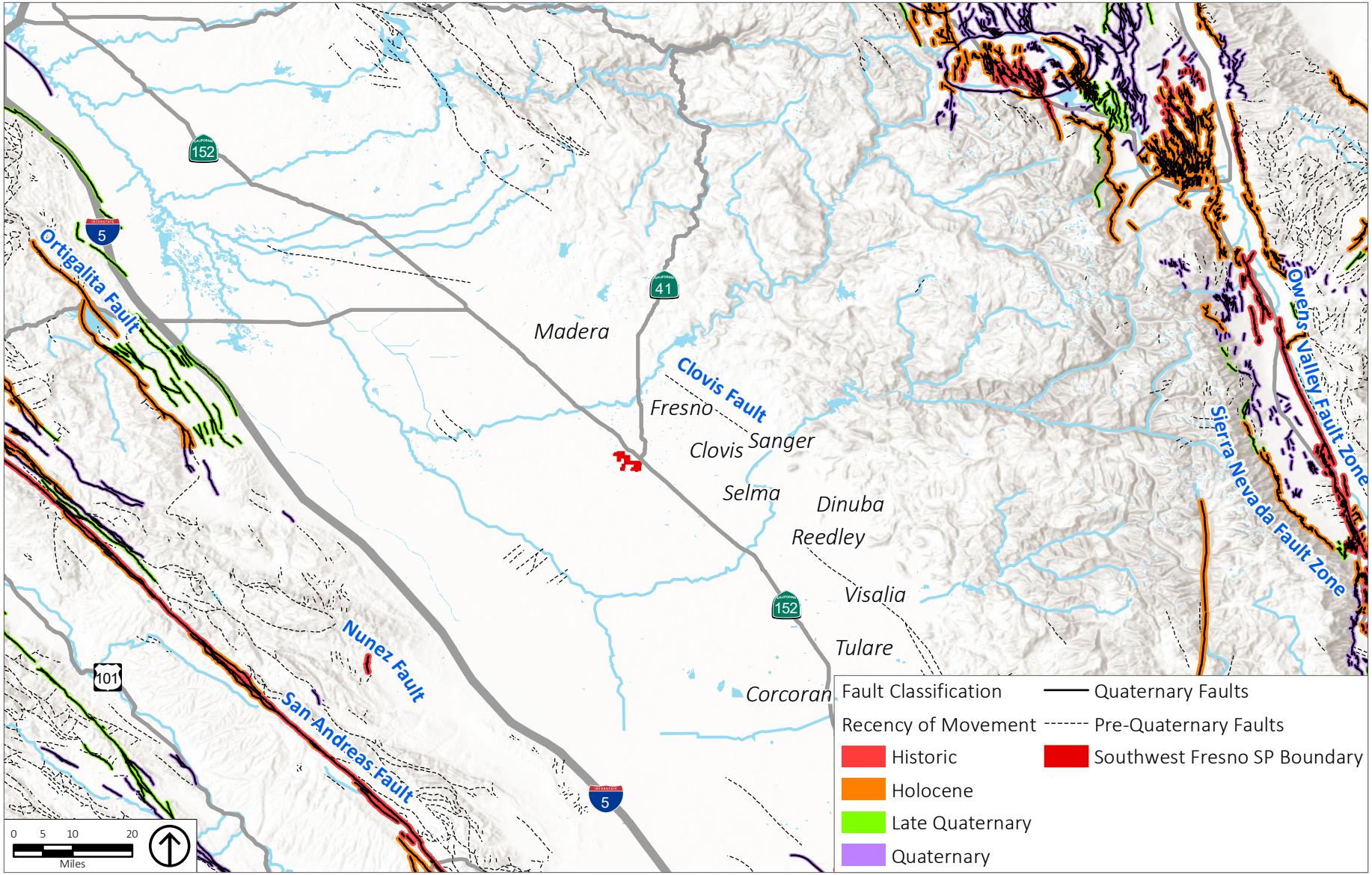
[5] California Geological Survey (CGS), 2016. Fault Activity Map of California (2010), August 18, http://maps.conservation.ca.gov/cgs/fam/, accessed July 11, 2017.

[6] The Sierra Nevada and Owens Valley fault zones are each complex assemblages of fault traces; thus, the distances stated here are rough approximations.

[7] California Geological Survey (CGS), 1985. Special Studies Zones Map Alcalde Hills Quadrangle, http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/ALCALDE_HLLS.PDF, accessed July 12, 2017.

[8] California Geological Survey (CGS), 1965. Fresno Sheet, Geologic Map of California, ftp://ftp.consrv.ca.gov/pub/dmg/pubs/gam/GAM_005_Fresno/GAM_005_Explanation_1965.pdf, accessed July 11, 2017.

[9] US Geological Survey (USGS), 2013. Divisions of Geologic Time, January 9, http://pubs.usgs.gov/fs/2007/3015/, accessed July 11, 2017.



Source: California Geological Survey, 2016; PlaceWorks, 2017.

Figure 4.6-1
Fault Map

- Pleistocene non-marine sedimentary deposits of Riverbank Formation granitic sand, silt, and clay in the San Joaquin Valley.[10] The Pleistocene Epoch extends from about 11,700 to approximately 2.59 million years before present (ybp) (see Figure 4.6-2).[11]

Subsurface Soils in the Fresno Region

Based on the experience of Krazan and Associates, who prepared the Geologic Hazards Investigation for the 2025 Fresno General Plan, approximately the uppermost 6 to 12 inches of soils in the Fresno region are very loose silty sand, silty sand with trace clay, sandy silt, clayey sand, or clayey gravel. These soils are disturbed, have low strength characteristics, and are highly compressible when saturated.

Between approximately 2 to 4 feet below ground surface (bgs), soils are generally loose/soft to very dense/hard clays, silts, sands, and gravels. These soils are typically moderately strong and slightly to moderately compressible.

Below 3 to 5 feet bgs, soils generally consist of clays, silts, sands, and gravels. These soils are typically moderately strong and slightly compressible.[12]

Geologic Hazards

The following description of geologic hazards is based partly on the geological hazards investigation prepared for the Fresno General Plan by Krazan and Associates in 2012. The information presented here is a region-wide summary only and is not indicative of conditions on any development site. Site-specific geotechnical investigations would be required for each development project considered for approval under the proposed Plan.

Strong Ground Shaking

The peak ground acceleration with a 2 percent probability of exceedance in 50 years—that is, an average return period of 2,475 years—ranges from approximately 0.320g on the northeast site boundary to 0.321g at the southeast corner of the site to 0.328g at the northwest corner of the site; g is the acceleration of gravity.[13]

Ground acceleration of 0.328g correlates with intensity VII on the Modified Mercalli Intensity (MMI) Scale, a subjective scale of how earthquakes are felt by people and the effects of earthquakes on buildings.[14] The

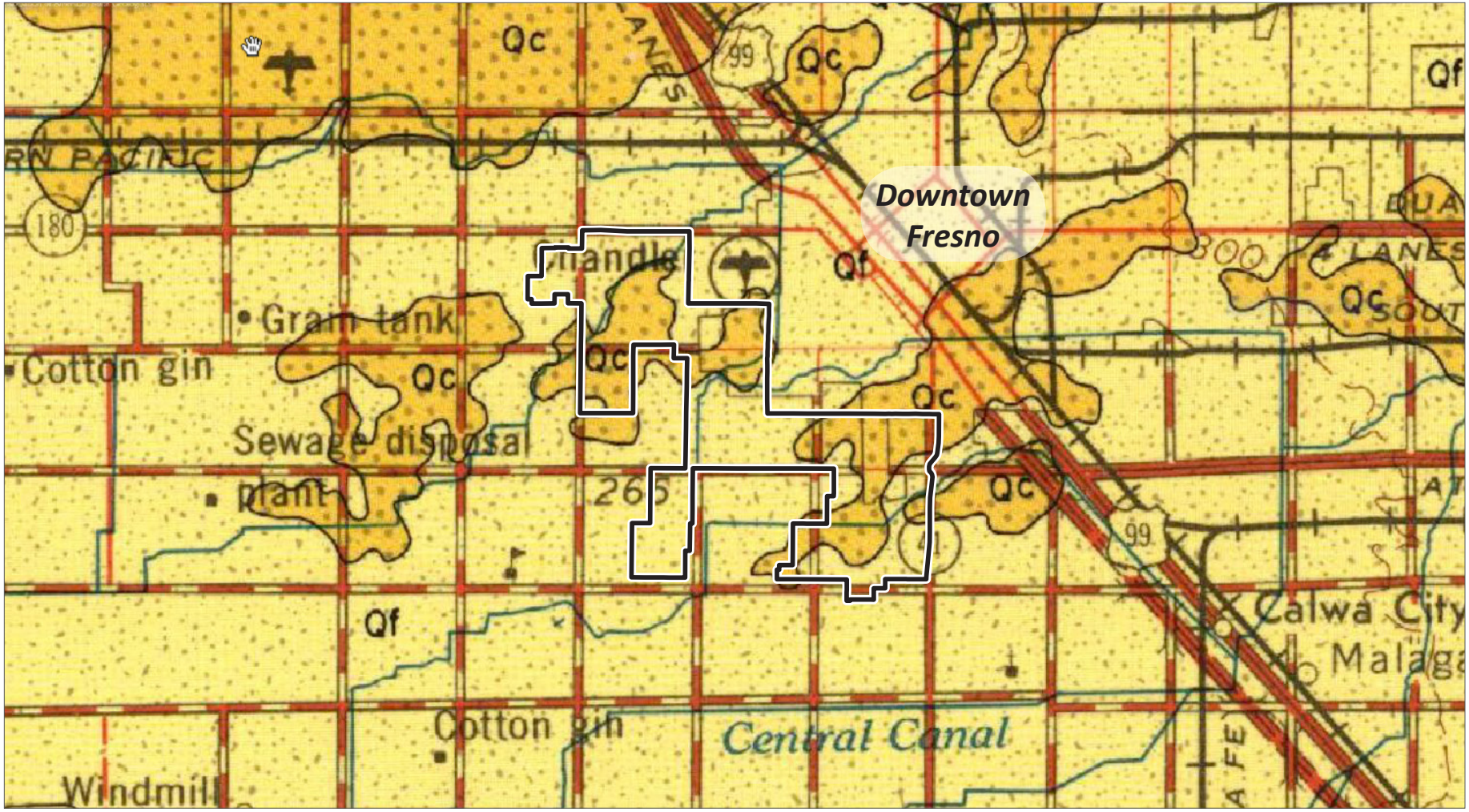
[10] California Geological Survey (CGS), 1965. Fresno Sheet, Geologic Map of California, ftp://ftp.consrv.ca.gov/pub/dmg/pubs/gam/GAM_005_Fresno/GAM_005_Explanation_1965.pdf, accessed July 11, 2017.

[11] US Geological Survey (USGS), 2013. Divisions of Geologic Time, January 9, http://pubs.usgs.gov/fs/2007/3015/.

[12] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[13] California Geological Survey (CGS), 2017b. Ground Motion Interpolator, http://www.quake.ca.gov/gmaps/PSHA/psha_interpolator.html, accessed July 11, 2017.

[14] Wald, David J., et al., 1999. Relationships Between Peak Ground Acceleration, Peak Ground Velocity, and Modified Mercalli Intensity in California. Earthquake Spectra 15 No. 3.



Source: California Geological Survey, 1965.

Southwest Fresno SP Boundary

Qf Granitic sand and silt of Quaternary age – within the last approximately 2.59 million years

Qc Granitic sand, silt, and clay of Pleistocene age – from about 11,700 years before present (ybp) to about 2.59 million ybp

Figure 4.6-2
Geologic Map

MMI Scale is a 12-point scale where Intensity I earthquakes are generally not felt by people and Intensity XII earthquakes result in total damage with objects thrown into the air. In an intensity VII earthquake, some chimneys are broken and damage is negligible in buildings of good design and construction, is slight to moderate in well-built ordinary structures, and considerable in poorly built or badly designed structures.[15]

The Fresno region has historically been subject to low to moderate ground shaking. Two of the historic earthquakes that caused ground shaking in the region, the Owens Valley Earthquake of 1872 and the Coalinga Earthquake of 1983, each generated ground shaking of intensity VII in the region.[16]

The Geologic Hazards Investigation prepared for the Fresno General Plan includes estimated ranges of seismic parameters pursuant to the CBC; seismic parameters must be calculated for each development project.[17]

Liquefaction

Liquefaction refers to loose, saturated sand or silt deposits that behave as a liquid and lose their load-supporting capability when strongly shaken. Loose granular soils and silts that are saturated by relatively shallow groundwater are susceptible to liquefaction.

Soils in the Fresno region range from gravel to sand to silt to clay. Shallow soils—especially within 1 foot of the ground surface— are highly compressible; deeper soils—over 3 to 5 feet bgs—are typically moderately strong and slightly compressible.[18]

In spring 2017, the depth to groundwater under the site ranged from approximately 90 to 100 feet bgs.[19] Groundwater may be found at much shallower depths—all the way to the surface—next to water bodies such as canals, retention ponds, and lakes.[20]

Liquefaction potential in the City of Fresno is considered low to moderate.[21] No liquefaction has been observed in Fresno from any historic earthquake.[22]

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[15] US Geological Survey (USGS), 2017. The Modified Mercalli Intensity Scale, http://earthquake.usgs.gov/learn/topics/mercalli.php, accessed July 11, 2017.

[16] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update. https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[17] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update. https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[18] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update. https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[19] Department of Water Resources, 2017. Groundwater Information Center Map Interactive Map Application, https://gis.water.ca.gov/app/gicima/, accessed July 11, 2017.

[20] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[21] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[22] County of Fresno, 2009. Multi-Hazard Mitigation Plan.

Seismic Ground Settlement

Ground shaking can cause unconsolidated sediments to settle. Due to the nature of the soils underlying the city, and the history of low to moderate ground shaking, seismic settlement is not considered a significant hazard in the region.[23]

Lateral Spreading

Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. Lateral spreading is not considered a substantial hazard in the region for the same reasons given for seismic ground settlement.[24]

Landslides

The Plan Area and surroundings are not subject to landslides, as the site slopes to the southwest with an average grade of about 0.1 percent.

Erosion

Erosion is the movement of soil from place to place, and is a natural process. The main natural agents of erosion in the region are wind and flowing water. Erosion can be accelerated dramatically by ground-disturbing activities if effective erosion control measures are not used. Soil can be carried off construction sites or bare land by wind and water, and tracked off construction sites by vehicles. Sediments can increase the turbidity (cloudiness) of water, clog fish gills, reduce spawning habitat, lower survival rates of young aquatic organisms, smother bottom-dwelling organisms, and suppress aquatic vegetation growth.

The Fresno County Multi-Hazard Mitigation Plan identifies two types of areas with moderate to high erosion potential: 1) certain soil types in the Sierra Nevada and foothills (both Sierra Nevada and Coast Ranges) on slopes generally over 30 percent, and 2) certain soil types in the western San Joaquin Valley and the Coast Ranges, both in western Fresno County. The Plan Area is not mapped in an area of moderate to high erosion potential.[25]
Construction projects 1 acre or larger in area are required to employ construction Best Management Practices (BMPs) —including erosion control BMPs—to minimize pollution of stormwater by construction activity, including pollution with sediment.

Ground Subsidence

The major causes of ground subsidence are the excessive withdrawal of groundwater and the withdrawal of petroleum. The Fresno region is not known to be subject to subsidence hazards. Substantial subsidence

[23] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[24] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[25] County of Fresno, 2009. Multi-Hazard Mitigation Plan.

has occurred elsewhere in the San Joaquin Valley: up to 28 feet in western Fresno County in the western edge of the San Joaquin Valley; more than 12 feet in southwestern Tulare County; and more than 8 feet in Kern County south of Bakersfield.[26] Areas of subsidence in Fresno County mapped in the Multi-Hazard Mitigation Plan are in western Fresno County over 20 miles west and southwest from the Plan Area.[27]

Collapsible Soils

Collapsible soils shrink upon being wetted and/or being subject to a load. Shallow soils on-site—to depths of at least 3 to 5 feet bgs —are expected to be compressible to varying degrees, with compressibility generally increasing nearer the surface.[28]

Expansive Soils

Expansive soils contain substantial amounts of clay that swells when wetted and shrinks when dried; the swelling or shrinking can shift, crack, or break structures built on such soils. Soils underlying the Fresno region consist partly of clays that are considered slightly to moderately expansive.[29] The Plan Area is not mapped as having moderate to high expansion potential.[30]

4.6.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact to geology and soils if it would:

1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    i) 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. (Refer to Division of Mines and Geology Special Publication 42.)
    ii) Strong seismic ground shaking.
    iii) Seismic-related ground failure, including liquefaction.
    iv) 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.

[26] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.
[27] County of Fresno, 2009. Multi-Hazard Mitigation Plan.
[28] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.
[29] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.
[30] County of Fresno, 2009. Multi-Hazard Mitigation Plan.

4. Be located on expansive soil, as defined in Table 18-1B of the Uniform building Code (1994), creating substantial risks to life or property.
5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

4.6.3 IMPACT DISCUSSION

The impact analysis is based partly on the geological hazards investigation prepared for the Fresno General Plan by Krazan and Associates in 2012. That investigation is a region-wide summary only and is not indicative of conditions on any development site. Site-specific geotechnical investigations would be required for each development project considered for approval under the proposed Plan.

GEO-1	**Development under the proposed Plan would not subject people or structures to hazards from surface rupture of a known active fault.**

Buildout of the proposed Plan would not subject people or structures to hazards from surface rupture of a known active fault. The closest known active fault to the Plan Area is the Nunez Fault about 50 miles to the southwest; the nearest Alquist-Priolo Earthquake Fault Zone to the site is along the Nunez Fault. *No impact* would occur due to the distance of the Plan Area from the nearest known active fault.

Significance Without Mitigation: No Impact.

GEO-2	**Ground shaking can be expected to occur within the design lifetimes of buildings that would be constructed under the proposed Plan. Such developments would comply with building codes then in effect. Buildout of the proposed Plan would not subject people or structures to substantial hazards from ground shaking.**

Ground shaking is likely to occur within the design lifetimes of buildings that would be constructed under the proposed Plan.

There are several active faults within about 90 miles of the Plan Area, including the Nunez Fault about 50 miles to the southwest; the Ortigalita Fault about 59 miles to the west; the San Andreas Fault approximately 65 miles to the southwest; the Sierra Nevada Fault Zone about 83 miles to the east; and the Owens Valley Fault Zone about 91 miles to the east.

The Fresno region has historically been subject to low to moderate ground shaking. Two of the historic earthquakes that caused ground shaking in the region, the Owens Valley Earthquake of 1872 and the Coalinga Earthquake of 1983, each generated ground shaking of Intensity VII in the region.[31]

[31] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

The peak ground acceleration with a 2 percent probability of exceedance in 50 years—that is, an average return period of 2,475 years—ranges from approximately 0.320g on the northeast site boundary to 0.321g at the southeast corner of the site to 0.328g at the northwest corner of the site; g is the acceleration of gravity.[32]

Developments built under the proposed Plan would be designed and built conforming to CBC seismic safety standards, which are based on factors such as occupancy type, the types of soil and rock on-site, and the strength of ground motion with a specified probability at the site. The CBC is updated on a three-year cycle; the current 2016 CBC took effect in January 2017.

Geotechnical investigations would be required for certain categories of projects considered for approval under the proposed Plan. Each geotechnical investigation would estimate seismic design parameters for its Plan Area based on site-specific geologic and soil conditions and the types of building occupancies proposed.

Impacts from ground shaking would be *less than significant* after compliance with the CBC and with seismic design parameters to be estimated in project-specific geotechnical investigations.

Significance Without Mitigation: Less than significant.

GEO-3	**Buildout of the proposed Plan would subject people and structures to hazards from seismic-related ground failure including liquefaction.**

Liquefaction

Liquefaction refers to loose, saturated sand or silt deposits that behave as a liquid and lose their load-supporting capability when strongly shaken. Liquefaction potential in the City of Fresno is considered low to moderate.[33] No liquefaction from historic earthquakes has been observed in Fresno.[34]

Buildings constructed under the proposed Plan could be subject to liquefaction. Geotechnical investigations would be required for certain categories of projects approved under the proposed Plan. Each geotechnical investigation would assess liquefaction potential on its Plan Area; and would provide needed recommendations, such as for foundation design, to minimize hazards arising from liquefaction.

Seismic Ground Settlement

Seismic settlement is not considered a significant hazard in the Fresno region due to the nature of the underlying soils and the history of low to moderate ground shaking.

[32] California Geological Survey (CGS), 2017b. Ground Motion Interpolator, http://www.quake.ca.gov/gmaps/PSHA/psha_interpolator.html, accessed July 11, 2017.

[33] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[34] County of Fresno, 2009. Multi-Hazard Mitigation Plan.

Geotechnical investigations for projects developed under the proposed Plan would assess the potential for soil settlement—including seismic settlement—on the affected project sites, and provide needed recommendations to minimize hazards arising from such settlement.

Lateral Spreading

Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. Lateral spreading is not considered a substantial hazard in the Fresno region for the same reasons pertaining to seismic ground settlement.

Geotechnical investigations for projects considered for approval under the proposed Plan would include site-specific assessments of the potential for seismic ground failure, and would provide needed recommendations—such as for remedial grading and/or foundation design—to minimize any ensuing hazards.

Therefore, buildout of the proposed Plan would not subject people and structures to hazards from seismic-related ground failure including liquefaction, and impacts would be *less than significant.*

Significance Without Mitigation: Less than significant.

GEO-4	**The Plan Area and surroundings are nearly level, with a southwest slope of about 0.1 percent grade. Buildout of the proposed Plan would not subject people or structures to landslide hazards.**

Implementation of the proposed Plan would not subject people or structures to landslide hazards. The site and surroundings are nearly level, with a southwest slope of about 0.1 percent grade; and thus are not subject to landslides. *No impact* would occur.

Significance Without Mitigation: No Impact.

GEO-5	**Construction projects under the proposed Plan would disturb and expose large amounts of soil, thus dramatically increasing the potential for soil erosion on-site. Construction projects 1 acre or larger would be required to use Best Management Practices (BMPs) to minimize erosion from the site.**

Construction of projects approved under the proposed Plan would greatly increase the potential for soil erosion on-site through disturbing and exposing large amounts of soil.

Construction projects of 1 acre or more would be required to comply with the General Construction Permit, Order No. 2012-0006-DWQ, issued by the State Water Resources Control Board (SWRCB) in 2012. Projects obtain coverage by developing and implementing a Storm Water Pollution Prevention Plan (SWPPP) estimating sediment risk from construction activities to receiving waters, and specifying BMPs

that would be used by the project to minimize pollution of stormwater. There are several categories of construction BMPs. The following four categories of construction BMPs are relevant to erosion control:

- Erosion Controls: Cover and/or bind soil surface, to prevent soil particles from being detached and transported by water or wind. Examples include mulch, geotextiles, mats, hydroseeding, earth dikes, and swales.
- Sediment Controls: Filter out soil particles that have been detached and transported in water. Examples include barriers such as straw bales, sandbags, fiber rolls, and gravel bag berms; desilting basin; and cleaning measures such as street sweeping.
- Tracking Controls: Minimize the tracking of soil off-site by vehicles. Examples include stabilized construction roadways and construction entrances/exits, and entrance/outlet tire wash.
- Waste Management and Controls (housekeeping): Management of materials and wastes to avoid contamination of stormwater. Examples include spill prevention and control, stockpile management, and management of solid wastes and hazardous wastes.[35]

Construction-related impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

GEO-6 Buildout of the proposed Plan would not subject people or structures to substantial hazards from ground subsidence.

The Fresno region is not known to be subject to subsidence hazards.[36] Buildout of the proposed Plan would not expose people or structures to substantial hazards from ground subsidence, and impacts would be *less than significant.*

Significance Without Mitigation: Less than significant.

GEO-7 Shallow site soils are expected to be compressible and unsuitable for supporting structures for human occupancy. Implementation of the proposed Plan could pose hazards to people and structures arising from compressible soils.

Collapsible soils shrink upon being wetted and/or being subject to a load. Shallow soils on-site—to depths of at least 3 to 5 feet bgs—are expected to be compressible to varying degrees, with compressibility generally greater nearer the surface.[37]

[35] California Stormwater Quality Association (CASQA), 2003. Stormwater Best Management Practice Handbook: Construction, January.

[36] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

Applicants for certain categories of projects would be required to have geotechnical studies conducted for their projects before the City of Fresno would issue building permits for those projects. Each geotechnical study would evaluate whether site soils were suitable for supporting the proposed structures. Each project applicant would be required to comply with the recommendations of the applicable geotechnical investigation report. Such reports usually conclude that at least the top few feet of soil are unsuited for supporting structures, and recommend removing such soils and replacing them with engineered, moistened, and compacted fill soils. Therefore, buildout of the proposed Plan would not pose hazards to people and structures arising from compressible soils, and impacts would be *less than significant.*

Significance Without Mitigation: Less than significant.

GEO-8	**Expansive soils may be present on-site, and buildout of the proposed Plan could pose hazards to people or structures arising from expansive soils.**

Expansive soils contain substantial amounts of clay that swells when wetted and shrinks when dried; the swelling or shrinking can shift, crack, or break structures built on such soils. Soils underlying the Fresno region consist partly of clays that are considered slightly to moderately expansive.[38] The Plan Area is not mapped as having moderate to high expansion potential.[39]

Development of projects under the proposed Plan could expose people or structures to hazards arising from expansive soils.

Geotechnical investigations would be required for certain categories of projects approved under the proposed Plan. Each such investigation would include testing of subsurface soil samples for expansion potential, and would provide recommendations for minimizing any identified hazards related to expansive soils. Developers would be required to comply with recommendations in geotechnical investigation reports for affected projects. Therefore, buildout of the proposed Plan would not pose hazards to people and structures arising from expansive soils, and impacts would be *less than significant.*

Significance Without Mitigation: Less than significant.

GEO-9	**Buildout of the proposed Plan would not add land uses to the Plan Area relying on septic tanks or other alternative wastewater disposal systems, and thus would have a less-than-significant impact respecting soils incapable of supporting such systems.**

[37] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[38] Krazan and Associates, Inc., 2012. Geologic Hazards Investigation, Fresno General Plan Update, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/E-1-Geologic-Hazards-Investigation.pdf, accessed July 11, 2017.

[39] County of Fresno, 2009. Multi-Hazard Mitigation Plan.

The proposed Plan includes several proposed sewer improvements, and would require developers to build, or contribute toward design and construction, of sewers sufficient to convey wastewater generation at buildout of the proposed Plan. Implementation of the proposed Plan would not add land uses relying on septic tanks or other alternative wastewater disposal systems. Thus, buildout of the proposed Plan would have a *less-than-significant* impact respecting soils incapable of supporting septic tanks or other alternative wastewater disposal systems.

Significance Without Mitigation: Less than significant.

4.6.4 CUMULATIVE IMPACTS

GEO-10	**No significant cumulative impacts to geology and soils are anticipated, and impacts of buildout of the proposed Plan would not be cumulatively considerable.**

The area considered for cumulative impacts to geology and soils is the City of Fresno and its SOI, the area studied by the Geological Hazards Investigation used in this Section.

Due to the site-specific nature of geological conditions (i.e., soils, geological features, seismic features, etc.), geology and soils impacts are typically assessed on a project-by-project basis, rather than on a cumulative basis.

Seismic hazards affecting other projects are expected to be moderate due to the low to moderate historic ground shaking in the region, and the distance to known active faults. Other projects would comply with CBC seismic safety requirements, and would have project-specific geotechnical investigations conducted and comply with recommendations in the reports of such investigations. The region bears little to no susceptibility to some seismic hazards: to surface rupture of a known active fault due to the lack of such faults in the region; and to seismic ground settlement and lateral spreading due to the nature of the soils underlying the city and the history of low to moderate ground shaking.

Preparation of geotechnical investigation reports and compliance with recommendations in such reports would also minimize other geologic hazards, such as ground subsidence, collapsible soils, and expansive soils, for other projects. Therefore, buildout of the proposed Plan would result in a *less-than-significant* cumulative impact.

Significance Without Mitigation: Less than significant.

4.7 GREENHOUSE GAS EMISSIONS

This chapter evaluates the potential for land use changes associated with adopting and implementing the Southwest Fresno Specific Plan (proposed Plan) to cumulatively contribute to greenhouse gas (GHG) emissions. Because no single project is large enough individually to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are considered on a cumulative basis. This analysis is based on the methodology recommended by the San Joaquin Valley Air Pollution Control District (SJVAPCD). GHG emissions are based on average daily trip (ADT) generation and vehicle miles traveled (VMT) data provided by Fehr and Peers for the on-road transportation emissions section (see Appendix G). The GHG emissions modeling is included in Appendix C, Air Quality and Greenhouse Gas Data, of this Draft EIR.

4.7.1 ENVIRONMENTAL SETTING

4.7.1.1 GREENHOUSE GASES AND CLIMATE CHANGE

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHGs, to the atmosphere. The primary source of these GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHGs identified by the IPCC that contribute to global warming to a lesser extent are nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.[1,2,3] The major GHGs are briefly described below.

- Carbon dioxide (CO_2) enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

[1] Water vapor (H_2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, because it is considered part of the feedback loop rather than a primary cause of change.

[2] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (California Air Resources Board. 2017, March 14. Final Proposed Short-Lived Climate Pollutant Reduction Strategy. https://www.arb.ca.gov/cc/shortlived/shortlived.htm). However, state and national GHG inventories do not include black carbon yet due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

[3] Intergovernmental Panel on Climate Change (IPCC). 2001. *Third Assessment Report: Climate Change 2001*. New York: Cambridge University Press.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.
- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during the combustion of fossil fuels and solid waste.
- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.
  - *Chlorofluorocarbons (CFCs)* are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down the ozone layer. These gases are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.
  - *Perfluorocarbons (PFCs)* are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced as alternatives, along with hydrofluorocarbons (HFCs), to ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high GWP.
  - *Sulfur Hexafluoride (SF_6)* is a colorless gas soluble in alcohol and ether, and slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.
  - *Hydrochlorofluorocarbons (HCFCs)* contain hydrogen, fluorine, chlorine, and carbon atoms. Although they are ozone-depleting substances, they are less potent than CFCs. They have been introduced as temporary replacements for CFCs.
  - *Hydrofluorocarbons (HFCs)* contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs.[4,5]

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have a stronger greenhouse effect than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 4.7-1. The GWP is used to convert GHGs to CO_2-equivalence (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Fourth Assessment Report (AR4) GWP

[4] Intergovernmental Panel on Climate Change (IPCC). 1996. *Second Assessment Report: Climate Change 1995*.
[5] United States Environmental Protection Agency (EPA), 2017. Greenhouse Gas Emissions, http://www.epa.gov/climatechange/ghgemissions/gases.html.

TABLE 4.7-1 GHG EMISSIONS AND THEIR RELATIVE GLOBAL WARMING POTENTIAL COMPARED TO CO_2

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO_2[a]	Fourth Assessment Report Global Warming Potential Relative to CO_2[a]
Carbon Dioxide (CO_2)	50 to 200	50 to 200	1	1
Methane[b] (CH_4)	12 (±3)	12	21	25
Nitrous Oxide (N_20)	120	114	310	298
Hyrofluorocarbons				
HFC-23	264	270	11,700	14,800
HFC-32	5.6	4.9	650	675
HFC-125	32.6	29	2,800	3,500
HFC-134a	14.6	14	1,300	1,430
HFC-143a	48.3	52	3,800	4,470
HFC-152a	1.5	1.4	140	124
HFC-227ea	36.5	34.2	2,900	3,220
HFC-236fa	209	240	6,300	9,810
HFC-4130mee	17.1	15.9	1,300	1,030
Perfluoromethane: CF_4	50,000	50,000	6,500	7,390
Perfluoroethane: C_2F_6	10,000	10,000	9,200	12,200
Perfluorobutane: C_4F_{10}	2,600	NA	7,000	8,860
Perfluoro-2-methylpentane: C_6F_{14}	3,200	NA	7,400	9,300
Sulfur Hexafluoride (SF_6)	3,200	NA	23,900	22,800

Note: The IPCC has published updated global warming potential (GWP) values in its Fifth Assessment Report that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2.(Intergovernmental Panel on Climate Change, 2013. Fifth Assessment Report: Climate Change 2013, New York: Cambridge University Press.) The 2014 Scoping Plan Update was based on the GWP values in the Fourth Assessment Report.
a. Based on 100-year time horizon of the GWP of the air pollutant compared to CO_2.
b. The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.
Source: Intergovernmental Panel on Climate Change. 1996. Second Assessment Report: Climate Change 1995; Intergovernmental Panel on Climate Change. 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press.

values for CH_4, a project that generates 10 metric tons (MT) of CH_4 would be equivalent to 250 MT of CO_2.[6]

California's GHG Sources and Relative Contribution

California is the 20th largest GHG emitter in the world and the 2nd largest emitter of GHG emissions in the United States, surpassed only by Texas.[7] However, California also has over 12 million more people than Texas. Because of more stringent air emission regulations, in 2014, California ranked third lowest in energy-related carbon emissions per capita.[8]

In 2016, the Statewide GHG emissions inventory was updated for 2000 to 2014 emissions using the AR4 GWPs.[9] Based on these GWPs, California produced 442 million metric tons (MMT) of CO_2e GHG emissions in 2014. California's transportation sector remains the single largest generator of GHG emissions, producing 36.1 percent of the State's total emissions; industrial sector emissions made up 21.1 percent, and electric power generation made up 20.0 percent. Other major sectors of GHG emissions include commercial and residential (8.7 percent), agriculture (8.2 percent), high-GWP GHGs (3.9 percent), and recycling and waste (2.0 percent).[10]

Human Influence on Climate Change

For approximately 1,000 years before the Industrial Revolution, the amount of GHGs in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate and the quantity of climate change pollutants in the Earth's atmosphere that is attributable to human activities. The amount of CO_2 in the atmosphere has increased by more than 35 percent since preindustrial times and has increased at an average rate of 1.4 parts per million per year since 1960, mainly due to combustion of fossil fuels and deforestation.[11] These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants.[12] In the past, gradual changes in the earth's temperature changed the distribution of species,

[6] CO_2-equivalence is used to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

[7] California Air Resources Board (CARB), 2014. California Greenhouse Gas Inventory for 2000–2012: By Category as Defined by the Scoping Plan. http://www.arb.ca.gov/cc/inventory/data/data.htm.

[8] US Energy Information Administration. 2014. Rankings: Total Carbon Dioxide Emissions 2014. Website accessed on July 3, 2017 at http://www.eia.gov/state/rankings/#/series/226.

[9] Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32 (2006).

[10] California Air Resources Board (CARB), 2016. 2016 Edition California Greenhouse Gas Inventory for 2000-2014: By Category as Defined in the 2008 Scoping Plan. http://www.arb.ca.gov/cc/inventory/data/data.htm.

[11] Intergovernmental Panel on Climate Change (IPCC), 2007. *Fourth Assessment Report: Climate Change 2007*. New York: Cambridge University Press.

[12] California Climate Action Team, 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature.

availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime.[13]

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are also hard to predict. Projections of climate change depend heavily upon future human activity. Therefore, climate models are based on different emission scenarios that account for historical trends in emissions and on observations of the climate record that assess the human influence of the trend and projections for extreme weather events. Climate-change scenarios are affected by varying degrees of uncertainty. For example, there are varying degrees of certainty on the magnitude of the trends for:

- Warmer and fewer cold days and nights over most land areas.
- Warmer and more frequent hot days and nights over most land areas.
- An increase in frequency of warm spells/heat waves over most land areas.
- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over most areas.
- Larger areas affected by drought.
- Intense tropical cyclone activity increases.
- Increased incidence of extreme high sea level (excluding tsunamis).

Potential Climate Change Impacts for California

Observed changes over the last several decades across the western United States reveal clear signs of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada. By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase from 4.1 to 8.6°F, depending on emissions levels.[14]

In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures; 2) a smaller fraction of precipitation falling as snow; 3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones; 4) a shift in the timing of snowmelt of 5 to 30 days earlier in the spring; and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms.[15] According to the California Climate Action Team—a committee of State agency secretaries and the heads of agencies, boards, and departments, led by the Secretary of the California Environmental Protection Agency—even if actions could be taken to

[13] Intergovernmental Panel on Climate Change (IPCC), 2007. *Fourth Assessment Report: Climate Change 2007*. New York: Cambridge University Press.

[14] California Climate Change Center, 2012. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California.

[15] California Climate Action Team, 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature.

immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 4.7-1), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are shown in Table 4.7-2 and include impacts to public health, water resources, agriculture, coastal sea level, forest and biological resources, and energy impacts.

TABLE 4.7-2 SUMMARY OF GHG EMISSIONS RISKS TO CALIFORNIA

Impact Category	Potential Risks
Public Health Impacts	Heat waves will be more frequent, hotter, and longer Fewer extremely cold nights Poor air quality made worse Higher temperature increase ground-level ozone levels
Water Resource Impacts	Decreasing Sierra Nevada snow pack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation
Agricultural Impacts	Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests
Coastal Sea Level Impacts	Accelerated sea level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure
Forest and Biological Resource Impacts	Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pest and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species

Source: California Energy Commission. 2006a. Our Changing Climate: Assessing the Risks to California. 2006 Biennial Report, California Climate Change Center. CEC-500-2006-077; California Energy Commission. 2009, May. The Future Is Now: An Update on Climate Change Science, Impacts, and Response Options for California. CEC-500-2008-0077; California Climate Change Center. 2012, July. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California; California Natural Resources Agency. 2014, July. Safeguarding California: Reducing Climate Risk, An Update to the 2009 California Climate Adaptation Strategy.

Specific climate change impacts that could affect the project include:

- **Water Resources Impacts.** By late this century, all projections show drying, and half of the projections suggest 30-year average precipitation will decline by more than 10 percent below the historical average. This drying trend is caused by an apparent decline in the frequency of rain and snowfall. Even

in projections with relatively small or no declines in precipitation, central and southern parts of the State can be expected to be drier from the warming effects alone—the spring snowpack will melt sooner, and the moisture in soils will evaporate during long dry summer months.[16]

- Wildfire Risks. Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. Human activities will continue to be the biggest factor in ignition risk. The number of large fires Statewide is estimated to increase from 58 percent to 128 percent above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57 percent to 169 percent, depending on location.[17]
- Health Impacts. Many of the gravest threats to public health in California stem from the increase of extreme conditions, principally more frequent, more intense, and longer heat waves. Particular concern centers on the increasing tendency for multiple hot days in succession and heat waves occurring simultaneously in several regions throughout the State. Public health could also be affected by climate change impacts on air quality, food production, the amount and quality of water supplies, energy pricing and availability, and the spread of infectious diseases. Higher temperatures also increase ground-level ozone levels. Furthermore, wildfires can increase particulate air pollution in the major air basins of California.[18]
- Increase Energy Demand. Increases in average temperature and higher frequency of extreme heat events combined with new residential development across the State will drive up the demand for cooling in the increasingly hot and longer summer season and decrease demand for heating in the cooler season. Warmer, drier summers also increase system losses at natural gas plants (reduced efficiency in the electricity generation process at higher temperatures) and hydropower plants (lower reservoir levels). Transmission of electricity will also be affected by climate change. Transmission lines lose 7 percent to 8 percent of transmitting capacity in high temperatures while needing to transport greater loads. This means that more electricity needs to be produced to make up for the loss in capacity and the growing demand.[19]

[16] California Climate Change Center, 2012. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California.

[17] California Climate Change Center, 2012. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California.

[18] California Climate Change Center, 2012. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California.

[19] California Climate Change Center, 2012. Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California.

4.7.1.2 REGULATORY FRAMEWORK

This section describes the federal, State, and local regulations applicable to GHG emissions.

Federal Regulations

The U.S. Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings did not themselves impose any emission reduction requirements, but allowed the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.[20]

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions and, per San Joaquin Valley Air Pollution Control District (SJVAPCD) guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

US Mandatory Report Rule for GHGs (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO_2e per year are required to submit an annual report.

Update to Corporate Average Fuel Economy Standards (2010/2012)

The current Corporate Average Fuel Economy standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the national program to also be deemed in compliance with State requirements. The federal government issued new standards in 2012 for model years 2017–2025 that will require a fleet average of 54.5 miles per gallon in 2025. However, the EPA is reexamining the 2017–2025 emissions standards.

[20] US Environmental Protection Agency (EPA), 2009. EPA: Greenhouse Gases Threaten Public Health and the Environment: Science overwhelmingly shows greenhouse gas concentrations at unprecedented levels due to human activity. https://yosemite.epa.gov/opa/admpress.nsf/0/08d11a451131bca585257685005bf252.

EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new stationary sources such as power plants, refineries, and other large sources of emissions. Pursuant to former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources also. However, the EPA is reviewing the Clean Power Plan under President Trump's Energy Independence Executive Order.

State Regulations

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-03-05 and B-30-15, Assembly Bill 32 (AB 32), Senate Bill 32 (SB 32), and SB 375.

Executive Order S-03-05

Executive Order S-03-05, signed June 1, 2005, set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

Assembly Bill 32, the Global Warming Solutions Act (2006)

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in the Global Warming Solutions Act. AB 32 was passed by the California State legislature on August 31, 2006, to place the State on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-03-05.

CARB 2008 Scoping Plan

The final Scoping Plan was adopted by CARB on December 11, 2008. The *2008 Scoping Plan* identified that GHG emissions in California are anticipated to be approximately 596 $MMTCO_2e$ in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 $MMTCO_2e$ (471 million tons) for the State.[21] In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 $MTCO_2e$ per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

First Update to the Scoping Plan

CARB completed a five-year update to the 2008 Scoping Plan, as required by AB 32. The First Update to the Scoping Plan was adopted at the May 22, 2014, board hearing. The update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the original 2008

[21] California Air Resources Board (CARB), 2008. Climate Change Proposed Scoping Plan: A Framework for Change.

Scoping Plan. As part of the update, CARB recalculated the 1990 GHG emission levels with the updated AR4 GWPs, and the 427 $MMTCO_2e$ 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, is slightly higher at 431 $MMTCO_2e$.[22]

As identified in the Update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, the update also addresses the State's longer-term GHG goals within a post-2020 element. The post-2020 element provides a high level view of a long-term strategy for meeting the 2050 GHG goals, including a recommendation for the State to adopt a midterm target. According to the Update to the Scoping Plan, local government reduction targets should chart a reduction trajectory that is consistent with or exceeds the trajectory created by Statewide goals.[23] CARB identified that reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit.[24]

Executive Order B-30-15

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions within the State to 40 percent of 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the State and requires State agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaption strategy, Safeguarding California, in order to ensure climate change is accounted for in State planning and investment decisions.

Senate Bill 32 and Assembly Bill 197

In September 2016, Governor Brown signed Senate Bill 32 and Assembly Bill 197 into law, making the Executive Order goal for year 2030 into a Statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direction emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

2017 Climate Change Scoping Plan Update

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the State. On January 20, 2017, CARB released the *Draft 2017 Climate Change Scoping Plan Update* with adoption hearings planned for summer of 2017. The *Draft 2017 Climate Change*

[22] California Air Resources Board (CARB), 2014. First Update to the Climate Change Scoping Plan: Building on the Framework. http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

[23] California Air Resources Board (CARB), 2014. First Update to the Climate Change Scoping Plan: Building on the Framework. http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

[24] California Air Resources Board (CARB), 2014. First Update to the Climate Change Scoping Plan: Building on the Framework. http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

Scoping Plan Update includes the potential regulations and programs, including strategies consistent with AB 197 requirements to achieve the 2030 target. The 2017 Scoping Plan establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.[25]

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will include enhanced focus on zero- and near-zero emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conserve agricultural and other lands. Requirements for direct GHG reductions at refineries will further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20 percent reduction in GHG emissions from refineries by 2030.[26]
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the *2017* Scoping Plan also identified local governments as essential partners in achieving the State's long-term GHG reduction goals and identified local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local

[25] California Air Resources Board (CARB), 2017. The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

[26] The plan includes policies to require direct GHG reductions at some of the state's largest stationary sources and mobile sources in accordance with AB 197. These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and-Trade Program, which constrains and reduces emissions at covered sources.

governments achieve a communitywide goal to achieve emissions of no more than 6 $MTCO_2e$ or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. For CEQA projects, CARB States that lead agencies may develop evidenced-based bright-line numeric thresholds—consistent with the Scoping Plan and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and mitigation measures that avoid or minimize project emissions to the degree feasible, or a performance-based metric using a climate action plan or other plan to reduce GHG emissions as appropriate.

The Scoping Plan scenario is set against what is called the business-as-usual (BAU) yardstick—that is, what the GHG emissions would look like if the State did nothing at all beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 4.7-3. It includes the existing renewables requirements, advanced clean cars, the "10 percent" Low Carbon Fuel Standard (LCFS), and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years, Also shown in the table, the known commitments are expected to result in emissions that are 50 $MMTCO_2e$ above the target in 2030. In order to make up the difference, a new Post- 2020 Cap-and-Trade Program and refinery measure are key components of the 2017 Scoping Plan.

TABLE 4.7-3 2017 CLIMATE CHANGE SCOPING PLAN EMISSIONS REDUCTIONS GAP TO ACHIEVE THE 2030 GHG TARGET

Modeling Scenario	2030 GHG Emissions $MMTCO_2e$
Reference Scenario (Business-as-Usual)	392
With Known Contaminants	310
2030 GHG Target	260

Source: California Air Resources Board. 2017, January 20. The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

Table 4.7-4 provides estimated GHG emissions by sector at 1990 levels, and the range of emissions for each sector estimated for 2030.

Senate Bill 1383

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and CH_4. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 requires the State board, no later than January 1, 2018, to approve and begin implementing that comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030, as specified. The bill also establishes targets for reducing organic waste in landfill. On March 14, 2017, CARB adopted the "Final Proposed Short-Lived Climate Pollutant

TABLE 4.7-4 2017 CLIMATE CHANGE SCOPING PLAN EMISSIONS REDUCTIONS CHANGE BY SECTOR TO ACHIEVE THE 2030 TARGET

Scoping Plan Sector	1990 MMTCO2e	2030 Proposed Plan Ranges MMTCO2e	Percent Change from 1990
Agricultural	26	24-25	-4% to -8%
Residential and Commercial	44	38–40	-9% to -14%
Electric Power	108	42–62	-43% to -61%
High GWP	3	8–11	167% to 267%
Industrial	98	77–87	-11% to -21%
Recycling and Waste	7	8–9	14% to 29%
Transportation (including TCU)	152	103–111	-27% to -32%
Net Sink[a]	-7	TBD	TBD
Sub Total	431	300–345	-20% to -30%
Cap-and-Trade Program	NA	40–85	NA
Total	431	260	-40%

Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.
a. Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.
Source: California Air Resources Board. 2017, January 20. The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

Strategy," which identifies the State's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s despite the tripling of diesel fuel use.[27] In-use on-road rules are expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020.

Senate Bill 375

In 2008, SB 375 was adopted to achieve the GHG reduction targets in the Scoping Plan for the transportation sector through local land use decisions that affect travel behavior. Implementation is intended to reduce VMT and GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations with local land use planning. Specifically, SB 375 requires CARB to establish GHG

[27] California Air Resources Board (CARB). 2017, March 14. Final Proposed Short-Lived Climate Pollutant Reduction Strategy. https://www.arb.ca.gov/cc/shortlived/shortlived.htm.

emissions reduction targets for each of the 18 metropolitan planning organizations (MPO). Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SB 375 requires CARB to periodically update the targets, no later than every 8 years. CARB plans to propose updated targets for consideration in 2016, with the intent to make them effective in 2018. Sustainable communities strategies (SCS) adopted in 2018 would be subject to the updated targets.[28]

The Fresno Council of Governments (Fresno COG) is the MPO for the County of Fresno and the City of Fresno. In September 2010, CARB set per capita GHG emissions reduction targets for 2020 and 2035 for the MPOs, except the MPOs in the San Joaquin Valley region (which includes Fresno COG). CARB identified a provisional target for the entire San Joaquin Valley region because the eight MPOs in the San Joaquin Valley region are anticipated to absorb 22 percent of California's population growth. On December 14, 2012, CARB adopted a target recommendation for the eight MPOs in the San Joaquin Valley on an aggregate, valleywide basis—5 percent per capita GHG reduction in 2020 from 2005 levels and a 10 percent per capita GHG reduction in 2035 from 2005 levels. Therefore, an individual target is not proposed for Fresno COG.[29]

The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 has been defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's existing transportation network. The targets would result in 3 $MMTCO_2e$ of GHG reductions Statewide by 2020 and 15 $MMTCO_2e$ of GHG reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met.[30]

CARB is currently in the process of updating the next round of targets and methodology to comply with the requirement that targets are updated every eight years. Considerations for the next round of targets include whether to change the nature or magnitude of the emissions reduction targets for each of the MPOs. Additionally, CARB is also considering whether the target setting methodology should account for advances in technology that reduces emissions. The latter change in methodology would permit cities to account for emissions reductions from advances in cleaner fuels and vehicles and not only from land use and transportation planning strategies. In March 2017, CARB held a series of workshops regarding the SB 375 target update process, and updated targets adopted in 2017 are intended to become effective in 2018. Sustainable communities strategies (SCS) adopted in 2018 would be subject to the updated targets.[31]

[28] California Air Resources Board (CARB), 2015. ARB Process and Schedule for SB 375 Target Update. http://www.arb.ca.gov/cc/sb375/sb375.htm.

[29] California Air Resources Board (CARB), 2013. Staff Report Update on Senate Bill 375 Implementation in the San Joaquin Valley. http://www.arb.ca.gov/cc/sb375/finalstaffreport_011513.pdf.

[30] California Air Resources Board (CARB), 2010. Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375. Staff Report.

[31] California Air Resources Board (CARB), 2015. ARB Process and Schedule for SB 375 Target Update. http://www.arb.ca.gov/cc/sb375/sb375.htm.

Fresno COG 2014–2040 Regional Transportation Plan/Sustainable Community Strategy

SB 375 requires the MPOs to prepare a Sustainable Communities Strategy (SCS) in their regional transportation plan. The SCS establishes a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement). The SCS provides growth strategies to achieve the regional GHG emissions reduction targets. It does not require that local general plans, specific plans, or zoning be consistent with the SCS, but provides incentives for consistency. The eight counties of the San Joaquin Valley are coordinating on development of their SCS to maximize resources through the Valley Vision SCS process. However, each MPO is developing a separate SCS. The Fresno COG adopted its 2014-2040 Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS) on June 26, 2014, and CARB approved it on January 15, 2016.[32] It is based on the current planning assumptions in the county.

Assembly Bill 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles (see also the discussion on the update to the Corporate Average Fuel Economy standards under *Federal Laws*, above). In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

Executive Order S-01-07

On January 18, 2007, the State set a new low carbon fuel standard (LCFS) for transportation fuels sold within the State. Executive Order S-01-07 sets a declining standard for GHG emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods.

[32] Fresno Council of Governments (Fresno COG), 2014. 2014-2040 Regional Transportation Plan & Sustainable Communities Strategy. http://www.fresnocog.org/sites/default/files/publications/RTP/Final_RTP/Fresno_COG_2014_RTP-SCS_Final.pdf.

Senate Bills 1078, 107, X1-2, and Executive Order S-14-08

A major component of California's Renewable Energy Program is the RPS established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08 was signed in November 2008, which expanded the State's Renewable Energy Standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SBX1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects, because electricity production from renewable sources is generally considered carbon neutral.

Senate Bill 350

Senate Bill 350 (de Leon), was signed into law September 2015. SB 350 establishes tiered increases to the RPS of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

Executive Order B-16-2012

On March 23, 2012, the State identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate zero-emissions vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directs the number of zero-emission vehicles in California's State vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are zero-emission by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions from the transportation sector 80 percent below 1990 levels.

California Building Code: Building Energy Efficiency Standards

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2016 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On June 10, 2015, the CEC adopted the 2016 Building Energy Efficiency Standards, which went into effect on January 1, 2017.

The 2016 Standards continues to improve upon the previous 2013 Standards for new construction of and additions and alterations to residential and nonresidential buildings. Under the 2016 Standards,

residential and nonresidential buildings are 28 and 5 percent more energy efficient than the 2013 Standards, respectively.[33] Buildings that are constructed in accordance with the 2013 Building Energy Efficiency Standards are 25 percent (residential) to 30 percent (nonresidential) more energy efficient than the prior 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features. While the 2016 standards do not achieve zero net energy, they do get very close to the State's goal and make important steps toward changing residential building practices in California. The 2019 standards will take the final step to achieve zero net energy for newly constructed residential buildings throughout California.[34]

California Building Code: CALGreen

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[35] The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011, and were last updated in 2016. The 2016 Standards became effective on January 1, 2017.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business as usual," they exceed the standards imposed by all other States, and they reduce GHG emissions by reducing energy demand.

Solid Waste Regulations

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the State to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses.

[33] California Energy Commission (CEC), 2015. 2016 Building Energy Efficiency Standards, Adoption Hearing Presentation. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/ June 10.

[34] California Energy Commission (CEC), 2015. 2016 Building Energy and Efficiency Standards Frequently Asked Questions. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf.

[35] The green building standards became mandatory in the 2010 edition of the code.

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

Section 5.408 of the 2016 California Green Building Standards Code also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

In October of 2014 Governor Brown signed AB 1826, requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the State implement an organic waste recycling program to divert organic waste generated by businesses and multifamily residential dwellings that consist of five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

Water Efficiency Regulations

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed “SBX7-7.” SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 requires urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Local Regulations

The following discusses the City of Fresno’s applicable plans and regulations that would contribute in reducing GHG emissions.

City of Fresno

City of Fresno General Plan

Similar for air quality, the Fresno General Plan includes objectives and policies within the its Resource Conservation and Resilience Element that pertain directly to GHG emissions. As previously discussed in

Section 4.3, *Air Quality*, objectives and policies included in the other General Plan Elements related to land use development patterns (e.g., infill and mixed-use development), transportation and transit, and urban form in addition to water and energy usage and conservation would also contribute in reducing GHG emissions within the proposed Southwest Fresno Specific Plan Area and SJVAB. The policies and objectives shown in Table 4.3-2 would also contribute in not only improving air quality, but also in reducing GHG emissions. Table 4.7-5 includes additional examples of General Plan objectives and policies that would contribute to reducing GHG emissions.

City of Fresno Greenhouse Gas Reduction Plan

The City's General Plan includes the Greenhouse Gas Reduction Plan (GHG Plan) which outlines the strategies to reduce GHG emissions to achieve the AB 32 year 2020 reduction target. The GHG Plan also contains strategies for reducing emissions beyond year 2020 towards meeting the State's long-term reduction goal set under Executive Order S-03-05. The GHG Plan indicates that the City will achieve a total reduction of 26.8 percent from BAU by 2020 through State and regional regulations, which exceeds the 21.7 percent reduction target required to meet AB 32 targets. Additionally, with implementation of local measures, the City will achieve a reduction of 29.8 percent from BAU by year 2020. To achieve the reductions, the GHG Plan identifies various strategies across the following areas:

- Land Use and Transportation
- Transportation Facilities Strategies
- Transportation Demand Strategies
- Energy Conservation Strategies for New and Existing Buildings
- Waste Diversion and Recycling and Energy Recovery
- Strategies for Exiting Development
- Municipal Strategies.

The GHG Plan outlines several scenarios in providing streamlining for individual development projects. The scenarios include 1) projects requiring discretionary approval, 2) new discretionary projects requiring a general plan amendment, and 3) discretionary projects within the Downtown Plan, BRT Station Area, SCS Plan Area. Overall, development projects consistent with the parameters outlined for the applicable scenario would be considered to have a less than significant GHG impact.

4.7.1.3 EXISTING CONDITIONS

The proposed Plan Area currently include existing residential and non-residential land uses. These existing land uses currently generates direct and indirect GHG emissions from vehicle trips, energy use (indirectly from purchased electricity use and directly through fuel consumed for building heating), area sources (e.g., equipment used on-site, consumer products, coatings), water/wastewater generation, and waste disposal.

TABLE 4.7-5 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO GHG EMISSIONS

Objective/ Policy Number	Objective/Policy Text
Resource Conservation and Resiliency Element	
Objective RC-2	*Promote land uses that conserve resources.*
Policy RC-2-a	Link Land Use to Transportation. Promote mixed-use, higher density infill development in multi-modal corridors. Support land use patterns that make more efficient use of the transportation system and plan future transportation investments in areas of higher-intensity development. Discourage investment in infrastructure that would not meet these criteria.
Objective RC-5	*In cooperation with other jurisdictions and agencies in the San Joaquin Valley Air Basin, take timely, necessary, and the most cost-effective actions to achieve and maintain reductions in greenhouse gas emissions and all strategies that reduce the causes of climate change in order to limit and prevent the related potential detrimental effects upon public health and welfare of present and future residents of the Fresno community.*
Policy RC-5-a	Support State Goal to Reduce Statewide GHG Emissions. As is consistent with State law, strive to meet AB 32 goal to reduce greenhouse gas emissions to 1990 levels by 2020 and strive to meet a reduction of 80 percent below 1990 levels by 2050 as Stated in Executive Order S-03-05. As new Statewide GHG reduction targets and dates are set by the State, update the City's Greenhouse Gas Reduction Plan to include a comprehensive strategy to achieve consistency with those targets by the dates established.
Policy RC-5-b-	Greenhouse Gas Reduction Plan. As is consistent with State law, prepare and adopt a Greenhouse Gas Reduction Plan as part of the Master Environmental Impact Report to be concurrently approved with the Fresno General Plan in order to achieve compliance with State mandates, assist development by streamlining the approval process, and focus on feasible actions the City can take to minimize the adverse impacts of growth and development on global climate change. The Greenhouse Gas Reduction Plan shall include, but not be limited to: ▪ A baseline inventory of all known or reasonably discoverable sources of GHGs that currently exist in the city and sources that existed in 1990. ▪ A projected inventory of the GHGs that can reasonably be expected to be emitted from those sources in the year 2035 with the implementation of this General Plan and foreseeable communitywide and municipal operations. ▪ A target for the reduction of emissions from those identified sources. ▪ A list of feasible GHG reduction measures to meet the education target, including energy conservation and "green building" requirements in municipal buildings and private development. ▪ Periodically update municipal and community-wide GHG emissions inventories to determine the efficacy of adopted measures and to guide future policy formulation needed to achieve and maintain GHG emissions reduction targets.
Policy RC-5-c	Increase efforts to incorporate requirements for GHG emission reductions in land use entitlement decisions, facility design, and operational measures subject to City regulation through the following measures and strategies: ▪ Promote the expansion of incentive-based programs that involve certification of projects for energy and water efficiency and resiliency. These certification programs and scoring systems may include public agency "Green" and conservation criteria, Energy Star™ certification, CALGreen Tier 1 or Tier 2, Leadership in Energy Efficient Design (LEED™) certification, etc. ▪ Promote appropriate energy and water conservation standards and facilitate mixed-use projects, new incentives for infill development, and the incorporation of mass transit, bicycle and pedestrian amenities into public and private projects. ▪ Require energy and water audits and upgrades for water conservation, energy efficiency, and mass transit, pedestrian, and bicycle amenities at the time of renovation, change in use, change in occupancy, and change in ownership for major projects meeting review thresholds specified in an implementing ordinance. ▪ Incorporate the City's "Guidelines for Ponding Basin/Pond Construction and Management to Control Mosquito Breeding" as conditions of approval for any project using an on-site stormwater basin to prevent possible increases in vector-borne illnesses associated with global climate change.

TABLE 4.7-5 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO GHG EMISSIONS

Objective/ Policy Number	Objective/Policy Text
	▪ Periodically evaluate the City's facility maintenance practices to determine whether there are additional opportunities to reduce GHGs through facility cleaning and painting, parks maintenance, road maintenance, and utility system maintenance. ▪ Periodically evaluate standards and mitigation strategies for highly vehicle-dependent land uses and facilities, such as drive-through facilities and auto-oriented development.
Policy RC-5-d	SCS and CAP Conformity Analysis. Ensure that the City includes analysis of a project's conformity to an adopted regional Sustainable Community Strategy or Alternative Planning Strategy (APS), an adopted Climate Action Plan (CAP), and any other applicable City and regional greenhouse gas reduction strategies in affect at the time of project review.
Policy RC-5-e	Ensure Compliance. Ensure ongoing compliance with GHG emissions reduction plans and programs by requiring that air quality measures are incorporated into projects' design, conditions of approval, and mitigation measures.
Policy RC-5-f	Toolkit. Provide residents and project applicants with a "toolkit" of feasible measures that can be used to reduce GHG emissions, including educational materials on energy-efficient and "climate-friendly" products.
Policy RC-5-g	Evaluate Impacts with Models. Continue to use computer models such as those used by SJVACPD to evaluate greenhouse gas impacts of plans and projects that require such review.
Policy RC-6-d	Recycled Water. Prepare, Adopt, and implement a City of Fresno Recycled Water Master Plan.
Objective RC-7	*Promote water conservation through standards, incentives, and capital investments.*
Policy RC-7-a	Water Conservation Program Target. Maintain a comprehensive conservation program to help reduce per capita water usage in the City's water service area to 243 gallons per capita per day (gpcd) by 2020 and 190 gpcd by 2035, by adopting conservation standards and implementing a program of incentives, design and operation standards, and user fees. ▪ Support programs that result in decreased water demand, such as landscaping standards that require drought-tolerant plants, rebates for water conserving devices and systems, turf replacement, xeriscape landscape for new homes, irrigation controllers, commercial/industrial/institutional water conserving programs, prioritized leak detection program, complete water system audit, landscape water audit and budget program, and retrofit upon resale ordinance. ▪ Implement the US Bureau of Reclamation Best Management Practices for water consideration as necessary to maintain the City's surface water entitlements. ▪ Adopt and implement policies in the event that an artificial lake is proposed for development. ▪ Work cooperatively toward effective uniform water conservation measures that would apply throughout the Planning Area. ▪ Expand efforts to educate the public about water supply issues and water conservation techniques.
Policy RC-7-b	Water Pricing and Metering. Develop a tiered water cost structure for both residential and commercial users that will properly price water based on its true cost; require all new development to be metered for water use; and charge all customers the true, full cost of their water supply, including costs of acquisition, initial treatment, conveyance, wastewater treatment, operations, maintenance, and remediation.
Policy RC-7-c	Best Practices for Conservation. Require all City facilities and all new private development to follow US Bureau of Reclamation Best Management Practices for water conservation, as warranted and appropriate.
Policy RC-7-d	Update Standards for New Development. Continue to refine water saving and conservation standards for new development.
Policy RC-7-h	Landscape Water Conservation Standards. Refine landscape water conservation standards that will apply to new development installed landscapes, building on the State Model Water Efficient Landscape Ordinance and other State regulations. ▪ Evaluate and apply, as appropriate, augmented xeriscape, "water wise," and "green gardening" practices to be implemented in public and private landscaping design and maintenance. ▪ Facilitate implementation of the State's Water Efficient Landscape Ordinance by developing alternative

TABLE 4.7-5 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO GHG EMISSIONS

Objective/ Policy Number	Objective/Policy Text
	compliance measures that are easy to understand and observe.
Objective RC-8	*Reduce the consumption of non-renewable energy resources by requiring and encouraging conservation measures and the use of alternative energy sources.*
Policy RC-8-a	**Existing Standards and Programs.** Continue existing beneficial energy conservation programs, including adhering to the California Energy Code in new construction and major renovations.
Policy RC-8-b	**Energy Reduction Targets.** Strive to reduce per capita residential electricity use to 1,800 kWh per year and non-residential electricity use to 2,700 kWh per year per capita by developing and implementing incentives, design and operation standards, promoting alternative energy sources, and cost-effective savings.
Policy RC-8-c	**Energy Conservation in New Development.** Consider providing an incentive program for new buildings that exceed California Energy Code requirements by fifteen percent.
Policy RC-8-d	**Incentives.** Establish an incentive program for residential developers who commit to building all of their homes to ENERGY STAR performance guidelines.
Policy RC-8-h	**Solar Assistance.** Identify and publicize information about financial mechanisms for private solar installations and provide over-the-counter permitting for solar installations meeting specified standards, which may include maximum size (in kV) of units that can be so approved.
Policy RC-8-i	**Renewable Target.** Adopt and implement a program to increase the use of renewable energy to meet a given percentage of the city's peak electrical load within a given time frame.

4.7.2 STANDARDS OF SIGNIFICANCE

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

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

4.7.2.1 SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT SIGNIFICANCE CRITERIA

The issue of global climate change is, by definition, a cumulative environmental impact. The SJVAPCD adopted Guidance Methodology for addressing GHG emissions under CEQA on December 17, 2009.[36] In addition, SJVAPCD adopted a Climate Change Action Plan (CCAP) to identify strategies to reduce GHG emissions in the SJVAPCD.[37] SJVAPCD's methodology includes a tiered approach:

[36] San Joaquin Valley Air Pollution Control District (SJVAPCD), 2009. Guidance for Valley Land-Use Agencies in Addressing GHG Emissions for New Projects.

[37] San Joaquin Valley Air Pollution Control District (SJVAPCD), 2009. Climate Change Action Plan, Final Staff Report, Addressing Greenhouse Gas Emissions Impacts under the California Environmental Quality Act.

- If a project is exempt from CEQA, individual-level and cumulative GHG emissions are treated as less than significant.
- If the project complies with a GHG emissions reduction plan or mitigation programs that avoid or substantially reduce GHG emissions in the geographic area where the project is located (i.e., city or county), individual-level and cumulative GHG emissions are treated as less than significant.
- SJVAPCD does not have thresholds of significance for construction-related GHG emissions. Construction emissions are one-time, nonrecurring emissions. Therefore, construction emissions are amortized over a 30-year duration (20 to 40 years average building lifetime) and included in the operational emissions analysis for informational purposes.[38] GHG emissions from construction activity are therefore not assumed to significantly contribute to cumulative GHG emissions impacts of the proposed Plan.

Performance Metric – Newhall Ranch Case Court Ruling

SJVAPCD's methodology for evaluating GHG emissions impacts also included methodology to evaluate whether or not a project would comply with AB 32 by conducting an analysis of whether the project would reduce GHG emissions by 29 percent from business as usual (BAU) through implementation of Best Performance Standards. The November 30, 2015, *Center for Biological Diversity v. California Department of Fish and Wildlife* (Newhall Ranch) ruling effectively limits use of this performance metric. The 29 percent below BAU established in the CARB Scoping Plan is derived from the statewide reduction target set by AB 32 for year 2020. The court held that the 29 percent is the statewide goal, but there is no substantial evidence that establishes a nexus between the Statewide goal and the percent reduction a specific land use project would need to achieve to be consistent with the goals of AB 32. Projects must determine the reduction target specific to the land use type being proposed. Because SJVAPCD's significance criteria does not establish a nexus that connects the Statewide GHG emissions reductions identified in the Scoping Plan to reductions needed for new development projects, an alternative approach to use of the performance metric is being used by the District until SJVAPCD revises their Guidance Methodology to address the Newhall Ranch ruling.

Bright-Line and Efficiency GHG Emissions Significance Thresholds

SJVAPCD has not formally provided guidance on how to analyze GHG emissions impacts for projects that are within their district. Until SJVAPCD provides formal guidance, the following approach which is based on alternative metrics used by air districts in California to assess GHG emissions impacts is identified:

Bright-Line Threshold

The bright-line significance threshold is a numeric, mass emissions threshold. In general, the bright-line threshold identifies the point at which additional analysis of project-related GHG emissions impacts is

[38] South Coast Air Quality Management District (SCAAMD), 2008. Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold, http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf.

necessary. Projects below the established bright-line significance criteria have a *de minimus* contribution the local, regional, and/or statewide GHG emissions inventory and have less than significant impacts. Projects above this threshold may result in a substantial increase in GHG emissions.

The bright-line threshold is based on the methodology identified in the 2008 California Air Pollution Control Officers Association (CAPCOA) white paper (CAPCOA 2008).[39] It is based on the market capture approach and reflects the amount of emissions that 90 percent of development projects surveyed in four cities within California would generate. CAPCOA identified that a bright-line threshold set at 900 $MTCO_2e$ per year would capture 90 percent of projects. In general, 900 $MTCO_2e$ per year corresponds to (1) a residential development of 50 dwelling units; (2) 35,000 square feet of office space; (3) 11,000 square feet of retail space; and (4) 6,300 square feet of supermarket space.[40]

The 900 $MTCO_2e$ per year is used as it is the most conservative bright-line threshold. Exceeding the bright-line significance criteria does not necessarily indicate that the project generates a significant unavoidable impact. Typically, based on how the bright-line threshold is applied in other air districts, the bright-line thresholds are utilized as a screening criterion to identify whether a full analysis of GHG emissions is warranted. Furthermore, if a project exceeds the screening threshold, the second level of analysis would compare the project to the efficiency metric discussed below for informational purposes. However, for purposes of this analysis, if project-related net emissions exceed 900 $MTCO_2e$ per year, GHG emissions would be considered potentially significant in the absence of mitigation measures.

Efficiency Metric

The efficiency metric identified by some air districts in California in the absence of a countywide GHG reduction plan is derived from CARB's Scoping Plan and is based on the projected year 2020 statewide emissions inventory for the land use sector and Statewide population and employment, as follows:

- 2020 Land Use Sector Emissions = 295,530,000 $MTCO_2e$ per year
- 2020 Statewide employment for the land use sector = 17,064,489
- 2020 Statewide population = 44,135,923[41]

Based on the inventory and statewide service population for the land use sector in 2020, the land use sector project-level efficiency threshold is estimated at 4.8 $MTCO_2e$ service population per year. This efficiency metric represents the target per service population emission rate for land use development

[39] California Air Pollution Control Officer's Association, 2008. CEQA and Climate Change.

[40] The Bay Area Air Quality Management District (BAAQMD) and South Coast Air Quality Management District (SCAQMD) have also established bright-line screening thresholds of 1,100 $MTCO_2e$ and 3,000 $MTCO_2e$ per year, respectively, for development projects based on similar market capture methodologies utilized by CAPCOA. SCAQMD based their bright-line screening threshold on review of 711 CEQA projects and determined that 90 percent of the projects reviewed would exceed 3,000 $MTCO_2e$ per year (South Coast Air Quality Management District. 2009, November 19. Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group #14. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-%28ghg%29-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2). Similarly, the bright-line screening threshold established by BAAQMD captures approximately 59 percent of all development projects (Bay Area Air Quality Management District. 2017, May. California Environmental Quality Act: Air Quality Guidelines).

[41] California Air Resources Board (CARB), 2008. Climate Change Proposed Scoping Plan: A Framework for Change.

projects that would be consistent in meeting the AB 32 Year 2020 reduction target. For projects with a buildout that would occur in 2040 and beyond year 2020, the applicable threshold is based on the trajectory needed as shown in Table 4.7-6 to achieve the year 2030 GHG reduction target of SB 32 (40 percent below 1990 levels by 2030) and Executive Order S-03-05 (80 percent below 1990 levels by 2050) for the horizon year of the projects.

TABLE 4.7-6 FORECASTED GHG REDUCTION TARGET

GHG Section[a]	Scoping Plan Scenario GHG Emissions $MMTCO_2e$
2017 Scoping Plan End Use Sector 2030 – Land Use Only Sectors	
Residential – residential energy consumption	38.4
Commercial – commercial energy consumption	26.8
Transportation – transportation energy consumption	104.1
Transportation Communications and Utilities – energy that supports public infrastructure like street lightning and waste treatment facilities	4.3
Non-Energy Solid Waste – methane emissions from solid waste disposal	9.17
Total 2017 Scoping Plan Land Use Sector Target	182.8
2030 Project-Level Efficiency Target	
2030 Population[b]	44,085,600
2030 Employment[c]	17,394,580
2030 Service Population	61,480,180
2030 Efficiency Target	3.0 $MTCO_2e$/SP
2040 Project-Level Efficiency Target[d]	
2040 Land Use Sector Target Estimate	120,100,000
2040 Population Estimate	47,233,240
2040 Employment Estimate	18,992,870
2040 Service Population Estimate	66,226,110
2040 Efficiency Target	1.8 MTCO2e/SP

a. California Air Resources Boards. 2017, January 20. The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.
b. California Department of Finance. 2014, December. Report P-1 (County): State and County Total Population Projections, 2010-2060 (5 -year increments). http://www.dof.ca.gov/Forecasting/Demographics/Projections/
c. California Department of Transportation. 2016. Long-Term Socio-Economic Forecasts by County. http://www.dot.ca.gov/hq/tpp/offices/eab/socio_economic.html; Without industrial and agricultural sectors
d. The 2035 Efficiency target is based on interpolating the 2030 land use emissions target of 182.8 $MMTCO_2e$ (40 percent below 1990 levels by 2030) and the 2050 land use emissions target of 57.4 $MMTCO_2e$ (80 percent below 1990 levels by 2050), which equates to approximately 47 percent below 1990 levels by 2035. The population and employment estimates are based on a similar forecast to estimate the service population in California in 2035.

As shown in the table, the 2040 GHG estimated efficiency target would be 1.8 $MTCO_2e$ per service population per year, to be on a trajectory to achieve the GHG reduction goal of Executive Order S-03-05.

4.7.3 IMPACT DISCUSSION

This GHG evaluation was prepared in accordance with the requirements of CEQA to determine if significant GHG impacts are likely to occur in conjunction with future development that would be accommodated by the proposed Plan. The City's criteria air pollutant emissions inventory includes the following sectors:

- Transportation. Based on the annual average trip generation and vehicle miles traveled data provided by Fehr and Peers (see Appendix G of this Draft EIR). An average trip distance of 8.04 miles per trip is utilized for the project buildout scenario. Based on the estimated 182,853 average daily trips (ADT) generated associated with the new proposed land uses, approximately 1,470,179 additional vehicle miles per day would be generated.
- Area Sources. Area and stationary sources are based on the California Emissions Estimator Model (CalEEMod) defaults for emissions generated from use of consumer products and cleaning supplies.
- Energy. GHG emissions from energy use (electricity usage and natural gas used for cooking, heating, etc.) are based on the CalEEMod defaults for electricity and natural gas usage by residential and nonresidential land uses. New buildings are assumed to comply with the 2016 Building Energy Efficiency Standards, which are 28 percent more energy efficient for residential buildings and 5 percent more energy efficient for nonresidential buildings and residential buildings of four stories or more compared to the 2013 Building Energy Efficiency Standards.
- Construction. It is assumed that development of the proposed Plan would generally commence beginning of 2018. For purposes of this analysis, the construction phasing utilizes the CalEEMod default schedule based on the anticipated new land uses and the duration of each activity is normalized to an 25-year building period. In addition, while the specific timeline in how the land uses accommodated in the proposed Specific Plan would be developed is unknown, this analysis assumes that the various construction activities (e.g., site preparation, demolition, building construction) would overlap. Furthermore, it is assumed that all of the existing residential and non-residential land uses within the Plan Area remain under the proposed future buildout scenario. Construction assumptions were based on CalEEMod defaults such as construction equipment mix and worker, vendor, and haul trips. Table 4.7-7 shows the assumed construction activities, the start and end dates (based on 25-year buildout), and equipment mix for each of the activities.

GHG-1 Implementation of the proposed Plan would result in a substantial increase in GHG emissions at buildout compared to existing conditions.

Development under the proposed Plan would contribute to global climate change through direct and indirect emissions of GHG from land uses within the Plan Area. The proposed Plan would result in a net increase of 7,131 dwelling units and 4,512,586 million non-residential square feet in the Plan Area. Buildout of the proposed Plan is not linked to a specific development time frame. Development that would be accommodated by the proposed Plan would generate a net increase of 182,853 weekday

TABLE 4.7-7 CONSTRUCTION ACTIVITIES, PHASING, AND EQUIPMENT

Activities	Start/End Dates[a]	Equipment[b]
Demolition	1/1/2018 – 3/19/2019	1 concrete/industrial saw; 3 excavators; 2 rubber tired dozers; 1 water truck
Site Preparation	1/1/2018 – 9/21/2018	3 rubber tired dozers; 4 tractors/loaders/backhoes; 1 water truck
Grading	1/1/2018 – 11/18/2019	2 excavators; 1 grader; 1 rubber tired dozer; 2 scrapers; 2 tractors/loaders/backhoes; 1 water truck
Building Construction	1/1/2018 – 10/20/2036	1 crane; 3 forklifts; 1 generator set; 3 tractors/loaders/backhoes; 1 welder
Asphalt Paving	1/1/2018 – 5/1/2019	2 pavers; 2 paving equipment; 2 rollers
Architectural Coating	1/1/2018 – 3/14/2024	1 air compressor

a. Based on CalEEMod defaults and normalized to an 25-year buildout duration.
b. Based on CalEEMod defaults.

average daily trips ends, resulting in 1,470,179 additional daily VMT at project buildout (see Appendix G). For the purpose of this Draft EIR, buildout is assumed over an 25-year project horizon. GHG emissions from construction activities are amortized into the operational phase GHG emissions inventory to account for one-time emissions from construction in accordance with SCAQMD methodology.[42] The community GHG emissions inventory for the proposed Plan at buildout compared to existing conditions is in Table 4.7-8.

As shown in Table 4.7-8, the net increase in GHG emissions of 332,705 $MTCO_2e$ annually from operational activities of development projects accommodated by the proposed Plan would exceed the bright-line screening threshold of 900 $MTCO_2e$ for all land use types. The planned improvements, design guidelines, objectives, and policies under the proposed Plan would generally support a sustainable development pattern for the Plan area by creating more complete neighborhoods and improving transit options. For example, the proposed Plan includes plans for improving active transit infrastructure and amenities such as the inclusion of Class II bike lanes that follows the arterial and collector streets and Class I bike paths along marks, Jensen, and North Avenues and implementation of Complete Streets Design Guidelines for various corridors throughout the Plan Area that would contribute to reducing vehicle trips and VMT. However, the increase in overall land use intensity and associated population and employment growth within the Plan Area are the primary factors for the increase in GHG emissions. In addition, although applicable future individual development projects would be processed under their own separate CEQA evaluation and may be consistent with the City's GHG Reduction Plan development checklist resulting in a less than significant GHG emissions impact, cumulatively, development of projects accommodated by the proposed Plan would generate substantial GHG emissions. Therefore, the proposed Plan's cumulative contribution to the long-term GHG emissions in the State would be considered *significant*.

Significance Without Mitigation: Significant.

[42] South Coast Air Quality Management District (SCAQMD), 2008, October. Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold. http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf.

TABLE 4.7-8 NET ANNUAL GHG FORECAST

	GHG Emissions	
Source	MTCO2e	Percent Change
Area	3,196	1%
Energy[a]	37,983	11%
Mobile[b]	265,312	80%
Solid Waste	18,554	6%
Water	1,849	1%
Construction-Amortized[c]	5,809	6%
Total All Sectors	332,705	100%
Bright-Line Screening Threshold	900	NA
Exceeds Threshold?	Yes	NA

Note: Totals may not equal 100 percent due to rounding
a. Buildings constructed after January 1, 2017 are required to meet the 2016 Building and Energy Efficiency Standards. The 2016 Standards are 5 percent more energy efficient for non-residential buildings and 28 percent more energy efficiency for residential than the 2013 Building and Energy Efficiency Standards. Includes applicable water efficiency improvements required under CALGreen.
b. As CalEEMod does not provide year 2041 emission rates, year 2040 emission rates are utilized for purposes of this analysis.
c. Construction emissions are amortized over a 30-year project lifetime based on recommended SCAQMD methodology.
Source: PlaceWorks, 2017

Impact GHG-1: Implementation of the proposed Plan would result in a substantial increase in GHG emissions.

Mitigation Measure GHG-1: Implement Mitigation Measure AQ-2b as follows:

Mitigation Measure AQ-2b: During construction activities, for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects), the construction contractors shall ensure that the equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations; and, that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.

Significance With Mitigation: Significant and unavoidable. Implementation of the proposed Plan's roadway and bicycle and trail network improvements, policies (e.g., Policies LU-1.1, LU-4.4, T-10.1, and T-11.3), and Complete Streets Design Guidelines would reduce operation-related criteria air pollutants generated from energy, stationary, and mobile sources to the extent feasible. In addition, Mitigation Measure AQ-2b would contribute in minimizing GHG emissions from construction activities. Furthermore, advancement of General Plan policies pertaining to GHG emissions (e.g., Policies RC-5-a through RC-5-g), urban form, transit, water and energy conservation (e.g., Policies RC-7-h and RC-8-c) would also contribute in minimizing GHG emissions overall. However, due to the magnitude of growth associated with the proposed Plan, it is anticipated that an increase in GHG emissions would remain substantial. While adherence to the City of Fresno's GHG Plan would also contribute in reducing GHG emissions associated with implementing the proposed Plan and progress

in meeting the year 2020 AB 32 reduction target, additional federal, State, and local measures would be necessary to reduce GHG emissions under the proposed Plan to meet the long-term GHG reduction goals under Executive Order S-03-05 and SB 32. At this time, there is no plan past 2030 that achieves the long-term GHG reduction goal established under Executive Order S-03-05. As identified by the California Council on Science and Technology, the State cannot meet the 2050 goal without major advancements in technology.[43] Since no additional statewide measures are currently available, Impact GHG-1 would be significant and unavoidable.

GHG-2	**Implementation of the proposed Plan would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.**

Applicable plans adopted for the purpose of reducing GHG emissions include CARB's Scoping Plan, Fresno COG's 2014-2040 RTP/SCS, and the City of Fresno's GHG Plan. A consistency analysis with these plans is presented below.

CARB Scoping Plan

In accordance with AB 32, CARB developed the 2008 Scoping Plan to outline the State's strategy established by AB 32, which is to return to the State's GHG emissions inventory to 1990 levels by year 2020. In September 2016, SB 32 was signed into law, requiring the State's GHG emissions to return to 40 percent below 1990 levels by 2030. Executive Order B-30-15 and SB 32 require CARB to prepare another update to the Scoping Plan to address the 2030 target for the State. On January 20, 2017, CARB released the draft 2017 Climate Change Scoping Plan to address the new interim GHG emissions target under Senate Bill 32. The CARB Scoping Plan is applicable to State agencies and is not directly applicable to cities/counties and individual projects. Nonetheless, the Scoping Plan has been the primary tool to develop performance-based and efficiency-based CEQA criteria and GHG reduction targets for climate action planning efforts.

The 2017 Climate Change Scoping Plan has adoption hearings planned for summer 2017, and provides the strategies for the State to meet the 2030 GHG reduction target as established under SB 32. Statewide strategies to reduce GHG emissions in the 2017 Climate Change Scoping Plan include implementing Senate Bill 350, which expands the Renewables Portfolio Standard to 50 percent by 2030 and doubles energy efficiency savings; expanding the Low Carbon Fuel Standard to 18 percent by 2030; implementing the Mobile Source Strategy to deploy zero-electric vehicle buses and trucks; implementing the Sustainable Freight Action Plan; implementing the Short-Lived Climate Pollutant Reduction Strategy, which reduces methane and hydrofluorocarbons 40 percent below 2013 levels by 2030 and black carbon emissions 50 percent below 2013 levels by 2030; continuing to implement Senate Bill 375; creating a post-2020 Cap-and-Trade Program; establishing a new regulation to reduce GHG emissions from the refinery sector by 20

[44] California Air Resources Board (CARB), 2017. The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target, January 20. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

percent; and developing an Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.[44]

The project GHG emissions shown in Table 4.7-8 include reductions associated with Statewide strategies that have been adopted since AB 32 and SB 32. The proposed Plan would comply with these GHG emissions reduction measures since they are Statewide strategies. In addition, future buildings constructed over the lifetime of the proposed Plan would be subject to the future triannual updates to the Building and Energy Efficiency Standards, which will ultimately require zero net energy (ZNE) construction. However, the Scoping Plan itself is not directly applicable to the proposed Plan. Therefore, the proposed Plan would not obstruct implementation of the CARB Scoping Plan, and impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

Fresno COG Regional Transportation Plan/Sustainable Communities Strategy

The Fresno COG 2014–2040 RPT/SCS is a regional growth management strategy that targets per capita GHG reduction from passenger vehicles and light duty trucks in the Fresno COG region. The 2014–2040 RTP/SCS incorporates local land use projections and circulation networks from the local general plans. The projected regional development pattern—including location of land uses and residential densities in local general plans—when integrated with the proposed regional transportation network in the 2014–2040 RTP/SCS, would reduce per capita vehicular travel-related GHG emissions and achieve the regional GHG reduction per capita targets for the Fresno COG region. The per capita targets for the region are 5 percent below the 2005 baseline by year 2020 and 10 percent by year 2035. The 2014–2040 RTP/SCS identifies that the Fresno COG region will meet its per capita targets for both 2020 and 2035 at 9 percent and 11 percent, respectively. Strategies identified in the 2014–2040 RTP/SCS are listed in Table 4.7-9. As shown in the table, the proposed Plan would be consistent with strategies in the 2014–2040 RTP/SCS. Therefore, impacts are considered *less than significant*.

Significance Without Mitigation: Less than significant.

City of Fresno GHG Reduction Plan

A consistency analysis with the proposed Plan to the applicable measures in the City's GHG Plan is shown in Table 4.7-10. As identified in the table, overall, the proposed Plan would generally be consistent with the strategies in the GHG Plan. Therefore, the proposed Plan would not conflict with the GHG Plan and impacts are considered *less than significant*.

Significance Without Mitigation: Less than significant.

[44] California Air Resources Board (CARB), 2017. The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target, January 20. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.

TABLE 4.7-9 FRESNO COUNCIL OF GOVERNMENTS 2014-2040 RTP/SCS CONSISTENCY ANALYSIS

Sustainability Strategies	Description of Strategy Principle	Southwest Fresno Specific Plan Compliance
Transportation Demand Management	Transportation Demand Management (TDM) programs are designed to reduce automobile usage by changing travel behavior and encouraging the use of transportation modes other than single occupant vehicles. TDM strategies in Fresno County include, but are not limited to: ▪ Measure C Carpool Incentive program, which provides incentives to commuters who share a ride to work or school with at least one other person. ▪ Measure C Commuter and Farmworker Vanpool Subsidy programs, which provide subsidies and reimbursements to new and existing commuter vanpools. ▪ CalVans is a Joint Powers Public Transportation Agency comprised of a number of Local Transportation Planning Agencies who run a multicounty vanpool program for commuters and agricultural workers. ▪ Fresno COG's Valleyrides.com website and Carpool App offer commuters free ride matching, and houses the information needed to participate in the Measure C Carpool and Vanpool Programs. ▪ Flex-time work schedules with employers to reduce congestion at peak times. ▪ Other trip reduction programs	Consistent: The Southwest Fresno Specific Plan includes Transit Policy T-11.3 which pertains to supporting TDM programs. Additionally, future individual projects would be subject to SJVAPCD Rule 9410, which requires qualifying businesses to implement an Employer Trip Reduction Implementation Plan.
Transportation Systems Management	The Transportation Systems Management (TSM) approach to congestion mitigation and GHG emission reduction seeks to identify improvements to enhance and optimize the existing transportation systems. Through better management and operation of existing transportation facilities, these techniques are designed to improve traffic flow, air quality, and movement of vehicles and goods, as well as enhance safety. TSM measures include, but are not limited to: ▪ Intersection operational improvements, including traffic signal synchronization ▪ Geometric changes and bottleneck alleviation ▪ Arterial access management ▪ Traffic/Freeway management system. ▪ Special events management strategies. ▪ Incident Management/emergency services	Consistent: The Southwest Fresno Specific Plan contains various goals (e.g., Goals T-1, T-3, T-4, and T-8) and plans (See Figure 5-5 of the Specific Plan) in addition to inclusion of Complete Streets Design Guidelines that are intended to improve safety and optimize transportation systems ranging from pedestrian and bicycle facilities to maintenance of existing roadways (e.g., Policy T-8.3) and rerouting of truck routes away from sensitive areas (see Figure 5-6 of the Specific Plan).
Public Transit	The 2014–2040 RTP/SCS calls for an expansion and improvement of the public transit network and transit service on new and existing routes, resulting in greater transit accessibility and connectivity throughout the region. Transit expansion and improvement include the addition of new corridors and improving the service of existing ones, first bus rapid transit (BRT) system, and implementation of the California High-Speed Train (HST) project. The BRT corridors are planned for Shaw Avenue from Highway City on the west to Fowler Avenue in the City of Clovis on the east.	Consistent: A guiding principle of the Southwest Fresno Specific Plan is to connect and expand access to regional transportation networks such as BRT, Fresno Area Express, and high-speed rail. Transit Goals T-6 and T-7 which focus on improving the public transit network are included in the Southwest Fresno Specific Plan. Additionally, the planned Mixed-Use Corridor would align with a future BRT line. Furthermore, the Specific Plan includes plans for implementation of more BRT

Sustainability Strategies	Description of Strategy Principle	Southwest Fresno Specific Plan Compliance
		corridors as shown on Figure 5-4 of the Plan.
Bike and Pedestrian Facilities	The 2014–2040 RTP/SCS also includes a notable increase in the regional active transportation network for walking and bicycling. Active transportation is an essential part of the Fresno COG transportation system, is low cost, does not emit GHGs, can help reduce roadway congestion, and increases health and the quality of life of residents. This emphasis signifies an important opportunity to advance the goals of SB 375 by increasing nonmotorized modes of transportation, thereby expanding access to a variety of land uses and transit and improving public health and air quality. A total of $94 million is proposed in the 2014–2040 RTP/SCS to fund bike and pedestrian projects.	Consistent: A guiding principle of the Southwest Fresno Specific Plan is to accommodate both motorized and non-motorized modes of travel and people of all ages and abilities to improve mobility/transportation within Southwest Fresno. The Specific Plan incorporates the Complete Streets Design Guidelines and includes various goals (see Goals T-1 through T-5) to support this guiding principle that would improve the pedestrian and bicycle network within the plan area. Additionally, goals and policies related to higher density and mixed-use development would also encourage active transit. Figure 5-2 of the Specific Plans shows the planned bicycle and trail network which would include increasing bike lanes and multi-use trails.

Source: Fresno Council of Governments, 2014. 2014-2040 Regional Transportation Plan & Sustainable Communities Strategy. http://www.fresnocog.org/sites/default/files/publications/RTP/Final_RTP/Fresno_COG_2014_RTP-SCS_Final.pdf.

4.7.4 CUMULATIVE IMPACTS

GHG-3 Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in significant cumulative impacts with respect to GHG emissions.

As described above, GHG emissions related to the proposed Plan are not confined to a particular air basin but are dispersed worldwide. Therefore, the analysis of impacts in Section 4.7.3, Impact Discussion, above, also addresses cumulative impacts. A project that exceeds the SJVAPD's significance criteria in the context of emissions from all other development projected within the entire SJVAB would cumulative contribute to impacts. As identified in impact discussion GHG-1, Table 4.7-8 shows that implementation of the proposed Plan would exceed the bright-line threshold. Consequently, GHG emissions impacts of the proposed Plan would be *significant*.

Significance Without Mitigation: Significant.

TABLE 4.7-10 CITY OF FRESNO GHG REDUCTION PLAN CONSISTENCY ANALYSIS

Sustainability Strategies	Strategy Policies and Objectives	Southwest Fresno Specific Plan Compliance
Land Use Strategies: Strategies under this category focus on development of more dense and compact communities to move people closer to destinations that can be accessed by walking or bicycling, and transit.	**Compact and Infill Development:** Higher-density development tends to produce fewer vehicle trips per dwelling unit and more intense commercial development increases opportunities for walking, bicycling, and transit use for some trips. ▪ *Objective UF-12 and Policies UF-1-c, UF-12-b, LU-2-a, LU-2-b, LU-3-b, LU-3-c, LU-5-f, and RC-2-a* **Mixed-Use Development:** Mixed-use projects provide opportunities for walking between uses for some trips. Trips are reduced when visitors can park once at the development and obtain services, shopping, or go to a restaurant during a single trip. ▪ *Policies RC-2-a, RC-2-b, UF-12-d, and UF-12-f* **Pedestrian Oriented Development:** Providing pedestrian-friendly infrastructure such as sidewalks, paths, and direct connections to neighboring uses such as shopping, schools, libraries, and parks increase the potential for people to make trips on foot instead of making a car trip. This strategy is consistent with the Complete Streets concept that aims to make streets safe for walking and bicycling. ▪ *Objective UF-14 and Policies UF-12-e, UF-12-f, UF-14-a, UF-14-b, UF-14-c, D-3-c, D-4-b, and MT-1-h* **Transit Oriented Development:** Higher densities when combined with pedestrian orientation encourage transit use. A key factor is that both ends of the transit trip must be walkable and have the potential to service reasonably large numbers of transit riders. The City's proposed BRT system combined with plans to increase development densities at BRT stations and along the corridor are critical elements of the City's transit oriented development strategy. ▪ *Objective UF-12 and Policies UF-12-a and UF-12-b*	**Consistent:** The Southwest Fresno Specific Plan's land use map envisions the interplay of "complete neighborhoods," "corridors," and "magnet cores" to create a vibrant and desirable community that is accessible to and abundant with neighborhood amenities and services, supported by local and neighboring residents. The planned Mixed-Use Corridor would be aligned with the future BRT line. Additionally, as shown in Figure 3-1 of the Specific Plan, the land use plan accommodates higher density, mixed-use, and pedestrian/transit oriented development land uses. Furthermore, the Specific Plan incorporates Complete Streets Design Guidelines and includes various goals and policies focused on pedestrian, bicycling, and transit network improvements (e.g., Goals T-1 through T-7).
Transportation Facilities Strategies: Strategies under this strategy are related to transportation infrastructure and facilities that encourage the use of alternative modes of transportation such as walking, bicycling, and transit use. This strategy would be implemented through support for and funding of transit, bicycle, and pedestrian connections, through transit and trail planning, and with regional cooperation among relevant agencies.	**Transit Facilities**: Includes bus stops, bus turnouts, multimodal transfer centers, and information kiosks. ▪ *Objectives MT-8 and MT-9 and Policies MT-8-a, MT-8-b, MT-8-g* **Bicycle and Pedestrian Infrastructure**: All new development is required to comply with the Bicycle, Pedestrian, and Trails Master Plan. ▪ *Objectives MT-4 through MT-6 and Policies MT-4-a, MT-4-b, MT-4-c, MT-5-a, MT-6-a, MT-6-g, and POSS-7-h*	**Consistent:** The Southwest Fresno Specific Plan includes guiding principles that pertain to improving public transit in addition to non-motorized modes of travel. Transit Goals T-6 and T-7 which focus on improving the public transit network are included in the Southwest Fresno Specific Plan. Additionally, the planned Mixed-Use Corridor would align with a future BRT line. Furthermore, the Specific Plan includes plans for implementation of more BRT corridors as shown on Figure 5-4 of the Plan. The Specific Plan also incorporates the Complete Streets Design Guidelines and includes various

TABLE 4.7-10 CITY OF FRESNO GHG REDUCTION PLAN CONSISTENCY ANALYSIS

Sustainability Strategies	Strategy Policies and Objectives	Southwest Fresno Specific Plan Compliance
		goals (see Goals T-1 through T-5) that would improve the pedestrian and bicycle network within the plan area. Additionally, goals and policies related to higher density and mixed-use development would also encourage active transit. Figure 5-2 of the Specific Plans shows the planned bicycle and trail network which would include increasing bike lanes and multi-use trails.
Transportation Demand Strategies: These strategies provide programs and facilities that encourage employees to use alternative modes for commute trips.	Transportation Demand Management: Measures are designed to reduce the demand for transportation facilities that are usually implemented at employment sites and event centers and includes programs that target employee commute trips at the worksite such as vanpools, and incentives for alternative transportation and government-operated programs such as rideshare matching and outreach and incentives. ▪ *Policy MT-10-c* Parking Measures: Providing limited parking is one of the most effective transportation measures. Use of parking structures and paid parking provide strong incentive to use alternative modes and to take advantage of carpools and vanpools. This measure would only apply in higher-density development areas, downtown, and mixed-use projects specific designed for this strategy. ▪ *Policies MT-10-a, MT-10-b, MT-10-d, and MT-10-f*	Consistent: The Southwest Fresno Specific Plan includes Transit Policy T-11.3 which pertains to supporting TDM programs.
Energy Conservation Strategies for New and Existing Buildings: Improving energy efficiency in new and existing buildings and facilities provides one of the most cost-effective strategies for reducing greenhouse gases. The energy savings from improved energy efficiency can often pay for the cost of the upgrades and retrofits over time. These strategies are implemented through the promotion of energy- and water-efficient buildings (e.g., LEED buildings and/or exceeding Title 24 standards) through green building ordinances, project timing, prioritization, and other implementing tools.	Energy Efficiency in New Buildings: New projects can exceed Title 24 Energy Efficiency Standards for new residential and non-residential buildings. The amount of reductions in energy use can be related to voluntary tier levels contained in Title 24 or through use of outside certifying programs such as LEED, EnergyStar, or Greenpoint rating systems. ▪ *Objective RC-8 and Policies RC-8-a through RC-8-e* Energy Efficiency in Existing Buildings: Older buildings that were constructed prior to the adoption of Title 24 or that were constructed when early versions of Title 24 were in place provide significant opportunities for cost-effective energy retrofits. ▪ *Policy RC-7-i* Self Generation Using Solar Panels and Solar Hot Water Systems: The City of Fresno's location and climate is excellent for solar electric generation and hot water systems with an average of 262 sunny days per year. Residential and commercial projects can include solar-ready roofs to allow future installation of solar panels or provide solar panels at the time of construction. ▪ *Policy RC-8-h* Water Conservation Strategies: Water pumping and	Consistent: The Southwest Fresno Specific Plan includes integration of recycled water infrastructure into the plan area as shown in Figure 7-3 of the Specific Plan. Furthermore, new development projects accommodated by the Specific Plan would adhere to the latest Title 24 Energy Efficiency Standards in addition to the CalGreen Standards which would contribute in reducing energy and water demand and use. Furthermore, new qualifying residential and non-residential buildings would be built to adhere to the Title 24 solar ready requirements.

TABLE 4.7-10 CITY OF FRESNO GHG REDUCTION PLAN CONSISTENCY ANALYSIS

Sustainability Strategies	Strategy Policies and Objectives	Southwest Fresno Specific Plan Compliance
	transport consumes approximately 20 percent of all energy used in California. Measures to reduce water consumption through improved efficiency in plumbing fixtures and landscaping can result in substantial savings compared to past practices. Water reuse and recycling through non-potable "purple pipe" systems may reduce energy consumption for water transport. The use of recycled water should focus on new and existing large green spaces, industrial uses, and new development. ▪ *Objective RC-7 and Policies RC-6-d, RC-7-a, RC-7-d, RC-7-f, and RC-7-h*	
Waste Diversion and Recycling and Energy Recovery: Programs and actions that promote recycling and diversion of waste from landfills can reduce energy consumed in the transport and handling of the waste material and can reduce the GHGs that are emitted during the decomposition of organic waste.	The State of California has adopted increasingly stringent mandates for the percentage of solid waste that can be disposed in landfills. Programs that require or encourage further reductions in waste beyond mandates will result in GHG reductions from this source. ▪ *Policies PU-9-a, PU-9-b, RC-4-l, RC-11-a, and RC-11-b* Wastewater: Wastewater treatment can produce methane emissions that are powerful GHG, but it also provides a valuable renewable energy source when scrubbed of harmful components. Fresno currently operates a major regional secondary treatment plant and reuses water primarily for agricultural purposes. Wastewater treatment plants such as the Fresno/Clovis RWRF with anaerobic digesters capture the methane produced during the treatment process for productive use such as generation of electricity or process heat to offset some of the plant's power consumption. ▪ *Objective PU-7 and Policies PU-7-a and PU-7-d*	Consistent: Future projects accommodated by the Southwest Fresno Specific Plan would comply with State mandates and future local programs and requirements that may be in place at the time of project implementation.
Municipal Strategies: The City of Fresno has a comprehensive set of strategies specifically targeted at GHG emissions generated at city-owned facilities and from city operations. The strategies identified by the City include various measures to improve energy efficiency in buildings and equipment owned by the City, alternative fuels for city vehicles and equipment, and water conservation.	Municipal Strategies Policies ▪ *Policies RC-7-c, RC-7-e, RC-8-f, and RC-8-g* Regional Urban Forestry Program: Trees provide shade that can reduce the urban heat island effect caused when pavement and other open surfaces absorb solar radiation and re-radiate heat to the surrounding environment. The City maintains trees in parks and other public owned landscapes. ▪ *Policy POSS-1-g* Other Municipal Strategies ▪ *Energy Savings from Traffic and Street Lighting* ▪ *Low-Emission City Fleet Vehicles* ▪ *Green Purchasing* ▪ *Municipal Water Conservation*	Not applicable: These policies, objections, and programs are implemented at the City level. However, the Southwest Fresno Specific Plan includes various design guidelines that pertain to tree planting.

Source: City of Fresno. 2014, July. Draft Fresno General Plan Update Greenhouse Gas Reduction Plan, City of Fresno, California. https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/F-2-Greenhouse-Gas-Reduction-Plan.pdf.

Impact GHG-3: GHG emissions associated with implementation of the proposed Plan would substantially cumulatively contribute to climate change impacts.

Mitigation Measure GHG-3: Implement Mitigation Measure AQ-2b.

Significance With Mitigation: Significant and unavoidable. Implementation of the proposed Plan's policies (e.g., Policies LU-1.1, LU-4.4, T-10.1, and T-11.3) and complete streets design guidelines would reduce operation-related criteria air pollutants generated from energy, stationary, and mobile sources to the extent feasible. In addition, Mitigation Measure AQ-2a would also contribute in reducing construction-related GHG emissions. However, due to the magnitude of growth associated with the proposed Plan, it is anticipated that an increase in GHG emissions would remain substantial. While adherence to the City of Fresno's GHG Plan would also contribute in reducing GHG emissions associated with implementing the proposed Specific Plan and progress in meeting the year 2020 AB 32 reduction target, additional federal, State, and local measures would be necessary to reduce GHG emissions under the proposed Plan to meet the long-term GHG reduction goals under Executive Order S-03-05 and SB 32. As Stated, there is no plan at this time past 2030 that achieves the long-term GHG reduction goal established under Executive Order S-03-05. As identified by the California Council on Science and Technology, the State cannot meet the 2050 goal without major advancements in technology.[45] Since no additional statewide measures are currently available, Impact GHG-3 would be *significant and unavoidable.*

[45] California Council on Science and Technology (CCST), 2012. California's Energy Future: Portraits of Energy Systems for Meeting Greenhouse Gas Reduction Targets. http://www.ccst.us/publications/2012/2012ghg.pdf.

4.8 HAZARDS AND HAZARDOUS MATERIALS

This chapter describes the environmental setting, including regulatory framework and existing conditions in the Plan Area related to, and potentially significant environmental impacts of the proposed Plan on hazards and hazardous materials.

The analysis in this chapter is based in part on the following databases and reports:

- GeoTracker, 2017. State Water Resources Control Board (SWRCB) database of hazardous materials sites that could affect groundwater quality, searched July 5, 2017
- EnviroStor, 2017. Department of Toxic Substances Control (DTSC) database of sites with known contamination or sites for which there may be reasons to investigate further, searched July 5, 2017
- Environmental Data Resources, Inc. (EDR), 2017. Data Map Environmental Atlas, Custom Area Database Report, Southwest Fresno Specific Plan, June 28, 2017
- City of Fresno General Plan (and the associated Master Environmental Impact Report (MEIR)), December 18, 2014
- City of Fresno Downtown Neighborhood Community Plan (and the associated EIR), 2016
- Phase I ESA prepared for the DNCP, 2011. Phase I Environmental Site Assessment (Draft) Downtown Neighborhoods Community Plan Area, prepared by Krazan & Associates (2011)
- Fresno-Chandler Executive Airport Land Use Compatibility Plan, 2014

The above-referenced EDR database report is included in this Draft EIR as Appendix E, Hazards and Hazardous Materials Data.

4.8.1 ENVIRONMENTAL SETTING

4.8.1.1 REGULATORY FRAMEWORK

Hazardous materials refer generally to hazardous substances, hazardous waste, and other materials that exhibit corrosive, poisonous, flammable, and/or reactive properties and have the potential to harm human health and/or the environment. Hazardous materials are used in products (e.g., household cleaners, industrial solvents, paint, pesticides, etc.) and in the manufacturing of products (e.g., electronics, newspapers, plastic products, etc.). Hazardous materials can include petroleum, natural gas, synthetic gas, acutely toxic chemicals, and other toxic chemicals that are used in agriculture, commercial, and industrial uses; businesses; hospitals; and households. Accidental releases of hazardous materials have a variety of causes, including highway incidents, warehouse fires, train derailments, shipping accidents, and industrial incidents.

The term “hazardous materials” as used in this section includes all materials defined in the California Health and Safety Code (H&SC):

> "A material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. 'Hazardous materials' include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the unified program agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment."

The term includes chemicals regulated by the United States Department of Transportation (USDOT), the United States Environmental Protection Agency (US EPA), the California Department of Toxic Substances Control (DTSC), the California Governor's Office of Emergency Services (CalOES), and other agencies, as hazardous materials, wastes, or substances. "Hazardous waste" is any hazardous material that has been discarded, except those materials specifically excluded by regulation. Hazardous materials that have been intentionally disposed of or inadvertently released, fall within the definition of "discarded" materials and can result in the creation of hazardous waste. Hazardous wastes are broadly characterized by their ignitability, toxicity, corrosivity, reactivity, radioactivity, or bioactivity. Federal and State hazardous waste definitions are similar, but contain enough distinctions that separate classifications are in place for federal Resource Conservation and Recovery Act (RCRA) hazardous wastes and State non-RCRA hazardous wastes. Hazardous wastes require special handling and disposal because of their potential to impact public health and the environment. Some materials are designated "acutely" or "extremely" hazardous under relevant statutes and regulations.

Hazardous materials and wastes can pose a significant actual or potential hazard to human health and the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Many federal, State, and local programs that regulate the use, storage, and transportation of hazardous materials and hazardous waste are in place to prevent these unwanted consequences. These regulatory programs are designed to reduce the danger that hazardous substances may pose to people and businesses under normal daily circumstances and as a result of emergencies and disasters.

Potential hazards and the use and transportation of hazardous substances are regulated by an overlapping set of adopted City, County, State, and federal plans, policies and regulations. In general, federal and State legislation empowers regulation by local agencies; however, both State and federal agencies such as the Federal Aviation Administration (FAA [airports]) and Regional Water Quality Control Boards (RWQCBs) that regulate ground and surface water contamination retain a substantial direct regulatory role. The City addresses these issues primarily in its Municipal Code and to a lesser extent in its 2025 General Plan. Hazardous materials are also regulated by the City of Fresno Fire Department, the Fresno County Environmental Health Division (FCEHD) and the San Joaquin Valley Air Pollution Control District (SJVAPCD). The Fresno Council of Governments Airport Land Use Commission (ALUC) maintains the Airport Land Use Plan (ALUP), and the City Municipal Code contains the Airport Zoning Ordinance that addresses land use and safety regulations in the airport zone.

Federal Agencies and Regulations

United States Environmental Protection Agency

The US EPA laws and regulations ensure the safe production, handling, disposal, and transportation of hazardous materials. Laws and regulations established by the US EPA are enforced in Fresno County by the California Environmental Protection Agency (CalEPA) and by various regional and local agencies, as discussed below.

United States Department of Transportation

The USDOT has the regulatory responsibility for the safe transportation of hazardous materials between states and to foreign countries. The USDOT regulations govern all means of transportation, except for those packages shipped by mail, which are covered by United States Postal Service regulations. The federal RCRA of 1976 imposes additional standards for the transport of hazardous wastes.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration (OSHA) oversees the administration of the Occupational Safety and Health Act, which requires specific training for hazardous materials handlers, provision of information to employees who may be exposed to hazardous materials, and acquisition of material safety data sheets (MSDS) from materials manufacturers. The MSDS describe the risks, as well as proper handling and procedures, related to particular hazardous materials. Employee training must include response and remediation procedures for hazardous materials releases and exposures.

Federal Emergency Management Agency (FEMA)

With respect to emergency planning, FEMA is responsible for ensuring the establishment and development of policies and programs for emergency management at the federal, state, and local levels. Enforcement of these laws and regulations is delegated to state and local environmental regulatory agencies.

Federal Aviation Administration (FAA; 14 CFR Part 77)

The FAA is charged with the review of construction or alterations that occur in the vicinity of airports. Its role in reviewing these activities is to identify potential aeronautical hazards and prevent or minimize adverse impacts to the safe and efficient use of navigable airspace. The regulations in 14 CFR Part 77 (FAR Part 77) are designed to ensure that no permanent or temporary obstructions are allowed to exist in the navigable air space that would endanger the public or limit the efficient use of airspace. Proposed structures are also evaluated against Terminal En Route Procedures, which ensure that an object does not adversely impact flight procedures. Tall structures, including buildings, construction cranes, and cell towers in the vicinity of an airport can be hazardous to the navigation of airplanes. FAR Part 77 identifies the maximum height at which a structure would be considered an obstruction based on its proximity to the airport. All objects over 200 feet above ground level (AGL) are impacted by these regulations and any object less than 200 feet AGL within 20,000 feet of an airport must be evaluated based on height and location relative to the airport.

Toxic Substances Control Act

Established in 1976 and amended on December 31, 2002, the Toxic Substances Control Act (TSCA) (15 United States Code [USC] Section 2601-2692) grants the EPA power to require proper reporting, record-keeping, and testing requirements related to chemical substances and/or mixtures. Specifically, the TSCA addresses the production, importation, use, and disposal of specific chemicals, including PCBs, asbestos, radon, and LBPs. The TSCA establishes the EPA's authority to require the notification of the use of chemicals, require testing, maintain a TSCA inventory, and require those importing chemicals under Sections 12(b) and 13 to comply with certification and/or other reporting requirements. This federal legislation also phased out the use of asbestos-containing materials in new building materials and sets requirements for the use, handling, and disposal of asbestos containing materials. Disposal standards for LBP wastes are also detailed in the TSCA.

The Emergency Planning and Community Right-To-Know Act

The Emergency Planning and Community Right-To-Know Act (also known as Title III of the Federal Superfund Amendments and Reauthorization Act, or "SARA III") (42 United States Code 11001, et seq.), was established by the EPA to allow for emergency planning at the state and local level regarding chemical emergencies, to provide notification of emergency release of chemicals, and to address community right-to-know regarding hazardous and toxic chemicals. SARA III was designed to increase community access and knowledge about chemical hazards as well as facilitate the creation and implementation of state/Native American tribe emergency response commissions, responsible for coordinating certain emergency response activities and for appointing local emergency planning committees. Section 1910.1200(c) Title 29 of the CFR defines "chemicals or hazardous materials" for the purposes of SARA III.

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 United States Code 136, et seq.) was originally passed in 1947. It has been amended several times, most extensively in 1972, and most recently by the Food Quality Protection Act of 1996. The purpose of FIFRA is to establish federal jurisdiction over the distribution, sale, and use of pesticides. It also gives EPA the authority to study the effects of pesticide use. Other key provisions of FIFRA require pesticide applicators to pass a licensing examination for status as "qualified applicators," create a review and registration process for new pesticide products, and ensure thorough and understandable labeling that includes instructions for use.

Hazardous Materials Transportation Act (HMTA)—Safe Transport of Hazardous Materials

The United States Department of Transportation regulates hazardous materials transportation between states under Title 49, Chapter 1, Part 100-185 of the Code of Federal Regulations. Within California, Caltrans and the California Highway Patrol enforce federal law related to the transport of hazardous materials. Together, these agencies determine driver training requirements, load labeling procedures, and specifications for container types to be used.

Resource Conservation and Recovery Act

The 1976 Federal Resource Conservation and Recovery Act (RCRA) and the 1984 RCRA Amendments regulate the treatment, storage, and disposal of hazardous and non-hazardous wastes. The legislation mandated that hazardous wastes be tracked from the point of generation to their ultimate fate in the environment. This includes detailed tracking of hazardous materials during transport and permitting of hazardous material handling facilities.

Comprehensive Environmental Response, Compensation and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 introduced active federal involvement to emergency response, site remediation, and spill prevention, most notably the Superfund program. The act was intended to be comprehensive in encompassing both the prevention of, and response to uncontrolled hazardous substances releases. The act deals with environmental response, providing mechanisms for reacting to emergencies and chronic hazardous material releases. In addition to establishing procedures to prevent and remedy problems, it establishes a system for compensating appropriate individuals and assigning appropriate liability. It is designed to plan for and respond to failure in other regulatory programs and to remedy problems resulting from action taken before the era of comprehensive regulatory protection.

State Agencies and Regulations

California Health and Safety Code and Code of Regulations

California Health and Safety Code Chapter 6.95 and California Code of Regulations, Title 19, Section 2729, set out the minimum requirements for business emergency plans and chemical inventory reporting. These regulations require businesses to provide emergency response plans and procedures, training program information, and a hazardous material chemical inventory disclosing hazardous materials stored, used, or handled on-site. A business which uses hazardous materials or a mixture containing hazardous materials must establish and implement a business plan if the hazardous material is handled in certain quantities.

California Environmental Protection Agency

One of the primary agencies that regulate hazardous materials is the CalEPA. The State, through CalEPA, is authorized by the US EPA to enforce and implement certain federal hazardous materials laws and regulations. The California DTSC, a department of the CalEPA, protects California and Californians from exposure to hazardous waste, primarily under the authority of the RCRA and the California Health and Safety Code.[1] The DTSC requirements include the need for written programs and response plans, such as Hazardous Materials Business Plans (HMBPs). The DTSC programs include dealing with aftermath clean-ups of improper hazardous waste management, evaluation of samples taken from sites, enforcement of

[1] Hazardous Substance Account, Chapter 6.5 (Section 25100 et seq.) and the Hazardous Waste Control Law, Chapter 6.8 (Section 25300 et seq.) of the Health and Safety Code.

regulations regarding use, storage, and disposal of hazardous materials, and encouragement of pollution prevention.

California Division of Occupational Safety and Health

Like OSHA at the federal level, the California Division of Occupational Safety and Health (CalOSHA) is the responsible state-level agency for ensuring workplace safety. The CalOSHA assumes primary responsibility for the adoption and enforcement of standards regarding workplace safety and safety practices. In the event that a site is contaminated, a Site Safety Plan must be crafted and implemented to protect the safety of workers. Site Safety Plans establish policies, practices, and procedures to prevent the exposure of workers and members of the public to hazardous materials originating from contaminated sites or buildings.

California Building Code

The California Building Standards Code (CBC), contained in Part 2 of Title 24 of the California Code of Regulations (CCR), identifies building design standards, including those for fire safety. The CBC is based on the International Building Code but has been amended for California conditions. The CBC is updated every 3 years and the current 2016 CBC went into effect January 1, 2017. It is effective state-wide but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the State Building Standards Commission. Commercial and residential buildings are plan-checked by local city and county building officials for compliance with the CBC. Typical fire safety requirements of the CBC include the installation of fire sprinklers in all new residential, high rise, and hazardous materials buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

California Emergency Management Agency

The California Emergency Management Agency (CalEMA) was established as part of the Governor's Office on January 1, 2009—created by Assembly Bill (AB) 38 (Nava), which merged the duties, powers, purposes, and responsibilities of the former Governor's Office of Emergency Services with those of the Governor's Office of Homeland Security. The CalEMA is responsible for the coordination of overall State agency response to major disasters in support of local government. The agency is responsible for assuring the State's readiness to respond to and recover from all hazards—natural, manmade, emergencies, and disasters—and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped fire threat potential throughout California.[2] CAL FIRE ranks fire threat based on the availability of fuel and the likelihood of an area burning (based on topography, fire history, and climate). The rankings include no fire threat, moderate, high, and very high fire threat. Additionally, the CAL FIRE produced the 2012 Strategic Fire Plan for California, which contains goals, objectives, and policies to prepare for and mitigate for the effects of fire on California's natural and built environments.[3]

California Fire Code

The California Fire Code (CFC), contained in Part 9 of CCR Title 24, incorporates by adoption the International Fire Code of the International Code Council, with California amendments. The CFC is updated every 3 years and the current 2016 CFC went into effect January 1, 2017. It is effective state-wide but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the State Building Standards Commission. The California Fire Code regulates building standards set forth in the CBC, fire department access, fire protection systems and devices, fire and explosion hazards safety, hazardous materials storage and use, and standards for building inspection.

California Department of Transportation and California Highway Patrol

Two State agencies have primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies: the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans). Caltrans manages more than 50,000 miles of California's highway and freeway lanes, provides intercity rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Caltrans is also the first responder for hazardous material spills and releases that occur on those highway and freeway lanes and intercity rail services.

The CHP enforces hazardous materials and hazardous waste labeling and packing regulations designed to prevent leakage and spills of materials in transit and to provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP, which conducts regular inspections of licensed transporters to assure regulatory compliance. In addition, the State regulates the transportation of hazardous waste originating or passing through the State.

Common carriers are licensed by the CHP, pursuant to the California Vehicle Code, Section 32000. This section requires licensing every motor (common) carrier who transports, for a fee, in excess of 500

[2] California Department of Forestry and Fire Protection (CAL FIRE), http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_development.php, accessed December 2, 2014.

[3] California Department of Forestry and Fire Protection (CAL FIRE), *2010 Strategic Fire Plan for California,* http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf668.pdf , accessed June 26, 2017.

pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of the business in the delivery of hazardous materials.

Federal and State Hazardous Materials-Specific Programs and Regulations

Asbestos-Containing Materials Regulations

Asbestos-containing materials (ACM) are materials that contain asbestos, a naturally occurring fibrous mineral that has been mined for its useful thermal properties and tensile strength. ACM is generally defined as either friable or non-friable. Friable ACM is defined as any material containing more than one percent asbestos. Friable ACM is more likely to produce airborne fibers than non-friable ACM, and can be crumpled, pulverized, or reduced to powder by hand pressure. Non-friable ACM is defined as any material containing one percent or less asbestos. Non-friable ACM cannot be crumpled, pulverized, or reduced to powder by hand pressure. When left intact and undisturbed, ACM does not pose a health risk to building occupants. Potential for human exposure occurs when ACM becomes damaged to the extent that asbestos fibers become airborne and are inhaled. Inhalation of asbestos airborne fibers can lead to various health problems, the most serious of which includes lung disease.

State-level agencies, in conjunction with the US EPA and OSHA, regulate removal, abatement, and transport procedures for ACMs. Releases of asbestos from industrial, demolition, or construction activities are prohibited by these regulations and medical evaluation and monitoring is required for employees performing activities that could expose them to asbestos. Additionally, the regulations include warnings that must be heeded and practices that must be followed to reduce the risk for asbestos emissions and exposure. Finally, federal, State, and local agencies must be notified prior to the onset of demolition or construction activities with the potential to release asbestos.

Lead-Based Paint

Lead-based paint (LBP), which can result in lead poisoning when consumed or inhaled, was widely used in the past to coat and decorate buildings. Lead poisoning can cause anemia and damage to the brain and nervous system, particularly in children. Like ACM, LBP generally does not pose a health risk to building occupants when left undisturbed; however, deterioration, damage, or disturbance will result in hazardous exposure. In 1978, the use of LBP was federally banned by the Consumer Product Safety Commission. Therefore, only buildings built before 1978 are presumed to contain LBP, as well as buildings built shortly thereafter, as the phase-out of LBP was gradual.

CalOSHA's Lead in Construction Standard is contained in Title 8, Section 1532.1 of the California Code of Regulations. The regulations address all of the following areas: permissible exposure limits (PELs); exposure assessment; compliance methods; respiratory protection; protective clothing and equipment; housekeeping; medical surveillance; medical removal protection (MRP); employee information, training, and certification; signage; record keeping; monitoring; and agency notification.

Polychlorinated Biphenyls

The US EPA prohibited the use of polychlorinated biphenyls (PCBs) in the majority of new electrical equipment starting in 1979, and initiated a phase-out for much of the existing PCB-containing equipment. The inclusion of PCBs in electrical equipment and the handling of those PCBs are regulated by the provisions of the TSCA, 15 United States Code Section 2601 et seq. Relevant regulations include labeling and periodic inspection requirements for certain types of PCB-containing equipment and outline highly specific safety procedures for their disposal. The State likewise regulates PCB-laden electrical equipment and materials contaminated above a certain threshold as hazardous waste; these regulations require that such materials be treated, transported, and disposed accordingly. At lower concentrations for non-liquids, regional water quality control boards may exercise discretion over the classification of such wastes.

Regional Agencies and Regulations

Central Valley Regional Water Quality Control Board

The Porter-Cologne Water Quality Act[4] established the State Water Resources Control Board (SWRCB) and divided the state into nine regional basins, each under the jurisdiction of a Regional Water Quality Control Board (RWQCB). The Central Valley Region (Region 5) is the Regional Water Quality Control Board (Central Valley RWQCB), which regulates water quality in the Plan Area. The Central Valley RWQCB has the authority to require groundwater investigations when the quality of groundwater or surface waters of the state is threatened, and to require remediation actions, if necessary.

San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has primary responsibility for control of air pollution from sources other than motor vehicles and consumer products (which are the responsibility of CalEPA and California Air Resources Board [CARB]). The SJVAPCD is responsible for preparing attainment plans for non-attainment criteria pollutants, control of stationary air pollutant sources, and the issuance of permits for activities involving air emissions, including demolition and renovation activities.

The SJVAPCD has regulations that require compliance with the asbestos demolition and renovation requirements developed by the US EPA in the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation, 40 CFR, Part 61, Subpart M[5] (San Joaquin Valley Pollution Control District Asbestos Bulletin 2012).

[4] California Water Code Sections 13000 et seq.

[5] San Joaquin Valley Air Pollution Control District (SJVAPCD), 2015. Asbestos Requirements for Demolition and Renovations, revised July 2015. https://www.valleyair.org/busind/comply/AssistanceDocuments/CAB_asbestos_july2006.pdf , accessed June 26, 2017.

Fresno County Environmental Health Division

The FCEHD is the local Certified Unified Program Agency (CUPA)[6]. A local CUPA is responsible for administering/overseeing compliance with the following programs, as required by State and federal regulations:

- Hazardous Materials Release Response Plans and Inventories (Area Plans)
- California Accidental Release Prevention (CalARP) Program
- Underground Storage Tank Program (UST)
- Aboveground Petroleum Storage Act Requirements for Spill Prevention, Control and Countermeasure (SPCC) Plans (AST)
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs
- California Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements

Facilities that store, use or handle hazardous materials above reportable amounts are required to prepare and file a Hazardous Materials Business Plan for the safe storage and use of chemicals. In the event of an emergency firefighters, health officials, planners, public safety officers, health care providers and others rely on the Business Plan. Implementation of the Business Plan should prevent or reduce damage to the health and safety of people and the environment when a hazardous material is released.

A Business Plan must be submitted by businesses that handle a hazardous material, or a mixture containing a hazardous material, in quantities equal to or greater than:

- 500 pounds of a solid
- 55 gallons of a liquid
- 200 cubic feet of a compressed gas at standard temperature and pressure
- The federal Threshold Planning Quantity (TPQ) for Extremely Hazardous Substances
- Radioactive materials in quantities for which an Emergency Plan is required as per Parts 30, 40, or 70, Chapter 1 of Title 10 of Code of Federal Regulations

The Business Plan must include (1) the type and quantity of hazardous materials; (2) a site map; (3) the risks of using these materials; (4) spill prevention; (5) emergency response; (6) employee training, and (7) emergency contacts.

Businesses, such as photographic, chrome plating, or service stations, which generate small amount of hazardous waste or require underground storage of hazardous materials, require a permit from the division.

[6] Fresno County Environmental Health Division (FCEHD), 2017. Fresno County Department of Environmental Health Website: http://www.co.fresno.ca.us/DivisionPage.aspx?id=2974 Accessed June 26, 2017.

Fresno County Office of Emergency Services

The Fresno County Office of Emergency Services (OES) is a program located within the Department of Public Health, Environmental Health Division. Fresno County OES coordinates planning, preparedness, response and recovery efforts for disasters occurring within the unincorporated area of the County.

Fresno County OES coordinates the development and maintenance of the Fresno County Operational Area Master Emergency Services Plan. This Plan serves as a guide for the County's response to emergencies/disasters in the unincorporated areas of the County. The purpose of this plan is to ensure the most effective and economical use of all resources, material and manpower, for the maximum benefit and protection of effected populations in an emergency/disaster.[7]

Each of the fifteen incorporated cities in the County of Fresno maintains an Office of Emergency Services function for their incorporated areas and coordinates with the County Office of Emergency Services regarding disaster preparedness, response and recovery activities.

The county Emergency Response Team (ERT) provides assistance to the public and other agencies by responding to hazardous materials spills and accidents, and to non-business hours emergencies. Situations may occur in all Environmental Health program areas. Examples include:

- Food and water borne illness investigations
- Hazardous materials spills and accidents
- Clandestine drug labs
- Pesticide exposures

Airport Land Use Compatibility Plans

Requirements for creation of airport land use commissions were first established under the California State Aeronautics Act (Public Utilities Code Section 21670, et seq.) in 1967. The fundamental purpose of the Airport Land Use Commission (ALUC or Commission) is to promote land use compatibility around airports and is expressed in the statute as:

> "… to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

The statutes give ALUC's the following powers and duties, subject to limitations, by which to accommodate the following:

- Assist local agencies in ensuring compatible land uses in the vicinity of airports to the extent that land in the vicinity of the airport is not already devoted to incompatible uses.

[7] Fresno County OES, 2016. Website: http://www.co.fresno.ca.us/DivisionPage.aspx?id=70251 , accessed June 26, 2017.

- Coordinate planning at the State, regional and local level, so as to provide for the orderly development of air transportation, while at the same time protect public health, safety and welfare.
- Prepare and adopt airport land use compatibility plans.

The City of Fresno developed a Compatibility Land Use Plan (CLUP) for the Fresno-Chandler Executive Airport (FCH), which is located adjacent to (and northwest of) the Plan Area. The FCH Airport Influence Area (AIA) encompasses portions of the Plan Area. The CLUP was most recently revised September 15, 2014.

Local Regulations

Citywide Development Code (Chapter 15 of the Municipal Code)

Like most cities, Fresno has a Citywide Development Code (CDC), also known as the Zoning Ordinance. The Code is the constitution of the City. It provides rules for development which ensure that Fresno's growth will take place in an attractive, orderly manner. On December 3, 2015 the City of Fresno adopted a new Development Code[8]. This code is known as Chapter 15 of the Fresno Municipal Code and replaced the former code in its entirety. It establishes new zone districts, permitted uses, development standards, and procedures in a contemporary, well-organized, and comprehensive manner. The new code reflects contemporary planning and business practices and sets clear criteria for new development. Proposals that conform to the new vision will have a streamlined approval process designed to boost economic development. In addition, infill development will be more feasible in Fresno under the new Development Code, designed for balanced growth in the future.

Article 25 (Performance Standards) of the CDC has the following purposes: 1) Establish permissible limits and allow objective measurement of nuisances, hazards, and objectionable conditions; and 2) Ensure that all uses will provide necessary control measures to protect the community from nuisances, hazards, and objectionable conditions. The General Standard of Article 25 is stated as follows: "Land or buildings shall not be used or occupied in a manner creating any dangerous, injurious, or noxious conditions, chemical fires, explosive, blight, or other hazards that could adversely affect the surrounding area."

Article 27 (Standards for Specific Uses and Activities) of the CDC states: "The purpose of this article is to establish standards for specific uses and activities that are permitted or conditionally permitted in some or all districts. These provisions are supplemental standards and requirements to minimize the impacts of these uses and activities on surrounding properties and to protect the health, safety, and welfare of their occupants and of the general public." This article specifies regulation governing the operation of various typed of facilities and activities, including hazardous waste management facilities, recycling facilities, and hazardous materials storage activities.

[8] Fresno Municipal Code Chapter 15, Citywide Development Code, December 2016, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/Complete_Code_March_2017.pdf.

Section 15-2727, Development of Former Landfill Sites and Hazardous Sites, states "A Conditional Use Permit shall be required for the development of all former Landfill Sites and other sites deemed hazardous, regardless of the proposed use. As part of the application, the applicant shall at a minimum, provide a geotechnical report that provides a complete analysis of on-site soil conditions, fault hazards, underground water conditions, and recommendations as well as a post-closure plan that outlines remediation measures. Applicants shall comply with all State and federal regulations related to operation, post-closure remediation, and monitoring."

City of Fresno Municipal Code

In addition to Chapter 15 described above, various other provisions of the City of Fresno Municipal Code are relevant to hazards and hazardous materials.

Chapter 10, Regulations Regarding Public Nuisances and Real Property Conduct and Use, includes Article 14, Hazardous Spills Expense Recovery. The intent of Article 14 is stated as follows: "Surface waters, groundwater, soils, vegetation, and atmosphere inside the City of Fresno are susceptible to damage from the handling, storage, use, processing and disposal of hazardous material and the expense incurred by the taxpayers as a result of the City of Fresno or its Designee having to respond in an emergency to protect life, property and the environment when there has been a release of hazardous materials should be recovered from the person responsible for the emergency." In conjunction with Chapter 15, Article 27 of the City of Fresno Municipal Code, Article 14 pertains to the recovery of expenses associated with hazardous spills. Specifically, the code states that "Any person causing a release or threatened release which results in an emergency action shall be liable to the City of Fresno for the recoverable costs resulting from the emergency action."

Chapter 11, Building Permits and Regulations, includes Article 2, Section 11-218, Debris and Excavations, which requires of demolition projects that the permit holder properly cap the sanitary sewer house connection, and to properly fill or otherwise protect all basements, cellars, septic tanks, wells, and other excavations, and said lot or parcel shall be left level and in a condition to be disked for control of weeds.

Fresno General Plan

The Fresno General Plan works in tandem with the Citywide Development Code and outlines various goals, objectives, and implementing policies relevant to hazards and hazardous materials in the Safety and Noise Element. This element addresses the risks posed by geologic hazards, wildland fire, hazardous materials, and flooding. It also discusses emergency response, safety service response standards, and evacuation routes. The objectives and policies relevant to the proposed Plan are listed in Table 4.8-1.

TABLE 4.8-1 FRESNO GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO HAZARDS AND HAZARDOUS MATERIALS

Objective/ Policy Number	Objective/Policy Text
Noise and Safety (NS) Element – Hazardous Materials	
Objective NS-4	*Minimize the risk of loss of life, injury, serious illness, and damage to property resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous wastes.*
Policy NS-4-a	**Processing and Storage**. Require safe processing and storage of hazardous materials, consistent with the California Building Code and Uniform Fire Code, as adopted by the City.
Policy NS-4-b	**Coordination.** Maintain a close liaison with the Fresno County Environmental Health Department, Cal-EPA Division of Toxics, and the State Office of Emergency Services to assist in developing and maintaining hazardous material business plans, inventory statements, risk management prevention plans, and contingency/emergency response action plans.
Policy NS-4-c	**Soil and Groundwater Contamination Reports**. Require an investigation of potential soil or groundwater contamination whenever justified by past site uses. Require appropriate mitigation as a condition of project approval in the event soil or groundwater contamination is identified or could be encountered during site development.
Policy NS-4-d	**Site Identification.** Continue to aid federal, State, and County agencies in the identification and mapping of waste disposal sites (including abandoned waste sites), and to assist in the survey of the kinds, amounts, and locations of hazardous wastes.
Policy NS-4-e	**Compliance with County Program**. Require that the production, use, storage, disposal, and transport of hazardous materials conform to the standards and procedures established by the County Division of Environmental Health. Require compliance with the County's Hazardous Waste Generator Program, including the submittal and implementation of a Hazardous Materials Business Plan, when applicable.
Policy NS-4-f	**Hazardous Materials Facilities**. Require facilities that handle hazardous materials or hazardous wastes to be designed, constructed, and operated in accordance with applicable materials and waste management laws and regulations.
Policy NS-4-g	**Hazmat Response.** Include policies and procedures appropriate to hazardous materials in the City's disaster and emergency response preparedness and planning, coordinating with implementation of Fresno County's Hazardous Materials Incident Response Plan.
Policy NS-4-h	**Household Collection.** Continue to support and assist with Fresno County's special household hazardous waste collection activities, to reduce the amount of this material being improperly discarded.
Policy NS-4-i	**Public Information**. Continue to assist in providing information to the public on hazardous materials.
Noise and Safety (NS) Element – Airport Safety	
Objective NS-5	*Protect the safety, health, and welfare of persons and property on the ground and in aircraft by minimizing exposure to airport-related hazards.*
Policy NS-5-a	**Land Use and Height.** Incorporate and enforce all applicable Airport Land Use Compatibility Plans (ALUCPs) through land use designations, zoning, and development standards to support the continued viability and flight operations of Fresno's airports and to protect public safety, health, and general welfare. ▪ Limit land uses in airport safety zones to those uses listed in the applicable ALUCPs as compatible uses, and regulate compatibility in terms of location, height, and noise. ▪ Ensure that development, including public infrastructure projects, within the airport approach and departure zones complies with Part 77 of the Federal Aviation Administration Regulations (Objects Affecting Navigable Airspace), particularly in terms of height.
Policy NS-5-b	**Airport Safety Hazards.** Ensure that new development, including public infrastructure projects, does not create safety hazards such as glare from direct or reflective sources, smoke, electrical interference, hazardous chemicals, fuel storage, or from wildlife, in violation of adopted safety standards.
Policy NS-5-c	**Avigation Easements.** Employ avigation easements in order to secure and protect airspace required for unimpeded operation of publicly owned airports. [Commentary: Avigation easements are established in the form of land use covenants and are binding upon present and subsequent property owners.]

TABLE 4.8-1 FRESNO GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO HAZARDS AND HAZARDOUS MATERIALS

Objective/ Policy Number	Objective/Policy Text
Policy NS-5-d	**Disclosure.** As a condition of approval for residential development projects, require sellers to prepare and provide State Department of Real Estate Disclosure statements to property buyers notifying of noise and safety issues related to airport operations.
Policy NS-5-e	**Planned Expansion.** Allow for the orderly expansion and improvement of publicly-owned airports, while minimizing adverse environmental impacts associated with these facilities. ▪ Periodically update airport facility master plans in accordance with FAA regulations. ▪ Require land use within the boundaries of the Fresno-Yosemite International Airport and Chandler Downtown Airport to conform to designations and policies specified in adopted City of Fresno compatible land use plans. ▪ Provide local jurisdictions surrounding the City's publicly owned airports with specific guidelines for effectively dealing with the presence and operation of these airports.
Noise and Safety (NS) Element – Emergency Response	
Objective NS-6	*Foster an efficient and coordinated response to emergencies and natural disasters.*
Policy NS-6-a	**County Multi-Jurisdiction Hazard Mitigation Plan.** Adopt and implement the Fresno County Multi-Jurisdiction Hazard Mitigation Plan and City of Fresno Local Hazard Mitigation Plan Annex. [Commentary: The federal Disaster Mitigation Act of 2000 requires that cities, counties, and special districts have a Local Hazard Mitigation Plan to be eligible to receive FEMA hazard mitigation funds. Cities and counties can adopt and use all or part of a regional multi-jurisdictional plan, such as the one prepared by Fresno County, in lieu of preparing all or part of a Local Hazard Mitigation Plan.]
Policy NS-6-b	**Disaster Response Coordination.** Maintain coordination with other local, State, and Federal agencies to provide coordinated disaster response.
Policy NS-6-c	**Emergency Operations Plan.** Update the City's Emergency Operations Plan periodically, using a whole community approach which integrates considerations for People with access and functional needs in all aspects of planning.
Policy NS-6-d	**Evacuation Planning.** Maintain an emergency evacuation plan in consultation with the Police and Fire Departments and other emergency service providers, which shows potential evacuation routes and a list of emergency shelters to be used in case of catastrophic emergencies. [Commentary: The evacuation plan will be flexible in order to consider many scenarios and multiple modes of transportation beyond private automobiles. It will provide special provisions for disadvantaged populations, such as those with physical disabilities or those with low or very low incomes, and for areas with fewer resources through neighborhood emergency preparedness programs.]
Policy NS-6-e	**Critical Use Facilities.** Ensure critical use facilities (e.g., City Hall, police and fire stations, schools, hospitals, public assembly facilities, transportation services) and other structures that are important to protecting health and safety in the community remain operational during an emergency. ▪ Site and design these facilities to minimize their exposure and susceptibility to flooding, seismic and geological effects, fire, and explosions. ▪ Work with the owners and operators of critical use facilities to ensure they can provide alternate sources of electricity, water, and sewerage in the event that regular utilities are interrupted in a disaster.
Policy NS-6-f	**Emergency Vehicle Access.** Require adequate access for emergency vehicles in all new development, including adequate widths, turning radii, hard standing areas, and vertical clearance.
Policy NS-6-g	**Emergency Preparedness Public Awareness Programs.** Continue to conduct programs to inform the general public, including people with access and functional needs, of the City's emergency preparedness and disaster response procedures.

Source: City of Fresno General Plan 2014-2024, adopted 2014.

4.8.1.2 EXISTING CONDITIONS

This section describes existing conditions in the Plan Area related to hazardous materials, schools, airport hazards, and wildland fires.

Plan Area Land Uses

The Plan Area is roughly 3,255 acres in size and lies within the southwestern most part of the City of Fresno, within Fresno County (see Figure 3-1). The Plan Area is bounded by Highway 180 in the north and by Highway 41 in the east (see Figure 3-2). The Plan Area does not include the Downtown Neighborhoods Community Plan Area, nor does it include the land currently in Fresno County that is considered within the Sphere of Influence (SOI) of the City's General Plan. The county land in the SOI is anticipated to become part of the City of Fresno in the future. However, as shown in Figure 3-2 there is one area in the SOI that is part of the Plan Area: the Martin Luther King Junior Boulevard (MLK) Activity Center, identified as one of the "Magnet Cores" in the proposed Plan. Although the MLK Activity Center is currently located on SOI land, it was included into the Plan Area because it was surrounded by the Plan Area and its role in providing retail and services to the Southwest Fresno community.

Initially agricultural land, Southwest Fresno has gradually transitioned with more residential, industrial, and commercial uses dispersed throughout. Today, Southwest Fresno is made up of a patchwork of land uses that abut each other, such as existing subdivisions, industry, and farmland. Many pockets of residential land uses are adjacent to vacant land, agriculture, and/or industrial uses. Incompatible land uses are located near one another, including truck routes, noise or odor-producing industrial facilities, and land with hazardous materials. The area within the City's SOI contains a significant amount of vacant land that is residentially designated, but the area has not yet exhibited much market demand to develop typical suburban neighborhoods with desired commercial and retail services.

Hazardous Materials Sites

California Government Code Section 65962.5 requires the CalEPA to compile, maintain, and update specified lists of hazardous material release sites. The California Environmental Quality Act (CEQA; California Public Resources Code Section 21092.6) requires the lead agency to consult the lists compiled pursuant to Government Code Section 65962.5 to determine whether the project and any alternatives are identified on any of the following lists:

- EPA NPL: The US EPA's National Priorities List includes all sites under the US EPA's Superfund program, which was established to fund cleanup of contaminated sites that pose risk to human health and the environment.
- EPA CERCLIS and Archived Sites: The US EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), includes a list of 15,000 sites nationally identified as hazardous sites. This would also involve a review for archived sites that have been removed from CERCLIS due to No Further Remedial Action Planned (NFRAP) status.

- **EPA RCRIS (RCRA Info):** The Resource Conservation and Recovery Act Information System (RCRIS or RCRA Info) is a national inventory system about hazardous waste handlers. Generators, transporters, handlers, and disposers of hazardous waste are required to provide information for this database.
- **DTSC Cortese List:** The DTSC maintains the Hazardous Waste and Substances Sites (Cortese) list as a planning document for use by the State and local agencies to comply with the CEQA requirements in providing information about the location of hazardous materials release sites. This list includes the Site Mitigation and Brownfields Reuse Program Database (CalSites).
- **DTSC HazNet:** The DTSC uses this database to track hazardous waste shipments.
- **SWRCB LUSTIS:** This stands for the Leaking Underground Storage Tank Information System (LUST or LUSTIS) and the SWRCB maintains an inventory of USTs and leaking USTs, which tracks unauthorized releases.

The required list of hazardous material release sites are commonly referred to as the "Cortese List" after the legislator who authorized the legislation. Because the statute was enacted more than 20 years ago, some of the provisions refer to agency activities that were conducted many years ago and are no longer being implemented and, in some cases the information required in the Cortese List does not exist. Those requesting a copy of the Cortese List are now referred directly to the appropriate information resources contained on internet websites hosted by the boards or departments referenced in the statute, including DTSC's online EnviroStor[9] database and the SWRCB's online GeoTracker database.[10]

These two databases include hazardous material release sites, along with other categories of sites or facilities specific to each agency's jurisdiction.

EnviroStor

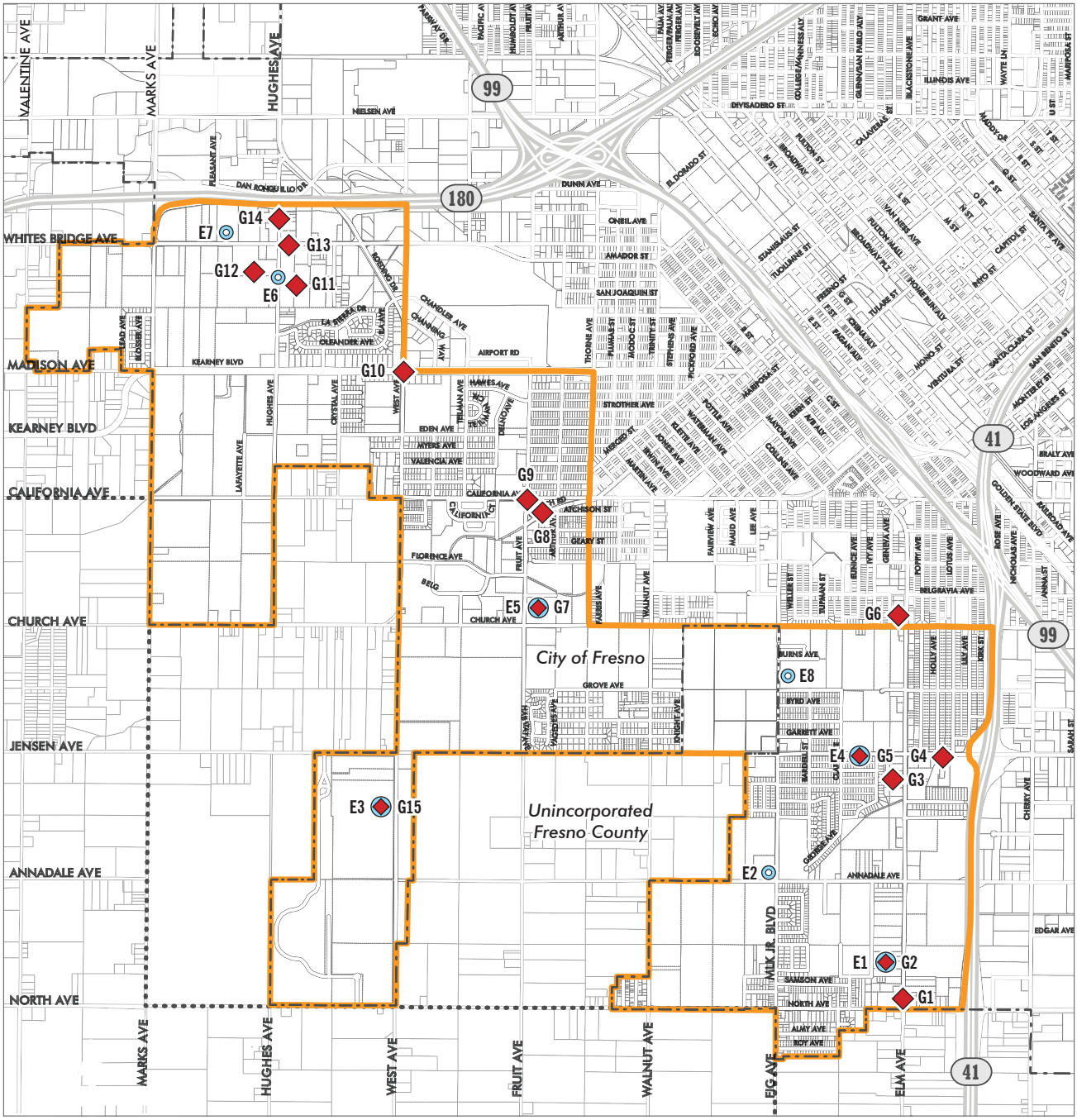
The EnviroStor database, maintained by the DTSC, identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes federal Superfund sites (from the National Priorities List); State response sites, voluntary cleanup sites; school investigation and cleanup sites; corrective action sites; and tiered California permit sites. It also includes sites that are being investigated for suspected but unconfirmed contamination. A search of this database, on July 5, 2017, found eight listed facilities within the Plan Area, as listed in Table 4.8-2, and as shown on Figure 4.8-1.

GeoTracker

The GeoTracker database, maintained by the SWRCB, lists a range of types of hazardous materials sites that could affect groundwater quality, including leaking underground storage tank (LUST) sites, cleanup program sites, land disposal sites, and military sites. A search of this database on July 5, 2017 for the Plan Area found the facilities listed in Table 4.8-3, and as shown on Figure 4.8-1.

[9] DTSC Envirostor, https://www.envirostor.dtsc.ca.gov/public/.
[10] SWRCB GeoTracker, https://geotracker.waterboards.ca.gov/.

HAZARDS AND HAZARDOUS MATERIALS



Source: PlaceWorks, 2017.

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Scale (Miles)

Specific Plan Boundary

City Boundary

Sphere of Influence

E1 Envirostor (DTSC) Hazardous Material Site

G1 GeoTracker (RWQCB) Hazardous Material Site

G2, E3 Envirostor (DTSC) and GeoTracker (RWQCB) Hazardous Material Site

Figure 4.8-1
Hazardous Materials Sites

TABLE 4.8-2 ENVIROSTOR SITES IN THE PLAN AREA[a]

Site No.	Site Name; Address	Site Description; Size	Contaminants of Concern (COCS)	Cleanup Status
E1	Commercial Electroplaters; 2940 Elm Ave	Former electroplating operation; 2.28 acres.	Chrome, cadmium, cyanide, etc.	Active. Seeking remedial action work plan approval from DTSC
E2	West Fresno Middle School Site; Corner of Annadale and MLK Blvd	Former school site on former agricultural land; 23.8 acres.	Arsenic, pesticides, (DDT, etc.)	Inactive. No Further Action as of 6/23/2000
E3	Fresno Sanitary Landfill; SW corner of Jensen and West Avenues	Federal NPL ("Superfund") site (former sanitary and hazardous waste landfill); ~129 acres.	VOCs[b], (PCE[c], etc.), metals, etc.	Active. Landfill gas control, surface water management and groundwater remediation ongoing. Land Use Covenant (3/23/2012) between DTSC and city of Fresno established future land use restrictions.
E4	Fresno Battery Exchange; 1403 Jensen Ave	Former battery recycler; ~ 1 acre of contaminated land	Lead.	Certified (6/29/2012). Site has been remediated to residential cleanup standards. DTSC asserts a lien ($1,451,922) on property.
E5	Church and Fruit Junkyard; NE corner Church and Fruit Avenues	Abandoned salvage yard and landfill; 2.6 acres	Lead, other heavy metals, PCBs	Certified (12/1/2009). Remediation completed; cap installed. Covenant between DTSC and city of Fresno established land use restrictions, originally in place as of 3/1/1994, and reaffirmed 5/29/2014 without the groundwater monitoring requirement.
E6	Fresno Drum; 700 and 733 South Hughes Avenue	Former chemical storage and sales business; ~ 1.6 acres	Potential contaminants: VOCs, metals, PCBs, etc.	Inactive. A 9/13/2013 RWQCB letter indicates site contaminants do not appear to pose a threat to human health or groundwater for the western portion (700 Hughes). However, DTSC lists the overall site as "Needs evaluation as of 10/19/2011". DTSC indicates Site Screening is due 07/17/2017.
E7	Westside Auto Dismantler, AKA SR 180 Realignment; 2640 West Whitesbridge Road	Auto dismantling operation, a portion of which Caltrans is acquiring ; ~4 acres	Lead	Certified O&M (9/14/2011). Land Use restrictions as of 6/19/2009; commercial/industrial land uses allowed. Voluntary Caltrans cleanup.
E8	Southwest Fresno Middle School Site; SE corner of Church Ave and MLK Blvd	Proposed school site on former agricultural land; 23.8 acres.	Arsenic, pesticides, (DDT, etc.)	Certified. No Further Action as of 12/19/2012

a. See Figure 4.8-1 or EnviroStor (https://www.envirostor.dtsc.ca.gov/public/) for Site locations
b. VOCs = Volatile Organic Compounds
c. PCE = Tetrachloroethylene
Source: DTSC Envirostor.

EDR Database of Hazardous Materials Sites

A proprietary database report was obtained from EDR® that identified federal, State and local agency-listed sites of potential environmental interest within the Plan Area. The EDR database report identifies a wide range of hazardous materials use and contamination cleanup sites, including a federal "Superfund" site, various leaking underground storage tanks (LUST sites), and numerous small and large quantity generators of hazardous waste, etc.

The search boundary of the EDR report was consistent with the search boundaries established in accordance with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E 1527-13), approved November 1, 2013. Thus, the EDR report includes federal, State, and local environmental database information within the Plan Area, as well as within ASTM-specified distances (up to one mile) from the Plan Area. The EDR report is reproduced in Appendix E.

The EDR report in Appendix E includes a "Key Map" figure (Key Map, EDR DataMap – Environmental Atlas, Southwest Fresno Specific Plan) showing the location of each listed site of environmental interest in the Plan Area, and within the ASTM search boundaries (up to one mile) around the Plan Area. Because the size of the Plan Area results in a relatively large-scale Key Map, the EDR report also includes 22 "focus maps" (Focus Map 1 through Focus Map 22), each one square-mile, showing the listed sites of environmental interest in each Focus Map area. Following each Focus Map in the EDR report is a summary description ("Focus Map Summary") of the number of each type of environmental site (e.g., LUST, small quantity hazardous waste generator, etc.) plotted on each map. The environmental sites plotted on each Focus Map (and on the Key Map) are number coded with a Map ID. Following each Focus Map Summary in the EDR report is a detailed array of database information ("Map Findings") for each environmental site of interest on that Focus Map, keyed to and presented sequentially by the Map ID number.

Hundreds of environmental sites are plotted within the Plan Area and within the ASTM search area boundaries, as shown in the EDR report (Appendix E). Many of the listed sites are for relatively innocuous categories, such as the 133 HAZNET sites (which are identified based on information extracted from the copies of hazardous waste transportation manifests received each year by the DTSC) and the 31 RCRA small quantity generators (SQG) of hazardous waste (the RCRA-SQG database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act [RCRA]). Other EDR-listed sites represent relatively greater potential environmental concern, such as the Fresno Sanitary Landfill (a Federal National Priorities List [NPL] "Superfund" cleanup site) and Commercial Electroplaters (an active/open DTSC cleanup site); both of these sites are also identified in the GeoTracker and EnviroStor databases. In general, the Geotracker and EnviroStor data bases (as summarized above in Tables 4.8-2 and 4.8-3) comprise the environmental sites of greatest potential concern in the EDR database.

Summary

As outlined above, the Plan Area encompasses various contaminated sites that have released hazardous materials and required remediation and involvement by local, State and federal agencies. The Fresno Sanitary Landfill is a federal Superfund site. Fresno Battery, Fresno Drum, and Commercial Electroplaters

TABLE 4.8-3 GEOTRACKER SITES IN THE PLAN AREA[a]

Site No.	Site Name; Address	Site Description; Size	Contaminants of Concern (COCS)	Cleanup Status
G1	North and Elm Excavation; corner of North and Elm Avenues	Construction workers became ill after chemical vapor exposure; NA	Benzene	Completed. Case Closed (8/6/2003). Remediation by excavation of contaminated soil (2/23/2003)
G2	Commercial Electroplaters; 2940 Elm Ave	Former electroplating operation; 2.28 acres.	Chrome, cadmium, cyanide, etc.	Open. Site Assessment. Active DTSC lead site. Seeking remedial action work plan approval from DTSC
G3	Myrtle Harper; 2632 Elm Ave	LUST cleanup site.	Gasoline	Completed. Case Closed (3/26/2002). Local agency lead: Fresno County
G4	Jantz Trucking; 2006 Jensen Ave W.	LUST cleanup site	Diesel	Completed. Case Closed (6/23/1993). Local agency lead: Fresno County
G5	Former Fresno Battery Exchange Facility; 1403 Jensen Ave	Former battery recycler; ~ 1 acre of contaminated land	Lead.	Certified (6/29/2012) by DTSC; lead agency. Site has been remediated to residential cleanup standards. DTSC asserts a lien ($1,451,922) on property. RWQCB lists site as Open-site Assessment (as of 10/31/2001)
G6	J & C Food and Gas; 2394 Elm Ave	LUST cleanup site	Gasoline	Completed. Case Closed (10/13/2014).
G7	Church and Fruit Junkyard; NE corner of Church and Fruit Avenues	Abandoned salvage yard and landfill; 2.6 acres	Lead, other heavy metals, PCBs	Completed. Case Closed (5/9/1989) DTSC certified cleanup complete (12/1/2009). Covenant between DTSC and city of Fresno established land use restrictions, originally in place as of 3/1/1994, and reaffirmed 5/29/2014 without the groundwater monitoring requirement.
G8	Auto Dismantler (former); 317 California Ave	Auto dismantling operation (former; 1950 – 1967); 1.8 acres	Copper, Lead, PCBs	Completed. Case Closed (10/25/2011).
G9	Vacant Lot (ABD S/S); 437 California Ave	LUST cleanup site	Gasoline	Completed. Case Closed (4/29/2010).
G10	Hydratech; 1331 West Ave	LUST cleanup site	Gasoline	Completed. Case Closed (8/7/1996). Local agency lead: Fresno County
G11	Fresno Drum (eastern parcel); 733 Hughes Avenue	Former chemical storage and sales business;	Potential contaminants: lead, other metals, etc.	Open – Inactive (4/28/2016). DTSC lists the site as "Needs evaluation as of 10/19/2011". DTSC indicates Site Screening is due 07/17/2017.
G12	Fresno Drum (western parcel); 700 Hughes Avenue	Former chemical storage and sales business;	Potential contaminants: lead, other metals, etc.	Completed. Case Closed (12/9/2013). A 9/13/2013 RWQCB letter indicates site contaminants do not appear to pose a threat to human health or

TABLE 4.8-3 GEOTRACKER SITES IN THE PLAN AREA[a]

Site No.	Site Name; Address	Site Description; Size	Contaminants of Concern (COCS)	Cleanup Status
				groundwater. DTSC indicates Site Screening is due 07/17/2017 for the overall site.
G13	Art's Merchantile; 2082 Whites Bridge Road	LUST cleanup site	Gasoline	Completed. Case Closed (3/27/2006).
G14	Kemmer Residence; 511 Hughes Ave	LUST cleanup site	Gasoline	Completed. Case Closed (8/26/2007).
G15	Fresno Sanitary Landfill; SW corner of Jensen and West Avenues	Federal NPL ("Superfund") site (former sanitary and hazardous waste landfill); ~129 acres.	VOCs[b], (PCE[c], etc.), metals, etc.	Open. Assessment and Interim Remedial Action (4/12/2006). USEPA Lead Agency. Active DTSC site. . Landfill gas control, surface water management and groundwater remediation ongoing. Land Use Covenant (3/23/2012) between DTSC and city of Fresno established future land use restrictions.

a. See Figure 4.8-1, or GeoTracker (https://geotracker.waterboards.ca.gov/), for Site locations
b. VOCs = Volatile Organic Compounds
c. PCE = Tetrachloroethylene
Source: SWRCB GeoTracker.

are also the sites of contamination and under remediation plans. These sites have caused significant underground water pollution requiring State and federal response. In addition, the Plan Area has had numerous leaking underground storage tanks, but cleanup activities have been completed for the vast majority of the sites. A search of GeoTracker and EnviroStor databases on July 5, 2017 in the Plan Area found the facilities listed in Tables 4.8-2 and 4.8-3, and as shown on Figure 4.8-1. The Plan Area also includes numerous sites that generate (and transport) hazardous materials and wastes, but that do not have hazardous releases that require remedial cleanup actions.

Hazardous Materials Incidents Emergency Response

The unauthorized releases of hazardous materials into the environment could create environmental impacts to properties, natural environment, and human health. The significance of these impacts could vary according to the release location and the quantity and nature of the substance released. Hazardous releases can occur in areas that treat, store, transport and use hazardous materials; however, certain areas are at higher risk for releases. In the event of an unauthorized release of hazardous materials/substances, emergency response measures must be implemented to mitigate potential risks and ensure the protection of human health and the natural environment.

Fresno includes a developed urban area with industrial uses concentrated in the southern portion of the city. There are also agricultural uses located within the city's SOI. There are historical and existing agricultural uses located within the Plan Area. It is possible that existing or historical agricultural land in the Plan Area could contain residual pesticides or other hazardous materials. More recently, the City has promoted a transition to community gardens and urban agricultural uses, which could potentially include

the use of pesticides and other hazardous materials. Thus, the potential for hazardous materials incidents is heightened. Accidental releases of pesticides, fertilizers, and other agricultural chemical may be harmful to the public's health, safety, and the environment. In addition, the Plan Area is bounded by major transportation routes, such as SR-180, and SR-41.

The Fresno-Chandler Executive Airport is located adjacent to the Plan Area. This facility, along with the transportation routes and industrial uses referenced above, transports large quantities of hazardous materials adjacent, through and into the Plan Area and SOI each year. Because of the mix of land uses nature of the Plan Area and its location among several routes that regularly transport hazardous materials through and around the Plan Area, the area faces potential risks associated with the possibility for hazardous materials emergencies.

The City of Fresno Fire Department recognizes the potential for a large chemical release to occur which could expose thousands of people to hazardous or toxic vapors. The City of Fresno Fire Department Hazardous Materials Response Team (HMRT) has embraced an all-hazards approach to emergency response to ensure that the city receives effective protection from the risk of hazardous materials releases.

The Fire Department HMRT currently is comprised of 40 personnel trained to the Hazardous Materials Technician and/or Specialist requirements. Starting October 2017, 24 new HMRT members will be begin training to the Specialist level. A minimum of five HMRT members are on duty each shift spilt between fire stations 1 and 16.

The Fresno City HMRT's have partnered with the State OES to deploy regionally or statewide to support any jurisdiction through the State Master Mutual Aid System. The HMRT utilizes two OES Type 1 Hazmat response apparatus strategically located at Fire Station 1 (1264 Jackson) and Fire Station 16 (2510 Polk). The deployment plan requires the dispatch of the closest response fire company in conjunction with the HMRT to hazardous materials emergencies[11].

Emergency Response

In addition to emergency response to hazardous materials incidents, both the City of Fresno and the County of Fresno implement programs to facilitate emergency preparedness for other types of incidents within the Plan Area. Specifically, the City of Fresno has an Emergency Operations Plan[12] that describes what the City's actions will be during a response to an emergency. This plan also describes the role of the Emergency Operations Center (EOC) and the coordination that occurs between the EOC, city departments, and other response agencies. The plan establishes a requirement for the emergency management organization to mitigate any significant emergency disaster affecting the City of Fresno. The plan also identifies the policies, responsibilities, and procedures required to protect the health and safety

[11] City of Fresno Fire Department, Fire Suppression, HMRT web site, https://www.fresno.gov/fire/fire-suppression/ , accessed June 28, 2017.

[12] City of Fresno Emergency Operations Plan, 2008, city council adoption, https://webapp.fresno.gov/citycouncilarchive/agenda9.23.2008/1l.pdf , accessed June 28, 2017.

of city communities, public and private property, and the environmental effects of natural or technological disasters. In addition, the plan establishes the operation concepts and procedures associated within initial response operations (field response) to emergencies, the extended response operations (City of Fresno Emergency Operations Center Activities), and the recovery process. Furthermore, the plan complies with the State of California Emergency Operations Plan "Cross Walk" checklist for determining whether an emergency plan has addressed critical elements of California's Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS).

The County of Fresno has a Multi-Hazard Mitigation Plan, a multi-jurisdictional plan that aims to reduce or eliminate long-term risk to people or property from natural disasters and their effects, applicable to the City and areas outside of the City but within the Plan Area and SOI.

Existing Schools

The Plan Area is made up of three school districts, but predominantly Fresno Unified in the northern half and Washington Unified in the southern half. The Central Unified School District is located to the west of the Plan Area, but overlaps a minimal number of existing residential properties within the Plan Area. The Plan Area consists of two elementary schools (Sunset and West Fresno), two middle schools (Gaston and West Fresno), and no high schools. The remaining schools (Bethune Elementary and W.E.B Dubois) are charter schools. W.E.B Dubois Charter School serves students from kindergarten to twelfth grade.

Edison High School is located outside, but very proximate, to the Plan Area. Edison High School is spatially located within two districts, but belongs to Fresno Unified School District. Washington Union High School serves the Washington Unified District, but is located outside of the Plan Area and approximately four miles south of the Plan Area's southern edge. Near the freeway intersection of Highway 41 and Highway 99, the school district boundaries of Fresno Unified and Washington Unified alternate in the east-west and north-south directions. It is likely that many of the Plan Area's residents may live in close proximity of each other, but are assigned to different school districts, and thus attend different schools.

Airport Hazards

Fresno-Chandler Executive Airport (FCH) is located adjacent to the Plan Area, directly north across Kearney Boulevard. The FCH Airport Influence Area (AIA) encompasses northern portions of the Plan Area.

Fresno-Chandler Executive Airport is owned and operated by the City of Fresno. The single runway (12-30) is 3,626 feet long and 75 feet wide with a full-length parallel taxiway. The airport elevation is 279.7 feet above Mean Sea Level (MSL).

The FCH's revised CLUP, dated September 15, 2014, establishes review authority of the ALUC for certain categories of new land use plans within the AIA. For example, review is mandatory for proposed adoption or amendment of general plans, specific plans, rezone applications, text amendments to the zoning ordinance, and building regulations affecting land within an AIA. Submittal of individual projects for ALUC review is voluntary.

According to the CLUP, the mix of aircraft based at the airport consists of 237 single engine aircraft, six multi-engine aircraft, one turbine-powered aircraft and 3 helicopters. There are nine general aviation related businesses at FCH, offering services such as fueling, aircraft maintenance and restoration, flight instruction, charter services and rentals.

The FCH serves as a critical reliever airport to Fresno Yosemite International Airport (FAT), located on the eastern side of Fresno, approximately 7 miles from the Plan Area. FCH plays a significant role in accommodating business and corporate connectivity to the region and throughout California.

Wildland Fire Hazard

There are no wildlands located within or adjacent to the Plan Area. CAL FIRE evaluates fire hazard severity risks according to areas of responsibility (i.e., federal, State, and local). According to CAL FIRE,[13] there are no very high fire hazard severity zones (VHFHSZ) within the Local Responsibility Area on or in near proximity to the Plan Area. One area in the southwestern portion of the Plan Area (Regional Sports Complex) is designated as LRA Moderate Fire Hazard severity Zone on the CAL FIRE Fresno County Very High Fire Hazard Severity in LRA map. The Plan Area is not within a wildland State Responsibility Area.[14]

4.8.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would have a significant impact regarding 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 ¼-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, create a significant hazard to the public or the environment.
5. Be 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 for people residing or working in the Plan Area.
6. Be within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the Plan Area.

[13] California Department of Forestry and Fire Protection, 2007. Fresno County Very High Fire Hazard Severity in LRA map, http://frap.fire.ca.gov/webdata/maps/fresno/fhszl06_1_map.10.pdf, accessed June 28, 2017.

[14] California Department of Forestry and Fire Protection, 2007. *Fire Hazards and Severity Zones in State Responsibility Areas,* http://frap.fire.ca.gov/webdata/maps/fresno/fhszs_map.10.pdf, accessed June 28, 2017.

7. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
8. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

With regard to Standards of Significance 6 and 8, as previously discussed in Section 4.8.1.2, Existing Conditions, there are no private airstrips or heliports listed by FAA within or in proximity to the Plan Area, and there are no wildlands or areas with a VHFHSZ designation located within or adjacent to the Plan Area. Therefore, no further discussion of the proposed Plan's impacts related to airport safety operations and to people residing or living in the Plan Area in close proximity to private airstrips or wildlands is warranted in this Draft EIR.

4.8.3 IMPACT DISCUSSION

HAZ-1 Implementation of the proposed Plan would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Hazardous materials are routinely used, stored, and transported within the Plan Area, and are associated with industrial and commercial/retail businesses, as well as in educational facilities, health care facilities and households.

Hazardous waste generators in the Plan Area include industries, businesses, public and private institutions, and households. Federal, state, and local agencies maintain comprehensive databases that identify the location of facilities using large quantities of hazardous materials, as well as facilities generating hazardous waste. Some of these facilities use certain classes of hazardous materials that require risk management plans to protect surrounding land uses.

Facilities that store, use or handle hazardous materials above reportable amounts are required to prepare and file a Hazardous Materials Business Plan (Business Plan) for the safe storage and use of chemicals. In the event of an emergency, firefighters, health officials, planners, public safety officers, health care providers and others rely on the Business Plan. Implementation of the Business Plan should prevent or reduce damage to the health and safety of people and the environment when a hazardous material is released.

The FCEHD is the local Certified Unified Program Agency (CUPA) responsible for administering/overseeing compliance with the Hazardous Materials Business Plan requirements, as well as other related regulatory programs such as those involving USTs, hazardous waste generation, hazardous waste treatment and disposal facility permitting, and hazardous materials releases.

Implementation of the proposed Plan would result in the continued use and storage of hazardous materials, including common cleaning products, building maintenance products, paints and solvents, and other similar items. Routinely used hazardous materials, however, would not be of the type or occur in

sufficient quantities to pose a significant hazard to public health and safety or to the environment. Some of these facilities use certain classes of hazardous materials that require risk management plans to protect surrounding land uses. Future development also would result in continued generation of hazardous waste by certain facilities. Several properties within the Plan Area have residual soil, and in some cases groundwater, contamination that may require remediation. Also, potentially hazardous building materials (e.g., asbestos containing materials, lead-based paint, etc.) could be encountered during demolition of existing structures to accommodate new development. Therefore, the transport of hazardous materials could occur during future operational, remediation and construction activities.

Transport of hazardous materials, however, would be subject to existing federal, State, and local regulations, such as the following:

- DOT Hazardous Materials Transport Act-Code of Federal Regulations (CFR), Title 49
- US EPA Resource Conservation and Recovery Act (RCRA)
- US EPA Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
- Toxic Substance Control Act
- CAL/OSHA
- California Health and Safety Code (Chapters 6.95 and 19)
- California Code of Regulations (Section 2729)
- City of Fresno General Plan (see below)
- City of Fresno Municipal Code (Chapter 10, Article 14; Chapter 11, Article 2; Chapter 15, Articles 25 and Article 27)

The proposed Plan identifies new truck routes away from existing and planned residential neighborhoods and it prohibits new industrial uses from being developed or located within the Plan Area. In addition, to reduce potential project-specific impacts regarding routine transport, use, or disposal of hazardous materials in the City of Fresno, including the Plan Area, the General Plan includes the following objective and policies:

Objective NS-4: Minimize the risk of loss of life, injury, serious illness, and damage to property resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous wastes.

Policy NS-4-a Processing and Storage. Require safe processing and storage of hazardous materials, consistent with the California Building Code and the Uniform Fire Code, as adopted by the City.

Policy NS-4-b Coordination. Maintain a close liaison with the Fresno County Environmental Health Department, Cal-EPA Division of Toxics, and the State Office of Emergency Services to assist in developing and maintaining hazardous material business plans, inventory statements, risk management prevention plans, and contingency/emergency response action plans.

Policy NS-4-c Soil and Groundwater Contamination Reports. Require an investigation of potential soil or groundwater contamination whenever justified by past site uses. Require appropriate mitigation as a condition of project approval in the event soil or

groundwater contamination is identified or could be encountered during site development.

Policy NS-4-d Site Identification. Continue to aid federal, State, and County agencies in the identification and mapping of waste disposal sites (including abandoned waste sites), and to assist in the survey of the kinds, amounts, and locations of hazardous wastes.

Policy NS-4-e Compliance with County Program. Require that the production, use, storage, disposal, and transport of hazardous materials conform to the standards and procedures established by the County Division of Environmental Health. Require compliance with the County's Hazardous Waste Generator Program, including the submittal and implementation of a Hazardous Materials Business Plan, when applicable.

Policy NS-4-f Hazardous Materials Facilities. Require facilities that handle hazardous materials or hazardous wastes be designed, constructed, and operated in accordance with applicable hazardous materials and waste management laws and regulations.

Policy NS-4-g Hazmat Response. Include policies and procedures appropriate to hazardous materials in the City's disaster and emergency response preparedness and planning, coordinating with implementation of Fresno County's Hazardous Materials Incident Response Plan.

Policy NS-4-I Public Information. Continue to assist in providing information to the public on hazardous materials.

Policy NS-4-h Household Collection. Continue to support and assist with the County's special household hazardous waste collection activities, to reduce the amount of this material being improperly discarded.

Regulatory programs overseen/administered by the local CUPA, as well as compliance with thee above-listed laws, regulations and policies, would ensure hazardous impacts associated with the routine transport, use, or disposal of hazardous materials are *less than significant*.

Significance Without Mitigation: Less than significant.

HAZ-2 Implementation of the proposed Plan would not 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.

Implementation of the proposed Plan would result in the continued use and storage of hazardous materials, including common cleaning products, building maintenance products, paints and solvents, as well as continued generation of regulated hazardous wastes. Also, several properties within the Plan Area have residual soil, and in some cases groundwater, contamination that may require remediation. Locations of specific properties are shown on Figure 4.8-1, as well as on the Key Map and Focus Maps in Appendix E. In addition, potentially hazardous building materials (e.g., asbestos containing materials, lead-based paint,

etc.) could be encountered during demolition of existing structures to accommodate new development. Releases of hazardous materials could occur during future remediation and construction activities, as well as during future operational activities within the Plan Area.

The City of Fresno Fire Department (FFD) recognizes the potential for a large chemical release to occur—anywhere in the city—which could expose thousands of people to hazardous materials via air, soil or water media. Similarly, a variety of chemicals would continue to be transported via the highways, surface streets, and airport which serve the Plan Area. The FFD Hazardous Materials Response Team has embraced an all hazards approach to emergency response to ensure that the community receives a robust, competent level of service to all hazardous materials events (City of Fresno Hazardous Materials Team 2012). In addition, all new development under the proposed plan that would handle, store, generate or dispose of hazardous materials must comply with City of Fresno regulations/laws regarding hazardous materials as well as State and federal laws regarding hazardous materials, as outlined above in the Regulatory Setting (Section 4.8.1.1).

The proposed Plan identifies new truck routes away from existing and planned residential neighborhoods and it prohibits new industrial uses from being developed or located within the Plan Area. To reduce potential project-specific impacts regarding potential to 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 in the City of Fresno, including the Plan Area, the General Plan includes the following objective and policies:

Objective NS-4: Minimize the risk of loss of life, injury, serious illness, and damage to property resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous wastes.

Policy NS-4-a Processing and Storage. Require safe processing and storage of hazardous materials, consistent with the California Building Code and the Uniform Fire Code, as adopted by the City.

Policy NS-4-b Coordination. Maintain a close liaison with the Fresno County Environmental Health Department, Cal-EPA Division of Toxics, and the State Office of Emergency Services to assist in developing and maintaining hazardous material business plans, inventory statements, risk management prevention plans, and contingency/emergency response action plans.

Policy NS-4-c Soil and Groundwater Contamination Reports. Require an investigation of potential soil or groundwater contamination whenever justified by past site uses. Require appropriate mitigation as a condition of project approval in the event soil or groundwater contamination is identified or could be encountered during site development.

Policy NS-4-d Site Identification. Continue to aid federal, State, and County agencies in the identification and mapping of waste disposal sites (including abandoned waste sites), and to assist in the survey of the kinds, amounts, and locations of hazardous wastes.

Policy NS-4-e Compliance with County Program. Require that the production, use, storage, disposal, and transport of hazardous materials conform to the standards and procedures established by the County Division of Environmental Health. Require compliance with the County's Hazardous Waste Generator Program, including the submittal and implementation of a Hazardous Materials Business Plan, when applicable.

Policy NS-4-f Hazardous Materials Facilities. Require facilities that handle hazardous materials or hazardous wastes be designed, constructed, and operated in accordance with applicable hazardous materials and waste management laws and regulations.

Policy NS-4-g Hazmat Response. Include policies and procedures appropriate to hazardous materials in the City's disaster and emergency response preparedness and planning, coordinating with implementation of Fresno County's Hazardous Materials Incident Response Plan.

Policy NS-4-I Public Information. Continue to assist in providing information to the public on hazardous materials.

Policy NS-4-h Household Collection. Continue to support and assist with the County's special household hazardous waste collection activities, to reduce the amount of this material being improperly discarded.

Objective NS-6: Foster an efficient and coordinated response to emergencies and natural disasters.

Policy NS-6-a: County Multi-Jurisdiction Hazard Mitigation Plan. Adopt and implement the Fresno County Multi-Jurisdiction Hazard Mitigation Plan and City of Fresno Local Hazard Mitigation Plan Annex. [Commentary: The federal Disaster Mitigation Act of 2000 requires that cities, counties, and special districts have a Local Hazard Mitigation Plan to be eligible to receive FEMA hazard mitigation funds. Cities and counties can adopt and use all or part of a regional multi-jurisdictional plan, such as the one prepared by Fresno County, in lieu of preparing all or part of a Local Hazard Mitigation Plan.]

Policy NS-6-b Disaster Response Coordination. Maintain coordination with other local, State, and Federal agencies to provide coordinated disaster response.

Policy NS-6-c Emergency Operations Plan. Update the City's Emergency Operations Plan periodically, using a whole community approach which integrates considerations for People with access and functional needs in all aspects of planning.

Policy NS-6-d Evacuation Planning. Maintain an emergency evacuation plan in consultation with the Police and Fire Departments and other emergency service providers, which shows potential evacuation routes and a list of emergency shelters to be used in case of catastrophic emergencies. [Commentary: The evacuation plan will be flexible in order to consider many scenarios and multiple modes of transportation beyond private automobiles. It will provide special provisions for disadvantaged populations, such as those with physical disabilities or those with low or very low incomes, and for areas with fewer resources through neighborhood emergency preparedness programs.]

Policy NS-6-e Critical Use Facilities. Ensure critical use facilities (e.g., City Hall, police and fire stations, schools, hospitals, public assembly facilities, transportation services) and other structures that are important to protecting health and safety in the community remain operational during an emergency.

- Site and design these facilities to minimize their exposure and susceptibility to flooding, seismic and geological effects, fire, and explosions.
- Work with the owners and operators of critical use facilities to ensure they can provide alternate sources of electricity, water, and sewerage in the event that regular utilities are interrupted in a disaster.

Policy NS-6-f Emergency Vehicle Access. Require adequate access for emergency vehicles in all new development, including adequate widths, turning radii, hard standing areas, and vertical clearance.

Policy NS-6-g Emergency Preparedness Public Awareness Programs. Continue to conduct programs to inform the general public, including people with access and functional needs, of the City's emergency preparedness and disaster response procedures.

The following project-specific mitigation measures regarding hazardous materials (described later in this section under Impact HAZ-4) would reduce potential impacts regarding the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving release of hazardous materials into the environment: Mitigation Measures HAZ-4a, HAZ-4b, HAZ-4c, HAZ-4d, HAZ-4e, HAZ-4f, HAZ-4g, and HAZ-1h.

In addition to the above reference Mitigation Measures, regulatory programs overseen/administered by the local CUPA, as well as compliance with the laws and regulations referenced above under Impact HAZ-1, would ensure hazardous impacts from development of the proposed Plan related to the creation of a possible hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment are anticipated to be *less than significant*.

Significance With Mitigation: Less than significant.

HAZ-3 Implementation of the proposed Plan would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school.

The Plan Area encompasses portions of three school districts, but predominantly Fresno Unified in the northern half and Washington Unified in the southern half. The Central Unified School District is located to the west of the Plan Area, but overlaps a minimal number of existing residential properties within the Plan Area. The existing Plan Area includes two elementary schools (Sunset and West Fresno), two middle schools (Gaston and West Fresno), and no high schools. The remaining schools (Bethune Elementary and W.E.B Dubois) are charter schools. W.E.B Dubois Charter School serves students from kindergarten to twelfth grade.

Although the future projects and their exact locations under implementation of the proposed Plan are unknown, the proposed Plan could result in the construction of new schools that would serve "complete neighborhoods."

Development under the proposed Plan could include land uses, or could include disturbance of existing hazardous cleanup sites, that have the potential to emit hazardous emissions or handle hazardous or acutely hazardous materials and substances, although it prohibits new industrial uses from being developed or located within the Plan Area. It is anticipated that future development under the proposed Plan could occur within ¼-mile of an existing or future school. However, all generation, transport, and treatment of hazardous materials would be required to comply with applicable federal, State, and local requirements (see HAZ-1 impact analysis). Additionally, any future projects would be reviewed by the City of Fresno in light of their potential impacts and location in relation to existing and/or proposed schools. Likewise, new/proposed schools would be subject to environmental site assessment in accordance with state laws, regulations and policies.[15]

As addressed in the discussion of HAZ-1, construction and operation of future development allowed by the proposed Plan could involve the routine transport, use, and disposal of hazardous or potentially hazardous materials to, from, and on development sites; although, the proposed Plan identifies new truck routes away from existing and planned residential neighborhoods. As stated in the discussion of HAZ-2, several properties within the Plan Area have residual soil, and in some cases groundwater, contamination that are subject to ongoing remediation programs. In addition, potentially hazardous building materials (e.g., asbestos containing materials, lead-based paint, etc.) could be encountered during demolition of existing structures to accommodate new development. Thus, releases of hazardous materials could occur during future remediation and construction activities, as well as during future operational activities within the Plan Area. However, hazardous chemicals and materials that would be involved in the implementation of the proposed Plan would be subject to existing government regulations.

Impact HAZ-3: Implementation of the proposed Plan could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school.

Significance Without Mitigation: Potentially significant.

> Mitigation Measure HAZ-3: Implementation of Mitigation Measures HAZ-4a through HAZ-4h, described later in the section under Impact HAZ-4, would reduce potential impacts to schools.
>
> In addition, as stated in the discussions of Impacts HAZ-1 and HAZ-2, compliance with existing federal, State, and local regulations, procedures, and policies would avoid potential impacts associated with hazardous materials handling, use, and storage in the Plan Area. Compliance with these regulations, procedures, and policies would ensure that hazardous materials are properly handled, thereby reducing potential risks to nearby schools.

[15] California Department of Education (CDE). 2017. School Site Selection and Approval Guide, http://www.cde.ca.gov/ls/fa/sf/schoolsiteguide.asp#emissions, accessed July 9, 2017

Significance With Mitigation: Less than significant.

HAZ-4	The proposed Plan would 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, create a significant hazard to the public or the environment.

As discussed previously, and as summarized in Tables 4.8-2 and 4.8-3, there are properties within the Plan Area that are known to have contaminated groundwater and soils. Substances identified on these properties include VOCs, diesel, gasoline, various metals, pesticides, PCBs, and other chemicals. For most of these properties, soil and/or water testing has been performed and documented in accordance with regulatory agency oversight. For many of these sites, remedial action programs to mitigate potential impacts are recommended, planned, ongoing, or complete. Remediation programs are designed to clean up sites such that residual contamination is below specific numerical concentrations corresponding to acceptable human health risk thresholds for chemical contaminants of concern. Thus, development can occur only after appropriate property remediation has occurred and the regulatory agency with jurisdictional oversight has affirmed the site is cleaned up to safe levels. It should be noted that soils, groundwater, and/or property decontamination and remediation are currently being managed for each individual property with residual contamination in accordance with applicable Federal, State (e.g., RWQCB and DTSC), and local (e.g., FCEHD) procedures, protocols, and standards.

The Plan Area includes contaminated properties owned by multiple property owners. Contaminated properties within the Plan Area would be remediated and developed in accordance with regulatory requirements. However, the cleanup process also would be subject to case-by-case considerations, with regulatory actions and oversight subject to agency-owner interactions and negotiations. While compliance with applicable federal, State, and local standards (including the hazardous materials policies under General Plan Objective NS-4) requires sites contaminated with hazardous materials to be cleaned up, the redevelopment of these or other future sites where hazardous materials are unknown could create a *significant* impacts to future occupants of the Plan Area and/or construction workers.

Impact HAZ-4: Implementation of the proposed Plan would occur 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, create a potentially significant hazard to the public or the environment.

Significance Without Mitigation: Potentially significant.

The following mitigation measures were not included in the MEIR for the Fresno General Plan and are applicable to reduce impacts related to Impact HAZ-4 under the proposed Plan:

Mitigation Measure HAZ-4a: Prior to the issuance of a grading permit, the property owners and/or developers of properties shall ensure that a Phase I ESA (performed in accordance with the current ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process [E 1527]) shall be conducted for each individual property prior to development or redevelopment to ascertain the presence or absence of Recognized Environmental Conditions (RECs),

Historical Recognized Environmental Condition (HRECs), and Potential Environmental Concerns (PECs) relevant to the property under consideration. The findings and conclusions of the Phase I ESA shall become the basis for potential recommendations for follow-up investigation, if found to be warranted.

Mitigation Measure HAZ-4b: In the event that the findings and conclusions of the Phase I ESA for a property result in evidence of RECs, HRECs and/or PECs warranting further investigation, the property owners and/or developers of properties shall ensure that a Phase II ESA shall be conducted to determine the presence or absence of a significant impact to the subject site from hazardous materials.

The Phase II ESA may include but may not be limited to the following: (1) Collection and laboratory analysis of soils and/or groundwater samples to ascertain the presence or absence of significant concentrations of constituents of concern; (2) Collection and laboratory analysis of soil vapors and/or indoor air to ascertain the presence or absence of significant concentrations of volatile constituents of concern; and/or (3) Geophysical surveys to ascertain the presence or absence of subsurface features of concern such as USTs, drywells, drains, plumbing, and septic systems. The findings and conclusions of the Phase II ESA shall become the basis for potential recommendations for follow-up investigation, site characterization, and/or remedial activities, if found to be warranted.

Mitigation Measure HAZ-4c: In the event the findings and conclusions of the Phase II ESA reveal the presence of significant concentrations of hazardous materials warranting further investigation, the property owners and/or developers of properties shall ensure that site characterization shall be conducted in the form of additional Phase II ESAs in order to characterize the source and maximum extent of impacts from constituents of concern. The findings and conclusions of the site characterization shall become the basis for formation of a remedial action plan and/or risk assessment.

Mitigation Measure HAZ-4d: If the findings and conclusions of the Phase II ESA(s), site characterization and/or risk assessment demonstrate the presence of concentrations of hazardous materials exceeding regulatory threshold levels, prior to the issuance of a grading permit, property owners and/or developers of properties shall complete site remediation and potential risk assessment with oversight from the applicable regulatory agency including, but not limited to, the CalEPA Department of Toxic Substances Control (DTSC) or Regional Water Quality Control Board (RWQCB), and Fresno County Environmental Health Division (FCEHD). Potential remediation could include the removal or treatment of water and/or soil. If removal occurs, hazardous materials shall be transported and disposed at a hazardous materials permitted facility.

Mitigation Measure HAZ-4e: Prior to the issuance of a building permit for an individual property within the Plan Area with residual environmental contamination, the agency with primary regulatory oversight of environmental conditions at such property ("Oversight Agency") shall have determined that the proposed land use for that property, including proposed development features and design, does not present an unacceptable risk to human health, if applicable, through the use of an Environmental Site Management Plan (ESMP) that could include institutional controls, site-specific mitigation measures, a risk management plan, and deed restrictions based upon applicable risk-based

cleanup standards. Remedial action plans, risk management plans and health and safety plans shall be required as determined by the Oversight Agency for a given property under applicable environmental laws, if not already completed, to prevent an unacceptable risk to human health, including workers during and after construction, from exposure to residual contamination in soil and groundwater in connection with remediation and site development activities and the proposed land use.

Mitigation Measure HAZ-4f: For those sites with potential residual volatile organic compounds (VOCs) in soil, soil gas, or groundwater that are planned for redevelopment with an overlying occupied building, a vapor intrusion assessment shall be performed by a licensed environmental professional. If the results of the vapor intrusion assessment indicate the potential for significant vapor intrusion into the proposed building, the project design shall include vapor controls or source removal, as appropriate, in accordance with Regional Water Quality Control Board (RWQCB), the Department of Toxic Substances Control (DTSC) or the Fresno County Environmental Health Division (FCEHD) requirements. Soil vapor mitigations or controls could include passive venting and/or active venting. The vapor intrusion assessment as associated vapor controls or source removal can be incorporated into the ESMP (Mitigation Measure HAZ4-4e).

Mitigation Measure HAZ-4g: In the event of planned renovation or demolition of residential and/or commercial structures on the subject site, prior to the issuance of demolition permits, asbestos and lead based paint (LBP) surveys shall be conducted in order to determine the presence or absence of asbestos-containing materials (ACM) and/or LBP. Removal of friable ACM, and non-friable ACMs that have the potential to become friable, during demolition and/or renovation shall conform to the standards set forth by the National Emissions Standards for Hazardous Air Pollutants (NESHAPs).

The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is the responsible agency on the local level to enforce the National Emission Standards for Hazardous Air Pollutants (NESHAPs) and shall be notified by the property owners and/or developers of properties (or their designee(s)) prior to any demolition and/or renovation activities. If asbestos-containing materials are left in place, an Operations and Maintenance Program (O&M Program) shall be developed for the management of asbestos containing materials.

Mitigation Measure HAZ-4h: Prior to the import of a soil to a particular property within the Plan Area as part of that property's site development, such soils shall be sampled for toxic or hazardous materials to determine if concentrations exceed applicable Environmental Screening Levels for the proposed land use at such a property, in accordance with Regional Water Quality Control Board (RWQCB), the Department of Toxic Substances Control (DTSC) or the Fresno County Environmental Health Division (FCEHD)requirements, prior to importing to such a property.

Implementation of Mitigation Measures HAZ-4a through HAZ-4h would reduce potential impacts to less than significant.

Significance With Mitigation: Less than significant.

HAZ-5 The proposed Plan would be located within an airport land use plan and is within 2 miles of a public airport or public use airport, but does not result in a safety hazard for people residing or working in the Plan Area.

As discussed in Section 4.8.1.2, Existing Conditions, Fresno-Chandler Executive Airport (FCH) is located adjacent to the Plan Area, directly north across Kearney Boulevard. The FCH Airport Influence Area (AIA) encompasses northern portions of the Plan Area. This portion of the Plan Area has been identified as a "clear zone" that would not allow any new development.

The FCH's revised CLUP, dated September 15, 2014, establishes review authority of the Airport Land Use Commission (ALUC) for certain categories of new land use plans within the AIA. For example, review is mandatory for proposed adoption or amendment of general plans, specific plans, rezone applications, text amendments to the zoning ordinance, and building regulations affecting land within an AIA. Submittal of individual projects for ALUC review is voluntary.

The Fresno County ALUC is mandated to "protect the public interest in aeronautics and aeronautical progress", and although the ALUC does not have local land use authority, it exists to advise local land use authorities by evaluating risk of locations around an airport that pose noise, safety and airspace protection hazards. This public safety function of ALUCs, when applied effectively, minimizes the risks both on and off airports; associated with potential aircraft accidents, flight hazards and aircraft navigation.

While the Plan Area is located within the FCH's AIA, the FCH's CLUP establishes review authority of the ALUC for the proposed Plan as well as building regulations and zoning ordinances affecting land within an AIA. This review authority is intended to limit the types of development that can occur in the Plan Area to prevent hazards to users of the Plan Area. The types of mixed-use development projects proposed under the proposed Plan are not considered incompatible land use for the AIA.

In addition, the following objective and policies from the proposed General Plan would reduce potential airport safety impact associated with the Fresno Yosemite International Airport:

Objective NS-5: Protect the safety, health, and welfare of persons and property on the ground and in aircraft by minimizing exposure to airport-related hazards.

Policy NS-5-a Land Use and Height. Incorporate and enforce all applicable Airport Land Use Compatibility Plans (ALUCPs) through land use designations, zoning, and development standards to support the continued viability and flight operations of Fresno's airports and to protect public safety, health, and general welfare.

- Limit land uses in airport safety zones to those uses listed in the applicable ALUCPs as compatible uses, and regulate compatibility in terms of location, height, and noise.
- Ensure that development, including public infrastructure projects, within the airport approach and departure zones complies with Part 77 of the Federal Aviation Administration Regulations (Objects Affecting Navigable Airspace), particularly in terms of height.

Policy NS-5-b Airport Safety Hazards. Ensure that new development, including public infrastructure projects, does not create safety hazards such as glare from direct or reflective sources, smoke, electrical interference, hazardous chemicals, fuel storage, or from wildlife, in violation of adopted safety standards.

Policy NS-5-c Aviation Easements. Employ avigation easements in order to secure and protect airspace required for unimpeded operation of publicly owned airports.

Policy NS-5-d Disclosure. As a condition of approval for residential development projects, require sellers to prepare and provide State Department of Real Estate Disclosure statements to property buyers notifying of noise and safety issues related to airport operations.

Policy NS-5-e Planned Expansion. Allow for the orderly expansion and improvement of publicly owned airports, while minimizing adverse environmental impacts associated with these facilities.

- Periodically update airport facility master plans in accordance with FAA regulations.
- Require land use within the boundaries of the Fresno-Yosemite International Airport and Chandler Downtown Airport to conform to designations and policies specified in adopted City of Fresno compatible land use plans.
- Provide local jurisdictions surrounding the City's publicly owned airports with specific guidelines for effectively dealing with the presence and operation of these airports.

With the implementation of the objective and policies identified above, the proposed Plan would not subject people or structures to substantial airport related hazards, and impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

HAZ-6 For a project within the vicinity of a private airstrip, implementation of the proposed Plan would not result in a safety hazard for people residing or working in the Plan Area.

Sierra Sky Park is a privately owned—but public use—general aviation airport located about ten miles north of the Plan area. There are no other private airstrips located in the City of Fresno.[16] Additionally, the Safety Element of the General Plan does not identify any private airstrips in the City. Development under the proposed Plan does not include private airstrips. Therefore, there would be *no impacts*.

Significance Without Mitigation: No Impact.

[16] Airnav.com, 2017. Search airports for Fresno, California, https://www.airnav.com/airports/get , accessed July 10, 2017.

HAZ-7 Implementation of the proposed Plan would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

The City's Police and Fire Departments are the lead agencies for all local emergency response efforts. The City's full-time Emergency Preparedness Officer (EPO) is responsible for ensuring that Fresno's emergency response plans are up to date and implemented properly. The EPO also facilitates cooperation between City departments and other local, State, and federal agencies that would be involved in emergency response operations.[17]

Development of the Plan Area would increase the development of residential, office, retail, , and open conservation land uses within the Plan Area. Because of the nature of the types of land uses proposed under the proposed Plan, it is not anticipated that the Plan will impair implementation nor physically interfere with adopted emergency response or evacuation plans of the City of Fresno.

The proposed Plan provides measures to improve the safety of the transportation system, as described below.

The proposed Plan includes Goal T-8: *Invest in developing, improving, and maintaining a roadway network that provides safety and adequate capacity for automobiles and for walking, bicycling, and transit mobility*. Also, Policy T-8.9: *Maintain the existing roadway network and expand its capacity as necessary to ensure safe and convenient vehicular circulation; require new development to provide safe and convenient vehicular circulation and to contribute to capacity improvements on arterials and regional roadways.*

Development under the proposed Plan is not expected to physically interfere with an adopted emergency response plan. Additionally, future specific development in the Plan Area will be reviewed by the City's police and fire departments to ensure that projects do not conflict with the City's emergency response/evacuation plans. Therefore, a *less than significant* impact is anticipated.

Significance Without Mitigation: Less than significant.

HAZ-8 Implementation of the proposed Plan would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Although portions of the city are close to high and very high fire hazard designated areas, the city is largely categorized as little or no threat or moderate fire hazard, which is largely attributed to paved areas. Some small areas along the San Joaquin River Bluff area in northern Fresno are prone to wildfires because of relatively steep terrain/vegetation and are classified as high fire hazard areas. The Plan Area is located

[17] City of Fresno. 2017. Emergency Preparedness (Mayor's Office), https://www.fresno.gov/mayor/emergency-preparedness/, accessed July 10, 2017.

about 7 miles south of the San Joaquin River Bluffs area and as such is not subject to wildland fires posed by vegetation in the bluffs area.

There are no wildlands located within or adjacent to the Plan Area. CAL FIRE evaluates fire hazard severity risks according to areas of responsibility (i.e., federal, state, and local). According to CAL FIRE, there are no very high fire hazard severity zones (VHFHSZ) within the Local Responsibility Area (LRA) on or in near proximity to the Plan Area. One area in the southwestern portion of the Plan area (Regional Sports Complex) is designated as LRA Moderate Fire Hazard Severity Zone on the CAL FIRE Fresno County Very High Fire Hazard Severity in LRA map. The Plan Area is not within a wildland State Responsibility Area. Thus, *no impact* is anticipated with respect to wildland fire.

Significance Without Mitigation: No Impact.

4.8.4 CUMULATIVE IMPACTS

HAZ-9 Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to hazards and hazardous materials.

The proposed Plan would have a significant cumulative impact if it would, in combination with cumulative projects, expose people, structures, or schools to risks or hazards associated with hazardous materials, airport hazards, emergency response and evacuation, or wildland fires.

As discussed in Section 4.8.3, impacts associated with the proposed Plan would be less than significant with implementation of Mitigation Measures HAZ-4a through HAZ-4h because the proposed Plan would not create a public or environmental hazard through the routine transport, use, disposal, or accidental release of hazardous materials; emit or handle hazardous materials within proximity of a school; impede emergency response or evacuation; or expose people and structures to wildland fires. In addition, like in the Plan Area, cumulative development sites located within the City of Fresno and SOI boundary would be required to comply with the same policies and regulations as the proposed Plan. Furthermore, the proposed Plan is not near a private airstrip, so there would be no cumulative impact related to airport or airstrip hazards. In addition, the Plan Area is not located in a Very High Fire Hazard Severity Zone.

Like development allowed by the proposed Plan, the development of cumulative projects would likely involve the transport and use of hazardous materials, such as chemicals and solvents used for construction activities and routine cleaning and maintenance. Similarly, cumulative development located in proximity to schools and sites tracked by the RWQCB's GeoTracker and DTSC's EnviroStor databases would be required to comply with applicable federal, regional, and local standards and requirements that address hazards and hazardous materials impacts in the same manner as the proposed Plan. These regulations, procedures, and policies promote and require the proper handling, use, transport, and disposal of hazardous wastes and materials; facilitate implementation of emergency response plans and evacuation routes; and protect development from wildland fires, as described further in Section 4.8.3.

Therefore, the proposed Plan's contribution to cumulative impacts associated with hazards and hazardous materials are considered to be *less than significant*.

Significance With Mitigation: Less than significant.

4.9 HYDROLOGY AND WATER QUALITY

This chapter describes the regulatory framework and existing conditions on the Plan Area related to, and the potential impacts of the project on, hydrology and water quality in and near the City of Fresno.

4.9.1 ENVIRONMENTAL SETTING

4.9.1.1 REGULATORY FRAMEWORK

This section summarizes key Federal, State and City regulations and programs related to the proposed Plan.

Federal Regulations

Clean Water Act

The Clean Water Act (CWA) of 1977, as administered by the US Environmental Protection Agency (USEPA), seeks to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The CWA employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The CWA authorizes the USEPA to implement water-quality regulations. The National Pollutant Discharge Elimination System (NPDES) permit program under Section 402(p) of the CWA controls water pollution by regulating stormwater discharges into the waters of the United States. California has an approved State NPDES program. The USEPA has delegated authority for water permitting to the State Water Resources Control Board (SWRCB) and the Central Valley Regional Water Quality Control Board (RWQCB).

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water-quality standards established by the State). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the State is required to establish Total Maximum Daily Load (TMDL) for the pollutant causing the conditions of impairment. TMDL is the maximum amount of a pollutant that a water body can receive and still meet water-quality standards. Typically, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and non-point sources. The intent of the 303(d) list is to identify water bodies that require future development of a TMDL to maintain water quality.

National Pollutant Discharge Elimination System

The CWA-established NPDES permit program regulates municipal and industrial discharges to surface waters of the United States from their municipal separate storm sewer systems (MS4s). Under the NPDES program, all facilities that discharge pollutants into waters of the United States are required to obtain a NPDES permit. Requirements for stormwater discharges are also regulated under this program.

The NPDES has a variety of measures designed to minimize and reduce pollutant discharges. All counties with storm drain systems that serve a population of 100,000 or more, as well as construction sites 1 acre

or more in size, must file for and obtain an NPDES permit. Another measure for minimizing and reducing pollutant discharges to a publicly owned conveyance or system of conveyances (including roadways, catch basins, curbs, gutters, ditches, man-made channels and storm drains, designed or used for collecting and conveying stormwater) is the EPA's Storm Water Phase I Final Rule. The Phase I Final Rule requires an operator (such as a City) of a regulated municipal separate storm sewer system (MS4) to develop, implement, and enforce a program (e.g., Best Management Plans [BMPs], ordinances, or other regulatory mechanisms) to reduce pollutants in post-construction runoff to the City's storm drain system from new development and redevelopment projects that result in the land disturbance of greater than or equal to 1 acre.

MS4 Permit for Fresno Metropolitan Area (2013)

The MS4 Permit in effect in the Fresno metropolitan area, including the Plan Area, is Order No. R5-2013-0080 issued by the Central Valley Regional Water Quality Control Board (RWQCB) in 2013. The Permit covers an approximately 400-square-mile area extending from metropolitan Fresno northeast into the Sierra Nevada foothills. The cities of Fresno and Clovis, Fresno County, the Fresno Metropolitan Flood Control District (FMFCD), and California State University Fresno are co-permittees on the Permit. The FMFCD is the local enforcing agency of the MS4 NPDES permit.

Discharges of stormwater to the storm drainage system within FMFCDs Storm Drainage and Flood Control Master Plan area must meet the requirements of FMFCDs Fresno-Clovis Storm Water Quality Master Plan (SWQMP) issued in 2013 pursuant to the MS4 permit. Land development in the FMFCD Master Plan area is exempt from further water quality requirements provided that the FMFCDs SWQMP is implemented.

The MS4 Permit expires on May 30, 2018; permittees on the Permit shall then enroll in an MS4 Permit issued by the Central Valley RWQCB in 2016 (Order No. R5-2016-0040) discussed below. FMFCD is required to update its SWQMP by December 23, 2017.[1] Therefore, requirements of the 2013 MS4 Permit are not discussed further here.

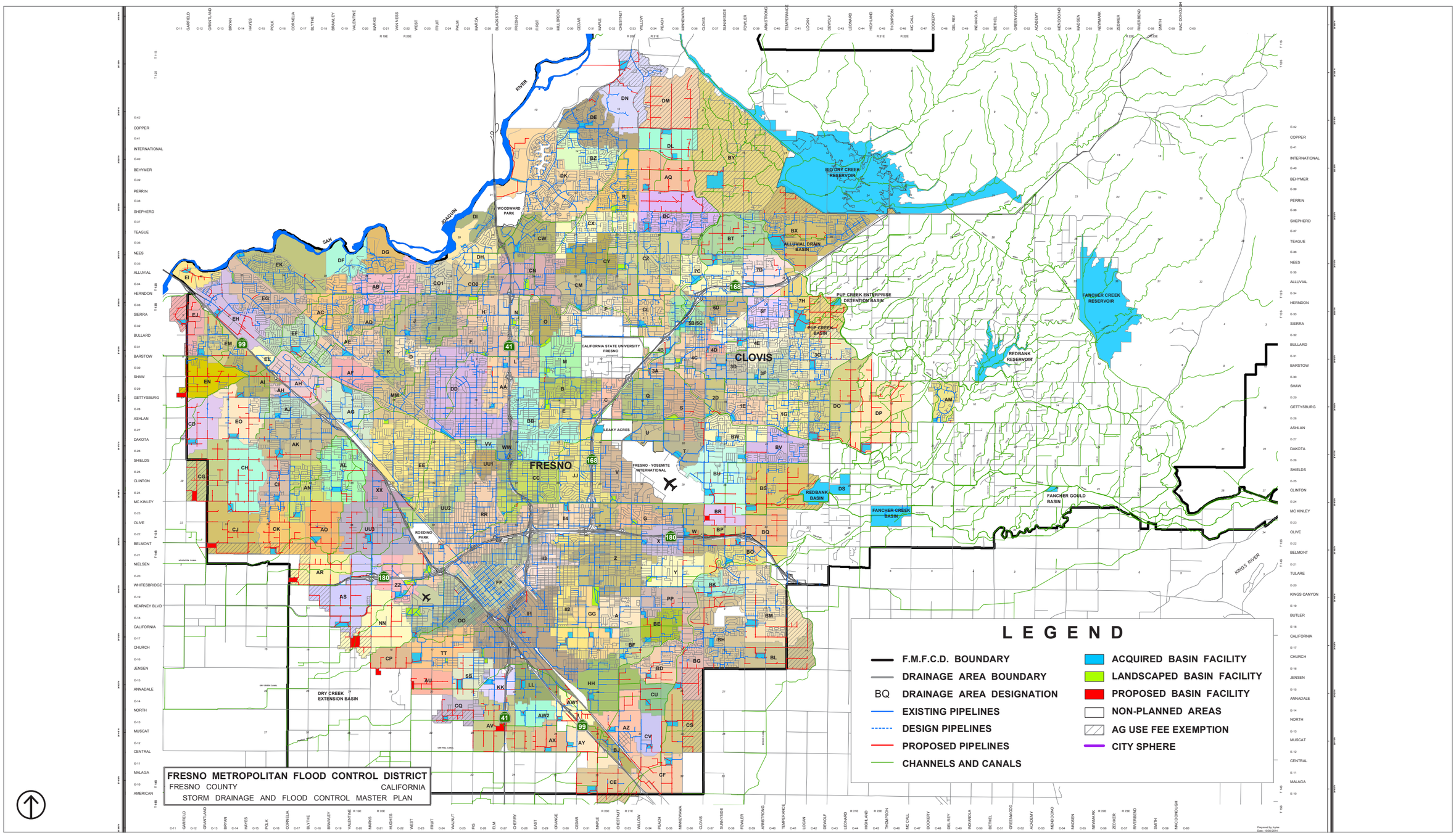
Fresno Area Urban Flood Control System

Water quality treatment for post-construction discharges to stormwater in the FMFCD Master Plan Area is provided by detention and retention basins (henceforth referred to as *retention basins*) that are parts of FMFCDs stormwater drainage system. The urban flood control system is mapped on Figure 4.9-1 and Figure 4.9-2 maps the urban flood control system in and surrounding the Plan Area in more detail. The FMFCD manages urban stormwater runoff in the Fresno-Clovis Area. The City of Fresno Public Works Department maintains streets and gutters that convey stormwater to storm drain inlets.[2]

[1] Rourke, Daniel (Environmental Programs manager, Fresno Metropolitan Flood Control District). Email, June 26, 2017.

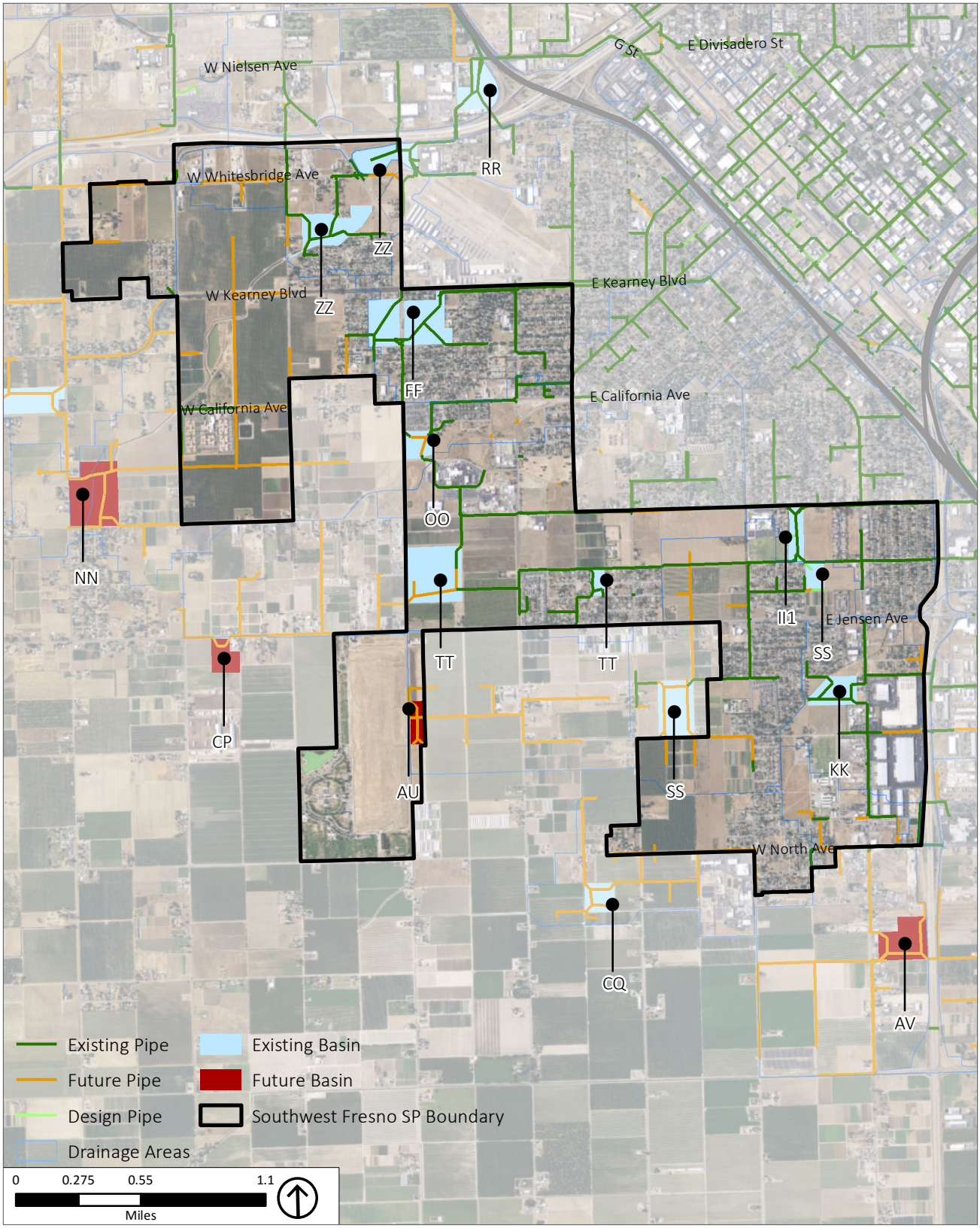
[2] Fresno Metropolitan Flood Control District (FMFCD), 2013. Storm Water Facts: Urban Storm Drain Service, http://www.fresnofloodcontrol.org/flood_control_system/urban%20system/urban%20storm%20drain%20service.pdf, accessed June 23, 2017.

HYDROLOGY AND WATER QUALITY



Source: Fresno Metropolitan Flood Control District, 2014.

Figure 4.9-1
FMFCD Urban Flood Control System Area



Source: Fresno Metropolitan Flood Control District, 2014; PlaceWorks, 2017.

Figure 4.9-2

Existing Urban Flood Control System In and Near the Plan Area

Storm drainage improvements are funded by local drainage fees paid by developments and are built by the FMFCD, by developers, or both. Basins are highly effective at reducing average concentrations of a broad range of contaminants, including several polyaromatic hydrocarbons, total suspended solids, and most metals. Pollutants are removed by filtration through soil, and thus don't reach the groundwater aquifer. Basins are built to design criteria exceeding Statewide Standard Urban Stormwater Mitigation Plan (SUSMP) standards.[3] The urban flood control system provides treatment for all types of development. Only developments outside of the Master Plan Area are required to infiltrate or treat stormwater pursuant to the MS4 Permit.[4]

The entire Plan Area is in areas served by FMFCD retention basins.[5]

Regionwide MS4 Permit (2016)

The Central Valley RWQCB issued a region-wide MS4 Permit (Order No. R5-2016-0040) covering the entire Central Valley RWQCB Region, and covering storm drainage systems in cities as small as 10,000 population, in June 2016.[6] The MS4 Permit for the Fresno region, Order No. R5-2013-0080, expires May 30, 2018. The permittees of the latter Permit shall enroll in the Region-Wide Permit after expiration of Permit No. R5-2013-0080.[7]

FMFCD is required to update its SWQMP within 18 months after issuance of Order R5-2016-0040; that is, by December 23, 2017.[8]

Permittees must develop and implement a Storm Water Management Program (SWMP) including the following elements:

- Illegal Connection and Illicit Discharge Elimination Program
- Construction Storm Water Runoff Control Program
- Industrial/Commercial Storm Water Runoff Control Program
- Municipal Operations Storm Water Runoff Control Program (Pollution Prevention/Good Housekeeping)
- Public Involvement and Participation Program

[3] Fresno Metropolitan Flood Control District (FMFCD), December 2013. Fresno-Clovis Stormwater Quality Management Program, http://www.waterboards.ca.gov/rwqcb5/board_decisions/adopted_orders/fresno/2013_fresno_swqmp.pdf, accessed June 20, 2017.

[4] Fresno Metropolitan Flood Control District (FMFCD), 2017. Pollutant Removal, http://www.fresnofloodcontrol.org/water_resources/pollutant_removal.html, accessed June 22, 2017.

[5] Fresno Metropolitan Flood Control District (FMFCD), 2014. Fact Sheet: Post-Development Standards Technical Manual for Projects That Do Not Drain to the Regional Stormwater Management Basin System, http://www.fresnofloodcontrol.org/wp-content/uploads/2014/07/Fact-sheet-FMFCD-Post-development-standards-6-10-14.pdf, accessed June 26, 2017.

[6] The region-wide MS4 permit covers the entire Central Valley region, about 60,000 square miles, extending from some of the north edges of Ventura and Los Angeles counties in the south to the Oregon border in Modoc County to the north.

[7] Central Valley Regional Water Quality Control Board (Central Valley RWQCB). 2017. Storm Water - MS4 Municipal Program, http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/#phaseims4, accessed June 21, 2017.

[8] Rourke, Daniel, Environmental Programs Manager, Fresno Metropolitan Flood Control District. Email to PlaceWorks, June 26, 2017.

- Planning and Land Development/Post Construction Storm Water Management Program:[9]
- Priority development projects, identified below, are required to incorporate storm water mitigation measures:
  - Single-family hillside residences.
  - Residential subdivisions of ten or more units.
  - 100,000-square-foot industrial/commercial development.
  - Automotive repair shops.
  - Restaurants.
  - Parking lots with 5,000 square feet or more or with 25 or more parking spaces.
  - Redevelopment projects that are within one of above categories and that add or create at least 5,000 square feet of new impervious surface.
- Stormwater management strategies include:
  - Site Design Measures: Emphasize conservation and use of existing natural site features integrated with distributed, small-scale storm water controls to mimic natural drainage.
  - Source Control Measures: Intended to keep pollutants from mixing with runoff, and thus minimize the transport of urban runoff and pollutants off-site and into storm drains. Source control measures include standards for design and operation of outdoor areas where substances that could contaminate stormwater are used, such as fueling areas, loading areas, material storage areas, and work areas.
  - Treatment Control Measures: remove pollutants from site runoff; measures include bioretention planters, vegetated swales, and infiltration trenches and basins.
  - Low Impact Development (LID) Measures: emphasize conservation and use of existing natural site features integrated with distributed, small-scale storm water controls to mimic natural drainage. LID measures include stream setbacks and buffers, soil amendments, tree planting and preservation, rooftop and impervious area disconnection, porous pavement, eco roofs, bioretention planters, and rain barrels or cisterns.
- Monitoring Program.[10]

National Flood Insurance Program

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 mandate the Federal Emergency Management Agency (FEMA) to evaluate flood hazards. FEMA provides Flood Insurance Rate Maps (FIRMs) for local and regional planners to promote sound land use and floodplain development and identify potential flood areas based on current conditions. To delineate a FIRM, FEMA conducts engineering studies called Flood Insurance Studies. Using information gathered in these studies,

[9] The Planning and Land Development/Post Construction Storm Water Management Program requirements listed here are not expected to apply to projects within the FMFCD's Master Plan area after the FMFCD issues its updated SWQMP by December 2017; such projects are exempt from further operational water quality requirements provided that the SWQMP is implemented.

[10] Central Valley Regional Water Quality Control Board (Central Valley RWQCB), 2016. Order No. R5-2016-0040. General Permit for Discharges from Municipal Separate Storm Sewer Systems [MS4s], http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0040_ms4.pdf, accessed June 22, 2017.

FEMA engineers and cartographers delineate Special Flood Hazard Areas (SFHAs) on FIRMs. The Plan Area is on FIRMs 06019C2105H and 06019C2110H, both dated February 18, 2009 (FEMA 2017).

State Regulations

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act is the basic water-quality control law for California. Under this Act, the SWRCB has ultimate control over State water rights and water-quality policy. In California, the California EPA has delegated authority to issue NPDES permits to the SWRCB. The SWRCB, through its nine RWQCBs, carries out the regulation, protection, and administration of water quality in each region. Each regional board is required to adopt a Water Quality Control Plan, or Basin Plan, that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region's ground and surface water, and local water-quality conditions and problems. The City of Fresno is within the Tulare Lake Basin and is under the jurisdiction of the Central Valley RWQCB (Region 5). The Central Valley RWQCB Region is divided into three basins, the Sacramento River Basin, San Joaquin River Basin, and Tulare Lake Basin in which the Plan Area is located.

The Central Valley RWQCB monitors surface water quality through implementation of the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan) and designates beneficial uses for surface water bodies and groundwater in the Basin. The Basin Plan for the Tulare Lake Basin was last revised in 2016. This Basin Plan describes the water quality that must be maintained to support the designated beneficial uses and provides programs, projects, and other actions necessary to achieve the standards established in the Basin Plan. The Basin Plan also contains water quality criteria for groundwater.

Statewide General Construction Permit

Construction projects of 1 acre or more are regulated under the General Construction Permit (GCP), Order No. 2012-0006-DWQ, issued by the SWRCB. Under the terms of the permit, applicants must file Permit Registration Documents (PRDs) with the SWRCB prior to the start of construction. The PRDs include a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. The PRDs are submitted electronically to the SWRCB via the Stormwater Multiple Application and Report Tracking System (SMARTS) website.

The SWPPP must demonstrate conformance with applicable BMPs, including a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the Plan Area. The SWPPP must list BMPs that would be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for nonvisible pollutants if there is a failure of the BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Categories of BMPs used in SWPPPs are described below in Table 4.9-1. Some sites may require implementation of a Rain Event Action Plan (REAP). The GCP also requires applicants to comply with post-construction runoff reduction requirements. Projects in the SWQMP Area over 1 acre in size are subject to these requirements.

TABLE 4.9-1 CONSTRUCTION BMPS

Category	Purpose	Examples
Erosion Controls and Wind Erosion Controls	Cover and/or bind soil surface, to prevent soil particles from being detached and transported by water or wind.	Mulch, geotextiles, mats, hydroseeding, earth dikes, swales.
Sediment Controls	Filter out soil particles that have been detached and transported in water.	Barriers such as straw bales, sandbags, fiber rolls, and gravel bag berms; desilting basin; cleaning measures such as street sweeping.
Tracking Controls	Minimize the tracking of soil off-site by vehicles.	Stabilized construction roadways and construction entrances/exits; entrance/outlet tire wash.
Non-Storm Water Management Controls	Prohibit discharge of materials other than stormwater, such as discharges from the cleaning, maintenance, and fueling of vehicles and equipment. Conduct various construction operations, including paving, grinding, and concrete curing and finishing, in ways that minimize non-stormwater discharges and contamination of any such discharges.	BMPs specifying methods for: paving and grinding operations; cleaning, fueling, and maintenance of vehicles and equipment; concrete curing; concrete finishing.
Waste Management and Controls (i.e. good-housekeeping practices)	Management of materials and wastes to avoid contamination of stormwater.	Spill prevention and control, stockpile management, and management of solid wastes and hazardous wastes.

Source: CASQA 2003.

Local and Regional Regulations

Central Valley Regional Water Quality Control Board

The two relevant MS4 permits issued by the Central Valley RWQCB are described above under *Federal Regulations*.

Fresno Metropolitan Flood Control District

The Fresno-Clovis SWQMP and the Fresno area urban flood control system are described above under *Federal Regulations*.

City of Fresno Municipal Code

Chapter 6, Municipal Services and Utilities, Article 7, Urban Storm Water Quality Management and Discharge Control, of the Fresno Municipal Code (FMC) establishes provisions regarding stormwater discharges. The purpose of the City's Urban Storm Water Quality Management and Discharge Control Ordinance is to ensure the health, safety, and general welfare of citizens and protect the water quality of watercourses and water bodies in a manner pursuant to and consistent with the CWA (33 U.S.C. Section 1251, et seq.) by reducing pollutants in urban stormwater discharges to the maximum extent practicable and by effectively prohibiting non-stormwater discharges to the storm drain system.

Fresno General Plan

The City of Fresno General Plan contains goals, objectives, and policies that address hydrology and water quality. The following General Plan goals, objectives, and policies are applicable to the proposed Plan (Table 4.9-2).

4.9.1.2 EXISTING CONDITIONS

Surface Water and Drainage

Regional Drainage

The Plan Area is in the Tulare-Buena Vista Lakes Watershed, which spans about 16,414 square miles including approximately the southern half of the San Joaquin Valley, extending east into the Sierra Nevada, west into the Coast Ranges, and south into the Tehachapi Mountains[11] (see Figure 4.9-3). The primary direction of water flow in most of the Tulare-Buena Vista Lakes Watershed is northeast to southwest from the Sierra Nevada into the San Joaquin Valley. Rivers in the watershed usually terminate into Tulare Lake and Buena Vista Lake in the western San Joaquin Valley; in years of extreme rainfall some water will flow north into the San Joaquin River.[12]

The Tulare-Buena Vista Lakes watershed is divided into several subbasins. The Plan Area is in the Upper Dry Subbasin, which spans about 2,126 square miles, extending from the foothills of the Sierra Nevada west across the San Joaquin Valley to the eastern Coast Ranges. The Upper Dry Subbasin encompasses much of western Fresno County and small portions of Kings and San Benito counties (CDFW 2017; see Figure 4.9-3).[13] Streams in the eastern (Sierra Nevada Foothills) portion of the Upper Dry Subbasin include, from north to south, Dry Creek, Dog Creek, and Fancher Creek.[14] Drainage in much of the Upper Dry Subbasin has been engineered into agricultural irrigation canals.

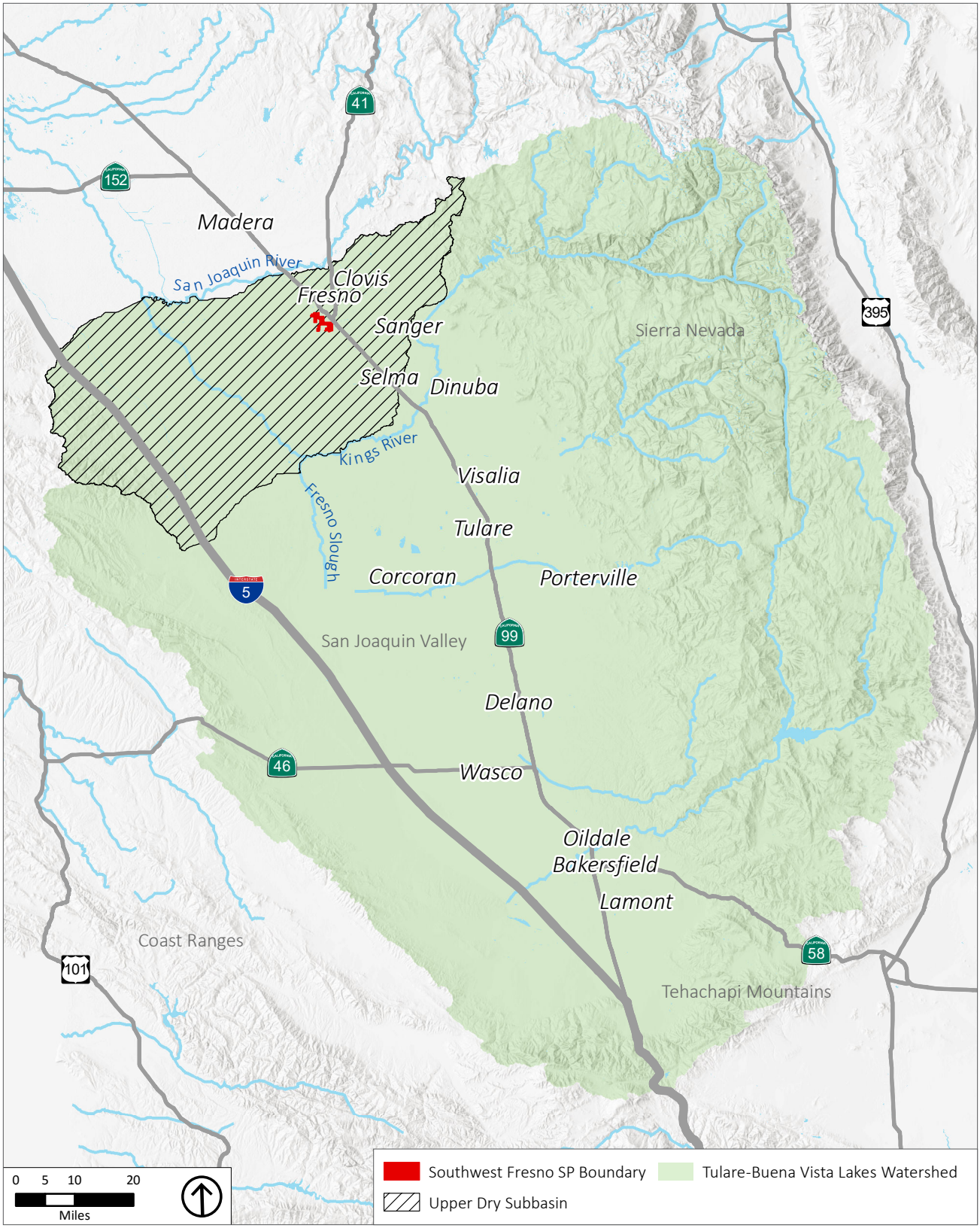
The San Joaquin River passes just north of the watershed and forms a small part of the northern boundary of the watershed. The Kings River passes south of the watershed, forming a small part of the southern boundary of the watershed. The James Bypass canal in western Fresno County connects the Kings and San Joaquin Rivers.

[11] US Geological Survey (USGS), 2017. The National Map Advanced Viewer, https://viewer.nationalmap.gov/advanced-viewer/ accessed June 19, 2017.

[12] Central Valley Regional Water Quality Control Board (Central Valley RWQCB), 2015. Water Quality Control Plan for the Tulare Lake Basin, Second Edition, http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/tlbp.pdf, accessed July 3, 2017.

[13] California Department of Fish and Wildlife (CDFW). 2017. Biogeographic Information and Observation System (BIOS), https://www.wildlife.ca.gov/Data/BIOS, accessed June 19, 2017.

[14] US Geological Survey (USGS), 2017. The National Map Advanced Viewer, https://viewer.nationalmap.gov/advanced-viewer/, accessed June 19, 2017.



Source: USGS, 2017; PlaceWorks, 2017.

Figure 4.9-3
Tulare-Buena Vista Lakes Watershed and Upper Dry Subbasin

TABLE 4.9-2 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO HYDROLOGY AND WATER QUALITY

Objective/ Policy Number	Objective/Policy Text
Noise and Safety Element	
Objective NS-2	*Minimize risks of property damage and personal injury posed by geologic and seismic risks.*
Policy NS-2-b	Soil Analysis Requirement. Identify areas with potential geologic and/or soils hazards, and require development in these areas to conduct a soil analysis and mitigation plan by a registered civil engineer (or engineering geologist specializing in soil geology) prior to allowing on-site drainage or disposal for wastewater, stormwater runoff, or swimming pool/spa water.
Objective NS-3	*Minimize the risks to property, life, and the environment due to flooding and stormwater runoff hazards.*
Policy NS-3-a	Stormwater Drainage and Flood Control Master Plan. Support the full implementation of the FMFCD Storm Drainage and Flood Control Master Plan, the completion of planned flood control and drainage system facilities, and the continued maintenance of stormwater and flood water retention and conveyance facilities and capacities. Work with the FMFCD to make sure that its Storm Drainage and Flood Control Master Plan is consistent with the General Plan.
Policy NS-3-b	Curb and Gutter Installation. Coordinate with Fresno Metropolitan Flood Control District (FMFCD) to install curbing, gutters, and other drainage facilities with priority to existing neighborhoods with the greatest deficiencies and consistent with the Storm Drainage and Flood Control Master Plan.
Policy NS-3-c	Dual Use Facilities. Support multiple uses of flood control and drainage facilities as follows: • Use, wherever practical, FMFCD facilities for groundwater management and recharge; and • Promote recreational development of ponding basin facilities located within or near residential areas, compatible with the stormwater and groundwater recharge functions.
Policy NS-3-e	Pollutants. Work with FMFCD to prevent and reduce the existence of urban stormwater pollutants pursuant to the requirements of the National Pollution Discharge Elimination Systems Act.
Policy NS-3-f	Flooding Emergency Response Plans. Work with responsible agencies to update emergency dam failure inundation plans, evacuation plans and other emergency response plans for designated flood-prone areas, including the San Joaquin riverbottom.
Policy NS-3-g	Essential Facilities Siting Outside of Floodplains. Avoid siting emergency response and essential public facilities, such as fire and police stations, within a 100-year floodplain, unless it can be demonstrated that the facility can be safely operated and accessed during flood events.
Policy NS-3-h	Runoff Controls. Implement grading regulations and related development policies that protect area residents from flooding caused by urban runoff produced from events that exceed the capacity of the Storm Drainage and Flood Control Master Plan system of facilities. Place all structures and/or flood-proofing in a manner that does not cause floodwaters to be diverted onto adjacent property, increase flood hazards to other property, or otherwise adversely affect other property.
Policy NS-3-i	New Development Must Mitigate Impact. Require new development to not significantly impact the existing storm drainage and flood control system by imposing conditions of approval as project mitigation, as authorized by law. As part of this process, closely coordinate and consult with the FMFCD to identify appropriate conditions that will result in mitigation acceptable and preferred by FMFCD for each project.
Policy NS-3-k	100-Year Floodplain Policy. Require developers of residential subdivisions to preserve those portions of development sites as open space that may be subject to 100-year flood events, unless the flood hazard can be substantially mitigated by development project design.
Policy NS-3-l	200-Year Floodplain Protection. Promote flood control measures that maintain natural conditions within the 200-year floodplain of rivers and streams and, to the extent possible, combine flood control, recreation, water quality, and open space functions. Discourage construction of permanent improvements that would be adversely affected by periodic floods within the 200-year floodplain, particularly in the San Joaquin riverbottom.
Policy NS-3-m	Flood Risk Public Awareness. Continue public awareness programs to inform the general public and potentially affected property owners of flood hazards and potential dam failure inundation. Remind households and

TABLE 4.9-2 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO HYDROLOGY AND WATER QUALITY

Objective/ Policy Number	Objective/Policy Text
	businesses located in flood-prone areas of opportunities to purchase flood insurance.
Resource Conservation and Resilience Element	
Objective RC-6	*Ensure that Fresno has a reliable, long-range source of drinkable water.*
Policy RC-6-a	**Regional Efforts.** Support cooperative, multi-agency regional water resource planning efforts and activities on developing and implementing the Upper Kings Basin Integrated Regional Water Management Plan.
Policy RC-6-b	**Water Plans.** Adopt and implement ordinances, standards, and policies to achieve the intent of the City of Fresno Urban Water Management Plan, Fresno-Area Regional Groundwater Management Plan, and City of Fresno Metropolitan Water Resources Management Plan to ensure a dependable supply of water.
Policy RC-6-c	**Land Use and Development Compliance.** Ensure that land use and development projects adhere to the objective of the Fresno Metropolitan Water Resources Management Plant provide sustainable and reliable water supplies to meet the demand of existing and future customers through 2025.
Policy RC-6-d	**Recycled Water.** Prepare, Adopt, and implement a City of Fresno Recycled Water Master Plan.
Policy RC-6-e	**Protect Aquifer.** Oppose urban development in unincorporated areas that are not served by a wastewater treatment/management system capable of preventing the buildup of compounds that would degrade the aquifer.
Policy RC-6-f	**Regulate Sewage Disposal Facilities.** Oppose development of new sewage disposal facilities either within the Planning Area or upgradient (north and east) of the Planning Area, unless the treatment facilities produce effluent that: • Will not degrade the aquifer in the long term; • Will not introduce contaminants into surface water that would negatively affect its potential economic use for drinking water; • Will not deleteriously affect downstream agricultural and urban uses; and • Will not degrade sensitive riparian habitat.
Policy RC-6-g	**Protect Recharge Areas.** Continue to protect areas of beneficial natural groundwater recharge by preventing uses that can contaminate soil or groundwater.
Policy RC-6-h	**Conditions of Approval.** Include in the Development Code standards for imposing conditions of approval for development projects to ensure long-term maintenance of adequate clean water resources. Require findings that adequate water supply must exist prior to any discretionary project approval for residential and commercial development requiring annexation, as required by law.
Policy PRC-6-i	**Natural Recharge.** Support removal of concrete from existing canals and change the practice of lining new and existing canals with concrete to allow for natural recharge.
Objective RC-7	*Promote water conservation through standards, incentives and capital investments.*
Policy RC-7-a	**Water Conservation Program Target.** Maintain a comprehensive conservation program to help reduce per capita water usage in the city's water service area to 243 gallons per capita per day (gpcd) by 2020 and 190 gpcd by 2035, by adopting conservation standards and implementing a program of incentives, design and operation standards, and user fees. • Support programs that result in decreased water demand, such as landscaping standards that require drought-tolerant plants, rebates for water conserving devices and systems, turf replacement, xeriscape landscape for new homes, irrigation controllers, commercial/industrial/institutional water conserving programs, prioritized leak detection program, complete water system audit, landscape water audit and budget program, and retrofit upon resale ordinance. • Implement the U.S. Bureau of Reclamation Best Management Practices for water conservation as necessary to maintain the City's surface water entitlements. • Adopt and implement policies in the event that an artificial lake is proposed for development. • Work cooperatively toward effective uniform water conservation measures that would apply throughout the Plan Area.

TABLE 4.9-2 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO HYDROLOGY AND WATER QUALITY

Objective/ Policy Number	Objective/Policy Text
	• Expand efforts to educate the public about water supply issues and water conservation techniques.
Policy RC-7-c	**Best Practices for Conservation.** Require all City facilities and all new private development to follow U.S. Bureau of Reclamation Best Management Practices for water conservation, as warranted and appropriate.
Policy RC-7-d	**Update Standards for New Development.** Continue to refine water saving and conservation standards for new development.
Policy RC-7-e	**Retrofit City Facilities, and Consider Incentives Programs to Encourage Retrofitting of Other Existing Public and Private Residential and Non-Residential Facilities and Sites.** Reduce water use in municipal buildings and City operations by developing a schedule and budget for the retrofit of existing municipal buildings with water conservation features, such as auto shut-off faucets and water saving irrigation systems. Prepare a comprehensive incentive program for other existing public and private residential and non-residential buildings and irrigation systems.
Policy RC-7-f	**Implementation and Update Conservation Program.** Continue to implement the City of Fresno Water Conservation Program, as may be updated, and periodically update restrictions on water uses, such as lawn and landscape watering and the filling of fountains and swimming pools, and penalties for violations. Evaluate the feasibility of a 2035 conservation target of 190 gpcd in the next comprehensive update of the City of Fresno Water Conservation Program.
Policy RC-7-g	**Educate on State Requirements.** Educate the residents and businesses of Fresno on the requirements of the California Water Conservation Act of 2009.
Policy RC-7-h	**Landscape Water Conservation Standards.** Refine landscape water conservation standards that will apply to new development installed landscapes, building on the State Model Water Efficient Landscape Ordinance and other State regulations. • Evaluate and apply, as appropriate, augmented xeriscape, "waterwise," and "green gardening" practices to be implemented in public and private landscaping design and maintenance. • Facilitate implementation of the State's Water Efficient Landscape Ordinance by developing alternative compliance measures that are easy to understand and observe.
Public Utilities and Services Element	
Objective PU-8	*Manage and develop the City's water facilities on a strategic timeline basis that recognizes the long life cycle of the assets and the duration of the resources, to ensure a safe, economical, and reliable water supply for existing customers and planned urban development and economic diversification.*
Policy PU-8-c	**Conditions of Approval.** Set appropriate conditions of approval for each new development proposal to ensure that the necessary potable water production and supply facilities and water resources are in place prior to occupancy.
Policy PU-8-f	**Water Quality.** Continue to evaluate and implement measures determined to be appropriate and consistent with water system policies, including prioritizing the use of groundwater, installing wellhead treatment facilities, constructing above-ground storage and surface water treatment facilities, and enhancing transmission grid mains to promote adequate water quality and quantity.
Policy PU-8-g	**Review Project Impact on Supply.** Mitigate the effects of development and capital improvement projects on the long-range water budget to ensure an adequate water supply for current and future uses.

Three dams control flows on the two rivers. The Friant and Mendota Dams, on the San Joaquin River, are reservoirs for municipal and agricultural irrigation supply and provide some flood control. The Friant Dam is about 19 miles north of the Plan Area, upstream from the Plan Area; while the Mendota Dam is approximately 31 miles west and downstream from the Plan Area. Millerton Lake is impounded behind Friant Dam. The Pine Flat Dam is a flood control dam on the Kings River about 28 miles east, and upstream, from the Plan Area.

Other flood control reservoirs and detention basins in the Upper Dry Subbasin include the Redbank Dam and the Redbank-Fancher Creeks Flood Control Project, which consists of two dams (Big Dry Creek Dam and Fancher Creek Dam); three detention basins (Redbank Creek, Pup Creek, and Alluvial Drain Detention Basins); and canals to convey discharges in and around the City of Fresno. These facilities were designed to protect developed areas from a 200-year storm event.[15]

Nearly the entire Plan Area is within the Fresno Metropolitan Flood Control District's urban flood control system consisting of 158 drainage areas, each 1 to 2 square miles in area; all but five of the drainage areas are served by a detention or retention basin.[16]

Local Surface Waters and Drainage

Stormwater collection in the Plan areas begins in the street gutters that convey runoff to storm drain inlets. The gutters, as well as all public streets and sidewalks, are maintained by the City of Fresno Street Maintenance Division. The runoff is then collected in drop inlets and conveyed to the District's pipe networks, pump stations, and infiltration basins that recharge stormwater to the groundwater aquifer.[17] Typically, all the runoff from the Plan areas is recharged to the groundwater table. However, when storms generate larger volumes of runoff than these basins can handle, it overflows into a network of relief channels that discharge to the San Joaquin River, its tributary streams, or local agricultural canals.

The Plan Area encompasses all or part of each of the following drainage areas: AS, NN, ZZ, FF, OO, TT, SS, KK, CQ, and AV. Drainage area acreages and retention basin capacities in acre-feet are listed below in Table 4.9-3. Note that the drainage area studied for the proposed Plan spans 5,859 acres including areas upstream and downstream of the Plan Area; the whole area studied is addressed in Table 4.9-3. FMFCD basins have capacity for a two-year storm and for at least 60 percent of average annual rainfall. When necessary, FMFCD can move water from a basin in one such drainage area to a second such basin by pumping water into a street and letting water flow in curb and gutter to a storm drain inlet in an adjoining drainage area.[18] FMFCD has based planning for the drainage areas using the General Plan land use classifications for each drainage area. Beyond planning, the basins have been located, sized and in most cases basin property acquisition has been completed. FMFCD guidelines allow a 20 percent change in required volume before FMFCD is required to resize the basin and either enlarge or change the location of the affected basin.[19]

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[15] City of Fresno, 2016a. DRAFT Environmental Impact Report City of Fresno Downtown Neighborhoods Community Plan, Fulton Corridor Specific Plan, and Downtown Development Code City of Fresno, Fresno County, California, https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/The-Environment-Impact-Report.pdf, accessed June 20, 2017.

[16] Fresno Metropolitan Flood Control District (FMFCD), 2017. Urban System, http://www.fresnoflood control.org/new-urban-system-layout/, accessed June 23, 2017.

[17] Fresno Metropolitan Flood Control District (FMFCD), 2017. Urban System.

[18] Rourke, Daniel, Environmental Resources Manager, Fresno Metropolitan Flood Control District. Phone call with PlaceWorks, April 11, 2014.

[19] Fresno Metropolitan Flood Control District (FMFCD), 2013. Storm Water Facts: Urban Storm Drain Service, http://www.fresnofloodcontrol.org/flood_control_system/urban%20system/urban%20storm%20drain%20service.pdf, accessed June 23, 2017.

TABLE 4.9-3 DRAINAGE AREAS AND RETENTION BASIN CAPACITIES

Drainage Area	Acres	GP Required Basin Volume (Acre-Feet)
Basin AR	0.5	0.23
Basin AS	637	126.06
Basin AU	376	70.76
Basin AV	526	178.00
Basin CE	0	0.0
Basin CP	311	61.97
Basin CQ	220	46.76
Basin FF	273	62.68
Basin II1	168	39.88
Basin KK	250	79.83
Basin NN	789	170.92
Basin OO	113	33.49
Basin RR	12.4	1.41
Basin SS	520	117.44
Basin TT	563	140.39
Basin ZZ	225	57.59
Exempt	101	43.86
Out of Drainage Area	774	115.03
Total	5,859	1,346.3

In addition to the above-described FMFCD urban flood control system, several Fresno Irrigation District canals and pipelines cross the Plan Area: from northwest to southeast, the Dry Creek Canal, Fanning Ditch, and Fresno Colony Canal.

Surface Water Uses

Municipal Use

The City began to use surface water as a source of potable water supply in 2004, when the Northeast Surface Water Treatment Facility (NESWTF) became operational and began delivering approximately 20 million gallons per day (mgd) of potable water to residents of northeast Fresno. In 2015, the facility produced 25 percent of the City's potable water supply. Surface water starts as snow melt in the Sierra Nevada before traveling down the San Joaquin and Kings Rivers via Millerton Lake and Pine Flat Reservoir.

These locations serve as temporary storage locations before the surface water is delivered via the Enterprise Canal to the NESWTF, where the water is treated to drinking water standards.

The NESWTF has 30 mgd capacity. The City plans to expand the facility to 60 mgd capacity by about 2035; the schedule will be adjusted as needed based on water demands. A pipeline from the Friant-Kern Canal to the NESWTF is under construction, with completion anticipated in October 2017.[20] Once the pipeline is complete, the NESWTF will be capable of year-round operation.

The City of Fresno has also started construction of a Southeast Surface Water Treatment Facility (SESWTF) in southeast Fresno, which will have 54 mgd capacity after its scheduled opening in 2018 with an ultimate capacity of 80 mgd.[21]

Agricultural Irrigation

The Fresno Irrigation District (FID) serves a 383-square-mile area in Fresno County, centered on metropolitan Fresno, with surface water from the Kings and San Joaquin rivers.[22] Total FID water diversions from the two rivers in normal years are estimated to average about 426,000 acre-feet per year (afy).[23] Millerton Lake is a component of the Central Valley Project that conveys water to farmland and cities in the Central Valley.

Surface Water Quality

The portion of the San Joaquin River in the City of Fresno's Sphere of Influence (SOI) is listed on the State Water Resources Control Board's 2010 Impaired Water Bodies/303(d) List for invasive fish species. No surface water bodies in or near the Plan Area are listed on the 303(d) List.[24]

Groundwater

The Plan Area is underlain by the Kings Groundwater Subbasin that spans 1,530 square miles of central Fresno County and small areas of northern Kings and Tulare counties. Figure 4.9-4 shows that the basin is bounded on the north by the San Joaquin River, on the west by the Delta-Mendota and Westside Subbasins, on the south by the Kings River South Fork and the Empire West Side Irrigation District, and on the east by the Sierra Nevada foothills.

[20] City of Fresno, 2017. Friant-Kern Canal Pipeline, http://www.rechargefresno.com/fkc/, accessed June 20, 2017.

[21] City of Fresno, 2016b. City of Fresno 2015 Urban Water Management Plan, https://wuedata.water.ca.gov/public/uwmp_attachments/2174955070/City%20of%20Fresno%202015%20UWMP%5Fadopted%2Epdf, accessed June 20 2017.

[22] Fresno Irrigation District (FID), 2017. History of the District, http://www.fresnoirrigation.com/index.php?id=5, accessed June 20, 2017.

[23] City of Fresno, 2016b. City of Fresno 2015 Urban Water Management Plan.

[24] State Water Resources Control Board (SWRCB), 2017. Impaired Water Bodies, http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml, accessed June 20, 2017.

Source: California Department of Water Resources, 2017; PlaceWorks, 2017.

Figure 4.9-4
Kings Groundwater Subbasin

Groundwater Supplies and Uses

The Kings Subbasin has been identified as critically overdrafted—that is, groundwater has been pumped out of the Subbasin faster than water is recharged into the Subbasin.[25] The groundwater level under Fresno has dropped at a historic rate of 1.6 feet per year. In the past 80 years, the water level has decreased from 30 feet below ground surface (bgs) to more than 128 feet bgs.[26] The depth to groundwater under the Plan Area in Spring 2017 ranged from approximately 90 to 100 feet bgs.[27]

Groundwater varies annually from 88 to 81 percent of the City's water supplies. Average annual pumping is about 100 mgd.[28] Groundwater is expected to decline to about 41 percent of the City's water supplies by 2040 as additional surface water becomes available from the two Surface Water Treatment Facilities and as recycled water use increases. Recycled water use for agricultural and landscape irrigation and industrial uses is forecast to expand from 8,762 afy in 2015 to 38,600 afy in 2040.[29]

Groundwater currently comprises the entire municipal water supply within the Plan Area.[30] When the SESWTF begins operation in 2018, Plan Area water supplies will consist of both groundwater and treated surface water.

Groundwater Recharge

Groundwater used by the City of Fresno is recharged through natural recharge from rainfall and surface water; subsurface inflow from surrounding areas; and intentional recharge.

Natural recharge in the Fresno Metropolitan Area was about 25,400 afy in 2015. Subsurface inflow into the aquifer below the City was estimated as about 47,100 afy in 2015.[31]

Groundwater is intentionally recharged in the Fresno metropolitan area through Leaky Acres, the City's main recharge facility; FMFCD retention basins throughout the region; the Alluvial Groundwater Recharge System owned and operated by the City of Clovis; and percolation basins recharging treated wastewater from the Fresno-Clovis Regional Wastewater Reclamation Facility. Average intentional recharge between 2000 and 2013 was about 50,000 afy. Total estimated groundwater yield in 2015 was 125,600 acre-feet.[32]

[25] City of Fresno, 2016b. City of Fresno 2015 Urban Water Management Plan.
[26] City of Fresno, 2016a. DRAFT Environmental Impact Report City of Fresno Downtown Neighborhoods Community Plan, Fulton Corridor Specific Plan, and Downtown Development Code City of Fresno, Fresno County, California.
[27] Department of Water Resources, 2017. Groundwater Information Center Map Interactive Map Application, https://gis.water.ca.gov/app/gicima/, accessed July 11, 2017.
[28] City of Fresno, 2016a. DRAFT Environmental Impact Report City of Fresno Downtown Neighborhoods Community Plan, Fulton Corridor Specific Plan, and Downtown Development Code City of Fresno, Fresno County, California.
[29] City of Fresno, 2016b. City of Fresno 2015 Urban Water Management Plan.
[30] City of Fresno, 2015. Southwest Fresno Specific Plan Existing Conditions Profile. Chapter 7: Infrastructure.
[31] City of Fresno, 2016b. City of Fresno 2015 Urban Water Management Plan.
[32] City of Fresno, 2016b. City of Fresno 2015 Urban Water Management Plan.

Groundwater Quality

City of Fresno

Citywide groundwater currently meets the primary and secondary drinking water standards for municipal use. Known contaminants include dibromo-3-chloropropane (DBCP), ethylene dibromide (EDB), trichloropropane (TCP), volatile organic compounds (VOCs) such as trichloroethylene (TCE) and tetrachloroethylene (PCE), nitrate, manganese, radon, chloride, and iron.[33] Most of the groundwater contaminants in the Fresno area are being addressed by responsible parties through assessment and remediation, and some are in advanced stages of mitigation. The responsible parties of many of the point source contaminants (i.e., hydrocarbons and VOCs) are working with State (Regional Water quality Control Board, Department of Toxic Substances Control) and local (Fresno County Environmental Health Department) agencies to remediate the contaminants. Area wide contaminants are being addressed via wellhead treatment (DBCP) and plans are underway to address others, such as nitrate.[34]

Plan Area

Nitrate is a contaminant in wells within the Plan Area, ranging from 20 to 40 milligrams per liter (mg/L) concentrations. Concentrations greater than 10 mg/L exceed US Environmental Protection Agency (EPA) Drinking Water Standards. Wellhead treatment has been installed at wells that require treatment to meet drinking water standards.[35]

Flood Control

Flood Zones

The Dry Creek Canal is mapped as a 100-year flood zone, as is an approximately 11.3-acre area is in Retention Basin ZZ next to the north side of the Dry Creek Canal and east of Hughes Avenue. The mapped flood zone there does not pose a flood hazard to developed land uses. The balance of the Plan Area is outside of 100-year flood zones.[36]

Levees

The Plan Area is not mapped in an area protected from 100-year floods by levees.[37]

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[33] City of Fresno, 2015. Southwest Fresno Specific Plan Existing Conditions Profile. Chapter 7: Infrastructure.

[34] Fresno Irrigation District, 2006. Fresno Area Regional Groundwater Management Plan, http://www.fresnofloodcontrol.org/water_resources/Fresno%20Area%20Regional%20GWMP%20Final.pdf, accessed July 25, 2017.

[35] City of Fresno, 2015. Southwest Fresno Specific Plan Existing Conditions Profile. Chapter 7: Infrastructure.

[36] Federal Emergency Management Agency (FEMA), 2017. FEMA's National Flood Hazard Layer (Official), https://msc.fema.gov/portal, accessed June 23, 2017.

[37] Federal Emergency Management Agency (FEMA), 2017. FEMA's National Flood Hazard Layer (Official).

Dam Inundation

The Plan Area is in the dam inundation area for Big Dry Creek Dam, on Big Dry Creek about 12.5 miles northeast of the Plan Area.[38] Big Dry Creek Dam is an earth-fill flood-control dam built by the US Army Corps of Engineers in 1948 and owned and operated by the FMFCD. The dam controls up to 230-year floods on Big Dry and Dog creeks and can impound up to 30,200 acre-feet of water.[39] An expanded drain was installed at the base of the downstream side of the dam in 2014 to prevent potential damage to the dam from seepage under the dam.[40] In addition to recent improvement to the dam, the dam is inspected annually by the California Department of Water Resources Division of Safety of Dams.

Seiche

A seiche is a surface wave created when an inland water body is shaken, usually by an earthquake. The nearest water body to the Plan Area capable of generating a seiche is Big Dry Creek Reservoir about 13 miles to the northeast.[41] The potential for failure of Big Dry Creek Dam is addressed above under *Dam Inundation.*

Tsunami

A tsunami is an ocean wave caused by a sudden displacement of the ocean floor, most often due to earthquakes. The Plan Area is about 107 miles inland from the Pacific Ocean and is at elevation ranging from about 283 feet above mean sea level (amsl) at the east boundary to 263 feet amsl at the southwest corner of the Plan Area. There is no tsunami flood hazard on-site.

Mudflow

A mudflow is a landslide composed of saturated rock debris and soil with a consistency of wet cement. The Plan Area is flat; most of the Plan Area has a southwest slope of about 0.1 percent grade. There are no slopes on or near the Plan Area capable of generating a mudflow.

4.9.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant aesthetic impact if it would:

1. Violate any water quality standards or waste discharge requirements.

[38] Takemoto, Jarrod, Rural Streams Program Manager, Fresno Metropolitan Flood Control District. Email to PlaceWorks, July 5, 2017.

[39] Fresno Metropolitan Flood Control District (FMFCD), 2017. Flood Control Program, http://www.fresnofloodcontrol.org/flood_control_system/rural%20system/flood%20control%20pgrm.pdf, accessed July 5, 2017.

[40] Takemoto, Jarrod, Rural Streams Program Manager, Fresno Metropolitan Flood Control District. Email to PlaceWorks, July 5, 2017.

[41] City of Fresno, 2016a. DRAFT Environmental Impact Report City of Fresno Downtown Neighborhoods Community Plan, Fulton Corridor Specific Plan, and Downtown Development Code City of Fresno, Fresno County, California.

2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site.
4. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.
5. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.
6. Otherwise substantially degrade water quality.
7. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
8. Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
9. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
10. Be subject to inundation by seiche, tsunami, or mudflow.

4.9.3 IMPACT DISCUSSION

HYD-1	Buildout of the proposed Plan would not violate any water quality standards or discharge requirements.

Construction Impacts

Clearing, grading, excavation, and construction activities could impact water quality through soil erosion and increased silt and debris discharged into runoff. Additionally, the use of construction materials such as fuels, solvents, and paints may present a risk to surface water quality. Temporary storage of construction materials and equipment in work areas or staging areas could involve a release of hazardous materials, trash, or sediment to the storm drain system.

The proposed Plan would permit total development intensity on-site of up to 5,923 residential units; about 1.547 million square feet of commercial (retail and mixed use) uses; about 749,000 square feet of employment (office) uses; 75 acres of parks; and 118 acres or 1.44 million square feet of public facilities.

Pollutants of Concern from Construction Projects

Contaminants that can be released by construction projects and can contaminate stormwater include sediment, nutrients, bacteria and viruses, oil and grease, metals, organic (carbon-based) compounds,

oxygen-demanding substances, pesticides, and trash and debris. Organic compounds are found in pesticides, solvents, and hydrocarbons. Oxygen-demanding substances include proteins, carbohydrates, and fats; microbial degradation of such substances increases oxygen demand in water.[42]

Construction Water Quality Requirements

Construction projects of 1 acre or more would be required to comply with the General Construction Permit, Order No. 2012-0006-DWQ, issued by the SWRCB in 2012. Projects obtain coverage by developing and implementing a SWPPP estimating sediment risk from construction activities to receiving waters, and specifying BMPs that would be used by the project to minimize pollution of stormwater. Categories of BMPs used in SWPPPs are described above in Table 4.9-1. Construction-related impacts would be *less than significant*.

Operational Impacts

The entire Plan Area is in areas served by FMFCD retention basins. Operation of projects developed under the proposed Plan could generate the same categories of pollutants that construction could. Water quality treatment for post-construction discharges to stormwater in the FMFCD urban flood control system area is provided by retention basins. Land development in the FMFCD Master Plan area is exempt from further water quality requirements provided that the FMFCDs Storm Water Quality Management Plan is implemented.

Storm drainage improvements are funded by local drainage fees paid by developments and are built by the FMFCD, by developers, or both. Basins are highly effective at reducing average concentrations of a broad range of contaminants, including several polyaromatic hydrocarbons, total suspended solids, and most metals. Pollutants are removed by filtration through soil, and thus don't reach the groundwater aquifer. Basins are built to design criteria exceeding Statewide Standard Urban Stormwater Mitigation Plan standards.[43] The urban flood control system provides treatment for all types of development. Operational impacts would be *less than significant*.

Specific Plan Goals and Policies

The proposed Plan sets forth the following goals and policies applicable to drainage and water quality:

Goal T-12: Improve storm water quality through transportation infrastructure improvements.

Policy T12.1 Coordinate with the Fresno Metropolitan Flood Control District (FMFCD) Master Plan to incorporate Low Impact Development (LID) storm water management techniques with curb, gutter, and sidewalk improvements.

[42] California Stormwater Quality Association (CASQA), 2003. Stormwater Best Management Practice: Construction Handbook, January.

[43] City of Fresno, 2016a. DRAFT Environmental Impact Report City of Fresno Downtown Neighborhoods Community Plan, Fulton Corridor Specific Plan, and Downtown Development Code City of Fresno, Fresno County, California.

Policy T12.2 Manage stormwater on-site to cleanse, diffuse, and absorb rainwater where it falls by creating rain gardens, swales, infiltration areas, and other attractive areas that bring nature and beauty into developed areas.

Policy T12.3 Work with FMFCD to reduce or waive development impact fees if LID development is implemented on-site.

Significance Without Mitigation: Less than significant.

HYD-2.1 Buildout of the Specific Plan would increase water demands in the City, thus increasing demands for groundwater.

At buildout of the proposed Plan water demands on-site are estimated at 7.35 million gallons per day (mgpd), an increase of about 0.22 mgpd—or 3 percent—compared to General Plan buildout conditions.

The City of Fresno Water Division (FWD) supplies water to the Plan Area. Groundwater comprises the entire municipal water supply on-site. For FWDs entire service area—encompassing most of the City of Fresno—groundwater comprises about 81 to 88 percent of municipal water supplies; and is forecast to constitute about 41 percent of supplies in 2040.[44]

The City of Fresno forecasts that it will have sufficient water supplies for demands in its service area over the 2020-2040 period in normal, single-dry-year, and multiple-dry-year conditions. The smallest forecast water supply surplus during that period is 6,100 afy, which would occur in 2035 in single-dry-year and multiple-dry-year conditions. The estimated net increase in water demands due to buildout of the proposed Plan compared to General Plan Horizon buildout on-site—about 0.22 mgpd—is within the estimated Citywide water surplus in the two dry-condition scenarios analyzed during the 2020-2040 period.[45] Therefore, impacts on groundwater supplies would be *less than significant*.

Significance Without Mitigation: less than significant.

HYD-2.2 Implementation of the proposed Plan would not substantially interfere with groundwater recharge.

Runoff from proposed land uses would be directed to retention basins where it would infiltrate into soil. The retention basins have capacity for a two-year storm and for at least 60 percent of average annual rainfall. Retention basin capacities required at buildout of the proposed Plan are listed below in Table 4.9-4. While buildout would require additional capacity in 6 of the 14 basins in the area studied, the increase would be less than 20 percent for each of the six basins. FMFCD guidelines allow a 20 percent change in required volume before FMFCD is required to resize the basin and either enlarge or change the

[44] City of Fresno, 2016b. City of Fresno 2015 Urban Water Management Plan.

[45] Water supplies and demands on-site and in FWD's entire service area are discussed in more detail in Chapter 4.15, Utility Systems, of this Draft EIR.

TABLE 4.9-4 RETENTION BASIN CAPACITIES

Drainage Area	Acres	GP Required Basin Volume (Acre-Feet)	Specific Plan Required Basin Volume (Acre-Feet)	Difference, Percent
Basin AR	0.5	0.23	.23	0.0%
Basin AS	637	126.06	130.79	3.8%
Basin AU	376	70.76	81.07	14.6%
Basin AV	526	178.00	148.92	-16.3%
Basin CE	0	0.0	0.0%	0.0%
Basin CP	311	61.97	53.82	-13.2%
Basin CQ	220	46.76	52.25	11.8%
Basin FF	273	62.68	62.68	0.0%
Basin II1	168	39.88	41.51	4.1%
Basin KK	250	79.83	73.61	-7.8%
Basin NN	789	170.92	163.35	-4.4%
Basin OO	113	33.49	33.46	0.0%
Basin RR	12.4	1.41	1.41	0.0%
Basin SS	520	117.44	119.28	1.6%
Basin TT	563	140.39	138.85	-3.9%
Basin ZZ	225	57.59	61.34	6.5%
Exempt	101	43.86	43.74	-.3%
Out of Drainage Area	774	115.03	144.97	26.0%
Total	5,859	1,346.3	1347.3	0.1%

location of the affected basin.[46] Therefore, no construction of new or expanded basins would be required to accommodate runoff from buildout, and the impact would be *less than significant*.

Significance Without Mitigation: Less than significant.

HYD-3 Implementation of the proposed Plan would not substantially change the drainage pattern on and surrounding the project site, and would not cause substantial erosion or siltation on- or off-site.

[46] Fresno Metropolitan Flood Control District (FMFCD), 2013. Storm Water Facts: Urban Storm Drain Service.

Drainage Pattern

The drainage pattern in the Plan Area would remain similar to current conditions through buildout of the proposed Plan. Runoff from developed properties would be conveyed in curb and gutter to storm drain inlets, and then through storm drains to FMFCD retention basins where the runoff would be infiltrated into soil. Retention basin capacities required for buildout of the proposed Plan are listed in Table 4.9-4.

Existing retention basins have been sized for General Plan Buildout. As shown above under Impact HYD-2.2, implementation of the proposed Plan would not require construction of new or expanded basins.

Proposed Storm Drains

The FMFCD Urban Storm Drainage Master Plan includes several proposed storm drains on-site shown on Figure 4.9-2.

Erosion and Siltation

Erosion is the movement of soil from place to place, and is a natural process. The main natural agents of erosion in the region are wind and flowing water. Erosion can be accelerated dramatically by ground-disturbing activities if effective erosion control measures are not used. Soil can be tracked off construction sites by vehicles, as well as carried off sites by wind and water. Siltation is the settling of sediment to the bed of a stream or lake. Sediments can increase the turbidity (cloudiness) of water, clog fish gills, reduc spawning habitat, lower survival rates of young aquatic organisms, smother bottom-dwelling organisms, and suppress aquatic vegetation growth.[47]

Portions of the Plan Area are currently in agricultural use. At buildout of the proposed Plan these areas would be developed with land uses consisting of buildings, paved areas, and ornamental and recreational landscaping. Bare soil on farmland (such as between rows or trees) is more susceptible to erosion than developed urban land. Thus, buildout of the proposed Plan is expected to cause some reduction in erosion on-site. FMFCD retention basins are highly effective at removing total suspended solids including sediment. Implementation of proposed Plan policies T12.1, T12.2, and T12.3 would reduce erosion and siltation impacts. Therefore, implementation of the proposed Plan would not substantially change the drainage pattern on and surrounding the project site, and would not cause substantial erosion or siltation on- or off-site, and the impact would be *less than significant*.

Significance Without Mitigation: Less than significant.

HYD-4	**Implementation of the proposed Plan would not substantially change the drainage pattern on and surrounding the project site and would not cause flooding on- or off-site.**

[47] California Stormwater Quality Association (CASQA), 2003. Stormwater Best Management Practice: Construction Handbook, January.

Impacts on the drainage pattern are addressed above under Impact HYD-3.

Implementation of the proposed Plan would increase the amount of impermeable land surfaces on-site and thus increase runoff from the Plan Area.

FMFCD basins have capacity for a two-year storm and for at least 60 percent of average annual rainfall. When necessary, FMFCD can move water from a basin in one such drainage area to a second such basin by pumping water into a street and letting water flow in curb and gutter to a storm drain inlet in an adjoining drainage area.[48] FMFCD guidelines allow a 20 percent change in required volume before FMFCD is required to resize the basin and either enlarge or change the location of the affected basin. As shown above in Table 4.9-3, buildout of the proposed Plan would not require an increase in volume of 20 percent or more in any of the basins serving the Plan Area; and thus would not require construction of any new or expanded basins. The FMFCD Urban Storm Drainage Master Plan includes several proposed storm drains on-site.

Minimum finish floor elevations in all developments under the proposed Plan would be above flood pool elevations at the affected sites; and such projects would be designed and graded so as not to impede the flow of flood waters through or around their sites. These requirements are set forth in Fresno General Plan Noise and Safety Element PolicyNS-3-h (see Table 4.9-2 above). Therefore, implementation of the proposed Plan would not substantially change the drainage pattern on and surrounding the project site and would not cause flooding on- or off-site, and the impact would be *less than significant*.

Specific Plan Policies

Implementation of Specific Plan policies T12.1, T12.2, and T12.3 would reduce flooding impacts.

Significance Without Mitigation: Less than significant.

HYD-5	Buildout of the proposed Plan would not generate runoff exceeding the capacity of existing or planned storm drainage systems, or generate a substantial increase in polluted runoff

Runoff and Storm Drainage Capacity

Impacts on runoff and storm drainage capacity would be *less than significant*, as substantiated above under Impact HYD-4.

Polluted Runoff

Water quality impacts would be *less than significant*, as substantiated above under Impact HYD-1.

[48] Rourke, Daniel, Environmental Resources Manager, Fresno Metropolitan Flood Control District. Phone call with PlaceWorks, April 11, 2014.

Significance Without Mitigation: Less than significant.

HYD-6	Buildout of the proposed Plan would not substantially degrade water quality.

Water quality impacts would be *less than significant*, as substantiated above under Impact HYD-1.

Significance Without Mitigation: Less than significant.

HYD-7	Buildout of the proposed Plan would not place housing in a 100-year flood hazard area.

The Dry Creek Canal and an approximately 11.3-acre area in Retention Basin ZZ are mapped in 100-year flood zones; the balance of the Plan Area is outside of such zones. Dry Creek Canal is owned and operated by FID for conveyance of agricultural irrigation water; Basin ZZ is owned and operated by FMFCD as a retention and flood control basin. Neither area is available for development with other land uses, or is designated for such development under the proposed Plan. Implementation of the proposed Plan would not place housing in a 100-year flood zone, and impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

HYD-8	Buildout of the proposed Plan would not place structures which would redirect flood flows within a 100-year flood zone.

The two areas within the Plan Area within 100-year flood zones are the Dry Creek Canal and part of FMFCD Basin ZZ. Implementation of the proposed Plan would not place structures in a 100-year flood zone that would redirect flood flows, and impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

HYD-9	The Plan Area is not in dam inundation areas or mapped as protected from 100-year floods by levees. Buildout of the proposed Plan would not expose people or structures to flood hazard due to dam inundation.

Dam Inundation

The Plan Area is in the dam inundation area for Big Dry Creek Dam, on Big Dry Creek about 12.5 miles northeast of the Plan Area.[49] An expanded drain was installed at the base of the downstream side of the

[49] Takemoto, Jarrod, Rural Streams Program Manager, Fresno Metropolitan Flood Control District. Email to PlaceWorks, July 5, 2017.

dam in 2014 to prevent potential damage to the dam from seepage under the dam.[50] In addition, the dam is inspected annually by the California Department of Water Resources Division of Safety of Dams. Considering recent improvements to, and periodic inspections of the dam, the potential for dam failure is considered slight, and buildout of the proposed Plan would not exacerbate flood hazards due to dam inundation, and impacts would be *less than significant*.

Levee Failure

No areas within the Plan Area are mapped as protected from 100-year floods by levees.[51] Buildout of the proposed Plan would not place people or structures at risk from flooding due to levee failure.

Significance Without Mitigation: Less than significant.

HYD-10	**The Plan Area is not susceptible to flooding due to seiche, tsunami, or mudflow. Buildout of the proposed Plan would not subject people or structures to such flood hazards.**

Seiche

A seiche is a surface wave created when an inland water body is shaken, usually by an earthquake. The nearest water body to the Plan Area capable of generating a seiche is Big Dry Creek Reservoir about 13 miles to the northeast.[52] The Plan Area is not in the dam inundation area for Big Dry Creek Dam.

Tsunami

A tsunami is an ocean wave caused by a sudden displacement of the ocean floor, most often due to earthquakes. The Plan Area is about 107 miles inland from the Pacific Ocean and is at elevation ranging from about 283 feet amsl at the east boundary to 263 feet amsl at the southwest corner of the Plan Area. There is no tsunami flood hazard within the Plan Area.

Mudflow

A mudflow is a landslide composed of saturated rock debris and soil with a consistency of wet cement. The Plan Area is flat; most of the Plan Area has a southwest slope of about 0.1 percent grade. There are no slopes on or near the Plan Area capable of generating a mudflow.

Buildout of the proposed Plan would not subject people or structures to any of the above three types of flood hazards, and impacts would be *less than significant*.

[50] Takemoto, Jarrod, Rural Streams Program Manager, Fresno Metropolitan Flood Control District. Email to PlaceWorks, July 5, 2017.

[51] Federal Emergency Management Agency (FEMA), 2017. FEMA's National Flood Hazard Layer (Official).

[52] City of Fresno, 2016a. DRAFT Environmental Impact Report City of Fresno Downtown Neighborhoods Community Plan, Fulton Corridor Specific Plan, and Downtown Development Code City of Fresno, Fresno County, California.

Significance Without Mitigation: Less than significant.

4.9.4 CUMULATIVE IMPACTS

HYD-11	**Buildout of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not cause significant cumulative impacts to hydrology and water quality.**

Surface Water, Drainage, and Flooding

The area considered for cumulative impacts to surface water, drainage, and flooding is the Upper Dry Subbasin, which spans about 2,126 square miles in much of western Fresno County and small portions of Kings and San Benito counties (see Figure 4.9-3).

Other projects in the watershed would develop increased impermeable surfaces, thus increasing runoff to surface waters and storm drainage systems.

Other projects would be required to comply with the FMFCD Storm Water Quality Management Program (in FMFCDs Master Plan Area), or with the region-wide MS4 permit (Order No. R5-2016-0040 issued by the Central Valley RWQCB in 2016). Projects outside the FMFCDs urban flood control system would be required to infiltrate or treat stormwater pursuant to the MS4 permit.

The City and County of Fresno each have policies limiting and regulating development in 100-year flood zones.

Cumulative hydrology and flooding impacts would be less than significant after compliance with the SWQMP and MS4 permit, and project impacts would not be cumulatively considerable.

Groundwater Supply and Recharge

Cumulative groundwater impacts are analyzed in the Kings River Subbasin spanning about 1,530 square miles of central Fresno County and small areas of northern Kings and Tulare counties (see Figure 4.9-4). Other projects would develop impervious areas and would thus generate increased runoff. Most runoff within the FMFCD urban flood control system area is recharged into the groundwater basin via retention basins. Projects outside the FMFCDs urban flood control system would be required to infiltrate or treat stormwater. Cumulative groundwater impacts would be less than significant after compliance with the SWQMP and/or MS4 permit, and project impacts would not be cumulatively considerable.

Water Quality

The area considered for cumulative water quality impacts is the approximately 400-square-mile FMFCD Master Plan Area, including metropolitan Fresno and extending northeast into the Sierra Nevada

foothills.[53] Projects within the FMFCD Master Plan area are exempt from further operational water quality requirements provided that the FMFCD Storm Water Quality Management Plan is implemented. Projects outside the Master Plan area would be required to infiltrate or treat stormwater. Construction projects 1 acre or larger would be required to prepare and implement Stormwater Pollution Prevention Plans pursuant to the Statewide General Construction Permit. Cumulative water quality impacts would be *less than significant* after compliance with the SWQMP, and project impacts would not be cumulatively considerable.

Significance Without Mitigation: Less than significant.

[53] The entire Central Valley RWQCB region is about 60,000 square miles—stretching from the north edges of Los Angeles and Ventura counties to the Oregon border; thus, cumulative analysis of water quality impacts is focused on the smaller FMFCD Master Plan area.

4.10 LAND USE AND PLANNING

This chapter describes the existing land use character of the Plan Area and evaluates the potential land use and policy consistency impacts of future development that could occur by adopting and implementing the proposed Plan, with regard to potentially significant direct and indirect environmental impacts related to land use and planning.

4.10.1 ENVIRONMENTAL SETTING

4.10.1.1 REGULATORY FRAMEWORK

This section describes land use plans and policies relevant to the Plan Area. As described below, plans and policies related to air quality, biological resources, hydrology and water quality, public services and recreation, and transportation and traffic are described in the respective topical chapters of this Draft Environmental Impact Report (EIR).

State Regulations

Williamson Act

The California Land Conservation Act of 1965 (Williamson Act) allows local governments to enter into voluntary contracts with private landowners to restrict specific parcels of land to agricultural uses. In return, restricted parcel property taxes are assessed at a rate consistent with their actual use rather than potential market value. The minimum length of a Williamson Act contract is ten years. Because the contract term automatically renews on each anniversary date of the contract, the actual contract length is essentially indefinite.

Quimby Act

The Quimby Act of 1965 is a State law that allows local legislative bodies to adopt requirements for the dedication of land for parks or recreational purposes, payment of fees in-lieu-of land dedication, or a combination of both, as a condition of approval for a subdivision. The requirements must be adopted by an ordinance, with definite standards for determining the amount of land dedicated, or fees paid, and the requirement must have a clear nexus to the use of the facilities by the future inhabitants of the subdivision. Project consistency with polices related to recreation is discussed in Chapter 4.14, Public Services, of this Draft EIR.

California Department of Transportation

The California Department of Transportation (Caltrans) is the primary State agency responsible for transportation issues. One of its duties is construction and maintenance of the State highway system. Caltrans approves the planning, design, and construction of improvements for all State-controlled facilities. Caltrans has established standards for roadway traffic flow and developed procedures to determine if State-controlled facilities require improvements. For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any construction work

may be undertaken. For projects that would not physically affect facilities, but may influence traffic flow and levels of services at such facilities, Caltrans may recommend measures to mitigate traffic impacts of such projects. Consistency with the applicable policies and procedures set forth by Caltrans is discussed in Chapter 4.15, Transportation and Traffic, of this Draft EIR.

Local Regulations

This section describes City regulations and policies that pertain to land use in the City of Fresno.

Fresno General Plan

Table 4.10-1, located under Impact LU-2, contains a list of objectives that relate to land use in the Fresno General Plan.

Fresno Municipal Code

The City of Fresno Municipal Code was most recently updated on December 3, 2015. The Development Code is contained within Chapter 15 of the City's Municipal Code and provides regulations of land and structures in order to protect and promote health, safety, and welfare of the public, and to ensure the orderly development of the city.

4.10.1.2 EXISTING CONDITIONS

See Section 3.2.1 of Chapter 3, Project Description of this EIR for a description of the existing conditions and surrounding land use for the Plan Area.

4.10.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact if it would:

1. Physically divide an established community.
2. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
3. Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.10.3 IMPACT DISCUSSION

LU-1	Implementation of The proposed Plan would not physically divide an established community.

Implementation of the proposed Plan would have a significant environmental impact if it were sufficiently large enough or otherwise configured in such a way as to create a physical barrier or other physical division within an established community. A typical example would be a project which involved a

continuous right-of-way, such as a roadway, which would divide a community and impede access between parts of the community.

As described in Chapter 3, Project Description, the existing land use pattern within the Plan Area consists of a patchwork of land uses that abut each other, including subdivisions, industry, and farmland. Many pockets of residential land uses are adjacent to vacant land, agriculture, and/or industrial uses. The implementation of the proposed Plan would enhance the connectivity from the existing uses within the Plan Area to adjacent land uses through improved vehicular roadways and pedestrian and bicycle paths and lanes, and develop a cohesive network of land uses that would result in greater connectivity within the Plan Area. Goal LU-2 seeks to revitalize existing key corridors in Southwest Fresno, building off the existing character and potential of the streets, to strengthen neighborhood identity and appeal, to attract new development, and to connect neighborhoods and magnets. Further, Policies LU-2.5, -2.6, and -2.7 encourage future development to be sited in a manner that connects the Plan Area to other areas of the city, such as Downtown.

Because the overall purpose of the proposed Plan is to refine the vision for the Plan Area established in the General Plan, as well as other infrastructure improvements required to accommodate new development, implementation of the proposed Plan would not adversely impact community connectivity nor divide the physical arrangement of the community. As a result, a *less-than-significant* impact would occur.

Significance Without Mitigation: Less than significant.

LU-2	**Implementation of the proposed Plan would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.**

The General Plan Guidelines published by the State Office of Planning and Research define consistency as follows: “An action, program, or project is consistent with the General Plan if, considering all its aspects, it will further the objectives and policies of the General Plan and not obstruct their attainment.” Therefore, the standard for analysis used in this Draft EIR is based on general agreement with the policy language and furtherance of the policy intent (as determined by a review of the policy context). A comparison of the proposed Plan’s characteristics with all applicable objectives outlined in the General Plan as they relate to land use issues are presented in Table 4.10-1; as shown, the proposed Plan is consistent with these objectives. Therefore, a *less-than-significant* impact would result in this respect.

Significance Without Mitigation: Less than significant.

TABLE 4.10-1 GENERAL PLAN CONSISTENCY ANALYSIS

Element	General Plan Objective	Consistency Summary
Economic Development	ED-1. Support economic development by maintaining a strong working relationship with the business community and improving the business climate for current and future businesses.	Consistent. The proposed Plan includes a guiding principle that supports economic development and improves the business climate in the City of Fresno by providing appropriate services, programs, and facilities to Southwest Fresno residents, including youth, with the goal of becoming better qualified for existing and future employment within Southwest Fresno. Goal PF-7 encourages future job opportunities to shift from unskilled, low-wage jobs to skilled, higher-education jobs.
	ED-2. Support local business start-ups and encourage innovation by improving access to resources and capital and help overcome obstacles hampering economic development.	Consistent. The proposed Plan includes policies to locate employment uses so that they do not conflict with residential areas and are conveniently accessible by multiple modes of transportation; policies also seek to attract desirable employment to Southwest Fresno by locating them near retail and regional access points.
	ED-3. Attract and recruit businesses and offer incentives for economic development.	Consistent. The proposed Plan land use vision seeks to guide the redevelopment of the Southwest Fresno area to create a vibrant community with a mix of new retail, office, and residential uses. Specifically, the Plan would create two higher intensity cores near major highway interchanges, each with a primary magnet use. These magnet cores would be ringed with smaller complete neighborhoods that support the core. Each complete neighborhood includes housing and a node with community-serving uses. Neighborhoods would be linked by well-defined corridors lined with higher intensity uses. The Plan identifies desired commercial end uses and, in this sense, promotes Fresno as a potential location for these types of businesses.
	ED-4. Cultivate a skilled, educated, and well- trained workforce by increasing educational attainment and the relevant job skill levels in order to appeal to local and non-local businesses.	Consistent. The proposed Plan identifies strategies to attracting, creating, and retaining jobs within Southwest Fresno, including: ▪ Preparing, mentoring, and training Southwest Fresno residents, including youth, to become better qualified for existing and future employment within Southwest Fresno by providing appropriate services, programs, and facilities. ▪ Encouraging future job opportunities to shift from unskilled, low-wage jobs to skilled, higher-education jobs.

TABLE 4.10-1 GENERAL PLAN CONSISTENCY ANALYSIS

Element	General Plan Objective	Consistency Summary
Urban Form, Land Use, and Design	UF-1. Emphasize the opportunity for a diversity of districts, neighborhoods, and housing types.	Consistent. The proposed Plan seeks to implement the concept of a complete neighborhood, adopted from the General Plan. As such, the proposed Plan would create an urban form comprised of walkable, interconnected and self-sufficient neighborhoods. Implementation of the proposed Plan would result in the creation of a mix of high quality housing types, with an emphasis on single-family housing, that is affordable to low, moderate, and high-income households.
	UF-12. Locate roughly one-half of future residential development in infill areas— defined as being within the City on December 31, 2012—including the Downtown core area and surrounding neighborhoods, mixed-use centers and transit-oriented development along major BRT corridors, and other non- corridor infill areas, and vacant land.	Consistent. The proposed Plan concentrates residential development within a series of small, complete neighborhoods, consistent with the General Plan concept of complete neighborhoods.
	UF-13. Locate roughly one-half of future residential development in the Growth Areas—defined as unincorporated land as of December 31, 2012 SOI—which are to be developed with Complete Neighborhoods that include housing, services, and recreation; mixed-use centers; or along future BRT corridors.	Consistent. The proposed Plan concentrates residential development within a series of small, complete neighborhoods, consistent with the General Plan concept of complete neighborhoods,
	UF-14. Create an urban form that facilitates multi-modal connectivity.	Consistent. The proposed Plan seeks to create an urban form that facilitates multi- modal connectivity throughout the City of Fresno and surrounding region.
	LU-2. Plan for infill development that includes a range of housing types, building forms, and land uses to meet the needs of both current and future residents.	Consistent. The proposed Plan provides for the development of a range of housing types, building forms, and land uses to meet the needs of both existing and future residents.
	LU-4. Enhance existing residential neighborhoods through regulations, code enforcement, and compatible infill development.	Consistent. The proposed Plan would allow for the enhancement of existing residential neighborhoods through regulations, code enforcement, and infill development.
	LU-5. Plan for a diverse housing stock that will support balanced urban growth, and make efficient use of resources and public facilities.	Consistent. The proposed Plan creates a diversity of housing types that will support balanced urban growth and the efficient use of resources and public facilities.
	LU-6. Retain and enhance existing commercial areas to strengthen Fresno's economic base and site new office, retail, and lodging use districts to serve neighborhoods and regional visitors.	Consistent. Goal LU-2 of the proposed Plan revitalizes existing corridors in Southwest Fresno, including attracting and encouraging commercial development. Goal LU-7 promotes Southwest Fresno as an employment center with a mix of employment opportunities and types for residents and commuters.

TABLE 4.10-1 GENERAL PLAN CONSISTENCY ANALYSIS

Element	General Plan Objective	Consistency Summary
	LU-7. Plan and support industrial development to promote job growth.	Consistent. Goal LU-8 of the proposed Plan supports long term sustainability of industrial uses by directing them outside the plan area, where they will not conflict with existing neighborhoods.
	LU-8. Provide for the development of civic and institutional land uses to meet the educational, medical, social, economic, cultural, and religious needs of the community.	Consistent. The proposed Plan includes land use designations for community commercial and public facilities uses. Goal LU-1 seeks to establish Southwest Fresno as an attractive and desirable community through the creation of activity centers that provide a variety of housing types and a compatible mix of non-residential uses such as recreation uses to Southwest Fresno residents and visitors.
	LU-9. Plan land uses, design, and development intensities to supplement and support, and not compete with, the Downtown.	Consistent. Policy LU-2.1 of the proposed Plan seeks to promote transit-oriented development along corridors in a way that is supportive of the Downtown High-Speed Rail (HSR) station, while LU-2.5 seeks to attract and encourage higher-density mixed-use development along California Avenue, connecting to and supporting Downtown.
	D-1. Provide and maintain an urban image that creates a "sense of place" throughout Fresno.	Consistent. Goal LU-3 of the proposed Plan seeks to create a diversity of new complete neighborhoods that are safe, healthy, self-sufficient, walkable, and interconnected ,and strengthen existing neighborhoods so that they become a complete neighborhood.
	D-3. Create unified plans for Green Streets, using distinctive features reflecting Fresno's landscape heritage.	Consistent. The proposed Plan includes development and design standards for the creation of green streets.
	D-4. Preserve and strengthen Fresno's overall image through design review and create a safe, walkable and attractive urban environment for the current and future generations of residents.	Consistent. The proposed Plan seeks to create a diversity of new complete neighborhoods that are safe, healthy, self-sufficient, walkable, and interconnected, and strengthen existing neighborhoods so that they become a complete neighborhood. All future development within the Plan Area will be required to comply with the design regulations and policies of the proposed Plan and the Development Code.
	D-5. Maintain and improve community appearance through programs that prevent and abate blighting influences	Consistent. Goal LU-4 of the proposed Plan includes remediation of Southwest Fresno's blighting conditions to improve the community's image, attract private investment, and create a pleasant living environment.
	D-6. Encourage design that celebrates and supports the cultural and ethnic diversity of Fresno.	Consistent. The proposed Plan encourages design that celebrates and supports the cultural and ethnic diversity of Fresno.
	D-7. Continue applying local urban form, land use, and design policies to specific neighborhoods and locations.	Consistent. The proposed Plan seeks to create a diversity of new complete neighborhoods that are safe, healthy, self-sufficient, walkable, and interconnected, and strengthen existing neighborhoods so that they become a complete neighborhood. All future development within the Plan Area will be required to comply with the design regulations and policies of the

TABLE 4.10-1 GENERAL PLAN CONSISTENCY ANALYSIS

Element	General Plan Objective	Consistency Summary
		proposed Plan and the Development Code
Mobility and Transportation	MT-1. Create and maintain a transportation system that is safe, efficient, provides access in an equitable manner, and optimizes travel by all modes.	Consistent. Goal T-6 of the proposed Plan seeks to develop the Southwest Fresno transit network into a viable transportation alternative to single-occupancy vehicles, and provide equitable transit options to all residents.
	MT-2. Make efficient use of the City's existing and proposed transportation system and strive to ensure the planning and provision of adequate resources to operate and maintain it.	Consistent. Goals T-6 and T-7 of the proposed Plan seek to make efficient use of the City's existing transportation system and well as capitalizing on proposed improvements, such as Downtown's proximity to the future High-Speed Rail Station.
	MT-4. Establish and maintain a continuous, safe, and easily accessible bikeways system throughout the metropolitan area to reduce vehicle use, improve air quality and the quality of life, and provide public health benefits.	Consistent. Goal T-8 of the proposed Plan seeks to invest in developing, improving, and maintaining a roadway network that provides safety and adequate capacity for automobiles and for walking, bicycling, and transit mobility. In addition, the plan includes a bicycle network that was adopted as part of the Active Transportation Plan
	MT-5. Establish a well-integrated network of pedestrian facilities to accommodate safe, convenient, practical, and inviting travel by walking, including for those with physical mobility and vision impairments.	Consistent. Goal T-8 of the proposed Plan seeks to invest in developing, improving, and maintaining a roadway network that provides safety and adequate capacity for automobiles and for walking, bicycling, and transit mobility.
	MT-6. Establish a network of multi-purpose pedestrian and bicycle paths, as well as limited access trails, to link residential areas to local and regional open spaces and recreation areas and urban Activity Centers in order to enhance Fresno's recreational amenities and alternative transportation options.	Consistent. Goal T-5 of the proposed Plan seeks to create a separated, scenic, and well-connected multi-use trails network that provides Southwest Fresnans convenient access to nature and active recreational opportunities.
	MT-10. Establish parking standards that are strategically tuned to support neighborhoods, shopping districts and employment centers that have a complete range of transportation choices.	Consistent. Policy LU-9.2 of the proposed Plan seeks to encourage parking to be consolidated into parking structures, discourage large areas to be dominated by surface parking visible from the street, and screen parking lots with buildings and/or vegetation and tree planning.
Parks, Open Space, and Schools	POSS-1. Provide an expanded, high quality and diversified park system, allowing for varied recreational opportunities for the entire Fresno community.	Consistent. Goal PF-2 of the proposed Plan seeks to increase the overall amount of usable parkland within Southwest Fresno allowing varied recreational opportunities for the entire Southwest Fresno community.
	POSS-2. Ensure that adequate land, in appropriate locations, is designated and acquired for park and recreation uses in infill and growth areas.	Consistent. Goal PF-2 of the proposed Plan seeks to increase the overall amount of usable parkland within Southwest Fresno, allowing varied recreational opportunities for the entire Southwest Fresno community. This includes joint-use agreements to provide a wider range of recreation programs and maximize the efficient use, maintenance, and supervision of public facilities. Expanding access to these facilities can increase the amount of park land available to residents while utilizing existing facilities. Further, the

TABLE 4.10-1 GENERAL PLAN CONSISTENCY ANALYSIS

Element	General Plan Objective	Consistency Summary
		proposed Plan calls for 78 new acres of parkland, ensuring that both existing and new residents are able to access a park within 1.2 mile of their residence.
	POSS-8. Work cooperatively with school districts to find appropriate locations for schools to meet the needs of students and neighborhoods.	**Consistent.** Goal PF-5 of the proposed Plan seeks to ensure that the amount of existing and new schools within the Plan Area adequately supports the number of existing and new residents. Further, impacts to schools were evaluated by this Draft EIR and determined to be less than significant. Refer to Section 4.13, Public Services, for further discussion.
Public Utilities and Services	**PU-1.** Provide the level of law enforcement and crime prevention services necessary to maintain a safe, secure, and stable urban living environment through a Police Department that is dedicated to providing professional, ethical, efficient and innovative service with integrity, consistency and pride.	**Consistent.** Impacts to law enforcement and crime prevention services are evaluated in this Draft EIR and determined to be less than significant with mitigation. Refer to Section 4.13, Public Services, for further discussion.
	PU-2. Ensure that the Fire Department's staffing and equipment resources are sufficient to meet all fire and emergency service level objectives and are provided in an efficient and cost effective manner.	**Consistent.** Impacts to fire protection services are evaluated in this Draft EIR and determined to be less than significant with mitigation. Refer to Section 4.13, Public Services, for further discussion.
	PU-4. Ensure provision of adequate trunk sewer and collector main capacities to serve existing and planned urban development, consistent with the Wastewater Master Plan.	**Consistent.** Policy U-1.3 of the proposed Plan requires developers to build or contribute towards the design and construction of expanded and upgraded utilities to serve new development projects, including sewer collection systems. Further, impacts to trunk sewer capacity were evaluated by this Draft EIR and determined to be less than significant. Refer to Section 4.15, Utilities, for further discussion.
	PU-6. Ensure the provision of adequate sewage treatment and disposal by utilizing the Fresno-Clovis Regional Wastewater Reclamation Facility as the primary facility, when economically feasible, for all existing and new development within the Metropolitan Area.	**Consistent.** Policy U-1.5 of the proposed Plan requires all existing and new development within the Plan Area to provide adequate sewage treatment and disposal by utilizing the City of Fresno's regional wastewater treatment plant. Further, impacts to sewage treatment and disposal were evaluated by this Draft EIR and determined to be less than significant. Refer to Section 4.15, Utilities, for further discussion.
	PU-7. Promote reduction in wastewater flows and develop facilities for beneficial reuse of reclaimed water and biosolids for management and distribution of treated wastewater.	**Consistent.** Policy U-1.5 of the proposed Plan requires all existing and new development within the Plan Area to provide adequate sewage treatment and disposal by utilizing the City of Fresno's regional wastewater treatment plant. Further, impacts to sewage treatment and disposal were evaluated by this Draft EIR and determined to be less than significant. Refer to Section 4.15, Utilities, for further discussion.
	PU-9. Provide adequate solid waste facilities and services for the collection, transfer, recycling, and disposal of refuse.	**Consistent.** Impacts to solid waste facilities were evaluated by this Draft EIR and determined to be less than significant. Refer to Section 4.15, Utilities, for further discussion.
Historic and	**HCR-2.** Identify and preserve Fresno's historic and cultural resources that	**Consistent.** Policy LU-2.4 of the proposed Plan encourages preservation of

TABLE 4.10-1 GENERAL PLAN CONSISTENCY ANALYSIS

Element	General Plan Objective	Consistency Summary
Cultural Resources	reflect important cultural, social, economic, and architectural features so that residents will have a foundation upon which to measure and direct physical change.	Kearney Boulevard to support a Historic Corridor, including preserving its scenic quality. Refer to Section 4.5, Cultural Resources, for further discussion of historic and cultural resources.
Noise and Safety	NS-1. Protect the citizens of the City from the harmful and annoying effects of exposure to excessive noise.	Consistent. This Draft EIR evaluates potential noise impacts and sets forth mitigation measures to ensure that sensitive receptors (such as residential uses) are not exposed to excessive noise levels. Refer to Section 4.11, Noise, for further discussion.
	NS-2. Minimize risks of property damage and personal injury posed by geologic and seismic risks.	Consistent. This Draft EIR evaluates potential impacts related to geologic and seismic hazards. Refer to Section 4.6, Geology, Soils, and Seismicity, for further discussion.
	NS-3. Minimize the risks to property, life, and the environment due to flooding and stormwater runoff hazards.	Consistent. This Draft EIR requires construction stormwater quality control measures to prevent flooding due to stormwater runoff. Refer to Section 4.9, Hydrology and Water Quality, for further discussion,
	NS-4. Minimize the risk of loss of life, injury, serious illness, and damage to property resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous wastes.	Consistent. Policy LU-8.6 of the proposed Plan restricts residential development on or near toxic and/or hazardous sites without proper evaluation and mitigation as required by the California Environmental Quality Act (CEQA).
Healthy Communities	HC-1. Work with neighborhood associations of local residents, businesses, and institutions on neighborhood and community health initiatives.	Consistent. Goal LU-8 of the proposed Plan seeks to protect the health and wellness of Southwest Fresno residents through regulating and reducing the negative impacts of industrial businesses and other sources of pollution, including collaboration with other organizations on health initiatives.
	HC-2. Create complete, well-structured, and healthy neighborhoods and transportation systems.	Consistent. Goal LU-3 of the proposed Plan seeks to create a diversity of new complete neighborhoods that are safe, healthy, self-sufficient, walkable, and interconnected and strengthen existing neighborhoods so that they become a complete neighborhood.
	HC-3. Create healthy, safe, and affordable housing.	Consistent. Policy LU-5.3 of the proposed Plan encourages new affordable single-family housing through the provision of smaller housing types on smaller lots.
	HC-5. Promote access to healthy and affordable food.	Consistent. Policy LU-6.3 of the proposed Plan encourages increasing access to fresh, affordable, and nutritious food sources with an emphasis on attracting and encouraging small and large food retailers such as grocery stores, farmers' markets, nutrition programs, community gardens, and food stands to provide fresh, affordable, and nutritious foods.

Source: City of Fresno, General Plan, 2014; PlaceWorks, 2017.

LU-3	**Implementation of the proposed Plan would not conflict with any applicable habitat conservation plan or natural community conservation plan.**

As discussed in Section 4.4, Biological Resources, of this Draft EIR, the Plan Area overlaps with areas that are covered by Pacific Gas and Electric Company's (PG&E's) San Joaquin Valley Operation and Maintenance Habitat Conservation Plan (HCP).[1] The HCP covers PG&E's routine operations and maintenance activities, as well as minor new construction, on any PG&E gas and electrical transmission and distribution facilities, easements, private access routes, or lands owned by PG&E. The proposed Plan would not be expected to conflict or interfere with the HCP activities. The proposed Plan, however, would likely result in a need for PG&E gas and electrical transmission and distribution facilities to support new residential and industrial land uses not covered by the HCP, but these activities in the Plan Area would be addressed by General Plan Policies POSS-5-a through POSS-5-f, and both the General Plan and specific plan mitigation measures described in Section 4.4 of this Draft EIR.

The proposed Plan is also located in the planning area of the Recovery Plan for Upland Species of the San Joaquin Valley, which addresses recovery needs and goals for the San Joaquin kit fox, among other species. Project-level implementation of the General Plan Policies POSS-5-a through POSS-5-f and Mitigation Measures BIO-1 to BIO-3, and Specific Plan Mitigation Measure BIO-1.3, will reduce potential project impacts to the San Joaquin kit fox and other wildlife covered by the Recovery Plan and their associated habitat, and require consultation with the U.S. Fish and Wildlife Service (USFWS), if take of federally-listed species would occur. Thus, with implementation of these measures, the proposed Plan would not be expected to conflict with the goals of the Recovery Plan.

There are no other approved local, regional, or State habitat conservation plans that would conflict with the proposed Plan. As a result, a *less-than-significant* impact would occur.

Significance Without Mitigation: Less than significant.

4.10.4 CUMULATIVE IMPACTS

LU-4	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in less than significant cumulative impacts with respect to land use and planning.**

As discussed in Impact LU-1, the proposed Plan would not physically divide an established community. Considering that the proposed Plan is anticipated to create a vibrant mixed use district and the Policies contained in the proposed Plan would serve to minimize impacts on adjacent communities, the proposed Plan is not expected to contribute to any cumulative division of an established community.

[1] Jones & Stokes, 2006. Pacific Gas & Electric Company San Joaquin Valley Operations and Maintenance Habitat Conservation Plan (includes updated Chapter 4 and Tables 5-3, 5-4 and 5-5, December 2007), Sacramento, CA.

As demonstrated in Impact LU-2, the proposed Plan is consistent with Fresno's General Plan and thus would not contribute to cumulative impacts on land use policies and regulations.

Impact LU-3 states that implementation of the proposed Plan would not conflict with an HCP or the Recovery Plan for Upland Species of the San Joaquin Valley Area due to implementation of General Plan policies and mitigation measures proposed in this Draft EIR.

Therefore, there would be a *less-than-significant* cumulative impact with regard to land use and planning as a result of implementing the proposed Plan.

Significance Without Mitigation: Less than significant.

4.11 NOISE

This section discusses the fundamentals of sound and vibration; describes the existing noise and vibration settings/conditions; examines federal, State, and local noise guidelines, policies, and standards; reviews noise levels at existing receptor locations; evaluates potential noise impacts associated with the Southwest Fresno Specific Plan (proposed Plan); and provides mitigation to reduce noise impacts at sensitive residential locations. This evaluation uses procedures and methodologies as specified by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA).

This section of the Draft Environmental Impact Report (Draft EIR) evaluates the potential for implementation of the proposed Plan to result in noise impacts in the Plan Area.

4.11.1 ENVIRONMENTAL SETTING

4.11.1.1 TECHNICAL TERMINOLOGY

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as “noisiness” or “loudness.” The following are brief definitions of terminology used in this chapter:

- Sound. A vibratory disturbance that, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- Noise. Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- Hertz (Hz). A unit of frequency of change in state or cycle in a sound wave. The nearly universal usage is one (complete) cycle in one second. The unit ‘Hertz’, named after the German physicist Heinrich Hertz (1857-1894) replaces the previous ‘cycles per second (cps)’ nomenclature.
- Decibel (dB). A unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals (20 µPa).
- Vibration Decibel (VdB). A unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the U.S., the standard reference velocity is 1 micro-inch per second ($1x10^{-6}$ in/sec).
- A-Weighted Decibel (dBA). An overall frequency-weighted sound level in decibels which approximates the frequency response of the human ear.
- Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level. The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."
- **Day-Night Level (L_{dn} or DNL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m. For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB. As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as being equivalent in this assessment.
- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

4.11.1.2 FUNDAMENTALS OF SOUND

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves. Sound is described in terms of loudness or amplitude (measured in dB), frequency or pitch (measured in Hertz [Hz] or cycles per second), and duration or time variations (measured in seconds or minutes).

Amplitude

The range of pressures that causes airborne vibrations (i.e., sound) is quite large and would be cumbersome to measure lineally. Therefore, noise is measured on a logarithmic scale, which has a more manageable range of numbers, and a decibel is the standard unit for measuring sound pressure amplitude.[1] All noise levels in this study—reported in terms of dB—are relative to the industry-standard reference sound pressure of 20 micropascals.

On a logarithmic scale, an increase of 10 dB is 10 times more intense than 1 dB, while 20 dB is 100 times more intense, and 30 dB is 1,000 times more intense. A sound as soft as human breathing is about

[1] The commonly held threshold of audibility is 20 micropascals, and the threshold of pain is around 200 million micropascals, a ratio of one to 10 million. By converting these pressures to a logarithmic scale (i.e., decibels), the range becomes a more convenient 0 dB to 140 dB.

10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dB are detectable under quiet, controlled conditions, and changes of less than 1 dB are usually not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling (or halving) of the sound. These relationships are summarized in Table 4.11-1.

TABLE 4.11-1 NOISE PERCEPTIBILITY

± 3 dB	Threshold of human perceptibility
± 5 dB	Clearly noticeable change in noise level
± 10 dB	Half or twice as loud
± 20 dB	Much quieter or louder

Source: Bies, David A. and Colin H. Hansen. 2009. *Engineering Noise Control: Theory and Practice*. 4th edition. New York: Spoon Press.

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all, but are “felt” more as a vibration. Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to approximate the response of the human ear. The term "A-weighted" refers to a filtering of the noise signal in a manner corresponding to the way the human ear perceives sound. The A-weighted noise level has been found to correlate well with people’s judgments of the “noisiness” of different sounds and has been used for many years as a measure of community and industrial noise.

Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 4.11-2 shows typical noise levels from common noise sources.

Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level.
- General nature of the existing conditions (e.g., quiet rural or busy urban).
- Difference between the magnitude of the sound event level and the ambient condition.
- Duration of the sound event.
- Number of event occurrences and their repetitiveness.
- Time of day that the event occurs.

TABLE 4.11-2 TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
Extremely Remote Area		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation (Caltrans), 2009. Technical Noise Supplement ("TeNS"). Prepared by ICF International, November.

Temporal Effects

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time; half the time the noise level

exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, L_8, and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour, respectively. These "n" values are typically used to demonstrate compliance for stationary noise sources with many cities' noise ordinances. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period, respectively.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment (or "penalty") of 5 dBA be added to the actual noise level for the hours from 7:00 p.m. to 10:00 p.m. and 10 dBA for the hours from 10:00 p.m. to 7:00 a.m. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 p.m. and 10:00 p.m. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher). The CNEL or L_{dn} metrics are commonly applied to the assessment of roadway and airport-related noise sources.

Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single-point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 79 dBA, and at 200 feet it would be 73 dBA. This drop-off rate is conservative and is appropriate for noise generated by onsite operations from stationary equipment/activities at a project site. This approach is commonly used for construction equipment noise evaluations. For more detailed assessments, if ground-level absorptive vegetation or other "soft site" conditions are considered, the distance attenuation (drop-off) rate would be increased by 1.5 dB per distance doubling; for a total of 7.5 dB per propagation distance doubling.

If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance over a reflective ("hard site") surface such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by 4.5 dB for each doubling of distance.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA would result in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. When the noise level reaches 120 dBA, an unpleasant 'tickling' sensation occurs in the human ear; even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling

sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 160 to 165 dBA will result in dizziness or loss of equilibrium. In comparison, for community environments, the ambient or background noise problem is widespread, though generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance.

Loud noise can be annoying and it can have negative health effects.[2,3,4] The effects of noise on people can be listed in three general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction.
- Interference with activities such as speech, sleep, learning.
- Physiological effects such as startling and hearing loss (both temporary and permanent).

In most cases, environmental noise produces effects in the first two categories only. However, unprotected workers in some industrial work settings may experience noise effects in the last category.

4.11.1.3 FUNDAMENTALS OF VIBRATION

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers.

Like noise, vibration is transmitted in waves, but through the earth or solid objects. Unlike noise, vibration is typically of a frequency that is felt rather than heard. Vibration can be either natural as in the form of earthquakes, volcanic eruptions, sea waves, landslides, or man-made as from explosions, the action of heavy machinery or heavy vehicles such as trains. Both natural and man-made vibration may be continuous such as from operating machinery, or transient as from an explosion. As with noise, vibration can be described by both its amplitude and frequency. Amplitude may be characterized in three ways: displacement, velocity, and acceleration.

Vibration displacement is the distance that a point on a surface moves away from its original static position. The instantaneous speed that a point on a surface moves is the velocity, and the rate of change of the speed is the acceleration. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure.

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[2] U.S. Environmental Protection Agency (EPA), 1978. *Protective Noise Levels*, November. EPA 550/9-79-100. (Condensed version of 1971 and 1974 documents.)

[3] U.S. Environmental Protection Agency (EPA), 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March. Washington, D.C.: U.S. EPA Office of Noise Abatement and Control.

[4] U.S. Environmental Protection Agency (EPA), 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, December. Prepared by Bolt Beranek and Newman (Cambridge, MA) for the U.S. EPA Office of Noise Abatement and Control. Washington, D.C.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal, and RMS is the square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage, and RMS is typically more suitable for evaluating human response.

The units for PPV and RMS velocity are normally inches per second (in/sec). However, vibration is often presented and discussed in dB units in order to compress the range of numbers (in a similar fashion as for sound energy). In this study, PPV and RMS velocities are in in/sec, and vibration levels are in dB relative to 1 micro-inch per second (abbreviated as VdB). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Man-made vibration problems are therefore usually confined to relatively short distances from the source (500 to 600 feet or less).

Vibrations also vary in frequency and this affects perception. Typical construction vibrations fall in the 10 to 30 Hz range and usually occur around 15 Hz. Traffic vibrations exhibit a similar range of frequencies; however, due to their suspension systems, buses often generate frequencies around 3 Hz at high vehicle speeds. It is less common, but possible, to measure traffic frequencies above 30 Hz.

The way in which vibration is transmitted through the earth is called propagation. Propagation of groundborne vibrations is complicated and difficult to predict because of the endless variations in the soil and rock through which waves travel. There are three main types of vibration propagation: surface, compression and shear waves. Surface waves, or Raleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. Compression waves, or P-waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. Shear waves, or S-waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation." As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 4.11-3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

TABLE 4.11-3 HUMAN REACTION TO TYPICAL VIBRATION LEVELS

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e., not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans), Department of Transportation, Noise, Vibration, and Hazardous Waste Management Office. 2004, June. *Transportation- and Construction-Induced Vibration Guidance Manual.* Prepared by ICF International.

Human response to ground vibration has been correlated best with the velocity of the ground, typically expressed in terms of the vibration decibel of VdB.[5] The U.S. Federal Transit Administration (FTA) has developed rational vibration limits that can be used to evaluate human annoyance to groundborne vibration. These criteria are primarily based on experience with rapid transit and commuter rail systems.[6] Railroad and transit operations are potential sources of substantial ground vibration depending on distance, the type and the speed of trains, and the type of track. Trains generate substantial vibration due to their engines, steel wheels, heavy loads, and wheel-rail interactions.

Similarly, construction operations generally include a wide range of activities that can generate groundborne vibration, which varies in intensity. In general, blasting and demolition as well as pile driving and vibratory compaction equipment generate the highest vibrations. Because of the impulsive nature of such activities, PPV is used to measure and assess groundborne vibration and assess the potential of vibration to induce structural damage and annoyance for humans. Vibratory compactors or rollers, pile drivers, and pavement breakers can generate perceptible amounts of vibration at up to 200 feet. Heavy trucks can also generate groundborne vibrations, which can vary, depending on vehicle type, weight, and pavement conditions. Potholes, pavement joints, discontinuities, differential settlement of pavement, all increase the vibration levels from vehicles passing over a road surface. Construction vibration is normally of greater concern than vibration from normal traffic flows on streets and freeways with smooth pavement conditions.[7]

[5] The reference velocity is 1 x 10^{-6} in/sec RMS, which equals 0 VdB, and 1 in/sec equals 120 VdB.

[6] Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment*. U.S. Department of Transportation (DoT). FTA-VA-90-1003-06, May.

[7] California Department of Transportation (Caltrans), Department of Transportation, Noise, Vibration, and Hazardous Waste Management Office, 2004. *Transportation- and Construction-Induced Vibration Guidance Manual*, June. Prepared by ICF International.

4.11.1.4 REGULATORY FRAMEWORK

U.S. Environmental Protection Agency

In addition to FHWA standards, the U.S. Environmental Protection Agency (EPA) has identified the relationship between noise levels and human response. The EPA Office of Noise Abatement and Control was originally established to coordinate federal noise-control activities. The office issued the Federal Noise Control Act of 1972, which set programs and guidelines to identify and address the effects of noise on public health and welfare, and the environment. Although the primary responsibility of regulating noise was transferred to state and local governments in 1982, the EPA provided guidelines for noise levels that would be considered safe for community exposure without the risk of adverse health or welfare effects.

The EPA found that to prevent hearing loss over the lifetime of a receptor, the yearly average L_{eq} should not exceed 70 dBA. Interference with activity and annoyance will not occur if exterior levels are maintained at an L_{eq} of 55 dBA and interior levels at or below 45 dBA. While these levels are relevant for planning and design and useful for informational purposes, they are not land use planning criteria because they do not consider economic cost, technical feasibility, or the needs of the community.

The EPA also set 55 dBA L_{dn} as the basic goal for exterior residential noise intrusion. However, other federal agencies, in consideration of their own program requirements and goals, as well as difficulty of actually achieving a goal of 55 dBA L_{dn}, have settled on the 65 dBA L_dn level as their standard. At 65 dBA L_{dn}, activity interference is kept to a minimum, and annoyance levels are still low. It is also a level that can realistically be achieved.

Occupational Health and Safety Administration

The federal government regulates occupational noise exposure common in the workplace through the Occupational Health and Safety Administration (OSHA) under the EPA. Such limitations would apply to the operation of construction equipment and could also apply to any proposed industrial land uses. Noise exposure of this type is dependent on work conditions and is addressed through a facility's Health and Safety Plan, as required under OSHA, and is therefore not addressed further in this analysis.

U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD) has set a goal of 65 dBA L_{dn} as a desirable maximum exterior standard for residential units developed under HUD funding.[8] (This level is also generally accepted within the State of California.) While HUD does not specify acceptable interior noise levels, standard construction of residential dwellings constructed under Title 24 standards typically provides in excess of 20 dBA of attenuation with the windows closed. Based on this premise, the interior L_{dn} should not exceed 45 dBA.

[8] U.S. Department of Housing and Urban Development (HUD), 1985. *Noise Guidebook: A Reference Document for Implementing the Department of Housing and Urban Development's Noise Policy*, March.

California Regulations

Land Use Planning

The California Department of Health Services' Office of Noise Control (ONC) has studied the correlation of noise levels and their effects on various land uses. As a result, a set of generalized exterior and interior noise standards was generated for residential, commercial, institutional/public, and open space land uses.[9] These noise standards, in terms of the CNEL noise metric, are summarized in Appendix F.

The ONC also prepared a land use compatibility chart for community noise which is intended to provide urban planners with a tool to gauge the compatibility of land uses relative to existing and future noise levels. The table identifies 'normally acceptable', 'conditionally acceptable', 'normally unacceptable' and 'clearly unacceptable' noise levels for various land use types. A 'conditionally acceptable' or 'normally unacceptable' designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated in the design. By comparison, a 'normally acceptable' designation indicates that standard construction can occur with no special noise reduction requirements. These noise compatibility guidelines, also in terms of the CNEL noise metric, are shown in Table 4.11-4.

Building Code Requirements

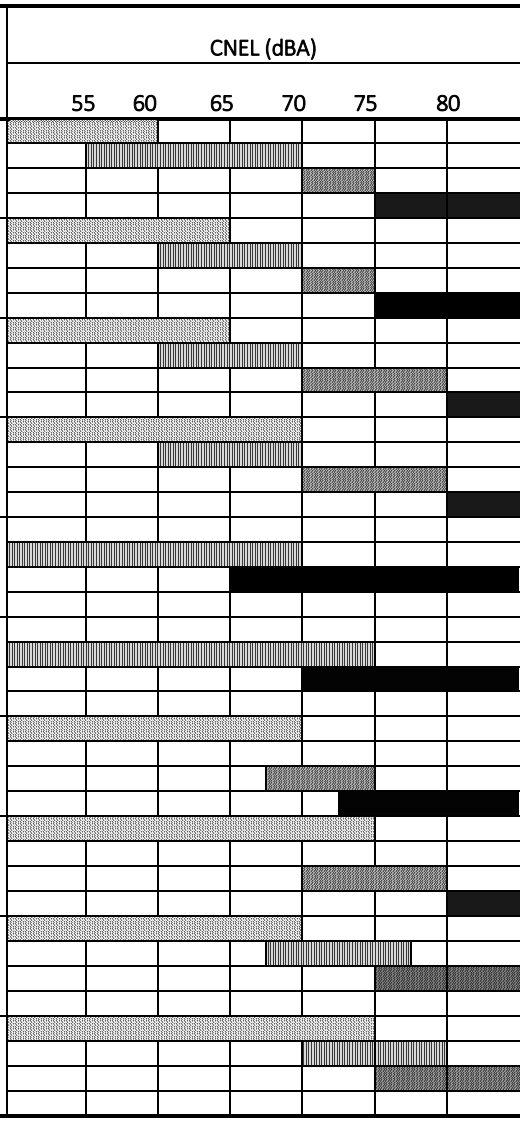
The California Building Code (CBC), Title 24, Part 2, Volume 1, Chapter 12, Interior Environment, Section 1207.11.2, Allowable Interior Noise Levels, requires that residences' interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric is evaluated as either the day-night average sound level (L_{dn}) or the community noise equivalent level (CNEL); using the noise metric that is consistent with the noise element of the particular local general plan.

The California Green Building Standards Code (CalGREEN), Chapter 5, Division 5.5, has additional requirements for insulation that affect exterior-interior noise transmission for non-residential structures (which include multi-family structures 4-stories or greater). Pursuant to section 5.507.4.1, Exterior Noise Transmission, Prescriptive Method, wall and roof-ceiling assemblies exposed to the noise source making up the building or addition envelope or altered envelope shall meet:

- A composite sound transmission class (STC) rating of at least 50, or
- A composite outdoor-indoor transmission class (OITC) rating of no less than 40 with exterior windows of a minimum STC of 40, or

[9] Residential' includes single and multi-family, duplex, and mobile homes; 'Commercial' includes hotel, motel, transient housing, commercial retail, bank, restaurant, office building, research and development, professional offices, amphitheater, concert hall, auditorium, movie theater, gymnasium (multipurpose), sports club, manufacturing, warehouse, wholesale, utilities, and movie theaters uses; 'Institutional / Public' includes, hospital, school classrooms/playground, church, and library uses; and 'Open Space' includes parks.

TABLE 4.11-4 LAND USE COMPATIBILITY NOISE GUIDELINES



Explanatory Notes

Normally Acceptable:
With no special noise reduction requirements assuming standard construction.

Normally Unacceptable:
New construction is discouraged. If new construction does not proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.

Clearly Unacceptable:
New construction or development should generally not be undertaken.

Source: Governor's Office of Planning and Research, 2003. *State of California General Plan Guidelines*, October.

- OITC of 30 if the project location is within the 65 dBA CNEL or L_{dn} noise contour of an airport (military, public, private, or heliport), freeway, expressway, railroad, industrial source, or fixed-guideway source (as determined by the noise element of the general plan). Where noise contours are not readily available, projects exposed to a noise level of 65 dBA $L_{eq\text{-}1\ hr}$ during any hour of operation shall have building, addition or alteration exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composite STC rating of at least 45 (or OITC 35), with exterior windows of a minimum of STC 40 (or OITC 30).

Residential structures within the noise contours identified above require an acoustical analysis showing that the structure has been designed to limit intruding noise in the prescribed allowable levels. To comply with these regulations, applicants for new residential projects are required to submit an acoustical analysis report. The report is required to show topographical relationship of noise sources and dwelling site, identification of noise sources and their characteristics, predicted noise spectra at the exterior of the proposed dwelling structure considering present and future land usage, basis for the prediction (measured or obtained from published data), noise attenuation measures to be applied, and an analysis of the noise insulation effectiveness of the proposed construction showing that the prescribed interior noise level requirements are met. If interior allowable noise levels are met by requiring that windows be un-openable or closed, the design for the structure must also specify the means that will be employed to provide ventilation and cooling, if necessary, to provide a habitable interior environment.

Local Noise Standards

While the Plan Area is located within the boundaries of the City of Fresno, some land uses adjacent to the Plan Area lie outside the City boundary, on unincorporated land within the County of Fresno. As such, noise generated by implementation of the proposed Plan would have the potential to result in impacts at receptors under County jurisdiction. The County of Fresno Ordinance Code applies only to noise sources located within unincorporated areas of the County, and developments due to buildout of the proposed Plan are not subject to these restrictions. Regardless, Chapter 8.40, *Noise Control*, of the County Code of Ordinances and the County of Fresno General Plan Health and Safety Element are included in Appendix F of this Draft EIR for reference.

Fresno General Plan

The Noise and Safety element of the City of Fresno General Plan (2014) establishes noise-related policies and guides their implementation for the City. The purpose of the noise section of the Element is to identify and quantify potential noise problems and to provide effective policies for noise control and mitigation. The noise section discusses sources of noise within the City, existing and projected future noise levels throughout the City, and noise control through the standards in the municipal code. The section also includes noise contour maps for noise levels generated by traffic and rail activity throughout the city and by each of the three airports within the city (see Table 4.11-5).

TABLE 4.11-5 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO NOISE

Objective/ Policy Number	Objective/Policy Text
Noise and Safety Element	
Policy NS-1-a	Establishes the following "Desirable and Generally Acceptable Exterior Noise Environment" noise levels by receiving land use: ▪ Desirable noise level of 60 dBA L_{dn} or CNEL at residential or noise-sensitive uses ▪ Maximum average noise level of 65 dBA L_{dn} or CNEL at residential or noise-sensitive uses ▪ Maximum average noise level of 65 dBA L_{dn} or CNEL at non-sensitive commercial uses ▪ Maximum average noise level of 70 dBA L_{dn} or CNEL at industrial uses
Policy NS-1-j	Establishes the significance threshold for a significant increase generated by a project as an increase of 3 dB L_{dn} or CNEL or more above the ambient noise limits established in the General Plan.
Policy NS-1-p	Requires implementation of the land use and noise exposure compatibility provisions of the adopted Fresno Yosemite International Airport Land Use Compatibility Plan, the Fresno-Chandler Executive Airport Master and Environs Specific Plan, and the Sierra Sky Park Land Use Policy Plan to assess noise compatibility of proposed uses and improvements within airport influence and environs areas.

Municipal Code

The City regulates noise through Article 10-1 of the City of Fresno Municipal Code. The City's noise ordinance is designed to protect people from non-transportation noise sources such as construction activity, machinery, air conditioners, maintenance, and landscaping activities.

General Stationary Noise Sources

Section 10-102 establishes that the following criteria (in Table 4.11-6) will be used as a base (ambient noise level) from which noise levels can be compared.

TABLE 4.11-6 AMBIENT BASE NOISE LEVEL CRITERIA

Zone	Time	Sound Level A (Decibels) Community Environment Classification
Residential	10 pm to 7 am	50
	7 pm to 10 pm	55
	7 am to 7 pm	60
Commercial	10 pm to 7 am	60
	7 am to 10 pm	65
Industrial	Anytime	70

Source: City of Fresno Municipal Code, Section 10-102.

Section 10-106 prohibits any noise that exceeds the ambient noise level at receiving residential properties by more than 5 dB, while Section 10-107 prohibits any noise which "disturbs or unduly annoys" people within schools, hospitals, or churches.

Construction Noise

The Municipal Code makes exceptions to the noise level limits for construction activity that occurs between 7:00 a.m. and 10:00 p.m. on weekdays and Saturdays and has obtained a permit issued by the City.

Project-Applicable Vibration Standards

The City of Fresno Municipal Code does not include quantitative thresholds for vibration. In lieu of such quantified thresholds, it is common practice to rely on published information from the FTA. The FTA provides criteria for acceptable levels of ground-borne vibration for various types of special buildings that are sensitive to vibration. The FTA criteria are often used to evaluate vibration impacts during construction and are used herein for impact assessment thresholds.

FTA Noise and Vibration Impact Guidelines for construction impact identifies that an impact would occur if construction activities generate vibration that is strong enough to (a) physically damage buildings or (b) cause undue annoyance at sensitive receptors. The threshold for human annoyance at residential receptors during the daytime is 78 VdB. The threshold for vibration-induced architectural damage is 0.2 peak particle velocity (PPV) in inches per second (in/sec) for typical wood-framed buildings.[10]

Vibration-Related Annoyance

The human reaction to various levels of vibration is highly subjective and varies from person to person. The FTA criteria for annoyance are shown below in Table 4.11-7. These criteria are based on the work of many researchers that suggested that humans are sensitive to vibration velocities in the range of 8-80 Hz.

TABLE 4.11-7 GROUNDBORNE VIBRATION CRITERIA: HUMAN ANNOYANCE

Land Use Category	Max L_v (VdB)[a]	Description
Workshop	90	Distinctly felt vibration. Appropriate to workshops and non-sensitive areas
Office	84	Felt vibration. Appropriate to offices and non-sensitive areas.
Residential – Daytime	78	Barely felt vibration. Adequate for computer equipment.
Residential – Nighttime	72	Vibration not felt, but groundborne noise may be audible inside quiet rooms.

a. Lv is the velocity level in decibels, as measured in 1/3-octave bands of frequency over the frequency ranges of 8 to 80 Hz.
Source: Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment,* May. US Department of Transportation (DoT), FTA-VA-90-1003-06.

[10] Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment*, May. U.S. Department of Transportation (DoT). FTA-VA-90-1003-06.

Vibration-Related Architectural Damage

Structures amplify groundborne vibration and wood-frame buildings, such as typical residential structures, are more affected by ground vibration than heavier buildings. The level at which groundborne vibration is strong enough to cause architectural damage has not been determined conclusively. The most conservative estimates are reflected in the FTA standards, shown in Table 4.11-8.

TABLE 4.11-8 GROUNDBORNE VIBRATION CRITERIA: ARCHITECTURAL DAMAGE

Building Category	PPV (in/sec)	L_v (VdB)[a]
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

a. RMS velocity calculated from vibration level (VdB) using the reference of one microinch/second.
Source: Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment*, May. U.S. Department of Transportation (DoT). FTA-VA-90-1003-06.

4.11.1.5 EXISTING NOISE ENVIRONMENT

Ambient Noise Measurements

Ambient noise monitoring was conducted by PlaceWorks in May of 2017, during normal weekday periods. Three long-term (24-hour) measurements, and eight short-term (15-minute) measurements were conducted within the Plan Area. Long-term measurements were conducted from Tuesday May 16th to Wednesday May 17, and short-term measurements were conducted on Wednesday, May 17th.

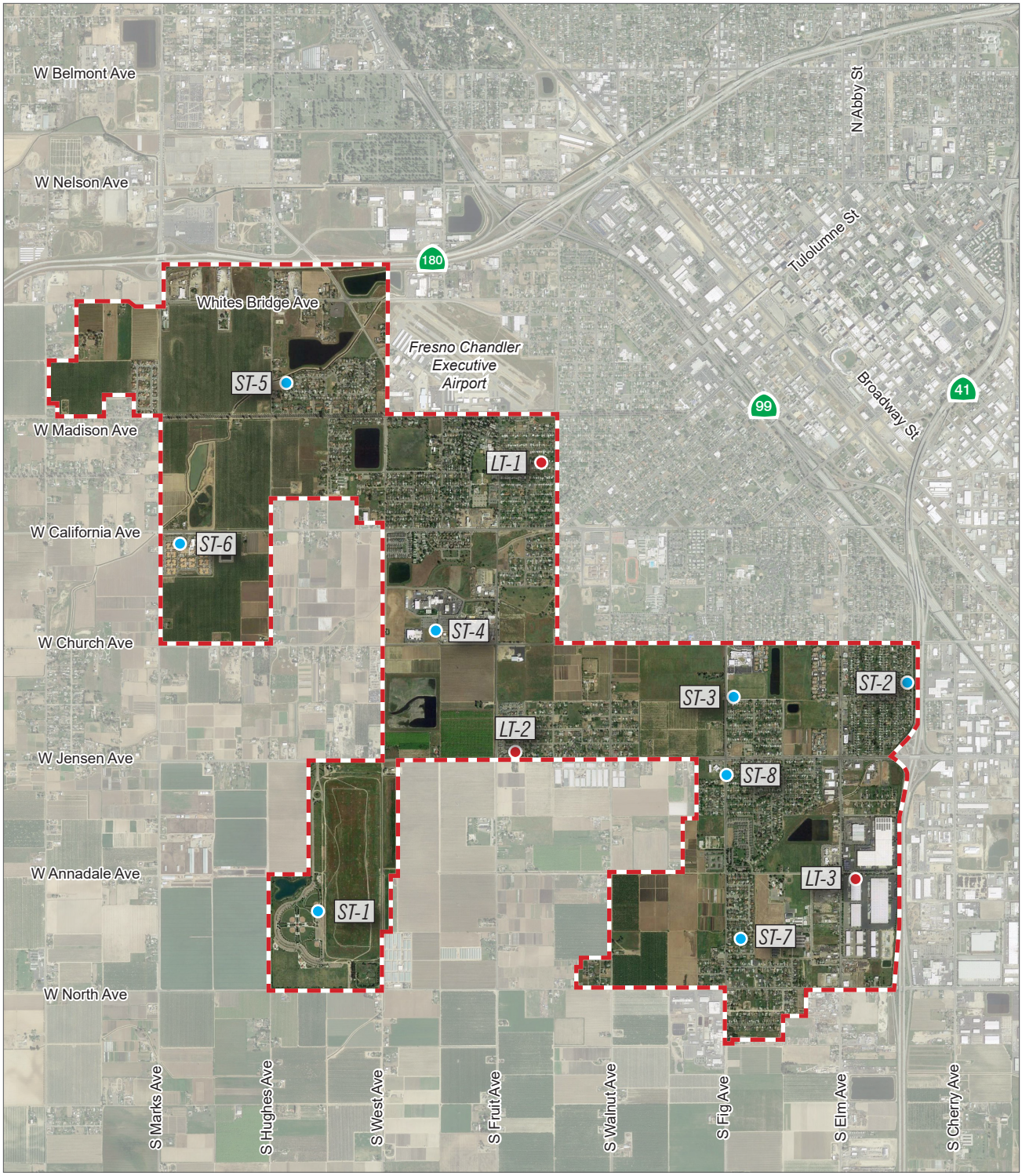
The general noise environment around the Plan Area is a combination of local and distant roadway noise, general community noise, aircraft flyovers, chirping birds, rustling vegetation, and various neighborhood activities (e.g., people talking, lawnmowers, etc.). Meteorological conditions during the measurement periods were favorable for outdoor sound measurements and were noted to be representative of typical conditions for the season. Generally, conditions included clear skies, daytime temperatures of approximately 75 degrees Fahrenheit (°F), and winds of less than 7 miles per hour.

Long-term noise monitoring was performed using Larson-Davis Model 814 Sound Level Meters, and Short-term noise monitoring was performed using a Larson-Davis Model 820 integrating/logging Sound Level Meter. All sound level meters used for noise monitoring satisfy the American National Standards Institute (ANSI) Standard S1.3 for Type 1 general environmental noise measurement instrumentation. The sound level meters were programmed to acquire noise levels with the “slow” time constant and using the “A” weighting filter network. The meters were field calibrated immediately prior to the first set of readings. The calibration was rechecked immediately after the conclusion of the readings and no notable meter “drift” was noted (i.e., less than ½ dB deviation).

This work effort included three long-term (24-hour) measurements and eight short-term (15-minute) measurements. For the long-term measurements, the microphone was mounted to a fence or tree approximately 5 to 7 feet above the ground. For the short-term samples, the sound level meter and microphone were mounted on a tripod, 5 feet above the ground. All sound level meters were equipped with a windscreen during measurements. Noise measurement locations are described below and shown in Figure 4.11-1.

The following describes the noise level measurement locations:

- **Long-Term Location 1 (LT-1):** Long-term noise monitoring Location 1 was located within a residential neighborhood on Eden Avenue, between Arthur Avenue and Thorne Avenue. The noise monitor was attached to a tree, approximately 7 feet above the ground. The noise monitor was located approximately 10 feet from Eden Avenue. A 24-hour noise measurement was taken beginning at 4:00 p.m. on Tuesday, May 16, at which time the air temperature was 74°F with 36 percent Relative Humidity (RH), and winds were light (2-3 mph). The noise environment of this site was characterized primarily by roadway noise along Thorne Ave, and by nearby residential collectors. Neighborhood operations (i.e., people talking, property maintenance, music), and aircraft noise from the Fresno Chandler Executive Airport were also experienced at this monitoring location. Weather conditions during pickup were approximately the same as drop-off.
- **Long-Term Location 2 (LT-2):** Long-term noise monitoring Location 2 was located within a residential neighborhood in a cul-de-sac at the end of Vagedes Avenue. This residential area is generally surrounded by open space agricultural land. The noise monitor was attached to a light pole on the sidewalk, approximately 7 feet above the ground. A 24-hour noise measurement was taken beginning at 3:46 p.m. on Tuesday, May 16, at which time the air temperature was 79°F with 36 percent RH, and winds were calm (0-1 mph). The noise environment of this site was characterized primarily by roadway noise along nearby residential streets, and by normal neighborhood operations (i.e., people talking, property maintenance, music). Weather conditions during pickup were approximately the same as drop-off.
- **Long-Term Location 3 (LT-3):** Long-term noise monitoring Location 3 was located within an industrial area along Annadale Avenue, approximately 375 feet east of Elm Avenue. The noise monitor was attached to a tree, approximately 6 feet above the ground. The noise monitor was located approximately 10 feet from Annadale Avenue. A 24-hour noise measurement was taken beginning at 3:23 p.m. on Tuesday, May 16, at which time the air temperature was 78°F with 34 percent RH, and winds were light (1-2 mph). The noise environment of this site was characterized primarily by roadway noise along Highway SR-41, Elm Avenue, and other nearby collector streets. Industrial operations (i.e., truck movements, maintenance, loading/unloading), and aircraft noise from sporadic flyovers were also experienced at this monitoring location. Weather conditions during pickup were approximately the same as drop-off.
- **Short-Term Location 1 (ST-1):** Short-term noise monitoring Location 1 was located within the Fresno Regional Sports Complex, within a parking lot on the east side of the property. Fifteen minutes of noise measurements were taken beginning at 2:53 p.m. on Wednesday, May 17, at which time the air temperature was 80°F with 36 percent RH, and winds were light, at approximately 2-4 mph. There were no sports activities occurring at the time of the measurement. The noise environment was



Source: PlaceWorks, 2017.

0 3,500
Scale (Feet)

Specific Plan Boundary

ST-1 Short-Term Noise Measurement Locations (8)

LT-1 Long-Term Noise Measurement Locations (3)

Figure 4.11-1
Ambient Noise Measurement Locations

comprised of distant traffic noise, property maintenance, rustling leaves/vegetation, bugs/birds, and aircraft noise from sporadic flyovers.

- Short-Term Location 2 (ST-2): Short-term noise monitoring Location 2 was located in a residential neighborhood in close proximity to Highway State Route 41 (SR-41). This monitoring location was located on Kirk Avenue, between Burns Avenue and Church Avenue, approximately 130 feet west of SR-41. Fifteen minutes of noise measurements were taken at 12:20 p.m. on Wednesday, May 17, at which time the air temperature was 68°F with 48 percent RH, and winds were light, at approximately 2-4 mph. The noise environment of this site was dominated by roadway noise along SR-41. Neighborhood activities (i.e., people talking, property maintenance) were also noted at the monitoring location, but were secondary to the traffic flow noise.
- Short-Term Location 3 (ST-3): Short-term noise monitoring Location 3 was located at the southern edge of the Rutherford B. Gaston Middle School campus, on the sidewalk near the baseball diamond. This monitoring location was positioned along Grove Avenue, approximately 125 feet east of Martian Luther King Jr. Boulevard. Fifteen minutes of noise measurements were taken beginning at 1:35 p.m. on Wednesday, May 17, 2017, at which time the air temperature was 80°F with 38 percent RH, and winds were calm, at approximately 1-2 mph. The noise environment of this site was primarily controlled by roadway noise along Martian Luther King Jr. Boulevard and other residential collectors. Residential neighborhood noise (i.e., people talking, property maintenance) and aircraft noise from sporadic flyovers were also experienced at this monitoring location.
- Short-Term Location 4 (ST-4): Short-term noise monitoring Location 4 was located on the property of Foster Poultry Farms, along Teilman Avenue approximately 375 feet north of Church Avenue. Fifteen minutes of noise measurements were taken beginning at 4:10 p.m. on Wednesday, May 17, 2017, at which time the air temperature was 79°F with 26 percent RH, and winds were light, at approximately 3-5 mph. The noise environment of this site was primarily controlled by industrial noise (i.e., workpiece noise, machinery 'hum', truck movements), parking lot noise, and by roadway noise along Church Avenue.
- Short-Term Location 5 (ST-5): Short-term noise monitoring Location 5 was located in a residential neighborhood near open space and agricultural land. This monitoring location was located at the southwest corner of La Sierra Drive and Hulbert Avenue. Fifteen minutes of noise measurements were taken at 3:47 p.m. on Wednesday, May 17, at which time the air temperature was 77°F with 30 percent RH, and winds were light, at approximately 2-4 mph. The noise environment of this site was comprised of primarily Neighborhood operations (i.e., people talking, property maintenance, dogs barking), and roadway noise along residential collectors. No noise sources beyond the immediate vicinity were noted during the measurement period.
- Short-Term Location 6 (ST-6): Short-term noise monitoring Location 6 was located on the property of the Veteran's Home of California, a residential complex surrounded by agricultural open space. Fifteen minutes of noise measurements were taken at 3:22 p.m. on Wednesday, May 17, at which time the air temperature was 77°F with 30 percent RH, and winds were light, at approximately 3-6 mph. The noise environment of this site was comprised of primarily residential operations (i.e., people talking, property maintenance), parking lot noise, and roadway noise along California Avenue and Marks Avenue. Rustling trees/vegetation and aircraft noise from sporadic flyovers were also noted at the monitoring location.

- **Short-Term Location 7 (ST-7):** Short-term noise monitoring Location 7 was located in a residential neighborhood near the southern end of the Plan Area. This monitoring location was located on Weller Street, between Edgar Avenue and Chester Avenue. Fifteen minutes of noise measurements were taken at 2:23 p.m. on Wednesday, May 17, at which time the air temperature was 85°F with 85 percent RH, and winds were calm. The noise environment of this site was dominated by roadway noise along Martian Luther King Boulevard and other residential collectors. Neighborhood operations (i.e., people talking, property maintenance) were also noted at the monitoring location.
- **Short-Term Location 8 (ST-8):** Short-term noise monitoring Location 8 was located within a residential area at the southeast corner of Drummond Avenue and Martin Luther King Jr. Boulevard. Across Martin Luther King Jr. Boulevard is W.E.B. DuBois Academy. Fifteen minutes of noise measurements were taken beginning at 1:56 p.m. on Wednesday, May 17, 2017, at which time the air temperature was 76°F with 40 percent RH, and winds were light, between 4 to 7 mph. The noise environment of this site was primarily controlled by roadway noise along Martian Luther King Jr. Boulevard and other residential collectors. Residential neighborhood noise (i.e., people talking, property maintenance) and dogs barking were also experienced at this monitoring location.

Long-Term Monitoring Results

During the ambient noise survey, the daytime, energy-average (L_{eq}) noise levels within the areas surrounding the Plan Area, as measured during the long-term noise measurements, ranged from 33 to 94 dBA L_{eq}. The short-term noise measurement results are summarized in Table 4.11-9 and are included in the Appendix F of this technical report.

TABLE 4.11-9 LONG-TERM NOISE MEASUREMENTS SUMMARY, 24+ HOUR DURATIONS

Monitoring Location	Description	L_{min}	L_{eq}	L_{max}
LT-1	Residential Area, along Eden Avenue	42	58	94
LT-2	Residential Area, Vagedes Avenue cul-de-sac	39	53	87
LT-3	Industrial Area, along Annadale Avenue	33	53	89

Note: 24-hour noise measurements were conducted by PlaceWorks staff on May 16-17, 2017, at each site with a Larson Davis 814 sound level meter.

Short-Term Monitoring Results

During the ambient noise survey, the daytime, energy-average (L_{eq}) noise levels within the areas surrounding the Plan Area, as measured during the short-term noise measurements, ranged from 41 to 76 dBA L_{eq}. The short-term noise measurement results are summarized in Table 4.11-10 and are included in the Appendix F of this Draft EIR.

TABLE 4.11-10 SHORT-TERM NOISE MEASUREMENTS SUMMARY, 15-MINUTE DURATIONS

Monitoring Location	Description	L_{min}	L_{eq}	L_{max}
ST-1	Fresno Regional Sports Complex	43	49	59
ST-2	Residential Area near SR-41	55	60	71
ST-3	Residential Area near Rutherford B. Gaston MS	43	56	69
ST-4	Foster Poultry Farms	54	60	76
ST-5	Residential Area near Agricultural Open Space	46	56	73
ST-6	Veteran's Home of California	49	58	74
ST-7	Residential Area along Weller Street	41	47	56
ST-8	Residential Area near W.E.B. DuBois Academy	45	58	71

Note: Noise sampling conducted by PlaceWorks staff on May 17, 2017, for a minimum of 15 minutes at each site with a Larson Davis 820 sound level meter.

Summary of Ambient Noise Measurement

The noise environment around the Plan Area is considered to be generally louder than a typical urban residential area, due to the amount of transportation sources proximate to the monitoring locations. The time-averaged sound level in the vicinity of the Plan Area was in the range of 33 to 94 dBA $L_{eq\text{-}24\text{-}hr}$. For receivers that were directly exposed to roadway noise (i.e., ST-2), the noise level ranged from 55 to 71 dBA.

On-Road Vehicles

Noise from motor vehicles is generated by engine vibrations, the interaction between tires and the road, and the exhaust system. Reducing the average motor vehicle speed reduces the noise exposure of receptors adjacent to the road. Each reduction of five miles per hour reduces noise by about 1.3 dBA.[11]

Given the preponderance of mobile-source noise in the vicinity of the Plan Area, it is necessary to determine the noise currently generated by vehicles traveling through the Plan Area. The traffic noise levels for this proposed Plan were estimated using a version of the FHWA Highway Traffic Noise Prediction Model. The FHWA model determines a predicted noise level through a series of adjustments to a reference sound level. These adjustments account for traffic flows, speed, truck mix, varying distances from the roadway, length of exposed roadway, and noise shielding. Average daily traffic volumes, lane

[11] California Department of Transportation (Caltrans) (Department of Transportation, Noise, Vibration, and Hazardous Waste Management Office), 2004. Transportation- and Construction-Induced Vibration Guidance Manual. Prepared by ICF International, June.

configurations, and speed limits were provided in the Traffic Impact Analysis, which is included as Appendix H of this Draft EIR.[12,13]

The results of this modeling indicate that average noise levels along arterial segments currently range from approximately 54 dBA to 70 dBA CNEL (as calculated at a distance of 50 feet from the centerline of the road). Noise levels for existing conditions along analyzed roadways are presented in Table 4.11-11.

Aircraft Noise

Fresno Chandler Executive Airport (FCH) lies adjacent to the northeastern boundary of the Plan Area. According to Figure NS-5[14] in the City of Fresno General Plan, a portion of the Plan Area falls within the Airport Influence Area (AIA), including some land that lies within the airport's 60 dBA CNEL and 65 dBA CNEL noise contours. Implementation of the proposed Plan would result in future development that would increase and/or intensify development within the Plan Area.. The FCH Airport Land Use Compatibility Plan establishes policies for planning developments for land within the AIA.

Other nearby airports include Fresno Yosemite International Airport (located 6.4 miles to the northeast of the Plan Area boundary) and Sierra Sky Park (7.3 miles to the northwest).[15] The 65 dBA CNEL noise contours for these airports (shown in Figures NS-4 and NS-6 of the General Plan,[16] respectively) lie outside of the Plan Area. While aircraft that utilize these airports could fly over the Plan Area and generate noise levels that may be momentarily audible or noticeable, these aircraft operations do not significantly contribute to the Plan Area's community noise environment.

There are no heliports within the Plan Area. However, there is a heliport located at the Community Regional Medical Center (1.8 miles to the northeast). Given the distance to the Plan Area and that flights are sporadic and limited for medical use, heliport contributions to community noise levels within the Plan Area are negligible.

Stationary Source Noise

Stationary sources of noises may occur from all types of land uses. Residential uses would generate noise from landscaping, maintenance activities, and air conditioning systems. Office and commercial uses would generate noise from ventilation systems, loading docks, parking lot activities, and other sources. Industrial uses may generate noise from Heating, Ventilation, and Air Conditioning (HVAC) systems, loading docks, and possibly machinery. Farmland uses may generate noise from operation of farm equipment or HVAC and other machinery at farm facility buildings. Noise generated by residential, office, or commercial uses

[12] The traffic model used by Fehr and Peers does not have the ability to force trucks to use specific roadways, and therefore does not account for variations in fleet mix that may accompany the designated truck routes shown in Figure 5-7, *Existing and Potential Truck Routes*. As such, traffic noise modeling by PlaceWorks also does not include truck-related these variations.

[13] Fehr and Peers, 2017. Draft Transportation Impact Study for the Southwest Fresno Specific Plan, June.

[14] "Figure NS-5" refers to the figure within the General Plan, and is not to be confused with figures within this EIR. The General Plan Noise and Safety Element is included in Appendix F.

[15] Airnav.com, 2017.

[16] "Figures NS-4 and NS-6" refers to the figures within the General Plan, and is not to be confused with figures within this EIR. The General Plan Noise and Safety Element is included in Appendix F.

TABLE 4.11-11 EXISTING CONDITIONS TRAFFIC NOISE LEVELS

Roadway	Segment	Daily Traffic Volumes	Noise Level at 50 Feet (dBA CNEL)	Distance to Noise Contour (Feet)		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
Whitesbridge Ave	Marks Ave to Roeding Dr	2,800	64.8	22	48	104
Whitesbridge Ave	Roeding Dr to Thorne Ave	2,300	61.7	14	30	65
Kearney Blvd	Marks Ave to West Ave	2,400	61.9	14	31	66
Kearney Blvd	West Ave to Thorne Ave	2,000	61.1	13	27	59
California Ave	Marks Ave to West Ave	2,000	63.3	18	39	83
California Ave	West Ave to Fresno St	4,300	61.9	14	31	67
California Ave	Fresno St to MLK Jr. Blvd	6,600	63.6	19	40	87
Ventura St	MLK Jr. Blvd to B Street	9,900	65.5	25	54	116
Church Ave	Marks Ave to West Ave	1,200	60.0	11	23	50
Church Ave	West Ave to Walnut Ave	2,600	60.9	12	27	58
Church Ave	Walnut Ave to Elm Ave	4,300	63.1	17	37	81
Jensen Ave	Marks Ave to West Ave	5,200	67.5	34	73	157
Jensen Ave	West Ave to Walnut Ave	8,700	69.7	48	103	221
Jensen Ave	Walnut Ave to Elm Ave	12,000	69.0	43	93	200
North Ave	Walnut Ave to Elm Ave	5,200	63.9	20	42	92
Marks Ave	Whitesbridge Ave to California Ave	6,900	68.7	41	89	191
Marks Ave	California Ave to Jensen Ave	2,300	63.9	20	42	91
Hughes Ave/Roeding Dr	Belmont Ave to Whitesbridge Ave	2,600	61.0	13	27	59
Hughes Ave	Whitesbridge Ave to California Ave	400	56.3	6	13	28
Hughes Ave	California Ave to Church Ave	200	53.3	4	8	18
Roeding Dr/West Ave	Whitesbridge Ave to California Ave	900	56.3	6	13	28
West Ave	California Ave to Jensen Ave	900	59.8	11	23	49
Fruit Ave	California Ave to Jensen Ave	2,400	60.6	12	25	55
Thorne Ave	Whitesbridge Ave to California Ave	2,900	61.4	13	29	62
Walnut Ave	California Ave to Jensen Ave	3,600	62.3	15	33	72
Walnut Ave	Jensen Ave to North Ave	600	58.1	8	17	37
Martin Luther King Jr. Blvd	California Ave to Jensen Ave	6,300	63.4	18	39	84
Martin Luther King Jr. Blvd	Jensen Ave to North Ave	3,300	63.2	18	38	82
Elm Ave	Ventura St to Jensen Ave	7,100	65.5	25	54	116
Elm Ave	Jensen Ave to North Ave	4,800	63.8	19	41	89

Source: FHWA Highway Traffic Noise Prediction Model based on traffic volumes provided by Fehr and Peers in 2017. Calculations included in Appendix F.

are generally short and intermittent. Industrial and farmland uses may generate noise on a more continual basis due to the nature of their activities.

Project and Nearby Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration such as residences, schools, hospital facilities, houses of worship, and open space/recreation areas where quiet environments are necessary for the enjoyment, public health, and safety of the community. Commercial and industrial uses are not considered noise- or vibration-sensitive uses.

The Plan Area currently contains residential, farmland, commercial, and industrial uses, with nominally incompatible land uses located near one another. Sensitive receptors within the Plan Area include schools, churches, community centers, museums, and medical uses. For more information related to land use, please see the Land Use chapter of this Draft EIR.

4.10.1 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact if it would:

1. Expose people to, or generation of, noise levels in excess of standards established in the General Plan or the Municipal Code, and/or the applicable standards of other agencies.
2. Expose people to, or generation of, excessive groundborne vibration or groundborne noise levels.
3. Result in a substantial permanent increase in ambient noise levels in the vicinity of the Plan Area above levels existing without the Project.
4. Result in a substantial temporary or periodic increase in ambient noise levels in the vicinity of the Plan Area above levels existing without the Project.
5. Expose people residing or working in the vicinity of the Project site to excessive aircraft noise levels, for a project located within an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport.
6. Expose people residing or working in the Plan Area to excessive noise levels, for a project within the vicinity of a private airstrip.

4.11.2 ENVIRONMENTAL IMPACTS

NOISE-1	**Implementation of the proposed Plan would cause exposure of people to, or generation of, noise levels in excess of standards established in the General Plan or the Municipal Code, and/or the applicable standards of other agencies.**

Implementation of the proposed Plan would have a significant impact if it would expose new and existing receptors to incompatible levels of noise from both the operations and increased traffic resulting from future development of the proposed Plan.

Policy NS-1-a of the Fresno General Plan establishes the following "Desirable and Generally Acceptable Exterior Noise Environment" noise levels by receiving land use:

- Desirable noise level of 60 dBA L_{dn} or CNEL at residential or noise-sensitive uses
- Maximum average noise level of 65 dBA L_{dn} or CNEL at residential or noise-sensitive uses
- Maximum average noise level of 65 dBA L_{dn} or CNEL at non-sensitive commercial uses
- Maximum average noise level of 70 dBA L_{dn} or CNEL at industrial uses

As discussed above, Policy NS-1-j establishes the significance threshold for a significant increase generated by a project as an increase of 3 dB L_{dn} or CNEL or more above the ambient noise limits established in the General Plan.

Traffic Noise

Future development in accordance with the proposed Plan would cause increases in traffic along local roadways. A substantial increase is defined as a noise increase greater than 3 dBA over existing conditions. Sensitive land uses include residential, schools, churches, nursing homes, hospitals, and open space/recreation areas. Commercial, farmland, and industrial areas are not considered noise sensitive and generally have higher tolerances for exterior and interior noise levels.

The traffic noise levels were estimated using the FHWA Highway Traffic Noise Prediction Model. Table 4.11-12 presents the noise level increases on roadways over existing conditions at 50 feet from the centerline of each roadway segment due to the proposed Plan. The "Cumulative" traffic noise levels include effects of future regional ambient growth and growth due to the project.[17,18] "Project Contribution" represents the effect the proposed Plan would have on traffic noise levels by comparing the difference between "Existing-Plus-Project" noise levels and existing noise levels. Appendix F of this Draft EIR includes tables showing traffic noise levels for all three scenarios: Existing, Existing-Plus-Project, and Cumulative, as well as the calculated distances to the 70, 65, and 60 CNEL contours for selected roadway segments in the Plan Area.

Table 4.11-12 shows that traffic noise increases resulting from the project contribution would range from -0.9 to 9.8 dBA CNEL, and overall increases due to both the proposed Plan and regional growth would range from 2.6 to 12.5 dBA CNEL. Of the 30 segments analyzed, 21 segments would experience substantial noise increases greater than 3 dBA attributable to buildout of the proposed Plan, with future noise levels that exceed 65 dB CNEL. Therefore, increases in traffic noise levels due to the proposed Plan would result in a *potentially significant* impact.

Significance Without Mitigation (Traffic Noise): Significant

Impact NOISE-1: Development in accordance with the proposed Plan would cause increases in traffic along local roadways of more than 3 dBA over existing conditions.

[17] As noted above, the traffic noise modeling does not include variations in fleet mix that may be associated with the existing or recommended (future) designated truck routes (as shown in Figure 5-7, *Existing and Potential Truck Routes*).

[18] Fehr and Peers, 2017. Draft Transportation Impact Study for the Southwest Fresno Specific Plan, June.

TABLE 4.11-12 SPECIFIC PLAN BUILDOUT TRAFFIC NOISE INCREASES

		dBA CNEL @ 50 Feet			
Roadway	Segment	Existing	Cumulative	Overall Increase	Project Contribution
Whitesbridge Ave	**Marks Ave to Roeding Dr**	**64.8**	**71.1**	**6.4**	**6.3**
Whitesbridge Ave	**Roeding Dr to Thorne Ave**	**61.7**	**68.3**	**6.6**	**4.3**
Kearney Blvd	**Marks Ave to West Ave**	**61.9**	**67.9**	**6.1**	**5.4**
Kearney Blvd	**West Ave to Thorne Ave**	**61.1**	**68.0**	**6.9**	**5.5**
California Ave	Marks Ave to West Ave	63.3	67.5	4.2	2.0
California Ave	**West Ave to Fresno St**	**61.9**	**69.7**	**7.8**	**6.0**
California Ave	Fresno St to MLK Jr. Blvd	63.6	66.2	2.6	1.3
Ventura St	**MLK Jr. Blvd to B Street**	**65.5**	**71.0**	**5.5**	**3.9**
Church Ave	Marks Ave to West Ave[1]	60.0	65.0	5.0	5.7
Church Ave	**West Ave to Walnut Ave**	**60.9**	**68.3**	**7.4**	**5.7**
Church Ave	**Walnut Ave to Elm Ave**	**63.1**	**69.8**	**6.7**	**4.5**
Jensen Ave	Marks Ave to West Ave	67.5	71.2	3.7	-0.9
Jensen Ave	West Ave to Walnut Ave	69.7	73.2	3.5	1.5
Jensen Ave	**Walnut Ave to Elm Ave**	**69.0**	**74.1**	**5.1**	**4.3**
North Ave	**Walnut Ave to Elm Ave**	**63.9**	**69.2**	**5.3**	**3.3**
Marks Ave	Whitesbridge Ave to California Ave	68.7	73.3	4.6	2.6
Marks Ave	California Ave to Jensen Ave	63.9	69.6	5.7	3.0
Hughes Ave/Roeding Dr	**Belmont Ave to Whitesbridge Ave**	**61.0**	**69.7**	**8.7**	**4.9**
Hughes Ave	**Whitesbridge Ave to California Ave**	**56.3**	**67.1**	**10.8**	**9.8**
Hughes Ave	**California Ave to Church Ave**	**53.3**	**65.8**	**12.5**	**9.7**
Roeding Dr/West Ave	**Whitesbridge Ave to California Ave**	**56.3**	**67.2**	**10.9**	**7.3**
West Ave	**California Ave to Jensen Ave**	**59.8**	**69.8**	**10.0**	**6.5**
Fruit Ave	**California Ave to Jensen Ave**	**60.6**	**67.7**	**7.1**	**6.2**
Thorne Ave	Whitesbridge Ave to California Ave[a]	61.4	64.5	3.1	3.4
Walnut Ave	**California Ave to Jensen Ave**	**62.3**	**67.5**	**5.2**	**5.2**
Walnut Ave	**Jensen Ave to North Ave**	**58.1**	**69.7**	**11.6**	**9.7**
Martin Luther King Jr. Blvd	**California Ave to Jensen Ave**	**63.4**	**68.2**	**4.9**	**4.4**
Martin Luther King Jr. Blvd	**Jensen Ave to North Ave**	**63.2**	**70.1**	**6.8**	**6.9**
Elm Ave	Ventura St to Jensen Ave	65.5	69.8	4.3	1.8
Elm Ave	**Jensen Ave to North Ave**	**63.8**	**68.9**	**5.1**	**5.0**

Note: **Bold** text indicates segments for which the project contribution constitutes a significant impact.
a. While the increase in noise levels due to the proposed Plan along these segments exceeds 3 dB, the future noise levels would not exceed the maximum acceptable ambient noise level of 65 dB CNEL and the increase from the proposed Plan would not constitute a significant impact.
Source: FHWA Highway Traffic Noise Prediction Model based on traffic volumes provided by Fehr & Peers, 2017. Calculations in Appendix F.

In compliance with CEQA, "each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so" (Public Resources Code Section 21002.1(b)). The term "feasible" is defined in CEQA to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors" (Public Resources Code Section 21061.1).

A number of measures were considered for mitigating or avoiding the noise impacts from traffic generated by the proposed Plan; however, no feasible mitigation measures are available that would reduce noise impacts to less than significant levels. The following is a brief discussion of the mitigation measures considered.

Sound Barrier Walls

The primary method for addressing excessive roadway noise is sound barrier walls. Several factors make potential implementation of sound walls impractical, infeasible, or economically unrealistic:

Along many impacted segments, houses or other sensitive uses face the roadway and access to the properties is via driveways. Sound walls between the roadway and the house would cut off the access to the property.

Due to the wide distribution of scattered residences, the cost per receptor of effective sound walls would be unreasonable.

The City does not have control over all roadway rights-of-way or the private property that walls would have to be constructed on.

Therefore, roadway sound barrier walls are impractical and infeasible along the impacted segments.

Special Roadway Paving

Notable reductions in tire noise have been achieved with special paving materials, such as rubberized asphalt or open-grade asphalt concrete overlays. For example, Caltrans performed a 12-year study of pavement noise along I-80[19] and found improvements in the range of 6 to 7 dB (compared to the baseline conditions using aged, dense-graded asphalt concrete).

However, such reductions would not provide sufficient noise reduction to preclude substantial increases to segments that would experience project-generated increases of over 7 dB CNEL. Another serious failing of this noise reduction approach is the long-term degradation of benefits as the material ages, wears, and is compacted by years of passing vehicles. Thus, the noise reduction from this method may not be adequate for all receptors along the impacted segment, either initially or over time. In consideration of the shortcomings of this potential mitigation measure, it was determined that this approach would be

[19] *California* Department of Transportation (Caltrans), 2001. *I-80 Davis OGAC Pavement Noise Study, Traffic Levels Associated with Aging Open Grade Asphalt Concrete Overlay*, May. Prepared by Illingworth & Rodkin, Inc. Available at: http://www.dot.ca.gov/hq/env/noise/pub/Davis_12Yr_QPR_Study_May11.pdf.

inadequate for reducing the noise impacts to less than significant levels and it was rejected from additional consideration.

Traffic Noise Summary

No individual measure and no set of feasible or practical mitigation measures are available to reduce Plan-generated traffic noise to less than significant levels. Thus, traffic noise impacts would be *significant and unavoidable*.

Significance With Mitigation (Traffic Noise): Significant and unavoidable.

Stationary-Source Noise

Implementation of the proposed Plan would result in an increase in residential, mixed use, office, and commercial development within the Plan Area. The primary noise sources from these land uses are landscaping and maintenance activities, HVAC systems, mechanical equipment, and loading docks. Noise generated by residential, office, or commercial uses are generally short-term and intermittent, are generally localized, and are not a substantial source of community noise.

The City's Municipal Code prohibits any noise that exceeds the ambient noise level (shown in Table 4.11-6) at receiving residential properties by more than 5 dB, and any noise which "disturbs or unduly annoys" people within schools, hospitals, or churches. Consequently, since developments would be subject to the restrictions in the municipal code, stationary-source noise from these types of proposed land uses would not substantially increase the noise environment. Therefore, Plan-related noise impacts from stationary sources would be *less than significant*.

Significance Without Mitigation (Stationary Noise): Less than significant.

NOISE-2	**Implementation of the proposed Plan could potentially cause exposure of people to, or generation of, excessive groundborne vibration or groundborne noise levels.**

The potential vibration impacts resulting from development of the proposed Plan are addressed in this impact. Construction vibration effects and operational vibration effects are discussed separately.

Construction-Related Vibration Impacts

Construction operations can generate varying degrees of ground vibration, depending on the construction procedures and equipment. Operation of construction equipment generates vibrations that spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the construction site depends on soil type, ground strata, and receptor-building construction. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. Thus, vibration effects are commonly assessed relative to 'annoyance' and 'architectural damage' (the former is typically in terms of vibration decibels, VdB, while the latter is typically in terms of peak particle velocities,

PPV). Vibration from construction activities rarely reaches levels that can damage structures, but can achieve the audible and perceptible ranges in buildings close to the construction site. Table 4.11-13 lists vibration levels for common construction equipment items.

TABLE 4.11-13 VIBRATION LEVELS FOR COMMON CONSTRUCTION EQUIPMENT ITEMS

Equipment	Approximate Velocity Level at 25 Feet (VdB)	Approximate RMS[a] Velocity at 25 Feet (in/sec)
Pile Driver (impact) Upper Range	112	1.518
Pile Driver (impact) Lower Range	104	0.644
Pile Driver (sonic) Upper Range	105	0.734
Pile Driver (sonic) Lower Range	93	0.170
Large Bulldozer	87	0.089
Caisson Drilling	87	0.089
Jackhammer	79	0.035
Small Bulldozer	58	0.003
Loaded Trucks	86	0.076
FTA Criteria: Human Annoyance (Daytime/Nighttime)	78/72	—
FTA Criteria: Structural Damage	—	0.200

a. RMS velocity calculated from vibration level (VdB) using the reference of 1 microinch/second.
Source: Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment*, May. U.S. Department of Transportation (DoT). FTA-VA-90-1003-06.

As shown in Table 4.11-13, vibration generated by construction equipment has the potential to be substantial, since it has the potential to exceed the FTA criteria of 78 VdB for human annoyance and 0.200 in/sec for structural damage. However, groundborne vibration is almost never annoying to people who are outdoors, so it is usually evaluated in terms of indoor receivers.[20]

Construction details and equipment for individual development projects that could be implemented through the proposed Plan are not known at this time. As such, vibration impacts may occur from construction equipment associated with development in accordance with the implementation of the proposed Plan. Therefore, construction vibration impacts are considered *potentially significant*.

Significance Without Mitigation: Potentially significant.

Impact NOISE-2: Construction activities could result in vibration-induced architectural damage at nearby structures or hardscape features, or could result in vibration-induced annoyance at nearby sensitive receptors.

[20] Fresno General Plan MEIR, 2014.

Mitigation Measure NOISE-2a: Prior to issuance of grading and construction permits, applicants for individual development projects that involve vibration-intensive construction activities—such as pile drivers, jack hammers, and vibratory rollers—within 50 feet of off-site structures, shall prepare and submit to the City of Fresno an acoustical study to evaluate potential construction-related vibration damage impacts. The vibration assessment shall be prepared by a qualified acoustical engineer and be based on the Federal Transit Administration (FTA) vibration-induced architectural damage criterion. If the acoustical study determines a potential exceedance of the FTA thresholds, measures shall be identified that ensure vibration levels are reduced to below the thresholds. Measures to reduce vibration levels can include use of less-vibration-intensive equipment (e.g., drilled piles and static rollers) and/or construction techniques (e.g., non-explosive rock blasting and use of hand tools) and preparation of a pre-construction survey report to assess the condition of the affected sensitive structure. Identified measures shall be included on all construction and building documents and submitted for verification to the City.

Mitigation Measure NOISE-2b: Prior to issuance of grading and construction permits, applicants for individual development projects that involve vibration-intensive construction activities—such as pile drivers, jack hammers, and vibratory rollers—within 100 feet of sensitive receptors (e.g., residences and schools) shall prepare and submit to the City of Fresno an acoustical study to evaluate potential construction-related vibration annoyance impacts. The study shall be prepared by a qualified acoustical engineer and shall identify measures to reduce impacts to habitable structures to below the Federal Transit Administration (FTA) vibration-induced annoyance criterion. If construction-related vibration is determined in the acoustical study to be perceptible at vibration-sensitive uses, additional requirements, such as use of less-vibration-intensive equipment or construction techniques, shall be implemented during construction (e.g., drilled piles, static rollers, and non-explosive rock blasting). Identified measures shall be included on all construction and building documents and submitted for verification to the City.

Significance With Mitigation: Less than significant. With the implementation of Mitigation Measures N-1 and N-2, which would place limitations on certain equipment and/or their use at certain distances, construction-generated vibration impacts would be reduced to less than significant after mitigation.

Roadway-Related Vibration Impacts

Operation of new commercial land uses could generate additional truck trips over existing conditions, which could potentially generate various levels of vibration along the traveled roadways. Additionally, truck trips could also be generated during construction of new development projects in the Plan Area. Caltrans has studied the effects of vehicle vibration on sensitive land uses and notes that “heavy trucks, and quite frequently buses, generate the highest earthborne vibrations of normal traffic.” Caltrans further notes that the highest traffic-generated vibration is along freeways and state routes and finds that “vibrations measured on freeway shoulders (five meters from the centerline of the nearest lane) have never exceeded 0.08 inches per second, with the worst combinations of heavy trucks. This level coincides with the maximum recommended safe level for ruins and ancient monuments (and historic buildings).” Typically, trucks do not generate high levels of vibration because they travel on rubber wheels and do not

have vertical movement, which generates ground vibration.[21] Given these results and long-term observations by Caltrans, roadways in the proposed Plan area are not expected to generate excessive vibration. Therefore, there would be *no impact* due to roadway-related vibration.

Significance Without Mitigation: No impact.

Operations-Related Vibration Impacts

The use of heavy equipment associated with industrial operations can create elevated vibration levels in its immediate proximity. Such equipment-generated vibrations would spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the vibration source varies depending on soil type, ground strata, and receptor-building construction. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels.

While no new industrial uses would be developed within the Plan Area, new sensitive land uses could potentially experience perceptible vibration levels if they are placed in close proximity of existing industrial uses. Specific project-level information is not available at this time for individual development projects that could be implemented through the proposed Plan. However, Policy NS-1-c of the Noise and Safety Element of the General Plan requires that a site-specific acoustical analysis be performed for projects involving sensitive uses that would be located in areas with exterior noise levels of greater than 65 dB L_{dn} or CNEL. Since areas zoned for industrial uses typically have noise levels in excess of 65 CNEL, new projects that would be potentially affected by vibration levels due to nearby industrial activities would require an acoustical analysis for noise compatibility prior to approval. It is expected that such future acoustical analyses would also include an evaluation of vibration levels. Thus, with the expectation that future development within the Plan Area would follow established approval procedures within the City and would comply with standard conditions of approval – including, but not limited to, fulfillment of applicable policies within the City's Noise and Safety Element – implementation of the proposed Plan would result in a *less-than-significant* impact due to operations-related vibration.

Significance Without Mitigation: Less than significant.

NOISE-3 Implementation of the proposed Plan would cause a substantial permanent increase in ambient noise levels in the vicinity of the Plan Area above levels existing without the proposed Plan.

As presented in Impact NOISE-1 above, project-generated operational noise, stationary noise sources (i.e., mechanical systems), and operational activities would not exceed the standards of the General Plan or the Municipal Code and would not result in a substantial permanent increase in community ambient noise levels.

[21] Fresno General Plan MEIR, 2014.

However, 21 roadway segments would experience substantial noise increases greater than 3 dBA attributable to buildout of the proposed Plan, with future noise levels that exceed 65 dB CNEL. Therefore, the implementation of the proposed Plan would result in a substantial permanent increase in noise levels, and impacts would be *significant*.

Significance Without Mitigation (Traffic Noise): Significant

As discussed above, no individual measure and no set of feasible or practical mitigation measures are available to reduce project-generated traffic noise to less than significant levels. Thus, traffic noise impacts would be *significant and unavoidable*.

Significance With Mitigation (Traffic Noise): Significant and unavoidable.

NOISE-4 Implementation of the proposed Plan could potentially cause a substantial temporary or periodic increase in ambient noise levels in the vicinity of the Plan Area above levels existing without the proposed Plan.

This impact discusses the potential construction-related noise impacts resulting from land use developments accommodated by the proposed Plan. The proposed Plan would increase residential, mixed-use, office, and commercial uses, as compared to existing conditions. Two types of temporary noise impacts could occur during construction activities associated with development that would be accommodated by the proposed Plan. First, the transport of workers and movement of materials to and from the site could incrementally increase noise levels along local access roads. The second type of temporary noise impact is related to demolition, site preparation, grading, and/or physical construction.

The City of Fresno recognizes that the control of construction noise is difficult at best and provides an exemption for this type of noise when the work is performed between 7:00 a.m. and 10:00 p.m. on weekdays and Saturdays and has obtained a permit issued by the City. Compliance with the municipal code is mandatory, and as such, does not constitute mitigation under CEQA.

Given the lack of specific details about the future developments at the site, a generalized, program-level set of assumed construction activities were used for the construction noise assessment. Noise generated during construction is based on the type of equipment used, the location of the equipment relative to sensitive receptors, and the timing and duration of the noise-generating activities. Sensitivity to noise is based on the location of the equipment relative to sensitive receptors, the time of day, and the duration of noise-generating activities.

Construction is performed in distinct steps, each of which has its own mix of equipment and noise characteristics. Table 4.11-14 lists typical construction equipment noise levels recommended for noise-impact assessments, based on a distance of 50 feet between the equipment and noise receptor.

As shown in Table 4.11-14, construction equipment generates high levels of noise, with maximums ranging from 71 dBA to 101 dBA. Construction of individual development projects associated with the proposed Plan would temporarily increase the ambient noise environment and would have the potential to affect noise-sensitive land uses in the vicinity of that Plan Area.

TABLE 4.11-14 CONSTRUCTION EQUIPMENT NOISE EMISSION LEVELS

Construction Equipment	Typical Max Noise Level (dBA Lmax)[a]	Construction Equipment	Typical Max Noise Level (dBA Lmax)[a]
Air Compressor	81	Pile-Driver (Impact)	101
Backhoe	80	Pile-Driver (Sonic)	96
Ballast Equalizer	82	Pneumatic Tool	85
Ballast Tamper	83	Pump	76
Compactor	82	Rail Saw	90
Concrete Mixer	85	Rock Drill	98
Concrete Pump	71	Roller	74
Concrete Vibrator	76	Saw	76
Crane, Derrick	88	Scarifier	83
Crane, Mobile	83	Scraper	89
Dozer	85	Shovel	82
Generator	81	Spike Driver	77
Grader	85	Tie Cutter	84
Impact Wrench	85	Tie Handler	80
Jack Hammer	88	Tie Inserter	85
Loader	85	Truck	88
Paver	89		

a. Measured at 50 feet from the source.
Source: Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment*, May. U.S. Department of Transportation (DoT). FTA-VA-90-1003-06.

Significant noise impacts may occur from operation of heavy earthmoving equipment and truck hauling that would occur with construction of individual development projects. Implementation of the proposed Plan would result in an increase in development intensity throughout the plan area. However, construction noise levels depend on the specific locations, site plans, and construction details of individual development projects, which are not known at this time. Additionally, construction-related noise would be localized and would occur intermittently for varying periods of time.

Because specific project-level information is not available at this time, it is not possible to quantify the construction noise impacts at specific off-site or on-site sensitive receptors. Construction of individual development projects associated with the proposed Plan would temporarily increase the ambient noise environment in the vicinity of each development project, potentially affecting existing and future sensitive uses in the localized vicinity. Because these construction activities may occur near noise-sensitive receptors and because noise disturbances may occur for prolonged periods of time (depending on the project type), construction noise impacts associated with implementation of the proposed Plan are considered *potentially significant*.

Significance Without Mitigation: Potentially significant

Impact NOISE-4: Construction activities would result in temporary noise increases in the vicinity of the Plan Area.

Mitigation Measure NOISE-4a: As required by the City of Fresno Municipal Code, construction activity shall be limited to the hours between 7:00 a.m. and 10:00 p.m. on weekdays and Saturdays, and shall require a permit issued by the City.

Mitigation Measure NOISE-4b: Prior to the issuance of demolition, grading, and/or construction permits, applicants for individual development projects within 500 feet of noise-sensitive receptors (e.g., residences, hospitals, schools) shall conduct a project-level construction noise analysis to evaluate potential impacts on sensitive receptors. The analysis shall be conducted once the final construction equipment list that will be used for demolition and grading activities is determined. The project-level noise analysis shall be prepared, reviewed, and approved by the City of Fresno Community Development Director. If the analysis determines that demolition and construction activities would result in an impact to identified noise-sensitive receptors, then specific measures to attenuate the noise impact shall be outlined in the analysis and reviewed and approved by the City of Fresno Community Development Director. Specific measures may include, but are not limited to, the following best management practices:

- Post a construction site notice near the construction site access point or in an area that is clearly visible to the public. The notice shall include the following: job site address; permit number, name, and phone number of the contractor and owner; dates and duration of construction activities; construction hours allowed; and the City of Fresno Community Development Director and construction contractor phone numbers where noise complaints can be reported and logged.
- Consider the installation of temporary sound barriers for construction activities immediately adjacent to occupied noise-sensitive structures.
- Restrict haul routes and construction-related traffic to the least noise-sensitive times of the day.
- Reduce non-essential idling of construction equipment to no more than five minutes.
- Ensure that all construction equipment is monitored and properly maintained in accordance with the manufacturer’s recommendations to minimize noise.
- Fit all construction equipment with properly-operating mufflers, air intake silencers, and engine shrouds, no less effective than as originally equipped by the manufacturer, to minimize noise emissions.
- If construction equipment is equipped with back-up alarm shut offs, switch off back-up alarms and replace with human spotters, as feasible.
- Stationary equipment (such as generators and air compressors) and equipment maintenance and staging areas shall be located as far from existing noise-sensitive land uses, as feasible.
- To the extent feasible, use acoustic enclosures, shields, or shrouds for stationary equipment such as compressors and pumps.

- Shut off generators when generators are not needed.
- Coordinate deliveries to reduce the potential of trucks waiting to unload and idling for long periods of time.
- Grade surface irregularities on construction sites to prevent potholes from causing vehicular noise.
- Minimize the use of impact devices such as jackhammers, pavement breakers, and hoe rams. Where possible, use concrete crushers or pavement saws rather than hoe rams for tasks such as concrete or asphalt demolition and removal.

The final noise-reduction measures to be implemented and their associated details shall be determined by the construction-level noise analysis. The final noise-reduction measures shall be included on all construction and building documents and/or construction management plans and submitted for verification to the City; implemented by the construction contractor through the duration of the construction phase; and discussed at the pre-demolition, -grade, and/or -construction meetings.

Significance With Mitigation: Significant and unavoidable. With implementation of Mitigation Measures N-3 and N-4, construction noise impacts due to construction activities would be reduced to the extent feasible. However, given that details of individual development projects in the vicinity of the Plan Area are currently unknown, it is not possible to quantify the construction noise impacts at specific off-site or on-site sensitive receptors. Because these construction activities may occur near noise-sensitive receptors and because noise disturbances may occur for prolonged periods of time, construction noise impacts would remain significant and unavoidable.

NOISE-5	**Implementation of the proposed Plan would not cause exposure of people residing or working in the vicinity of the study area to excessive aircraft noise levels, for a project located within an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport.**

Fresno Chandler Executive Airport lies adjacent to the northeastern boundary of the Plan Area. Other nearby public airports include Fresno Yosemite International Airport (located 6.4 miles to the northeast of the Plan Area boundary) and Sierra Sky Park (7.3 miles to the northwest).[22]

The 65 dBA CNEL noise contours for Fresno Yosemite International Airport and Sierra Sky Park (shown in Figures NS-4 and NS-6 of the General Plan, respectively) lie outside of the Plan Area. While aircraft that utilize these airports could fly over the Plan Area and generate noise levels that may be momentarily audible or noticeable, these aircraft operations do not significantly contribute to the Plan Area's noise environment. Figure NS-5 of the City of Fresno General Plan shows that a portion of the Plan Area falls within the Airport Influence Area of Fresno Chandler Executive Airport, including some land that lies

[22] Airnav.com, 2017.

within the airport's 60 dBA CNEL and 65 dBA CNEL noise contours. Land uses that fall within these contours include "Open Space" ("Ponding Basin" and "Clear Zone") and "Residential."

It is possible that future increases in airport traffic could result in the noise contours encompassing a larger area, which could affect existing uses within the Plan Area. However, no potential changes to airport traffic would be due to implementation of the proposed Plan. As such, no determination of impacts under CEQA is applicable to airport-related noise level increases at existing uses. However, CEQA is applicable to future development in accordance with the proposed Plan, which may increase or intensify development in the area within the Airport Influence Area and the noise contours. The Fresno-Chandler Executive Airport Land Use Compatibility Plan (ALUCP) establishes policies for planning new developments on land within the Airport Influence Area.

Table 1 of the ALUCP provides guidance for the compatibility of land uses within the 60, 65, and 70 CNEL contours. ALUCP Policy 3.1 (5) establishes that new residential development and new schools shall be prohibited within the 65 CNEL contour unless it is determined that there is no feasible alternative to such development and provided that the property owner grants an avigation easement to the City. Additionally, ALUCP Policy 3.1 (6) requires an acoustical analysis for any new sensitive use located within a 65 or greater CNEL contour. The acoustical analysis must demonstrate that new structures for sensitive uses shall incorporate noise insulation such that interior noise levels do not exceed 45 dB CNEL. In accordance with ALUCP Policy 3.1 (7), development of new sensitive uses is prohibited within the 70 CNEL contour. Since noise from individual aircraft can be intrusive and annoying in locations beyond the limits of the mapped noise contours, the ALUCP also requires an avigation easement to the City of Fresno as a condition for approval of any residential development proposal (i.e., zone change, subdivision map, conditional use permit, site plan review) within the Airport Influence Area (AIA), and for all development proposals (commercial, industrial or residential) within the 65 CNEL contour. The full text of the ALUCP is included in Appendix F.

Although implementation of the proposed Plan may result in development of new uses within the AIA and although noise contours of Fresno Chandler Executive Airport could potentially expand, the developments within the Plan Area would be required to comply with the policies set by the ALUCP and the City's Noise and Safety Element. Thus, with the expectation that future development within the Plan Area would follow established approval procedures and would fulfill applicable policies, implementation of the proposed Plan would result in *less-than-significant* impacts due to aircraft-related noise from public airports.

Significance Without Mitigation: Less than significant.

NOISE-6	**Implementation of the proposed Plan would not cause exposure of people residing or working in the project site to excessive noise levels, for a project within the vicinity of a private airstrip.**

There are no heliports or private airports within the Plan Area. The nearest heliport is located at the Community Regional Medical Center (1.8 miles to the northeast), and there are no private airports within five miles of the Plan Area. Given the distance to the Plan Area and that flights would be sporadic and

limited for medical use, heliport contributions to community noise levels within the Plan Area would be negligible. Therefore, development in accordance with the proposed Plan would not expose people to excessive noise levels, and noise impacts due to private airports and heliports would be *less than significant*.

Significance Without Mitigation: Less than significant.

4.11.3 CUMULATIVE IMPACTS

NOISE-7	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in significant cumulative impacts with respect to noise.**

Operational Noise – Traffic Sources

Project-related cumulative noise impacts would occur if the proposed Plan's contribution to cumulative noise increases results in a substantial noise increase in comparison to existing conditions. As previously discussed under Impact NOISE-1, 21 of the 30 segments analyzed would experience substantial noise increases greater than 3 dBA attributable to buildout of the proposed Plan, with future noise levels that exceed 65 dB CNEL. The substantially increased ADT flows resulting from implementation of the proposed Plan would create, by itself, a project-related traffic noise increase that would be cumulatively considerable. Therefore, cumulative impacts due to traffic-generated noise would be *significant*.

Significance Without Mitigation (Traffic Noise): Significant

As discussed above, no individual measure and no set of feasible or practical mitigation measures are available to reduce project-generated traffic noise to less than significant levels. Thus, traffic noise impacts would be significant and unavoidable.

Significance With Mitigation (Traffic Noise): Significant and unavoidable.

Operational Noise – Stationary Sources

As discussed under Impact NOISE-1, potential new stationary sources due to the proposed Plan would not be expected to contribute any notable, future sound energy within or outside of the Plan Area. Additionally, onsite ventilation units and associated equipment at a project site would be acoustically engineered with appropriate procurement specifications, sound enclosures, and parapet walls to minimize noise—all in accordance with City of Fresno stationary noise requirements—to ensure that such equipment does not exceed allowable noise limits. Other stationary sources for residential, office, and commercial uses include landscaping, maintenance, truck deliveries, trash pickup, and parking lot activity, and any other sources of stationary noise at a project site would also be subject to the restrictions of the municipal code.

Of particular note with all existing and future stationary sources associated with the proposed Plan is that they are generally localized in nature (as opposed to more area-wide sources such as roadways and freeways). For example, a single, roof-top ventilation unit or a single lawn-mower will only potentially affect listeners in the immediate vicinity; say within 100 feet (for discussion purposes). Given this relatively limited sphere of influence for any given, single stationary source, coupled with the dispersed placement of such sources across the Plan Area, the aggregation of stationary sources would not be expected to be cumulatively considerable. Thus, cumulative impacts from project-related stationary noise sources would be *less than significant*.

Significance Without Mitigation: Less than significant.

Construction Noise

Construction activities may occur simultaneously and in close proximity to sensitive receptors, resulting in significant impacts. Additionally, it cannot be determined whether other, close-proximity projects will be conducted simultaneously or to what extent their potential noise emissions might be, since details of individual development projects in the vicinity of the Plan Area are currently unknown. Therefore, cumulative impacts related to construction noise could be *potentially significant*.

Significance Without Mitigation: Potentially significant.

Significance With Mitigation: Significant and unavoidable. Even after implementation of Mitigation Measures N-3 and N-4 listed above, construction noise impacts due to buildout of the proposed Plan may remain significant.

Construction Vibration

Construction activities may occur simultaneously and in close proximity to sensitive receptors. However, given the distances between potential construction zones of individual projects within and outside of the Plan Area, these cumulative projects would not be expected to cause a cumulatively significant construction vibration impact. Additionally, Mitigation Measures N-1 and N-2 listed below would reduce the impacts to offsite receptors for each individual project to a *less than significant* level. Therefore, no significant cumulative impacts related to construction vibration are anticipated.

Significance With Mitigation: Less than significant.

4.12 POPULATION AND HOUSING

This chapter describes the population and housing characteristics in the City of Fresno and evaluates the potential environmental consequences from future development that could occur by adopting and implementing the proposed Plan. A summary of the relevant regulatory setting and existing conditions is followed by a discussion of specific and cumulative impacts from future development permitted under the proposed Plan.

4.12.1 ENVIRONMENTAL SETTING

4.12.1.1 REGULATORY FRAMEWORK

This section summarizes existing State and local laws and policies pertaining to population and housing in Fresno. There are no federal regulations applicable to population and housing in relation to the proposed Plan.

State Regulations

California Housing Element Law

California Housing Element Law includes provisions related to the requirements for housing elements of local government General Plans. Among these requirements, some of the necessary parts include an assessment of housing needs and an inventory of resources and constraints relevant to the meeting of these needs. Additionally, in order to assure that counties and cities recognize their responsibilities in contributing to the attainment of the State housing goals, this section of the Government Code calls for local jurisdictions to plan for, and allow the construction of, a share of the region's projected housing needs.

Regional Regulations

Regional Housing Needs Allocation

State Housing Element Law, Government Code Chapter 1143, Article 10.6, Sections 65580 and 65589, requires development of a Regional Housing Needs Allocation Plan (RHNA). The RHNA, which was adopted by the Council of Fresno County Governments (FCOG) in July 2014, defines local housing market areas. Each jurisdiction within a market area is then assigned and is responsible for, a proportional share of the area's non-market rate housing needs. According to the 2013 Fresno County RHNA Plan, the City of Fresno falls into the Fresno-Clovis Metropolitan Market Area (FCMA) and receives an allocation of units based on the City's share of the housing need within that boundary. The FCMA also includes the City of Clovis, the unincorporated communities of Easton and Friant, and several unincorporated neighborhoods such as Calwa, Fig Garden, Malaga, and Sunnyside.

Adopted in April 2016, the Fresno County RHNA Plan covers an 8-year planning period that is between December 21, 2015 and December 31, 2023. The Plan includes housing at four different income levels, including very-low, low, moderate, and above-moderate. As determined by FCOG, the City of Fresno's total

housing unit capacity allocation is 23,565.[1] This allocation translates into sites that could accommodate housing affordable to households that fall within the various income categories as follows:

- Extremely and Very Low Income: 5,666 dwelling units
- Low Income: 3289 dwelling units
- Moderate Income: 3571 dwelling units
- Above-Moderate: 11,039[2]

Local Regulations

Fresno General Plan

The Fresno General Plan is the City's primary policy planning document, providing the framework for management and utilization of the City's physical, economic, and human resources. Adopted on December 18, 2014, the Plan includes ten separate Elements, including a Housing Element chapter. Each Element of the General Plan contains goals, objectives, and implementing policies that guide development within the city. The City's Policies related to population and housing in the city are listed below in Table 4.12-1.

TABLE 4.12-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO POPULATION AND HOUSING

Objective/ Policy Number	Objective/Policy Text
Urban Form Element	
Objective UF-12	*Emphasize the opportunity for a diversity of districts, neighborhoods, and housing types.*
Policy UF-1-a	Diverse Neighborhoods. Support development projects that provide Fresno with a diversity of urban and suburban neighborhood opportunities.
Policy UF-1-d	Range of Housing Types. Provide for diversity and variation of building types, densities, and scales of development in order to reinforce the identity of individual neighborhoods, foster a variety of market-based options for living and working to suit a large range of income levels, and further affordable housing opportunities throughout the city.
Policy UF-1-e	Unique Neighborhoods. Promote and protect unique neighborhoods and mixed use areas throughout Fresno that respect and support various ethnic, cultural and historic enclaves; provide a range of housing options, including furthering affordable housing opportunities; and convey a unique character and lifestyle attractive to Fresnans. Support unique areas through more specific planning processes that directly engage community members in creative and innovative design efforts.
Policy UF-1-f	Complete Neighborhoods, Densities, and Development Standards. Use Complete Neighborhood design concepts and development standards to achieve the development of Complete Neighborhoods and the residential density targets of the General Plan.
Objective UF-13	*Locate roughly one-half of future residential development in infill areas—defined as being within the City on December 31, 2012— including the Downtown core area and surrounding neighborhoods, mixed-use centers and transit-oriented development along major BRT corridors, and other non-corridor infill areas, and vacant land.*

[1] The total housing unit capacity allowance is adjusted to account for "credits", which are existing affordable housing units, and "debits," which are additional units that have been carried over from the previous Housing Element.

[2] Fresno Council of Governments Multi-Jurisdictional Housing Element, Adopted April 2016.

Fresno Housing Element

The 2015-2023 Fresno Housing Element was adopted on April 28, 2016 and amended on April 13, 2017; the California Department of Housing and Community Development (HCD) has certified that it meets State requirements. The 2015-2023 Housing Element includes a housing needs assessment that identifies current and projected housing needs, as well as policies to accommodate housing development that will be affordable to a range of household types and income ranges. The City's Policies related to population and housing in the city are listed below in Table 4.12-2. In addition, the City of Fresno 2015-2023 General Plan Housing Element includes an Unaccommodated Regional Housing Needs Allocation from 2008 for additional housing sites (before credits) as follows:

- Extremely and Very Low Income: 3,172 dwelling units
- Low Income: 3,304 dwelling units[3]

TABLE 4.12-2 HOUSING ELEMENT OBJECTIVES AND POLICIES RELEVANT TO POPULATION AND HOUSING

Objective/ Policy Number	Objective/Policy Text
Objective H-1	*Provide adequate sites for housing development to accommodate a range of housing by type, size, location, price, and tenure.*
Policy H-1-a	Implement land use policies and standards that allow for a range of residential densities and products that will enable households of all types and income levels the opportunity to find suitable ownership or rental housing.
Policy H-1-b	Encourage development of residential uses in strategic proximity to employment, recreational facilities, schools, neighborhood commercial areas, and transportation routes.
Policy H-1-c	Promote the development of affordable and special needs housing near transit and/or smart growth areas.
Policy H-5-g	Create equitable and affordable housing options throughout the City that provide incentives to residents for finding housing in high opportunity areas and to developers for building affordable housing in high opportunity areas.
Objective H-3	*Address, and where possible, remove any potential governmental constraints to housing production and affordability.*
Policy H-3-a	Review and adjust as appropriate residential development standards, regulations, ordinances, departmental processing procedures, and residential fees related to rehabilitation and construction that are determined to be a constraint on the development of housing.
Objective H-5	*Continue to promote equal housing opportunity in the City's housing market regardless of age, disability/medical condition, race, sex, marital status, ethnic background, source of income, and other factors.*
Policy H-5-a	Prohibit discrimination in the sale, rental, or financing of housing based on race, color, ancestry, religion, national origin, sex, sexual orientation, gender identity, age, disability/medical condition, familial status, marital status, source of income, or any other arbitrary factor.
Policy H-5-b	Assist in the enforcement of fair housing laws by providing support to organizations that can receive and investigate fair housing allegations, monitor compliance with fair housing laws, and refer possible violations to enforcing agencies.
Policy H-5-c	Provide equal access to housing for special needs residents such as people experiencing homelessness, elderly individuals, and persons with disabilities.
Policy H-5-d	Promote the provisions of disabled-accessible units and housing for persons with mental and physical disabilities.
Policy H-5-e	Ensure that all development applications are considered, reviewed, and approved without prejudice to the proposed residents, contingent on the development application's compliance with all entitlement

[3] City of Fresno General Plan, 2015-2023 Housing Element, adopted April 28, 2016, amended April 13, 2017.

TABLE 4.12-2 HOUSING ELEMENT OBJECTIVES AND POLICIES RELEVANT TO POPULATION AND HOUSING

Objective/ Policy Number	Objective/Policy Text
	requirements.
Policy H-5-f	Accommodate persons with disabilities who seek reasonable waiver or modification of land use controls and/or development standards pursuant to procedures and criteria set forth in the Development Code.
Policy H-5-g	Create equitable and affordable housing options throughout the City that provide incentives to residents for finding housing in high opportunity areas and to developers for building affordable housing in high opportunity areas.
Policy H-5-h	Consult with a wide range of groups throughout the community and consider environmental justice issues in the development and update of regulations, guidelines and other local programs.
Policy H-5-i	Increase or maintain resources to establish and support outreach, public education and community development activities through community- based and neighborhood organizations.

4.12.1.2 EXISTING CONDITIONS

This section describes the existing population and housing conditions within the Plan Area, as well as in the City of Fresno as a whole, to provide context for the analysis of the proposed Plan.

As depicted in Figure 3-2, land within the Plan Area is not clearly organized into distinct uses or patterns. Instead, there is a mixture of industrial, agricultural, commercial, and residential land uses throughout the Plan Area. Properties located at the eastern end of the Plan Area carry over the largely residential land use pattern found in Downtown, west of Highway 99. The pattern transitions into agricultural uses towards the western end of the Plan Area, closer to land outside the City limit within the City's Sphere of Influence and County-owned land. Pockets of commercial uses are scattered through the Plan Area. Industrial uses, such as Foster Poultry Farms and Cargill Meat Solutions, are located immediately adjacent to, or enclosed by, residential neighborhoods. Additionally, there are vacant lands across the Plan Area.

Population

As of 2015, it is estimated that the Plan Area includes 3,043 households and has a total population of 12,649.[4] Between the years 2010 and 2015, there was a slight decline in the number of households, an annual rate of decline of 0.8 percent. However, there was a 0.6 percent per year increase in the number of households in both the city and county during this time period. If the existing trend continues, the Plan Area would see a 0.05 percent per year decline in the number of households between the years 2015 and 2020, whereas the city would increase by 0.6 percent per year, and the county would increase by 0.7 percent per year.

[4] Esri, 2015. *Community Profile for Southwest Fresno Specific Plan Area*. Prepared by PlaceWorks on July 23, 2015.

Housing

In 2015, the average household size in the Plan Area was 4.1 persons per unit, about 31 percent higher than the citywide average of 3.1. The difference has been increasing from 24 percent in 2000 to 30 percent in 2010. The higher average household size in the Plan Area reflects the types of households residing there. In the Plan Area, about 57 percent of households include one or more children living with the householder, compared to 43 percent in the city as a whole. In addition, 14 percent of the households in the Plan Area are considered multi-generational, consisting of three or more generations that live together in one house, compared to 7 percent in the city as a whole.

Employment

As of 2011, a total 2,935 people work in the Plan Area. About 212 people, or 4.8 percent, of the Plan Area's 4,443 employed residents work within the Plan Area. The remaining 4,231 employed Plan Area residents, or 95.2 percent, out-commute to another location for work. Conversely, 2,723 workers living outside of the Plan Area commute into the Plan Area for work.

4.12.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact if it would:

1. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
2. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
3. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

4.12.3 IMPACT DISCUSSION

POP-1 Implementation of the proposed Plan would not induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

The proposed Plan would result in a significant impact related to population growth if it would lead to substantial unplanned growth, either directly or indirectly.

Housing and Population

As described in Chapter 3, Project Description, of this Draft EIR, buildout of the proposed Plan under the Dual Designation Scenario could generate a maximum of approximately 7,131 new housing units, 2,489,065 square feet of office space, and 1,698,040 square feet of retail space (based on the dual land use designation in Figure 3-3 of the proposed Plan) during implementation of the proposed Plan through the 25-year planning horizon.. This anticipated future development would result in approximately 27,775[5] new residents. The projected occupied housing is based on an average occupancy of total units throughout Fresno County between the year 2000 and 2010. The average occupancy was approximately 95 percent and approximately 5 percent vacancy.[6] The residential population for the Plan Area, as well as citywide, is shown in Table 4.12-3. The population potential for the Plan Area is within the population growth contemplated by the Fresno General Plan, which anticipates growth of up to 226,000 additional residents, as shown in Table 4.12-3, consistent with the proposed Plan. Accordingly, implementation of the proposed Plan would not exceed the City's projection.

TABLE 4.12-3 RESIDENTIAL POPULATION POTENTIAL

Land Use	Proposed Plan	City of Fresno General Plan Population Estimate Under Horizon[b]
Existing Population	12,649[a]	545,000[c]
New Population	27,775	226,000
Total Residential Population	40,424	771,000

a. As of the year 2015, obtained from Esri Business Analyst.
b. City of Fresno General Plan, Table 1-5: Population Estimate under Horizon and Buildout. The Horizon year is 2035
c. Existing population includes the entire SOI area population from 2010 Census Data.
Source: PlaceWorks, 2015, using data from Esri business analyst; City of Fresno General Plan.

As noted above, the proposed Plan could generate up to 7,131 new housing units in the Plan Area under the Dual Designation Scenario.

[5] ((7,131 housing units * .95 occupancy rate)*4.1 people per unit)) = 27,775.24.
[6] Fresno General Plan MEIR, Population and Housing, page 5.12-11.

As described Chapter 3, Project Description, of this Draft EIR, the General Plan anticipates that the Plan Area would result in 6,723 new housing units as the General Plan is implemented.[7] As noted above, the proposed Plan could result in 7,131 new housing units under the Dual Designation Scenario (based on the dual land use designation), which is greater than the estimated buildout of the General Plan.

Employment

New jobs in the Plan Area would be created by development of commercial, office, and other employment-generating uses. New industrial jobs could occur in existing industrial businesses; however, the proposed Plan redirects new industrial uses to locations outside of the Plan Area to remove land use conflicts with nearby residential and other sensitive uses. As shown in Table 4.12-4, the Fresno General Plan MEIR projects an increase of 183,940 jobs for a total of 393,200 jobs in Fresno in 2056. As described in the Project Description in this Draft EIR, buildout of the proposed Plan could result in as many as 8,671 additional jobs in 2042.[8] These new jobs would not exceed the citywide job projections. Although job growth usually does not directly induce population growth, this calculation takes into account the fact that an increase in employment could accompany population growth, as workers and their family members are likely to live close to their workplaces.

TABLE 4.12-4 EMPLOYMENT POPULATION POTENTIAL

Land Use	Proposed Plan	City of Fresno Planning Area General Plan Employment Estimate
Existing Jobs	2,935[a]	209,260[b]
New Jobs	8,671	183,940
Total Jobs	11,606	393,200[c]

a. As of the year 2011, obtained from Esri Business Analyst
b. As of the year 2010, obtained from Table 5.12-5 of the Fresno General Plan MEIR
c. As of the year 2056, obtained from Table 5.12-5 of the Fresno General Plan MEIR
Source: PlaceWorks, 2015, using data from Esri business analyst; Fresno County General Plan MEIR.

Although the number of residents generated under the proposed Plan could exceed the number projected by the General Plan under the Dual Designation Scenario, growth under the proposed Plan would occur incrementally over a period of approximately 25 years and would be guided by a policy framework in the proposed Plan that is generally consistent with many of the principal goals and objectives established in the Fresno General Plan and 2015-2023 Housing Element. As discussed in Chapter 4.10, Land Use and Planning, the proposed Plan is consistent with Economic Development Goals ED-1, -2, -3 and -4 that seek to promote employment growth. As the goals and vision of the proposed Plan are to facilitate infill growth in magnet cores and along corridors, as well as to plan for and zone employment areas for “healthy” businesses, implementation of the proposed Plan would support

[7] Development capacity numbers for the General Plan were calculated using the planned land uses shown in the General Plan Land Use map approved February 29, 2016.

[8] ((7,131 housing units *.95 occupancy rate)*1.28 employees per occupied housing unit)) = 8,671.30.

citywide planning efforts. Therefore, this additional growth would be consistent with the citywide planning objectives. As a result, impacts to population growth associated with potential future development under the proposed Plan would be *less than significant*.

Significance Without Mitigation: Less than significant.

POP-2 Implementation of the proposed Plan would not displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.

The proposed Plan would have a significant impact if it would displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.

As described in Chapter 3, Project Description, of this Draft EIR, the proposed Plan would allow for an increase in the total number of housing units in the Plan Area (up to a total of 7,131 net new housing units under the Dual Designation Scenario) through the 25-year planning horizon. Since implementation of the proposed Plan would result in a net increase in housing, it would not require replacement housing outside the Plan Area. Furthermore, no housing is proposed to be demolished under the proposed Plan, and the availability of vacant land within the Plan Area would not require the demolition of existing housing units to produce new units. Development under the proposed Plan would be required to comply with the City's Housing Element Objective H-5 and associates policies, as shown in Table 4.12-2 above, which promotes equal housing opportunity in the City's housing market. Therefore, impacts related to the displacement of housing would be *less than significant*.

Significance Without Mitigation: Less than significant.

POP-3 Implementation of the proposed Plan would not displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

The proposed Plan would have a significant environmental impact if it would displace a substantial number of people, thereby requiring construction of replacement housing elsewhere.

Implementation of the proposed Plan would result in an increase in the total number of housing units within the Plan Area. As described under impact POP-2 above, because there is ample vacant land available to locate new units within the Plan Area, production of these new units would not require the demolition of existing housing. As a result, substantial numbers of people would not be displaced, and construction of replacement housing would not be required. Therefore, impacts associated with the displacement of substantial numbers of people would be *less than significant*.

Significance Without Mitigation: Less than significant.

4.12.4 CUMULATIVE IMPACTS

POP-4	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in less than significant cumulative impacts with respect to population and housing.**

As discussed in Chapter 4, Environmental Evaluation, of this Draft EIR, this EIR takes into account growth projected by the proposed Plan within the Fresno City boundary and Sphere of Influence, in combination with impacts from projected growth in the rest of Fresno County and the surrounding region. Impacts from cumulative growth are considered in the context of their consistency with regional planning policies. As described above, the proposed Plan would not induce a substantial amount of growth that has not been adequately planned for or require the construction of replacement housing elsewhere. Although the number of new residents generated under the proposed Plan could exceed the number analyzed under the General Plan MEIR under the Dual Designation Scenario, cumulative growth would be consistent with regional planning targets. Thus, when considered along with the proposed Plan, which, as described in the above sections, would not exceed regional growth projections, cumulative growth would not displace substantial numbers of people or housing or exceed planned levels of growth. Therefore, cumulative impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

4.13 PUBLIC SERVICES AND RECREATION

The following information is provided in accordance with CEQA Guidelines Section 15125. The environmental setting discussion examines the existing conditions within the Southwest Fresno Specific Plan (Plan) Area. This chapter describes the regulatory framework and existing conditions within the Plan Area and evaluates the potential environmental consequences on public services and recreation from future development that could occur by adopting and implementing the proposed Plan. The public services and recreation facilities analyzed in this chapter include fire and police protection services, schools, libraries, and parks and recreation. For each service, a summary of the relevant regulatory setting and existing conditions is followed by a discussion of potential impacts from future development permitted under the proposed Specific Plan.

4.13.1 FIRE PROTECTION SERVICES

This section describes the current fire protection regulations, resources, and response times for fire protection services within the Plan Area, as well as the proposed Plan's potential impacts to fire protection services.

4.13.1.1 ENVIRONMENTAL SETTING

Regulatory Framework

This section summarizes key State and local regulations related to fire protection services. There are no federal regulations pertaining to fire protection that apply to the proposed Plan.

State Regulations

California Building Standards Code

The California Building Standards Code (CBC), contained in Part 2 of Title 24 of the California Code of Regulations (CCR), identifies building design standards, including those for fire safety. The CBC is based on the International Building Code but has been amended for California conditions. The CBC is updated every 3 years and the current 2016 CBC went into effect January 1, 2017. It is effective statewide but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the State Building Standards Commission. Commercial and residential buildings are plan-checked by local City and County building officials for compliance with the CBC. Typical fire safety requirements of the CBC include the installation of fire sprinklers in all new residential, high rise, and hazardous materials buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

California Fire Code

The California Fire Code (CFC), contained in Part 9 of CCR Title 24, incorporates by adoption the International Fire Code of the International Code Council, with California amendments. The CFC is updated every 3 years and the current 2016 CFC went into effect January 1, 2017. It is effective state-wide but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the State Building Standards Commission. The California Fire Code regulates building standards set forth in the CBC, fire department access, fire protection systems and devices, fire and explosion hazards safety, hazardous materials storage and use, and standards for building inspection.

Local Regulations

Fresno Municipal Code

The Fresno Municipal Code (FMC), organized by Title, Chapter, and Section, contains all ordinances for the City. The City's Fire Code, which is in Chapter 10, Article 5 of the FMC, regulates permit processes, emergency access, hazardous material handling, and fire protection systems, including automatic sprinkler systems, fire extinguishers, and fire alarms. Chapter 11, Article 1 of the FMC, sets forth the standards for building and construction in the city. The City has adopted by reference the most recent CBC, subject to additions and amendments as outlined in Section 11-101 (Building Code).

Fresno General Plan

The City's General Plan contains the following policies and objectives relevant to the provision of fire protection services shown in Table 4.13-1.

Existing Conditions

The Fresno Fire Department (FFD) provides the following services within the City limit: fire prevention, fire suppression, hazardous material mitigation, rescue, and emergency medical services. The City has instant aid agreements with surrounding agencies and districts whereby the nearest fire station responds to an emergency regardless of the jurisdiction within which it is located. These agreements, in addition to the services offered by the FFD, provide high quality fire suppression and emergency medical care services. Emergency medical service is provided to all city residents by the Fire Department; however, emergency transport is provided by private carriers (such as private ambulance companies).[1]

[1] City of Fresno Fire Department. Available at https://www.fresno.gov/fire/, accessed July 3, 2017.

TABLE 4.13-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO FIRE PROTECTION SERVICES

Objective/ Policy Number	Objective/Policy Text
Objective PU-2	*Ensure that the Fire Department's staffing and equipment resources are sufficient to meet all fire and emergency service level objectives and are provided in an efficient and cost effective manner.*
Policy PU-2-b	Maintain Ability. Strive to continually maintain the Fire Department's ability to provide staffing and equipment resources to effectively prevent and mitigate emergencies in existing and new high-rise buildings and in other high-density residential and commercial development throughout the city.
Policy PU-2-c	Station Siting. Use the General Plan, community plans, Specific Plans, neighborhood plans, and Concept Plans, the City's Geographic Information Systems (GIS) database, and a fire station location program to achieve optimum siting of future fire stations.
Objective PU-3	*Enhance the level of fire protection to meet the increasing demand for services from an increasing population.*
Policy PU-3-a	Fire Prevention Strategies. Develop strategies to enable the performance of annual fire and life safety inspection of all industrial, commercial, institutional, and multifamily residential buildings, in accordance with nationally recognized standards for the level of service necessary for a large Metropolitan Area, including a self-certification program. Develop strategies to provide a more systematic and broad based Public Education Outreach.
Policy PU-3-d	Review Development Applications. Continue Fire Department review of development applications, provide comments and recommend conditions of approval that will ensure adequate on-site and off-site fire protection systems and features are provided.
Policy PU-3-e	Building Codes. Adopt and enforce amendments to construction and fire codes, as determined appropriate, to systematically reduce the level of risk to life and property from fire, commensurate with the City's fire suppression capabilities.
Policy PU-3-f	Adequate Infrastructure. Continue to pursue the provision of adequate water supplies, hydrants, and appropriate property access to allow for adequate fire suppression throughout the City.
Policy PU-3-g	Cost Recovery. Continue to evaluate appropriate codes, policies, and methods to generate fees or other sources of revenue to offset the ongoing personnel and maintenance costs of providing fire prevention and response services.
Policy PU-3-I	New Fire Station Locations. Consideration will be given to co-locating new Fire Station facilities with other public property including, but not limited to, police substations, schools, parks, playgrounds, and community centers to create a synergy of participation in the neighborhood with the potential result of less vandalism and promotion of a better sense of security for the citizens using these facilities.

Equipment and Staffing

The FFD employs 321 uniformed firefighters, 17 sworn non-safety Fire Prevention staff, and 44 civilian members, serving a population of more than 525,000 in the City of Fresno, the North Central Fire Protection District, the Fig Garden Fire Protection District, and the unincorporated County lands located within the City limit. The FFD operates a total of 24 fire stations/companies that serve a 336-square-mile area; 19 fire stations, including the Airport Rescue Fire Fighting Station (ARFF), are located within the City of Fresno and four are located in the contract areas served by FFD. The companies are divided into four battalions: three serve the City of Fresno and one serves the North Central Fire Protection District; each battalion is supervised by a battalion chief. Daily staffing consists of 89 firefighters and one 24-hour arson investigator. The Fire Department has 23 engine companies and 6 truck companies. Additionally, the FFD also has hazardous materials, swift water rescue, heavy rescue, water tenders, and specialized grassland firefighting apparatus, which are staffed as needed by engine and truck company personnel.

Average Response Times

The FMC requires that all new residential development (with up to 4 units per building) must be located within a 5-mile "running distance" of an existing fire station.[2] All residential buildings with more than four units and all other development must be located within 3 miles of an existing fire station. With the exception of the Regional Sports Complex at Jensen Avenue, all new development within the proposed Plan Area would be located within a 3-mile running distance of an existing fire station. Table 4.13-2 shows the fire stations that are located either within the Plan Area boundary or within a 3-mile running distance of the boundary.

TABLE 4.13-2 EXISTING CITY OF FRESNO FIRE STATIONS IN THE PLAN AREA

Station No.	Address (Fresno)	Equipment/Personnel
3	1406 Fresno Street	Engine 3 —The engine is operated by a crew of four. Water Tender 3 —The water tender holds 3,000 gallons of water and is staffed as needed by the crew off Engine 3 The block occupied by Station 3 is also home to the FFD's Training Drill Tower, as well as the Repair and Maintenance section that is responsible for maintaining fire department apparatus.
4	3065 East Iowa Avenue	Engine 4 —The engine is operated by a crew of three. Truck 4—The truck is operated by a crew of four.
7	2571 South Cherry Avenue	Engine 7 — The engine is operated by a crew of three. Patrol 7 —The unit is staffed by the crew of Engine 7 as needed.
8	1428 South Cedar Avenue	Engine 8—The engine is operated by a crew of four.
9	2340 North Vagedes Avenue	Engine 9 — The engine is operated by a crew of three. Truck 9 — The truck is operated by a crew of four. Battalion 4
16	2510 North Polk Avenue	Engine 16 — The engine is operated by a crew of three. HazMat 16 — The unit is staffed by the crew of Engine 16 as needed.
19	3187 West Belmont Avenue	Truck 19 — The engine is operated by a crew of three. Brush 19 — Staffed by the crew of Tuck 19 as needed Battalion 2
22	806 South Garfield Avenue (North Central Fire Protection District)	Engine 22 — Staffed by a crew of three.

Source: City of Fresno Fire Department Station Locations, 2012. Website: http://www.fresno.gov/Government/DepartmentDirectory/Fire/AboutFresnoFire/StationLocations/default.htm.

The Fire Department's target response travel time for the first arriving fire company upon notification of an emergency is 4 minutes 90 percent of the time. In 2016, on a citywide basis, the 4-minute goal was reached 68 percent of the time. Industry standards define an Effective Firefighting Force (EFF) as having 15 firefighters on a residential fire ground within 8 minutes, 90 percent of the time and 21 firefighters on

[2] City of Fresno Municipal Code, Section 12-4.508-E-1.

a commercial fire ground within 8 minutes 90 percent of the time. In 2016, the 8-minute EFF goal was reached 81 percent of the time for residential fires and 82 percent for commercial fires. The Fire Department has been unable to meet target response times with the current staffing and fire station locations due to the increasing number of emergency calls for service (which totaled 44,000 incidents in 2016), fire station location density, and unit availability. This issue is not unique to the Plan Area, but is rather a citywide Department statistic.-The Fire Department has a staffing level of 0.44 firefighters per 1,000 people; the State average is 0.81, and the national standard is 1 to 1.5 per 1,000 residents. The National Fire Protection Association Standard (NFPA) 1710 provides recommendations of minimum workforce standards to accomplish provisions of fire suppression and emergency medical services. FFD uses NFPA 1710 as a guidance document to establish its own minimum staffing standards to ensure that sufficient workforce is present in emergencies. FFD's long-term planning target is to match daily staffing levels to service level demands.

Impact Fees

The City has implemented the following impact fees that address fire protection services:

Fire Facilities Fee: Section 12-4.901 of the FMC, which states:

> In order to implement the goals and objectives of the City's General Plan, and to mitigate the impacts caused by future development in the City, certain fire department facilities must be constructed. The City Council has determined that a Fire Facilities Fee is needed in order to finance these public facilities and to pay for each development's fair share of the construction and acquisition costs of these improvements. In establishing the fee described in the following sections, the City Council has found the fee to be consistent with its general plan, and pursuant to Government Code Section 65913.2, has considered the effects of the fee with respect to the city's housing needs as established in the housing element of the general plan.

Street Facilities Fees: Section 12-4.1001 of the FMC states:

> In order to implement the goals and objectives of the City's General Plan, and to mitigate the impacts caused by future development in the City, certain street facilities must be constructed. The City Council has determined that street facilities fees are needed in order to finance these public facilities and to pay for each development's fair share of the construction and acquisition costs of these improvements. Based on this determination, Council adopted, by resolution amending the Master Fee Schedule, a Citywide Regional Street Impact Fee ("Citywide Street Fee") and a New Growth Area Major Street Fee ("Growth Area Street Fee"). Council adopts this Article to require the imposition of these street facilities fees on new development in the city.

4.13.1.2 STANDARDS OF SIGNIFICANCE

Implementation of the proposed Plan would have a significant impact related to fire protection and emergency services if it would:

1. In order to maintain acceptable service ratios, response times, or other performance objectives for fire services, result in the provision of or need for new or physically altered fire protection facilities, the construction or operation of which could cause significant environmental impacts.
2. Contribute to cumulative fire protection and emergency medical service impacts in the area.

4.13.1.3 IMPACT DISCUSSION

This section analyzes potential Plan-specific and cumulative impacts to fire protection services.

PS-1	**Implementation of the proposed Plan would not result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, the construction of which could cause significant environmental impacts.**

As described above in Section 4.13.1.1, the Fire Department's level of emergency response service is below average compared with metropolitan cities of similar size. The expected level of fire prevention services in a city the size of Fresno is the ability to provide annual fire and life safety inspections of all commercial, industrial, institutional, and multi-family buildings, and to provide proactive systematic fire safety public education programs to all pre-adult school levels, senior citizens, the disabled, and the non-English speaking population. Due to current staffing levels and new construction inspection demands, many buildings that are susceptible to low and moderate fire and life safety hazards are being inspected at intervals of 2 to 4 years. Public education outreach is currently limited to attendance requested for community events and the Burn Aware school education program focused on grades 1 to 3.

Implementation of the proposed Plan would result in an additional 4,035,143 square feet of non-residential building space, along with 7,131 housing units, which would generate an increase of up to 27,775 residents; this increase is greater than the population growth contemplated by the General Plan. Increased population densities of the Plan Area and planned creation of new mixed-use corridors and centers will require commensurate increases in firefighter staffing and facilities and equipment. Fire station location will become more dependent on density and availability than "running distances" between fire stations. Implementation of the proposed Plan would result in an increased demand for fire protection services, commensurate with the increase in resident population and daytime population. However, this increase in demand can be met with additional staffing requirements at the existing fire stations that service the Plan Area, and would not result in the need to construct additional government facilities. Additionally, future development within the Plan Area would be required to comply with Section 12-4.901 of the FMC, which requires each development to pay a Fire Facilities Fee in order to mitigate the impacts on fire protection facilities caused by future development within the city. Payment of the appropriate development impact fees would offset the construction and acquisition costs of required fire facility improvements.

Implementation of the proposed Plan would also be required to comply with General Plan Policies listed below that seek to minimize potential impacts to response times and physical impacts to the environment from future construction of facilities that may result from development proposed under the Plan.

Objective PU-2: Ensure that the Fire Department's staffing and equipment resources are sufficient to meet all fire- and emergency service-level objectives and are provided in an efficient and cost effective manner.

Policy PU-3-d **Review Development Application.** Continue Fire Department review of development applications, provide comments and recommend conditions of approval that will ensure adequate on-site and off-site fire protection systems and features are provided.

Policy PU-3-e **Building Codes.** Adopt and enforce amendments to construction and fire codes, as determined appropriate, to systematically reduce the level of risk to life and property from fire, commensurate with the City's fire suppression capabilities.

Policy PU-3-f **Adequate Infrastructure.** Continue to pursue the provision of adequate water supplies, hydrants, and appropriate property access to allow for adequate fire suppression throughout the City.

Additionally, development projects within the proposed Plan Area would be required to comply with Section 12-4.901 of the FMC, which requires each development to pay a Fire Facilities Fee in order to mitigate the impacts on fire protection facilities caused by future development in the city. Payment of the appropriate development impact fees would offset the construction and acquisition costs of required fire facility improvements. Further, the Master EIR for the City's General Plan has analyzed and accounted for the anticipated improvements to the City's fire protection facilities and services, and the development regulations in the proposed Plan include an objective to site new fire stations adjacent to parks, trails, and schools. Therefore, the impact would be *less than significant*.

Significance Without Mitigation: Less than significant.

4.13.1.4 CUMULATIVE IMPACTS

PS-2	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to fire protection service.**

Future growth would result in an increased demand for fire services and facilities throughout the Plan Area, as well as areas that are outside the Plan Area. The Master EIR for the City's General Plan has analyzed and accounted for this increased demand and the associated facility improvements. Because the proposed Plan population increase is within the population increase contemplated by the General Plan, the project impacts are not deemed cumulatively considerable. Therefore, cumulative impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

4.13.2 POLICE PROTECTION SERVICES

This section describes the current police protection regulations, resources, and response times in Fresno, as well as the proposed Plan's potential impacts to police protection services.

4.13.2.1 ENVIRONMENTAL SETTING

Regulatory Framework

This section summarizes local policies related to police services in Fresno. There are no federal or State regulations pertaining to law enforcement that apply to the Plan Area.

Local Regulations

Fresno General Plan

The City's General Plan contains the following goals, policies, and objectives relevant to the provision of police services as shown in Table 4.13-3:

TABLE 4.13-3 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO POLICE SERVICES

Objective/ Policy Number	Objective/Policy Text
Objective PU-1	*Provide the level of law enforcement and crime prevention services necessary to maintain a safe, secure, and stable urban living environment through a Police Department that is dedicated to providing professional, ethical, efficient and innovative service with integrity, consistency and pride.*
Policy PU-1-c	Safety Considerations in Development Approval. Continue to identify and apply appropriate safety, design and operational measures as conditions of development approval, including, but not limited to, street access control measures, lighting and visibility of access points and common areas, functional and secure on-site recreational and open space improvements within residential developments, and use of State licensed, uniformed security.
Policy PU-1-d	New Police Station Locations. Consideration will be given to co-locating new police station facilities with other public property including, but not limited to, schools, parks, playgrounds, and community centers to create a synergy of participation in the neighborhood with the potential result of less vandalism and promotion of a better sense of security for the citizens using these facilities.
Policy PU-1-j	Lighting and Safety. Ensure adequate lighting at off-sale liquor stores to help deter crime and to promote a more inviting and safe atmosphere around them.

Existing Conditions

Equipment and Staffing

The City of Fresno Police Department (FPD) provides the following police protection services within the City limit: uniformed patrol response to calls for service, crime prevention, tactical crime enforcement (such as gang/violent crime suppression), and traffic enforcement/accident prevention. The FPD also contains the Investigative Services Division, which investigates crimes against persons/property, collects intelligence information, and deals with vice/narcotics control and enforcement. The California Highway Patrol (CHP) provides law enforcement services for the State highway system and assists the City of Fresno by providing enforcement within the city under special programs.[3]

Patrol services are divided into five policing districts. The Southwest Policing District is located south of McKinley Avenue, and west of East Avenue and State Route 99 (SR 99). The Northwest Policing District is located north of McKinley Avenue to the San Joaquin River and west of Blackstone Avenue/Abby Street to the western City limit. The Southeast Policing District is located south of Ashlan Avenue (east of Clovis Avenue), south of Clinton Avenue between East Avenue and Clovis Avenue, east of SR 99 (south of Church Avenue) to the southern City limit. The Northeast Policing District is located north of McKinley Avenue to the San Joaquin River and east of Blackstone Avenue to the City of Clovis. The Central District is located south of McKinley Avenue to Belmont Avenue, west of Second Street to Parkway Drive.[4]

The Plan Area falls entirely within the Southwest Policing District (District 1). In addition to the Fresno Police Headquarters, located at 2323 Mariposa Mall, the FPD operates five police stations within the city:

- Southwest: 1211 Fresno Street, Fresno, CA 93706
- Southeast: 1617 S. Cedar Avenue, Fresno, CA 93702
- Northeast: 1450 E. Teague Avenue, Fresno, CA 93720
- Northwest: 3781 N. Hughes Avenue, Fresno, CA 93705
- Central: 3502 N. Blackstone, Suite 201, Fresno, CA 93726

Calls for Service

According to the 2015 Fresno Police Department Annual Report, a total of 427,407 calls for service were made in 2015, with an average daily call for service of 1,171. The average delay time was 6.24 seconds, less than the statewide average of 10 seconds.

Impact Fees

The City has implemented the following impact fees that are applicable to the provision of police protection services:

[3] City of Fresno Police Department, https://www.fresno.gov/police/, accessed on July 3, 2017.
[4] City of Fresno, Police Department Annual Report, 2015.

Police Facilities Fee: Section 12-4.801 of the FMC states:

> In order to implement the goals and objectives of the City's General Plan, and to mitigate the impacts caused by future development in the City, certain police facilities must be constructed. The City Council has determined that a Police Facilities Fee is needed in order to finance these public facilities and to pay for each development's fair share of the construction and acquisition costs of these improvements. In establishing the fee described in the following sections, the City Council has found the fee to be consistent with its general plan, and pursuant to Government Code Section 65913.2, has considered the effects of the fee with respect to the city's housing needs as established in the housing element of the general plan.

Street Facilities Fees: Section 12-4.1001 of the FMC states:

> In order to implement the goals and objectives of the City's General Plan, and to mitigate the impacts caused by future development in the City, certain street facilities must be constructed. The City Council has determined that street facilities fees are needed in order to finance these public facilities and to pay for each development's fair share of the construction and acquisition costs of these improvements. Based on this determination, Council adopted, by resolution amending the Master Fee Schedule, a Citywide Regional Street Impact Fee ("Citywide Street Fee") and a New Growth Area Major Street Fee ("Growth Area Street Fee"). Council adopts this Article to require the imposition of these street facilities fees on new development in the city.

Fresno County Sheriff's Department

The Fresno County Sheriff's Department provides law enforcement/crime prevention to the unincorporated portions of the metropolitan area and Fresno County. These unincorporated communities include Calwa, Malaga, Mayfair, Sunnyside, Fig Garden, and Tarpey. The proposed Plan Area is located within Patrol Area 2 of the County of Fresno Sherriff's Department. Area 2 extends from the San Joaquin River south to American Avenue and from McCall Avenue west to Chateau Fresno which is immediately west of the Plan Area. The proposed Plan Area is served by Area 2; the Sheriff's Department office is located at 5717 E. Shields Avenue, approximately 11 miles northeast of the proposed Plan Area.

4.13.2.2 STANDARDS OF SIGNIFICANCE

Implementation of the proposed Plan would have a significant impact related to police protection services if it would:

1. In order to maintain acceptable service ratios, response times, or other performance objectives for police services, result in the provision of or need for new or physically altered police facilities, the construction or operation of which could cause significant environmental impacts.
2. Contribute to cumulative police protection service impacts in the area.

4.13.2.3 IMPACT DISCUSSION

This section analyzes the proposed Plan's potential impacts to police protection services.

PS-3	**Implementation of the proposed Plan would not result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for police protection, the construction of which could cause significant environmental impacts.**

Implementation of the proposed Plan would result in an additional 4,035,143 square feet of non-residential building space and an increase of up to 27,775 residents, which is greater than the population growth contemplated by the General Plan, as shown in Table 3-1 of Chapter 3, Project Description. Therefore, implementation of the proposed Plan would result in an increased demand for police protection services, commensurate with the increase in resident population and daytime population.

The City of Fresno uses a minimum level of service of two officers per 1,000 residents. Using the current City of Fresno staffing goal, at full buildout of the proposed Plan, approximately 56[5] additional officers would be required for law enforcement services in order for the City to meet its goal of two officers per 1,000 residents.

The proposed Plan includes development regulations, such as an objective to site new fire stations adjacent to parks, trails, and schools. The proposed Plan does not include policies related to police protection services.

As growth occurs within the Plan Area, the FPD may require additional personnel and additional facilities to provide adequate police protection services. Development projects within the Plan Area would be required to comply with the following General Plan policies:

- Objective PU-1: Provide the level of law enforcement and crime prevention services necessary to maintain a safe, secure, and stable urban living environment through a Police Department that is dedicated to providing professional, ethical, efficient and innovative service with integrity, consistency and pride.
- Policy PU-1-c: Safety Considerations in Development Approval. Continue to identify and apply appropriate safety, design and operational measures as conditions of development approval, including, but not limited to, street access control measures, lighting and visibility of access points and common areas, functional and secure on-site recreational and open space improvements within residential developments, and use of State licensed, uniformed security.

[5] (27,775 new residents/1,000) *2) = 55.55

- Policy PU-1-d: New Police Station Locations. Consideration will be given to co-locating new police station facilities with other public property including, but not limited to, schools, parks, playgrounds, and community centers to create a synergy of participation in the neighborhood with the potential result of less vandalism and promotion of a better sense of security for the citizens using these facilities.
- Policy PU-1-j: Lighting and Safety. Ensure adequate lighting at off-sale liquor stores to help deter crime and to promote a more inviting and safe atmosphere around them.

In addition, future development would be required to comply with Section 12-4.801 of the FMC, which requires each development to pay a Police Facilities Fee in order to mitigate the impacts on police protection facilities caused by future development in the city. Payment of the appropriate development impact fees would offset the construction and acquisition costs of required police facility improvements. However, the provision of new or physically altered police protection facilities could result in adverse environmental impacts. The projected population increase under implementation of the proposed Plan is less than the population growth contemplated by the General Plan, and the General Plan EIR has already addressed impacts related to the provision of new or altered police protection facilities, impacts would be less than *significant*.

Significance Without Mitigation: Less than significant.

4.13.2.4 CUMULATIVE IMPACTS

PS-4	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to police protection services.**

Future development anticipated with implementation of the proposed Plan, together with projected growth in neighboring communities, would result in additional residential and non-residential development by 2035. This cumulative development would generate additional residents, contributing to an increase in demand for police services.

The Master EIR for the City's General Plan has already analyzed and accounted for this increased demand and the associated facility improvements. The population increase projected under the proposed Plan is within the population growth contemplated by the General Plan. Further, all cumulative development would be assessed police facilities fees in accordance with FMC Section 12-4.801, and implementation of the proposed Plan would be required to comply with the General Plan Policies listed above that seek to minimize potential impacts to the level of service. Therefore, cumulative impacts related to the provision of police protection services could be *less than significant*.

Significance Without Mitigation: Less than significant.

4.13.3 SCHOOLS

This section describes the existing regulations and conditions regarding public schools in Fresno, as well as the proposed Plan's potential impacts to schools.

4.13.3.1 ENVIRONMENTAL SETTING

Regulatory Framework

This section summarizes key State and local regulations related to schools. There are no federal regulations pertaining to schools that apply to the proposed Plan.

State Regulations

Senate Bill 50

SB 50 (funded by Proposition 1A, approved in 1998) limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development and provides instead for a standardized developer fee. SB 50 generally provides for a 50/50 State and local school facilities funding 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 school, and the percentage of moveable classrooms in use.

California Government Code, Section 65995(b) and Education Code, Section 17620

SB 50 amended Section 65995 of the California Government Code, which contains limitations on Section 17620 of the Education Code, the statute that authorizes school districts to assess development fees within school district boundaries. Section 65995(b)(3) of the Government Code requires the maximum square footage assessment for development to be increased every 2 years, according to inflation adjustments. On January 22, 2014, the State Allocation Board (SAB) approved increasing the allowable amount of statutory school facilities fees (Level I School Fees) from $3.20 to $3.36 per square foot of assessable space for residential development of 500 square feet or more, and from $0.51 to $0.54 per square foot of chargeable covered and enclosed space for commercial/industrial development. School districts may levy higher fees if they apply to the SAB and meet certain conditions.

Mitigation Fee Act

Enacted as AB 1600 on January 1, 1989, the Mitigation Fee Act (California Government Code 66000-66008) requires a local agency that is establishing, increasing, or imposing an impact fee as a condition of development to identify the purpose of the fee and the use to which the fee is to be put. The agency also must demonstrate a reasonable relationship between the fee and the purpose for which it is charged, and between the fee and the type of development project on which it is to be levied.

Local Regulations

Fresno General Plan

The City's General Plan contains the following objectives and policies relevant to the provision of school services within the City as shown in Table 4.13-4.

TABLE 4.13-4 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO SCHOOLS

Objective/ Policy Number	Objective/Policy Text
Objective POSS-8	*Work cooperatively with school districts to find appropriate locations for schools to meet the needs of students and neighborhoods.*
Policy POSS-8-b	**Appropriate School Locations.** Support school locations that facilitate safe and convenient access by pedestrian and bicycle routes, are compatible with surrounding land uses, and contribute to a positive neighborhood identity and Complete Neighborhoods.
Policy POSS-8-c	**Park and School Park and School Site Coordination.** Pursue the cooperative development and use of school sites with adjacent neighborhood parks for both school activities and non-school related recreational activities.

Fresno Unified School District Facilities Master Plan

The Fresno Unified School District (FUSD) Facilities Master Plan—Final Report was approved by the Board of Education on April 29, 2009. The Master Plan assists the FUSD in achieving a common equitable base for district facilities and anticipating future needs. The plan addresses current facility conditions and suitability and identifies facility improvements to support student engagement and academic achievement. In order to relieve overcrowding/capacity issues, the Master Plan identifies the construction of a new high school and elementary school and boundary solutions to be implemented by 2025. Effective August 1, 2016, the FUSD assesses a development fee of $0.56 per square foot for commercial development, and $3.48 per square foot for residential development. The fees are subject to review and adjustment on a biannual basis, subject to approval by the Board of Education. The fee amount is calculated pursuant to rates effective at the time of payment.[6]

Central Unified School District Facilities Master Plan

The Central Unified School District (CUSD) Facilities Master Plan was completed in 2016. The Master Plan assists the CUSD to define and prioritize projects to be done on a site-by-site basis, in order to maximize matching funding and use the taxpayer's money in the best way possible. The Plan provides a framework for the development improvements over the course of 10 years. As identified in the demographic study, District enrollment is projected in increase by 11.84 percent by the 2012/22 school year, assuming that

[6] Clayton, Deana. Project Manager, Facilities Management and Planning, Fresno Unified School District. Personal communication with Ashley James, PlaceWorks. July 10, 2017.

2,420 housing units will be constructed. In order to accommodate enrollment growth, the Plan identifies construction of a new high school and elementary school to be implemented by 2019.[7]

Existing Conditions

The proposed Plan Area is served by three School Districts: Fresno Unified (FUSD), Washington Unified (WUSD), and CUSD, that provide kindergarten through twelfth grade classes. As shown in Table 4.13-5, existing schools located within the proposed Plan are served by either the FUSD or WUSD. The far western portion of the proposed Plan area falls within the CUSD. There are no existing schools located within the proposed Plan area that are served by the CUSD; however the CUSD has plans for future expansion within the Plan Area.

TABLE 4.13-5 SCHOOLS WITHIN THE PLAN AREA

School Name	Address (Fresno)
Fresno Unified School District	
▪ Sunset Elementary School	1755 South Crystal Avenue
▪ Bethune Elementary School	1616 South Fruit Avenue
▪ Rutherford B. Gaston Middle School	1210 East Church Avenue
Washington Unified School District	
▪ WEB Dubois Public Charter School	1313 P Street
▪ West Fresno Middle School	2888 South Ivy Avenue
▪ West Fresno Elementary School	2910 South Ivy Avenue

Source: Fresno General Plan Master EIR, 2014.

The FUSD is a consolidated district that serves the north eastern portion of the Plan Area. FUSD has an enrollment of 72,357 students dispersed among 95 existing schools. A District Master Plan was completed in 2009 that includes strategies to alleviate existing enrollment that exceeds the capacity of its schools. The Master Plan calls for a new high school in the southern edge of the City of Fresno, which would accommodate new growth and decrease overcrowding at existing high schools in the city. In addition, there are planned or potential projects for schools near the Plan Area that would occur within the next two the three years that include: portable replacement, new construction projects, and new portables on an existing site or sites.

The CUSD serves the far western portion of the Plan Area. Past and future projected increases in enrollment due to new residents within the District's service area have resulted in the need to construct

[7] Martinez, Joseph. Facilities Planning Manager, Central Unified School District. Personal communication with Ashley James, PlaceWorks, July 5, 2017.

new schools and modernize existing facilities. According to the Facilities Master Plan, a new elementary school and high school are planned for construction to accommodate projected enrollment. The southwest portion of the city was served by the West Fresno School District, which contains an elementary school and a middle school; however in July 2011, West Fresno USD merged into and became a part of the WUSD. The WUSD serves the southern portion of the Plan Area.

Enrollment

Table 4.13-6 shows the current enrollment capacities of each school district, including enrollment for private and charter schools. As shown in the Table 4.13-6 below, combined, the school districts can serve up to 108,526 school aged children in kindergarten through twelfth grades.

TABLE 4.13-6 CAPACITY AND ENROLLMENT FIGURES FOR FRESNO UNIFIED SCHOOL DISTRICT

Grade Level	Elementary School		Middle School		High School		Various Grades		Total	
School District	Maximum	Current[a]	Maximum	Current	Maximum	Current	Maximum	Current	Maximum	Current
Fresno Unified	41,210	37,057	11,271	16,508	20,807	19,773	5,360	3,977	78,648	77,315
Fresno Unified (Charter)	(all grades and school districts combined)						2,247	2,981	2,247	2,981
Central Unified	10,736	8,879	2,670	2,478	5,198	4,290	N/A	400	18,604	16,047
West Fresno Elementary School District[b]	744	765	350	300	1,063	1,063	430	313	2,587	2,441
Private[c]	(all grades and school districts combined)								4,244	1,274
Other Charter (Eastern Sierra; Mendota USD; Parlier USD; Sierra USD; West Fresno Charter)	(all grades and school districts combined)								2,196	0
Total	**52,690**	**47,058**	**14,291**	**19,532**	**27,068**	**25,393**	**5,360**	**3,977**	**108,526**	**100,265**

a. Given that school boundaries do not mirror city boundaries, students may attend schools outside of the city while students that live outside of the city may attend schools within the city. Enrollment figures are as of 2011.
b. In July 2011, West Fresno Elementary School District and Washington Unified School Unified merged. Enrollment figures for the Washington Union High were obtained from the 2016-17 California Department of Education located at website: http://dq.cde.ca.gov/dataquest/. The maximum capacity at the high school is not known and therefore was assumed to be the same as the current enrollment.
c. Information obtained from: http://statisticalatlas.com/place/California/Fresno/School-Enrollment for the City of Fresno.
Source: City of Fresno, 2011; California Department of Education, DataQuest, 2016-17 Enrollment by grade General Plan Map Atlas and updated by PlaceWorks, 2017. Enrollment updated for Fresno, Central and Private school attendance based on available information.

Student Generation Rates

Table 4.13-7 shows the student generation rate for grades Kindergarten through 12th. This generation rate is based on information provided by the FUSD, which serves a large portion of the Plan Area. The student generation rate is a sum of the rate for both single-family and multi-family residential development. Using the generation rates provided by the FUSD, implementation of the proposed Plan would result in approximately 3,622 students.

TABLE 4.13-7 STUDENT GENERATION RATES FOR K-12[A]

Residential Type	Units	Student Generation Rates	Students Generated
Single-Family	4,307	.650	2,800
Multi-Family	1,840	.447	822
Total	**6,147**	**n/a**	**3,622**

a. The student generation rate was derived based on a review of the student generation rate provided by the Fresno Unified School District.
Source: Fresno Unified School District, 2017.

School Impact Fees

The City has implemented the following impact fee applicable to schools:

Street Facilities Fees: Section 12-4.1001 of the FMC states:

> In order to implement the goals and objectives of the City's General Plan, and to mitigate the impacts caused by future development in the City, certain street facilities must be constructed. The City Council has determined that street facilities fees are needed in order to finance these public facilities and to pay for each development's fair share of the construction and acquisition costs of these improvements. Based on this determination, Council adopted, by resolution amending the Master Fee Schedule, a Citywide Regional Street Impact Fee ("Citywide Street Fee") and a New Growth Area Major Street Fee ("Growth Area Street Fee"). Council adopts this Article to require the imposition of these street facilities fees on new development in the city.

4.13.3.2 STANDARDS OF SIGNIFICANCE

Implementation of the proposed Plan would have a significant impact related to schools if it would:

1. In order to maintain acceptable service ratios or other performance objectives for schools, result in the provision of or need for new or physically altered school facilities, the construction or operation of which could cause significant environmental impacts.
2. Contribute to cumulative school facility impacts in the area.

4.13.3.3 IMPACT DISCUSSION

This section analyzes potential project-specific and cumulative impacts to school services.

PS-5	**Implementation of the proposed Plan would not result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for schools, the construction of which could cause significant environmental impacts.**

Using student generation rates provided by FUSD, as shown in Table 4.13-7, the proposed Plan would generate approximately 3,622 students in grades K-12. As identified in Chapter 3, Project Description, at full buildout, the proposed Plan would include an additional 6,148 residential units, consisting of 4,307 single-family and 1,840 multi-family units. Based on the existing capacities of FUSD, WUSD, and CUSD, including the charter schools, students generated by the project would exceed FUSD and WUSD's maximum enrollment capacity.

The projected increase in student population within the proposed Plan area would result in the need for additional elementary, middle, and high schools to serve the future projected student population.[8] The proposed Plan includes areas that are designated for school facilities. As future development occurs throughout the Plan Area, the school districts would continually monitor capacities of existing schools and forecast the timing of the construction of new schools or expansion of existing schools so that new student populations can be provided with adequate school facilities. As new schools or expansion of existing schools are proposed, there could be significant adverse environmental impacts from the construction and operation of the schools. Typical impacts associated with schools include: noise and traffic for most of the schools and potentially lighting if there are high school stadiums proposed.

Recognizing that there would be an increased demand for schools, the Plan includes the following goals and policies related to school facilities:

Policy LU-3.1 Encourage the development of centers, or nodes, within walking and biking distance of residents and surrounded by residences. Nodes should consist of a park, a school, and quality neighborhood retail and services.

Goal PF-5: Ensure that the amount of existing and new schools within the Plan Area adequately support the number of existing and new residents.

Policy PF-5.1 Work with school districts and public charter schools in siting new schools for anticipated potential increases in the Southwest Fresno residential population and the resulting impacts on school capacity and enrollment.

[8] Clayton, Deana. Project Manager, Facilities Management and Planning, Fresno Unified School District. Personal communication with Ashley James, PlaceWorks. July 10, 2017.

Policy T-6.2 Work with FAX and other transit providers to increase transit service, access, and connections throughout Southwest Fresno, connecting existing and future residential areas to key destinations, including schools, retail, employment, and recreation.

Goal PF-8: Locate parks, schools, and other public facilities equitably.

In accordance with Senate Bill 50, the City collects Development Impact Fees for the provision of school facilities that would accommodate the projected increase in student population within the Plan Area.

Implementation of the Fresno General Plan Update Policies POSS-8-a through POSS-8-c, policies in the proposed Plan, and development impact fees would assist the school districts who serve residents within the Plan Area to provide adequate school facilities. Therefore, the impact would be *less than significant*.

Significance Without Mitigation: Less than significant.

4.13.3.4 CUMULATIVE IMPACTS

PS-6	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to schools.**

Future development anticipated with implementation of the proposed Plan, together with projected area-wide growth in surrounding communities, would result in additional residential and non-residential development by 2042. This cumulative development would generate additional students who would attend schools within the FUSD, WUSD, and CUSD. Cumulative development would be assessed State-mandated development impact fees in compliance with SB 50 requirements. In addition, future school facilities construction would require its own environmental review in accordance with CEQA. Therefore, cumulative impacts would be *less than significant*.

Significance Without Mitigation: Less than significant.

4.13.4 PARKS AND RECREATION

This section summarizes key State and local regulations related to park and recreation services, concerning the proposed Plan. There are no federal regulations pertaining to park and recreation services that apply to the proposed Plan.

4.13.4.1 ENVIRONMENTAL SETTING

Regulatory Framework

State Regulations

Quimby Act

The Quimby Act sets a standard park space to population ratio of up to 3 acres of park space per 1,000 persons. Cities with a ratio of higher than 3 acres per 1,000 persons can set a standard of up to 5 acres per 1,000 persons for new development. The calculation of a City's park space to population ratio is based on a comparison of the population count of the last federal census to the amount of City-owned parkland. A 1982 amendment (Assembly Bill [AB] 1600) requires agencies to clearly show a reasonable relationship between the public need for a recreation facility or parkland and the type of development project on which the fee is imposed.

Local Regulations

Fresno General Plan

The City's General Plan contains policies and objectives relevant to the provision of parks and recreation areas, which are shown in Table 4.13-8 below.

TABLE 4.13-8 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO PARKS AND RECREATION

Objective/ Policy Number	Objective/Policy Text
Objective POSS-1	*Provide an expanded, high quality and diversified park system, allowing for varied recreational opportunities for the entire Fresno community.*
Policy POSS-1-a	Parkland Standard. Implement a standard of at least three acres of public parkland per 1,000 residents for Pocket, Neighborhood, and Community parks throughout the city, while striving for five acres per 1,000 residents for all parks throughout the city, subject to identifying additional funding for regional parks and trails.
Policy POSS-1-b	Parks Implementation Planning. Conduct ongoing planning to implement park policies established in this General Plan and continue to strive for well-maintained and fully accessible playgrounds, with accessible amenities, throughout the city. ▪ Keep an up-to-date inventory of existing and planned parks, including locations mapped on the Parks and Open Space Diagram; ▪ Plan for acquiring new parkland designated in the General Plan, as shown in Figure POSS-1; ▪ Establish a standard protocol for working with new development to arrange for parkland acquisition and dedication; ▪ Establish a protocol for working with established neighborhoods to provide needed parks, including the fostering of neighborhood and district associations to help plan, acquire, improve and care for public parks, and coordinating new City service facilities to provide new open space; ▪ Establish detailed design, construction, and maintenance standards; ▪ Prepare an assessment of the recreation needs of existing and future residents;

TABLE 4.13-8 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO PARKS AND RECREATION

Objective/ Policy Number	Objective/Policy Text
	▪ Create an action plan defining priorities, timeframes, and responsibilities; ▪ Adopt and implement a comprehensive financing strategy for land acquisition, park development, operations, and maintenance; ▪ Identify opportunities for using existing or planned park space as passive stormwater storage, treatment, and conservation areas that also provide scenic and/or recreational opportunities; ▪ Identify opportunities for siting and using existing or planned park space as passive "purple pipe" waste water storage, treatment, and conservation areas that also provide scenic and/or recreational opportunities; and ▪ Update the Parks Master Plan.
Policy POSS-1-c	**Public Input in Park Planning.** Continue to provide opportunities for public participation in the planning and development of park facilities and in creation of social, cultural, and recreational activities in the community.
Policy POSS-1-d	**Additional parkland in certain areas.** Strive to obtain additional parkland of sufficient size to adequately serve underserved neighborhood areas and along BRT corridors in support of new and intense residential and mixed use infill development. ▪ Identify, where appropriate, joint use opportunities in siting parks with other City service facility needs.
Policy POSS-1-e	**Criteria for Parks in Development Areas.** Continue to use park size and service area criteria for siting new parks and planning for parks in Development Areas: Park Type / Size Range (Acreage) / Population Served / Service Area Radius Neighborhood / 2.01 to 10 / 10,000 – 15,000 / Up to 1 mile Community / 10.01 to 40 / 50,000 – 80,000 / Up to 4 miles Regional / More than 40[a] / 100,000 / 100,000 residents a, Or when amenities provide regional service.
Policy POSS-1-f	**Parks and Open Space Diagram**. Require parks to be sited and sized as shown on the Parks and Open Space Diagram (Figure POSS-1) of the General Plan, subject to the following: ▪ All new park designations carry dual land use designations, so that if a park is not needed, private development consistent with zoning and development standards may be approved. (See Figure LU-2: Dual Designation Diagram in the Urban Form, Land Use, and Design Element); ▪ Revised and/or additional park sites will be identified through subsequent implementation and planning in established neighborhoods and Development Areas; ▪ Locations for future park sites as shown on Figure POSS-1 are schematic to the extent that park sites may be relocated as necessity and opportunity dictate, and a General Plan amendment is not required if the park continues to serve the target areas as determined by the Planning Director; and ▪ A park may be located on any suitable land in the general vicinity of the sites depicted. However, the zoning of potential park sites must be made consistent with the General Plan.
Policy POSS-1-g	**Regional Urban Forest**. Maintain and implement incrementally, through new development projects, additions to Fresno's urban forest to delineate corridors and the boundaries of urban areas, and to provide tree canopy for bike lanes, sidewalks, parking lots, and trails.
Objective POSS-2	*Ensure that adequate land, in appropriate locations, is designated and acquired for park and recreation uses in infill and growth areas.*
Policy POSS-2-a	Identify opportunities to site, develop and co-locate Fire and Police stations with needed parks and open space as joint-use facilities. ▪ Capital Improvement Plans should be updated to reflect this policy.
Policy POSS-2-b	**Park and Recreation Priorities.** Use the following priorities and guidelines in acquiring and developing parks and recreation facilities: ▪ Acquire and develop neighborhood park space in existing developed neighborhoods that are deficient of such space and in areas along BRT corridors that are designated as priorities for encouraging new mixed-

TABLE 4.13-8 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO PARKS AND RECREATION

Objective/ Policy Number	Objective/Policy Text
	use transit-oriented development; ▪ Provide accessible recreation facilities in established neighborhoods with emphasis on those neighborhoods currently underserved by recreation facilities; ▪ Improve established neighborhood parks with emphasis on those neighborhoods with the greatest need; ▪ Acquire and develop neighborhood and community parks in new Development Areas; ▪ Recognize community parks as a special need in areas that lack these facilities or are planned for transit supportive urban densities, and explore all potential sources of revenue to secure and develop appropriate sites including joint use facilities; ▪ Develop new special purpose parks, such as outdoor gym equipment, natural resource based trail parks, equestrian centers, dog parks, and amphitheaters, as well as alternative recreation facilities, such as community recreation centers, passive wildlife observation park, cultural heritage and diversity park, military veterans memorial park, and universal access open space park; and ▪ Acquire and develop park and open space in established neighborhoods and Development Areas, prioritizing existing neighborhoods with the greatest deficiencies, so that all residents have access to park or open space within one-half mile of their residence. Develop these facilities to be fully accessible to individuals with disabilities as required by law.
Policy POSS-2-c	Review of Development Applications. Coordinate review of all development applications (i.e., site plans, conditional use permits, and subdivision maps) in order to implement the parks and open space standards of this Plan. ▪ Assure the provision of adequate active and passive open spaces and facilities as appropriate within residential subdivisions through Citywide Development Code requirements for mandatory dedication and improvement of land and/or development fees. ▪ Require the provision of appropriate outdoor living areas or private open space in multifamily residential developments not subject to the Subdivision Map Act. ▪ Request open space easements where feasible and warranted to secure appropriate public use of sensitive areas with scenic or recreation values, and for buffering space for sensitive areas. ▪ Require provision of appropriate open space areas in private projects, in the form of trails, enhanced landscaped setbacks, parks, and water features. ▪ Evaluate the merits of establishing a development bonus entitlement program in which development incentives (i.e., bonus densities, bonus floor area square footage) are provided for contributions to public recreational facilities on-site or in the vicinity of the development project.
Policy POSS-2-e	Open Space Dedication for Residential Development. Ensure new residential developments provide adequate land for parks, open space, landscaping, and trails through the dedication of land or otherwise providing for Pocket Parks, planned trails, and other recreational space, maintained by an HOA, CFD, or other such entity.
Objective POSS-3	*Ensure that park and recreational facilities make the most efficient use of land; that they are designed and managed to provide for the entire Fresno community; and that they represent positive examples of design and energy conservation.*
Policy POSS-3-a	Centralized Park Locations. Site parks central and accessible to the population served, while preserving the integrity of the surrounding neighborhood.
Policy POSS-3-b	Park Location and Walking Distance. Site Pocket and Neighborhood Parks within a half-mile walking distance of new residential development.
Policy POSS-3-c	Link Parks with Walkways. Link public open space to adjacent, schools, and residential uses and Activity Centers through a series of landscaped linear walkways and bikeways that enhance and encourage pedestrian use
Policy POSS-3-d	Sidewalks to Connect Neighborhoods. Sidewalks should be designed for internal neighborhood circulation, and to connect neighborhoods to other residential areas, parks, community trails, shopping, and major streets.

TABLE 4.13-8 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO PARKS AND RECREATION

Objective/ Policy Number	Objective/Policy Text
Policy POSS-3-e	**Minimum Park Size for Active Recreation.** Minimize City acquisition or acceptance of dedication of park sites less than two acres in size for active recreational uses, except where maintenance costs are secured through a CFD, HOA, or other such mechanism.
Policy POSS-3-f	**Park Design Guidelines.** Create, maintain, and apply park design guidelines, with provisions for appropriate amenities for each park type, which may include: ▪ Minimum and maximum shade. ▪ Protections from shading by adjacent buildings. ▪ Accessibility to persons with disabilities. ▪ Street trees and landscaped median strips in adjacent arterial roads. ▪ Art and points of attraction. ▪ Landscape and hardscape features. ▪ Street furniture, signage, and lighting. ▪ Food sales and entertainment. ▪ Restroom facilities play structures, and picnic shelters. ▪ Landscape design synthesis with input from civil engineers and hydrologists, educators and daycare providers, fitness trainers and coaches, police officers and experts in crime prevention through environmental design, as appropriate. ▪ Solar panels, new LED lighting, and water efficiency improvements. Sports field areas designed to allow periodic changes in field locations to minimize wear areas and provide sufficient fields to host regional, state, or national tournaments. ▪ Using topography to create interesting and visually appealing spaces and forms. ▪ Use of waterways as a key design influence, a focus of restoration, and an opportunity to provide for public enjoyment of views. ▪ Reflecting the agricultural and horticultural heritage of the site or area. ▪ Connecting with surrounding areas in a way that encourages expanded pedestrian activity. ▪ Creating individual places within a park that respond to the needs of a broad range of park users, from youth to the elderly. ▪ Creating places of delight that engage the senses. ▪ Creating places that engage the mind, by treating park features as opportunities for interpretation and questioning. ▪ Using sustainable design practices, and highlighting these as opportunities for learning.
Policy POSS-3-g	**Park Security and Design.** Promote safety, attractiveness, and compatibility between parks and adjacent residential areas through design, maintenance, and enforcement of park regulations ▪ Require the installation of security lighting for parking, points of access, and building areas at all public recreation and park sites. ▪ Keep neighborhood eyes on parks to increase security.
Policy POSS-3-h	**Coordination with School Districts.** Continue to coordinate with school districts to explore opportunities for joint use of both outdoor and indoor recreation facilities, such as playgrounds, play fields, and gymnasiums, for City recreation programs.
Policy POSS-3-i	**Joint Use with Drainage Facilities.** Continue to seek joint use agreements for use of FMFCD stormwater drainage facilities.
Objective POSS-4	*Pursue sufficient and dedicated funding for parks acquisition, operations, and maintenance.*
Policy POSS-4-a	**Supplemental Revenue.** Seek revenue sources to supplement General Fund support for basic park maintenance and basic recreational services.

TABLE 4.13-8 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO PARKS AND RECREATION

Objective/ Policy Number	Objective/Policy Text
Policy POSS-4-b	**Operation and Maintenance Financing.** Continue to require new residential development to form lighting and landscaping maintenance districts or community facility districts or ensure other means of financing to pay for park operations and maintenance.
Policy POSS-4-c	**Improvements in Established Neighborhoods.** Seek agreements with formal neighborhood associations and institutions for improvements and ongoing maintenance of parks in established neighborhoods.
Policy POSS-4-d	**Maintain *Adopt-A-Park* Program.** Continue promoting the City's *Adopt-A-Park* program that utilizes partnerships with local organizations to preserve, beautify and maintain Fresno's neighborhood parks..

General Plan—Parks

The City provides Fresno residents with several types of parks and facilities.[9] Parks are defined as land owned, leased, or provided to the City and used for public recreational purposes. Among these are several FMFCD stormwater retention and detention basins which serve as passive and active parks (from April to November). The City's General Plan defines various classes of park space and sets standards for the amount of park acreage that should be provided per thousand population. Table 4.13-9 below shows the desirable park facility standards within the city.

TABLE 4.13- 9 DESIRABLE PARK FACILITY STANDARDS

Park Type	Size Range (Acreage)	Service Area Radius
Pocket	0.5 to 2	Up to 0.5 mile
Neighborhood	2.01 to 10	Up to 1 mile
Community	10.01 to 40	Up to 4 miles
Regional	More than 40[a]	100,000 residents
Trail/Greenway/Parkway	Varies	Entire city

a. Some parks with less than 40 acres may be classified as Regional if they provide a unique opportunity such as river access.
Source: City of Fresno General Plan, 2014. Chapter 5, Parks and Open Space, Table 5-1.

Park types in the General Plan are classified as follows:

- **Pocket Park**. A Pocket Park is a park up to 0.5 to 2.0 acres in size, and is intended to serve the needs of a smaller, specific neighborhood located within a 0.5-mile radius of the pocket park. Pocket Parks should include amenities to draw neighbors to the park such as a tot lot, picnic bench, or shade structure. New Pocket Parks developed within new subdivisions are maintained as part of a Home Owners Association (HOA) or Community Facilities District (CFD).

[9] General Plan park standards and types may differ from PARCS Department operational classifications for existing facilities with various passive and active recreational facilities and features.

- Neighborhood Park. A park of more than 2.0 acres and up to 10 acres in size, which provides basic recreational activities for neighborhoods located generally within a 0.5-mile radius. There are two types of Neighborhood Parks, active and passive. These parks contribute to neighborhood identity and accommodate a range of facilities, such as play fields and courts, children's play structures, picnic tables, restrooms, and may include a small center with a multi-purpose room, but also passive recreational features such as walking trails, community gardens, or nature areas.
- Community Park. A park of more than 10 acres and up to 40 acres in size (typically at least 20 acres), which helps define a community or district and is intended to serve the more active recreational needs of persons who live or work up to a 2- to 4-mile radius. These parks typically include facilities such as lighted sport fields and a community center building with a gym, meeting rooms, and restrooms. Other features may include swimming pools, tennis courts, concession stands, community defining public art, courtyard or plaza.
- Regional Park. A large park of more than 40 acres in size, which is meant to serve a large number of residents across a broad area of the city, or around 100,000 residents. Regional parks typically include community park features that allow for a variety of sports and active recreation. Some are large enough to enable Fresno to host local and regional tournaments or events that bring revenue to the City and local businesses in the form of additional patrons and tax revenue generated. Regional parks also provide unique public facilities, such as the Shinzen Japanese Garden, the Chaffee Zoological Gardens, or natural areas with hiking trails, fishing opportunities, and access to the San Joaquin River. Parks that provide unique opportunities, such as river access, have been categorized as a regional park, even though they are less than 40 acres in size.
- Trail/Greenway/Parkway. A network of linear open space of varying size, typically intended to accommodate walking and bicycling opportunities for leisure, exercise and commuting purposes. These parkways typically include paved surfaces for bicyclists and walkers, and in appropriate locations may include equestrian trails.

The current citywide standard for parks is a ratio of 3.0 acres per 1,000 residents for Pocket, Neighborhood, and Community parks; this was established under the City's previous Urban Growth Management Program and current General Plan. The Parks Master Plan is being developed and will refine and adjust as necessary General Plan policies, figures, tables, narrative, open space land use designations, and trail alignments.

Existing Conditions

Existing Parks and Recreational Facilities

This section describes the park space within the Plan Area which are made up of community centers, neighborhood parks, pocket parks [including a Community Facility District (CFD) park], and dual-use ponding basin/parks. Table 4.13-10 below identifies the various parks and community facilities located within the Plan Area that are maintained by the City of Fresno.

The western portion of the Plan Area contains Chandler Park , CFD11_TR5549_04, Habitat Park , Neilson Neighborhood Park, Sunset Community Center, and the dual-use Ponding Basin/Park FF. In this portion of the Plan Area, the majority of residents are located within 0.5 mile of a usable public park or open space area with the exception of the residents located in the subdivision northwest of Kearney Boulevard and Madison Avenue. The eastern portion of the Plan Area contains Almy Park, dual-use Ponding Basin/Park TT2, and the Mary Ella Brown Community Center. In this portion of the Plan Area, the majority of the residents are located further than 0.5 mile from a usable public park or open space area.

TABLE 4.13-10 CITY OF FRESNO EXISTING POCKET, NEIGHBORHOOD, AND COMMUNITY PARKS WITHIN THE PLAN AREA

Facility Name	Existing Acreage	Park Type	Amenities
Chandler	2.00	Pocket	Barbecues, Basketball Court, Children's Play Structures, Picnic Tables, Drinking Fountain
CFD11_TR5549_04	0.35	Pocket	Benches, Walking Course
Habitat	1.30	Pocket	None
Sunset	0.98	Community Center	Children's Play Structures, Community Center, Computer Lab, Kitchen, Picnic Table, Restrooms, Social Hall, Wading Pool, Parking Lot
Mary Ella Brown	4.25	Community Center	Children's Play Structure, Community Center, Computer Lab, , Kitchen, Parking Lot, Restrooms, Social Hall, Swimming Pool, Wading Pool, Community Garden, Basketball Courts
Neilson	4.15	Neighborhood	Barbecue, Baseball/Softball Fields, Basketball Courts, Children's Play Structure, Picnic Table, Restrooms, Benches, Drinking Fountain
Almy	0.41	Pocket	Benches, Shade Structures, Children's Play Structures, Walking Course, Drinking Fountain
Ponding Basin/Park FF	1.47	Pocket	Barbeque, Benches, Shade Structure, Drinking Fountains, Picnic Tables, Picnic Shelter, Children's Play Structures
Ponding Basin/Park TT2	4.00	Neighborhood	Benches, Shade Structures, Children's Play Structures
TOTAL ACREAGE	18.91 acres		
Parkland-to-Residents Ratio[ab]	1.49 acres per 1,000 residents		

a. Assumes population of Plan Area to be 12,649, per Public Review Draft Plan, Chapter 6.
b. Ratio does not include the 116-acre Regional Sports Complex, as it is designated a regional park.
Sources: City of Fresno Public Review Draft Southwest Fresno Specific Plan; City of Fresno Parks, Parks and Recreation Facilities Finder. http://gis4u.fresno.gov/parks/, accessed July 3, 2017.

The Plan Area currently has approximately 18.91 acres of parks (community, neighborhood, and pocket parks) for its 12,649 residents which to 1.49 acres per 1,000 residents. In 2014, the city as a whole provided 1.27 acres of parks (pocket, neighborhood and community) per 1,000 population.[10]

[10] City of Fresno General Plan, 2014. Chapter 5 Parks and Open Space, Table 5-2: City Park Space and Ration Per 1,000 Residents by Park Category.

Service Standards

Park and recreation service standards that apply to the Plan Area are provided in the following General Plan policies:

Policy POSS-1-a **Parkland Standard.** Implement a standard of at least three acres of public parkland per 1,000 residents for Pocket, Neighborhood, and Community parks throughout the city, while striving for five acres per 1,000 residents for all parks throughout the city, subject to identifying additional funding for regional parks and trails.

Impact Fees

The following impact fees apply to parks and recreational services in Fresno:

Park Facilities Fee: Section 12-4.701 of the FMC states:

> In order to implement the goals and objectives of the City's General Plan, and to mitigate the impacts caused by future development in the City, certain park facilities must be constructed. The City Council has determined that a park facilities fee is needed in order to finance these public facilities and to pay for each development's fair share of the construction and acquisition costs of these improvements. In establishing the fee described in the following sections, the City Council has found the fee to be consistent with its general plan, and pursuant to Government Code Section 65913.2, has considered the effects of the fee with respect to the city's housing needs as established in the housing element of the general plan.

Street Facilities Fees: Section 12-4.1001 of the FMC states:

> In order to implement the goals and objectives of the City's General Plan, and to mitigate the impacts caused by future development in the City, certain street facilities must be constructed. The City Council has determined that street facilities fees are needed in order to finance these public facilities and to pay for each development's fair share of the construction and acquisition costs of these improvements. Based on this determination, Council adopted, by resolution amending the Master Fee Schedule, a Citywide Regional Street Impact Fee ("Citywide Street Fee") and a New Growth Area Major Street Fee ("Growth Area Street Fee"). Council adopts this Article to require the imposition of these street facilities fees on new development in the city.

4.13.4.2 STANDARDS OF SIGNIFICANCE

Implementation of the proposed Plan would have a significant impact related to parks and recreation if it would:

1. Result in substantial adverse physical impacts associated with the provision of or need for new or physically altered parks or recreation facilities, the construction or operation of which could cause significant environmental impacts, in order to maintain acceptable service ratios.

2. Increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated.
3. Include recreation facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.
4. Contribute to cumulative parks and recreation impacts in the area.

4.13.4.3 IMPACT DISCUSSION

This section analyzes the proposed Plan's potential impacts to parks and recreation services.

PS-7	**Implementation of the proposed Plan could result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for parks, the construction of which could cause significant environmental impacts.**

Implementation of the proposed Plan would result in a population increase of approximately 27,775 residents under the Dual Designation Scenario for a total of 40, 424 residents. This additional residential growth would result in an increase in demand for parks and recreation facilities. Based on the General Plan standard of 3 acres of public parkland per 1,000 residents, the proposed Plan would require the dedication of approximately 121[11] acres of useable parkland to meet the 3-acre per 1,000 residents ratio standard. Assuming the Standard Development Scenario presented in Table 3-1 of Chapter 3, Project Description, the Plan proposes 70 acres of new parkland and combined with the approximately 19 acres of existing parkland within the Plan Area (see Table 4.13-10) implementation of the proposed Plan would result in an total of 91 acres of parkland being located within the Plan Area This is 30 acres less than the total acreage needed to meet the citywide parks and open space standard of 3 acres per 1,000 residents.

Development under the proposed Plan would be required to comply with City of Fresno General Plan objectives and policies related to parks, as shown in Table 4.13-8. Future development under the proposed Plan would be required to comply with Policy POSS-2-c, which requires review of development applications in order to implement the parks and open space standard, and Policy POSS-2-e, which ensures that new residential developments provide adequate land for parks and open space, along with other recreational space. Additional parks and open space could be developed or implemented through these policies as the proposed Plan is being implemented in order to meet the citywide standard. Further, the proposed Plan includes the following policies related to parks that would not conflict with adopted City policies and support the development of new parks and open space within the Plan Area:

[11] (12,649 existing residents + 27,775 new residents) = 40,424 total residents. (40,424 total residents*3 acres/1,000 residents) = 121.27 acres.

Goal PF-1: Improve existing parks as the highest priority to create high quality outdoor spaces that Southwest Fresno residents care about in order to foster a healthy and active community.

Policy PF-1.1 Upgrade the amenities in existing parks, including ponding basin parks, by first improving the conditions of existing amenities and then renovating parks to provide new amenities. All parks should have well-maintained and fully accessible essential and desired amenities, including park infrastructure, activities, landscaping, and seating.

Goal PF-2: Increase the overall amount of usable parkland within Southwest Fresno allowing varied recreational opportunities for the entire Southwest Fresno community.

Policy PF-2.1 Develop new parks, tot lots, and playing fields within a half-mile walking distance (a ten-minute walk) from existing and new residential areas, prioritizing existing developed neighborhoods that are deficient of such amenities and in areas along transit-priority corridors such as California Avenue, Martin Luther King Jr. Boulevard, and Elm Avenue.

Policy PF-2.3 Utilize vacant and/or underutilized land for park uses. The transformation of vacant and/or underutilized land into parks can be phased over time with temporary or transitional park activity.

Policy PF-2.4 Meet the General Plan's parkland standard for at least three acres of parkland to be provided per 1,000 residents for all parkland less than 40 acres in size owned and/or maintained by the City of Fresno, San Joaquin River Parkway, FMFCD ponding basin/parks, owned and maintained by an HOA and publically accessible (no gate), and where there is little likelihood that the use or access will change, while striving for five acres of parkland to be provided per 1,000 residents which includes all parkland counted toward three acres per 1,000 residents, all parkland 40 acres or greater in size, and all trails of any size.

Policy PF-2.5 Promote joint-use public facilities, such as community centers, libraries, parks, school fields, playgrounds, gyms, auditoriums, and aquatic facilities, which can augment and provide a wider range of recreation activities and park amenities to the public.

Policy PF-3.2 Provide a network of multi-use trails, including along the Fresno Irrigation District (FID) canal right-of-ways, to provide an off-street trail system that is integrated into the transportation network while also providing opportunities for recreation and access to nature and parks.

Goal PF-8: Locate parks, schools, and other public facilities equitably.

Policy PF-8.1 Work with school districts and public charter schools to establish joint-use agreements to share school facilities, such as fields, playgrounds, gyms, auditoriums, and aquatic

facilities, in order to provide a wider range of recreation programs and maximize the efficient use, maintenance, and supervision of public facilities.

Policy PF-8.2 Identify, where appropriate, joint-use opportunities to site parks near other City service facilities.

In addition, future development within the Plan Area would be required to comply with Sections 12-4.701 through 12-4.706 of the FMC, which requires each development to pay a Park Facilities Fee in order to mitigate the impacts on park facilities caused by future development in the city. Payment of the appropriate development impact fees would offset the construction and acquisition costs of required park facility improvements. The population increase projected under the proposed Plan is within the population growth contemplated by the General Plan, and the General Plan MEIR has already addressed impacts related to the provision of new or altered park facilities. However, the proposed Plan would result in the creation of 30 acres less than the total parkland acreage needed to meet the citywide parks and open space standard of 3 acres per 1,000 residents. Therefore, impacts related to the provision of parks and recreation services could be *significant.*

Impact PS-7: The total number of acres of park land developed under the proposed Plan would be less than the amount needed to meet the City's parks and open space standard of 3 acres per 1,000 residents.

Significance Without Mitigation: Significant.

Mitigation Measure PS-7: As new development occurs in the Plan Area, the City shall periodically (every 5 years) monitor residential population growth compared to development of new parklands for the purpose of evaluating the strength of this Plan to meet the ratio of 3 acres of parkland per 1,000 population. If the ratio is not met, the City shall explore additional ways to increase the amount of dedicated parkland in the Plan Area, including but not limited to designating additional lands for parkland development.

Significance With Mitigation: Less than significant.

4.13.4.4 CUMULATIVE IMPACTS

PS-8	Implementation of the proposed Plan would not contribute to cumulative parks and recreation impacts in the area.

As stated above, implementation of the proposed Plan is projected to generate an increase in the population of approximately 27,775 people, requiring the dedication of approximately 121 acres of useable parkland. Parkland refers to pocket, neighborhood, and community parks. The Plan Area currently has approximately 19 acres of parkland, while the City of Fresno Sphere of Influence (the cumulative

setting for impacts to park facilities) has 632 acres of parks.[12] The General Plan identified the need for nearly 2,313 acres of new pocket, neighborhood, and community parks by the General Plan Horizon year of 2035 in the Fresno Sphere of Influence.[13] Although neither the Plan Area nor the cumulative setting would meet the 3 acre per 1,000 residents ratio parkland standard, an additional 70 acres of new parkland within the cumulative setting would be created as a result of implementation of the proposed Plan, which represents an increase over existing conditions. [14] Future development under the proposed Plan would result in the development of new parks and recreational facilities. Individual development projects would be required to comply with the Park Facilities Impact Fee, and therefore would allow new parks to be constructed at appropriate sites within the cumulative setting and adequately maintained. However, cumulative impacts could be *significant*, as the proposed Plan would result in the creation of 30 acres less than the total parkland acreage needed to meet the citywide parks and open space standard of 3 acres per 1,000 residents.

Significance Without Mitigation: Significant.

Mitigation Measure PS-8: Implement Mitigation Measure PS-7.

Significance With Mitigation: Less than significant.

PS-9	**The proposed Plan would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.**

Implementation of the proposed Plan would result in the development of residential, office, retail, industrial, parks/open space and public facilities land uses, and would increase the residential population of the city by up to 27,775people, which is within the population growth contemplated by the General Plan.

In order to meet the increased demand for neighborhood and regional parks and other recreational facilities, the proposed Plan would introduce approximately 8 new public parks and open spaces throughout the Plan Area. Proposed locations of new public parks and open spaces include:

- A park adjacent to the proposed college within the Martin Luther King Junior Boulevard (MLK) Activity center west of Martin Luther King Jr. Boulevard and south of Church Avenue;
- A community park to the north of Church Avenue and west of Farris Avenue;
- A larger neighborhood park to the south of Florence Avenue and east of Fruit Avenue;

[12] Fresno General Plan MEIR, Impact PS-4.
[13] Fresno General Plan, Chapter 5 Parks, Open Space and Schools, Table 5-5: Total Existing And Future Park Needs Scenarios.
[14] Assumes Standard Development Scenario, Chapter 3, Project Description, Table 3-1: Development Capacities for the Proposed Plan and General Plan in the Plan Area.

- Six smaller neighborhood parks/park surrounded by existing and/or new housing throughout the Plan Area;

Implementation of the proposed Plan would result in the creation of 70 acres of new parkland. When combined with the existing approximately 19 acres of parkland within the Plan Area, implementation of the proposed Plan would result in approximately 89 acres of parks being located within the Plan Area. [15] The development of new parks would offer additional facilities for use by new residents within the Plan Area, reducing the impact on existing facilities. In addition to the new parks that would be developed under the proposed Plan, Goal PF-1 seeks to improve existing parks as the highest priority. Policy PF-1.1 encourages the City to upgrade amenities in existing parks, and ensure that all parks have well-maintained and fully accessible essential and desired amenities. Policy PF-1.2 encourages park safety and security through enforcement and community design, while Policy PF-1.3 encourages remediation of toxic sites on and/or directly adjacent to existing parkland to improve the environmental health of the community. Therefore, existing recreational facilities would not experience substantial physical deterioration or experience an acceleration of physical deterioration. Development within the Plan Area would also be required to comply with FMC Section 12-4.701 through 12-4.706, which requires payment of park facilities fees to finance park facility improvements. As a result, impacts are considered *less than significant*.

Significance Without Mitigation: Less than significant.

4.13.5 LIBRARIES

This section describes the existing regulations and conditions regarding library services in Fresno, as well as the proposed Plan's potential impacts to libraries.

4.13.5.1 ENVIRONMENTAL SETTING

Regulatory Framework

This section summarizes key local regulations related to libraries. There are no federal or State regulations pertaining to libraries that apply to the proposed Plan.

Local Regulations

Fresno County Library Strategic Plan

The Fresno County Library strategic plan, entitled "The Heart of a Community: Its Public Library, Meeting Library Needs for Fresno County Residents: 2002-2020," was adopted by the Fresno County Board of Supervisors on February 25, 2003. The purpose of the Plan is to assess the deficiencies and long term

[15] Assumes Standard Development Scenario, Table 3-1, Project Description.

needs of library facilities (e.g., size and condition), and develop principles for selection of future projects for Library facility improvement through the year 2020. The Report concluded that ten communities will need new facilities because there is or will be no library located in that community. As of the preparation of the Plan, the West Fresno branch had not been constructed, and was identified as a new project to serve projected increase in residents.

Measure B

Measure B is a one-eighth of 1 percent sales tax intended to provide funds for the improvement of library services throughout Fresno County. Voters passed Measure B in November 1998 and again in 2004. As of June 2007, Measure B had provided more than $76 million in funds to provide more library hours, more library materials, and more library services for Fresno County residents. Measure B has also contributed to new building and renovation projects in Kerman, Caruthers, Laton, Fowler, Orange Cove, Tranquility, Mendota, and the Woodward Park area. The Fresno County Measure B library tax has been extended for 16 years until 2029.

Existing Conditions

The Fresno County Public Library provides services through its Central Resource Library and 34 branches. The Fresno County Library is part of the San Joaquin Valley Library System, a cooperative network of nine public library jurisdictions in the counties of Fresno, Kern, Kings, Madera, Mariposa, and Tulare. The Library System provides services such as computer classes, job and career services, story hours for preschoolers and toddlers, teen outreach programs that encourage reading, senior services including large print books, and a literacy program that offers tutoring services for non-English-speaking adults. There are 12 library branches in the Fresno-Clovis Metropolitan area. There are no libraries within the Plan Area. The nearest branch to the Plan Area, the West Fresno Branch Library at 188 East California Avenue, is located approximately 0.25-mile east of the Plan Area.

In 1998, over two-thirds of Fresno County voters approved Measure B, a local one-eighth of one percent sales tax measure, to improve library services throughout Fresno County. It was renewed by voters in 2012, extending the sales tax for an additional 7 years. Measure B funds currently provides 55 percent of the operating revenue and a significant portion of its capital revenue.

According to the most recent Organizational Assessment report, per capita expenditures made by the County library system are less than the state per capita expenditure average. For example, the average per capita amount at the State level for Fiscal Year 2007 was $31.74, whereas the Fresno County Library expenditure per capita was $23.37. In addition, materials expenditure per capita is less than the state average; Fresno County Library spends an average of $2.88 per capita, while the state spends an average of $3.41. The Facilities Development Plan 2002–2020, adopted by the Fresno County Supervisors in 2003, identified a list of potential projects that would expand existing and/or construct new library facilities within the County. The Plan determined that the existing capacity of several facilities within the system would be inadequate to serve projected population growth, including anticipated buildout of new residential units in areas not currently served by the system. Since adoption of the Plan, several projects have been implemented; however, several projects remain unfunded. Therefore, although Measure B

provides one source of capital to expand capacity of the system, additional sources of revenue will be required to maintain adequate service levels as identified in the Facilities Development Plan.

4.13.5.2 STANDARDS OF SIGNIFICANCE

Implementation of the proposed Plan would result in significant impacts if it would:

1. Result in the provision of or need for new or physically altered library facilities, the construction or operation of which could cause significant environmental impacts.
2. Contribute to cumulative library facilities impacts in the area

4.13.5.3 IMPACT DISCUSSION

This section analyzes the proposed Plan's potential impacts and cumulative impacts to library services.

PS-10	**Implementation of the proposed Plan would not result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for libraries, the construction of which could cause significant environmental impacts.**

There are no libraries within the Plan Area. The nearest branch to the Plan Area, the West Fresno Branch Library at 188 East California Avenue, is located approximately 0.25-mile east of the Plan Area. The West Fresno Branch Library currently has 1.5 total materials available per capita.[16] Implementation of the proposed Plan would result in an increased demand for library services, due to an increase in residential population. Implementation of the proposed Plan would directly add an estimated 27,775 people within the Plan Area, which could result in greater use of local libraries. Since 1998, the County of Fresno has expanded its library services, due in part to the success of Measure B. The measure is a one-eighth of one percent sales tax, providing funds for improvement of library services throughout the County. The County has a funding resource available for facility improvements through March 2024, when Measure B is set to expire.

The Fresno County Library has projected a deficiency in the system's capacity to serve population growth and has an adopted Facilities Development Plan. The population growth attributable to the project would not be sufficient to trigger the need for additional library facilities on its own; however, in conjunction with overall population growth, additional facilities or expansion of current facilities will be required.

Given the current economic conditions, additional public financing is unlikely. While residents within the Plan Area would contribute to the provision of library services through payment of sales taxes as part of

[16] Fresno County Librarian, correspondence on July 6, 2017.

Measure B, this revenue source may not be sufficient to fund all new facilities required to meet the system's demand for services.

New library facilities would be required to comply with the existing facilities development plan, "The Heart of a Community: Its Public Library—Meeting Library Needs for Fresno County Residents: 2002–2020," which requires that construction of new facilities occur within existing developed areas to serve existing populations. The location of new library facilities, their design and services provided is unknown at this time. However, a number of locations would be available within the proposed Plan Area that meet siting guidelines as stated in the "Heart of a Community" report. Therefore, it is not reasonably foreseeable at this time that construction of new library facilities within the Plan area, which is an urban use consistent with many other uses in the city, would cause significant impacts to the environment. As a result, impacts related to the provision of library services would be *less than significant*.

Significance Without Mitigation: Less than significant.

4.13.5.4 CUMULATIVE IMPACTS

PS-11	Implementation of the proposed Plan would not contribute to cumulative library impacts in the area.

Development that would occur with implementation of the proposed Plan, together with projected area-wide growth, would result in additional residential and non-residential development by the year 2042. Therefore, implementation of the proposed Plan, together with anticipated development in the vicinity of the proposed Plan area, would result in an increased demand for library services. The revenue source provided by passage of Measure B would result in adequate funding for library improvements to meet this increased demand for services. Further, the Master EIR for the City's General Plan has analyzed and accounted for this increased demand and the associated facility improvements, and concluded that cumulative impacts related to the provision of school services would be *less than significant*.

Significance Without Mitigation: Less than significant.

4.14 TRANSPORTATION AND TRAFFIC

This section describes the regulatory framework and existing conditions in the vicinity of the Plan Area related to transportation and traffic, and the potential impacts of the proposed Plan on transportation and traffic. Fehr & Peers prepared the analysis contained in this section.

4.14.1 ENVIRONMENTAL SETTING

4.14.1.1 REGULATORY FRAMEWORK

State Regulations

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for operating and maintaining the State highway system. In the proposed Plan's vicinity, State Routes (SR-) 41, 99, and 180, along with all the freeway ramps and ramp terminal intersections, fall under Caltrans jurisdiction. Caltrans provides administrative support for transportation programming decisions made by the California Transportation Commission (CTC) for state funding programs. The State Transportation Improvement Program (STIP) is a multi-year capital improvement program that sets priorities and funds transportation projects envisioned in long-range transportation plans.

Corridor System Management Plans and Transportation Concept Reports

A Corridor System Management Plan (CSMP) is a long-range comprehensive planning document that identifies the current traffic level of service (LOS) on a facility and the anticipated future LOS when considering feasible long-term projects. Similarly, a Transportation Concept Report (TCR) is a long-range system-planning document that establishes a planning concept for state facilities. Both documents identify a concept LOS, or "target" LOS, for the applicable highway facility. A deficiency or need for improvement is triggered when the actual LOS falls below the concept LOS.

In July 2013, Caltrans released the *SR-41 TCR*.[1] *The SR-41 TCR* shows that SR-41 is anticipated to operate at LOS D south of SR-99 and LOS F north of SR-99 in 2035 within the Plan Area. The SR-41 TCR identifies LOS D as the route concept LOS within the Plan Area.

In April 2009, Caltrans released the Fresno/Madera Urban Route 99 CSMP.[2] Based on this CSMP for SR-99, the segments of this facility located within the Plan Area are anticipated to operate at LOS F conditions in 2030 with the 2030 concept facility (six-lane freeway with auxiliary lanes). However, the CSMP identifies LOS D as the concept LOS.

[1] Caltrans, 2013. *State Route 41 Transportation Concept Report.* Caltrans District 6 Office of System Planning.
[2] Caltrans, 2009. *Fresno/Madera Urban Route 99 Corridor System Management Plan.* Caltrans District 6 Planning Division.

In February 2014, Caltrans released the *SR-180 TCR*.[3] The *SR-180 TCR* shows that SR-180 is anticipated to operate at LOS C west of SR-99 and LOS E east of SR-99 in 2035 within the Plan Area. The SR-180 TCR identifies LOS D as the route concept LOS within the Plan Area.

Guide for the Preparation of Traffic Impact Studies

Caltrans' *Guide for the Preparation of Traffic Impact Studies*[4] provides general guidance regarding the preparation of traffic impacts studies for projects that may have an impact on the State Highway System. The guidance includes when a traffic study should be prepared and the methodology to use when evaluating operating conditions on the State highway system.

The *Guide for the Preparation of Traffic Impact Studies* states that "Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on state highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS." Based on previous studies and consultation with Caltrans, the concept LOS identified in the TCR and CSMP documents are used as the target LOS.

The *Guide for the Preparation of Traffic Impact Studies* also states that where "an existing State highway facility is operating at less than the appropriate target LOS, the existing measure of effectiveness (MOE) should be maintained."

Senate Bill 743

On September 27, 2013, Governor Brown signed Senate Bill 743 (SB 743), which made several changes to the California Environmental Quality Act (CEQA) for projects located in areas served by transit. The changes direct the Governor's Office of Planning and Research (OPR) to develop a new approach for analyzing the transportation impacts under CEQA, which may eliminate vehicle delay and level of service as CEQA impacts for many parts of California. SB 743 also creates a new exemption for certain projects that are consistent with a proposed Plan, and eliminates the need to evaluate aesthetic and parking impacts of a project, in some circumstances. OPR is in the process of developing new CEQA guidelines in response to SB 743. The guidelines will require certification and adoption by the Secretary for Resources before they go into effect.

California High Speed Rail

The California High Speed Rail Authority (Authority) is proposing to construct, operate, and maintain an electric-powered high-speed train system in California. On May 7, 2014, the Authority Board of Directors certified the Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Fresno to Bakersfield project section of the high-speed rail program and approved the rail alignment. The alignment passes through Downtown Fresno in close proximity to Southwest Fresno, but does not pass through the Plan Area.

[3] Caltrans, 2014. *State Route 180 Transportation Concept Report.* Caltrans District 6 Office of System Planning.
[4] Caltrans, 2002. *Guide for the Preparation of Traffic Impact Studies*. State of California Department of Transportation.

Regional Regulations

Fresno Council of Governments

The Fresno Council of Governments (Fresno COG) is an association of local governments in Fresno County. Fresno COG is the State-designated regional transportation planning agency (RTPA) and federally-designated metropolitan planning organization (MPO) for Fresno County. Fresno COG's primary functions are regional transportation planning and programming. Fresno COG also serves as a forum for the study and resolution of regional issues.

2014 Fresno COG Regional Transportation Plan and Sustainable Communities Strategy

The *2014 Fresno COG Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS)*[5] is a federally mandated, long-range transportation plan for Fresno County. It is a fiscally constrained plan that includes only those projects which can be delivered with funds expected to be available and that will help attain and maintain air quality standards. The *RTP/SCS* also includes an integrated land use and transportation plan to meet greenhouse gas emission reduction targets set forth by the California Air Resources Board (CARB). To receive federal funding, transportation projects nominated by cities, counties, and agencies must be consistent with the *RTP/SCS*. The *2014 RTP/SCS* provides a comprehensive assessment of all forms of transportation available in Fresno County and of the needs for travel and goods movement through 2040.

The *2014 Fresno COG RTP/SCS* includes the following relevant policies:

- Develop a regional streets and highways system that has a balanced mix of high speed and local corridors which are functional and flexible for intermodal use, providing connectivity to the region, state, and nation.
- Pursue development of strategies and methods to enhance the efficient movement of freight through the multimodal network.
- Integrate transportation modes through a coordinated transportation systems management process.
- Develop bicycle and pedestrian facilities as viable alternatives to single-occupancy vehicle use.
- Manage the transportation system in a manner designed to increase operational efficiency, conserve energy and space, reduce air pollution and noise, and provide for effective goods movement, safety, personal mobility, and accessibility.
- Maintain stringent safety requirements for all transportation modes, identify problem (hazardous) locations, and implement counter measures for anticipated problems wherever possible.

[5] Fresno Council of Governments (Fresno COG), 2014. *2014 Regional Transportation Plan and Sustainable Communities Strategy.* Fresno Council of Governments.

- Seek to ensure fair distribution of the benefits and burdens of transportation projects, and seek to address the transportation needs of the disadvantaged communities through SCS Implementation Programs.
- Encourage infill development in areas that take advantage of remaining capacity in existing transportation facilities.
- Coordinate with other public agencies to ensure that the overall social, health, economic, energy, and environmental effects of transportation decisions are understood, and have the opportunity to provide input to the general public and groups that have been traditionally underrepresented in planning processes.
- Monitor levels of service on the streets and highways network within Fresno County to ensure safe and efficient movement of people and goods.
- Manage the highways, streets and roads network in a manner designed to increase operational efficiency, reduce air pollution, and provide adequate mobility for both people and goods.

Regional Transportation Improvement Program

The *Regional Transportation Improvement Program (RTIP)* is a list of transportation projects and programs to be funded and implemented over the next three years. Fresno COG submits this document to Caltrans and amends the program on a quarterly cycle.

Fresno Bus Rapid Transit Master Plan

The *Fresno COG Bus Rapid Transit (BRT) Master Plan*[6] studies the introduction of BRT service in the Fresno-Clovis Metropolitan Area. The *BRT Master Plan* identifies potential BRT corridors and recommends the first phase of BRT service along the Ventura Avenue/Kings Canyon Road corridor and the Blackstone Avenue/Abby Street corridor connecting to Downtown. California Avenue, which runs through the Plan Area, has been identified in the BRT Master Plan as a future BRT route.

Fresno COG Regional Transportation Mitigation Fee

In addition to the City of Fresno's traffic impact fees, Fresno COG administers the Regional Transportation Mitigation Fee (RTMF), which was developed to mitigate new development's indirect regional impacts on State highway facilities in Fresno County. The fee helps fund improvements needed to maintain the target LOS in light of higher traffic volumes generated by new developments.

[6] Fresno Council of Governments (Fresno COG), 2008. *Bus Rapid Transit Master Plan.* Fresno Council of Governments.

Local Regulations

Fresno General Plan

The *Fresno General Plan*,[7] adopted in 2014, is an update to the previous *2025 Fresno General Plan*. The *Fresno General Plan* serves as the community's guide for the continued development, enhancement, and revitalization of the Fresno metropolitan area.

The *Fresno General Plan* includes the following policies related to transportation and circulation that are relevant to this analysis (Table 4.14-1).

City of Fresno Traffic Impact Study Report Guidelines

The City of Fresno's *Traffic Impact Study Report Guidelines*[8] establish general procedures and requirements for the preparation of traffic impact studies associated with development within the City of Fresno. The guidelines are intended to be a checklist to ensure regular study items are not missed, but are not intended to be prescriptive to the point of eliminating professional judgment.

The guidelines include the preferred traffic analysis methodologies, significance criteria, and documentation requirements. This study is conducted using the preferred analysis methodologies and significance criteria as outlined in the City's guidelines.

City of Fresno Active Transportation Plan

The *Fresno Active Transportation Plan*[9] is a comprehensive guide outlining the vision for active transportation in the City of Fresno. The Active Transportation Plan (ATP) identifies the following goals for biking and walking in Fresno:

- Equitably improve the safety and perceived safety of walking and bicycling in Fresno.
- Increase walking and bicycling trips in Fresno by creating user-friendly facilities.
- Improve the geographic equity of access to walking and bicycling facilities in Fresno.
- Fill key gaps in Fresno's walking and bicycling networks.

The ATP identifies the proposed citywide bikeway, trails, and sidewalk network, as well as a priority network of connected bikeways and priority pedestrian areas on which the City will focus its efforts in the near-term.

[7] City of Fresno, 2014. *Fresno General Plan.* City of Fresno Development and Resource Management Department.
[8] City of Fresno, 2017. *Active Transportation Plan.* City of Fresno Department of Public Works.
[9] City of Fresno, 2009. *Traffic Impact Study Report Guidelines.* City of Fresno Department of Public Works.

TABLE 4.14-1 GENERAL PLAN POLICIES RELEVANT TO TRANSPORTATION AND TRAFFIC

Policy Number	Policy Text
Policy MT-1-d	**Integrate Land Use and Transportation Planning.** Plan for and maintain a coordinated and well integrated land use pattern, local circulation network and transportation system that accommodates planned growth, reduces impacts on adjacent land uses, and preserves the integrity of established neighborhoods.
Policy MT-1-f	**Match Travel Demand with Transportation Facilities.** Designate the types and intensities of land uses at locations such that related travel demands can be accommodated by a variety of viable transportation modes and support Complete Neighborhoods while avoiding the rerouting of excessive or incompatible traffic through local residential streets.
Policy MT-1-g	**Complete Streets Concept Implementation.** Provide transportation facilities based upon a Complete Streets concept that facilitates the balanced use of all viable travel modes (pedestrians, bicyclists, motor vehicle and transit users), meeting the transportation needs of all ages, income groups, and abilities and providing mobility for a variety of trip purposes, while also supporting other City goals.
Policy MT-1-k	**Multi-Modal Level of Service Standards.** Develop and use a tiered system of flexible, multi-modal Level of Service standards for streets designated by the Circulation Diagram (Figure MT-1 of the General Plan). Strive to accommodate a peak hour vehicle LOS of D or better on street segments and at intersections, except where Policies MT-1-m through MT-1-p provide greater specificity. Establish minimum acceptable service levels for other modes and use them in the development and environmental review process.
Policy MT-1-l	**Level of Service in the Downtown Area.** Within the Downtown Planning Area accept vehicle LOS F conditions during peak hours for street segments and intersections specified in community and Specific Plans as may be adopted by the City. Where there is an overlap in policies regarding LOS in the Downtown Planning Area, this policy shall supersede.
Policy MT-1-m	**Standards for Planned Bus Rapid Transit Corridors and Activity Centers.** Independent of the Traffic Impact Zones identified in MT-2-I and Figure MT-4, strive to maintain the following vehicle LOS standards on major roadway segments and intersections along Bus Rapid Transit Corridors and in Activity Centers: ▪ LOS E or better at all times, including peak travel times, unless the City Traffic Engineer determines that mitigation to maintain this LOS would be infeasible and/or conflict with the achievement of other General Plan policies. ▪ Accept LOS F conditions in Activity Centers and Bus Rapid Transit Corridors only if provisions are made to improve the overall system and/or promote non-vehicular transportation and transit as part of a development project or a City-initiated project. In accepting LOS F conditions, the City Traffic Engineer may request limited analyses of operational issues at locations near Activity Centers and along Bus Rapid Transit Corridors, such as queuing or left-turn movements. ▪ Give priority to maintaining pedestrian service first, followed by transit service and then by vehicle LOS, where conflicts between objectives for service capacity between different transportation modes occur. ▪ Identify pedestrian-priority and transit-priority streets where these modes would have priority in order to apply a multi-modal priority system, as part of the General Plan implementation.
Policy MT-1-n	**Peak Hour Vehicle LOS.** Maintain a peak-hour vehicle LOS standard of D or better for all roadway areas outside of identified Activity Center and Bus Rapid Transit Corridor districts, unless the City Traffic Engineer determines that mitigation to maintain this LOS would be infeasible and/or conflict with the achievement of other General Plan policies.
Policy MT-1-o	**LOS Deviations Outside of Activity Centers and Areas Designated for Mixed-Use.** Accept vehicle LOS E or F conditions outside of identified multi-modal districts only if provisions commensurate with the level of impact and approved by the City Traffic Engineer are made to sufficiently improve the overall transportation system and/or promote non-vehicular transportation as part of a development project or City initiated project.
Policy MT-2-b	**Reduce Vehicle Miles Traveled and Trips.** Partner with major employers and other responsible agencies, such the San Joaquin Valley Air Pollution Control District and the Fresno Council of Governments, to implement trip reduction strategies, such as eTRIP, to reduce total vehicle miles traveled and the total number of daily and peak hour vehicle trips, thereby making better use of the existing transportation system.

TABLE 4.14-1 GENERAL PLAN POLICIES RELEVANT TO TRANSPORTATION AND TRAFFIC

Policy Number	Policy Text
Policy MT-2-c	**Reduce VMT through Infill Development.** Provide incentives for infill development that would provide jobs and services closer to housing and multi-modal transportations corridors in order to reduce citywide vehicle miles travelled (VMT).
Policy MT-2-d	**Street Redesign where Excess Capacity Exists.** Evaluate opportunities to reduce right of way and/or redesign streets to support non-automobile travel modes along streets with excess roadway capacity where adjacent land use is not expected to change over the planning period.
Policy MT-2-e	**Driveway and Access Consolidation.** Take advantage of opportunities to consolidate driveways, access points, and curb cuts along designated major roadways when a change in development or a change in intensity occurs or when traffic operation or safety warrants.
Policy MT-2-f	**Optimization of Roadway Operations**. Optimize roadway operations by continuing to expand the use of techniques such as the City's intelligent transportation system (ITS) to manage traffic signal timing coordination in order to improve traffic operations and increase traffic-carrying capacity, while reducing unnecessary congestion and decreasing air pollution emissions. In order to facilitate roadway optimization and as a potential revenue source for the optimization, the following strategies need to be implemented: ▪ Dig Once Policy. Install conduit for telecommunications use when trenching or construction occurs. ▪ Telecommunications Strategy. Develop a costing mechanism for allowing the use of excess conduit within the City for use by communication carriers. The Policy shall follow regulations of the California Public Utilities Commission. ▪ Grant Funding. Pursue grant funding to assist in construction and/or implementation of fiber-optic or other telecommunication infrastructure for additional public services such as education, economic development, reaching underserved populations, and public safety communications.
Policy MT-2-g	**Transportation Demand Management and Transportation System Management.** Pursue implementation of Transportation Demand Management and Transportation System Management strategies to reduce peak hour vehicle traffic and supplement the capacity of the transportation system.
Policy MT-2-i	**Transportation Impact Studies.** Require a Transportation Impact Study (currently named Traffic Impact Study) to assess the impacts of new development projects on existing and planned streets for projects meeting one or more of the following criteria, unless it is determined by the City Traffic Engineer that the project site and surrounding area already has appropriate multi-modal infrastructure improvements. ▪ When a project includes a General Plan amendment that changes the General Plan Land Use Designation. ▪ When the project will substantially change the off-site transportation system (auto, transit, bike or pedestrian) or connection to the system, as determined by the City Traffic Engineer. ▪ Transportation impact criteria are tiered based on a project's location within the City's Sphere of Influence. This is to assist with areas being incentivized for development. The four zones, as defined on Figure MT-4, are listed below. The following criteria apply: - Traffic Impact Zone I (TIZ-I): TIZ-I represents the Downtown Planning Area. Maintain a peak hour LOS standard of F or better for all intersections and roadway segments. A TIS will be required for all development projected to generate 200 or more peak hour new vehicle trips. - Traffic Impact Zone II (TIZ-II): TIZ-II generally represents areas of the City currently built up and wanting to encourage infill development. Maintain a peak hour LOS standard of E or better for all intersections and roadway segments. A TIS will be required for all development projected to generate 200 or more peak hour new vehicle trips. - Traffic Impact Zone III (TIZ-III): TIZ-III generally represents areas near or outside the City Limits but within the SOI as of December 31, 2012. Maintain a peak hour LOS standard of D or better for all intersections and roadway segments. A TIS will be required for all development projected to generate 100 or more peak hour new vehicle trips. - Traffic Impact Zone IV (TIZ-IV): TIZ-IV represents the southern employment areas within and planned by the City. Maintain a peak hour LOS standard of E or better for all intersections and roadway segments. A TIZ will be required for all development projected to generate 200 or more peak hour new vehicle trips.

TABLE 4.14-1 GENERAL PLAN POLICIES RELEVANT TO TRANSPORTATION AND TRAFFIC

Policy Number	Policy Text
Policy MT-2-l	**Region-Wide Transportation Impact Fees.** Continue to support the implementation of metropolitan-wide and region-wide transportation impact fees sufficient to cover the proportional share of a development's impacts and need for a comprehensive multi-modal transportation system that is not funded by other sources. Work with the Council of Fresno County Governments, transportation agencies (e.g., Caltrans, Federal Transportation Agency) and other jurisdictions in the region to develop a method for determining: ▪ Regional transportation impacts of new development; ▪ Regional highways, streets, rail, trails, public transportation, and goods movement system components, consistent with the General Plan, necessary to mitigate those impacts and serve projected demands; ▪ Projected full lifetime costs of the regional transportation system components, including construction, operation, and maintenance; and ▪ Costs covered by established funding sources.
Policy MT-4-b	**Bikeway Improvements.** Establish and implement property development standards to assure that projects adjacent to designated bikeways provide adequate right-of-way and that necessary improvements are constructed to implement the planned bikeway system shown on Figure MT-2 to provide for bikeways, to the extent feasible, when existing roadways are reconstructed; and alternative bikeway alignments or routes where inadequate right-of-way is available.
Policy MT-4-d	**Prioritization of Bikeway Improvements.** Prioritize bikeway components that link existing separated sections of the system, or that are likely to serve the highest concentration of existing or potential cyclists, particularly in those neighborhoods with low vehicle ownership rates, or that are likely to serve destination areas with the highest demand such as schools, shopping areas, recreational and park areas, and employment centers.
Policy MT-5-a	**Sidewalk Development.** Pursue funding and implement standards for development of sidewalks on public streets, with priority given to meeting the needs of persons with physical and vision limitations; providing safe routes to school; completing pedestrian improvements in established neighborhoods with lower vehicle ownership rates; or providing pedestrian access to public transportation routes.
Policy MT-5-b	**Sidewalk Requirements.** Assure adequate access for pedestrians and people with disabilities in new residential developments per adopted City policies, consistent with the California Building Code and the Americans with Disabilities Act.
Policy MT-5-d	**Pedestrian Safety.** Minimize vehicular and pedestrian conflicts on both major and non-roadways through implementation of traffic access design and control standards addressing street intersections, median island openings and access driveways to facilitate accessibility while reducing congestion and increasing safety. Increase safety and accessibility for pedestrians with vision disabilities through the installation of Accessible Pedestrian Signals at signalized intersections.
Policy MT-5-e	**Traffic Management in Established Neighborhoods.** Establish acceptable design and improvement standards and provide traffic planning assistance to established neighborhoods to identify practical traffic management and calming methods to enhance the pedestrian environment with costs equitably assigned to properties receiving the benefits or generating excessive vehicle traffic.
Policy MT-6-g	**Path and Trail Development.** Require all projects to incorporate planned multi-purpose path and trail development standards and corridor linkages consistent with the General Plan, applicable law and case-by-case determinations as a condition of project approval.
Policy MT-8-a	**Street Design Coordinated with Transit**. Coordinate the planning, design, and construction of the major roadway network with transit operators to facilitate efficient direct transit routing throughout the Planning Area. *Commentary: Neighborhoods with circuitous and discontinuous streets are more difficult for public transit to serve efficiently than those with consistently spaced linear or semi-grid patterns.*
Policy MT-8-c	**New Development Facilitating Transit.** Continue to review development proposals in transportation corridors to ensure they are designed to facilitate transit. Coordinate all projects that have residential or employment densities suitable for transit services, so they are located along existing or planned transit corridors or that otherwise have the potential for transit orientation to FAX, and consider FAX's comments in decision-making.

TABLE 4.14-1 GENERAL PLAN POLICIES RELEVANT TO TRANSPORTATION AND TRAFFIC

Policy Number	Policy Text
Policy MT-11-c	**Truck Route Designations.** Continue to plan and designate truck routes within the Metropolitan Area to facilitate access to and from goods production and processing areas while minimizing conflicts with other transportation priorities.

Fresno Area Express

The City of Fresno provides public transit service through its Fresno Area Express (FAX) public transportation service. FAX offers two principal services throughout the City of Fresno: 16 fixed-route bus lines and Handy Ride demand-response service for people with disabilities.

FAX's *2014-2018 Short-Range Transit Plan*[10] is the five-year plan for transit operations and capital improvements for 2014-2018. The *Short-Range Transit Plan* (SRTP) proposes specific recommendations for implementing the long-range objectives of the Fresno COG RTP/SCS and guides the provision of transit service in the Fresno-Clovis Metropolitan Area for its five-year timeframe.

The *Long-Range Transit Plan*[11] identifies transit system improvements over a 20-year period. The *Long-Range Transit Plan* (LRTP) recommends increases in transit service (decreased headways) on highly utilized routes. California Avenue is identified as a future Bus Rapid Transit route within the Plan Area.

4.14.1.2 EXISTING CONDITIONS

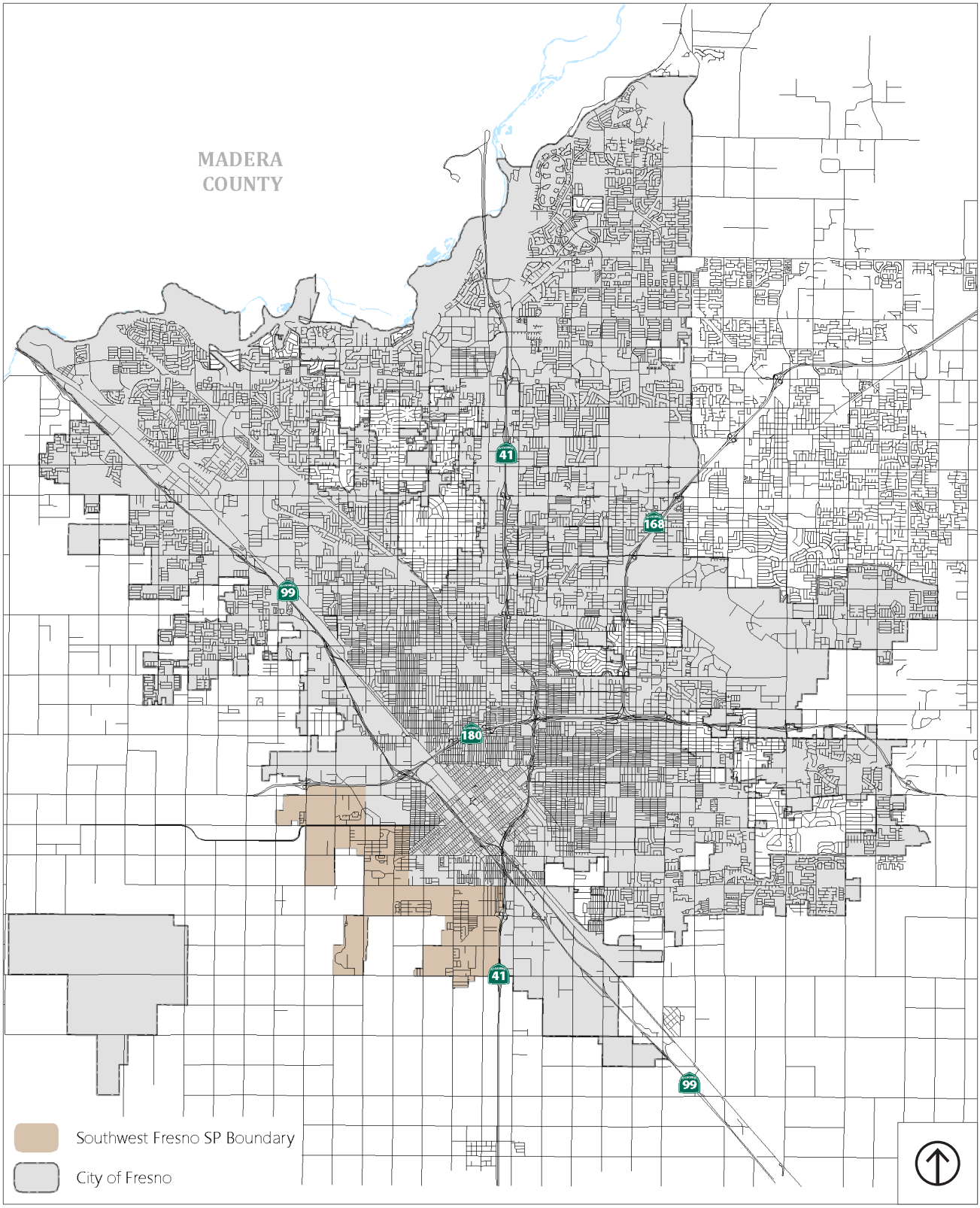
This section describes the existing travel characteristics and the condition of the roadway, transit, bicycle, pedestrian, and goods movement systems in the Plan Area. Figure 4.14-1 shows the regional context of the Plan Area within the Fresno-Clovis metropolitan area.

Roadway Network

The roadway network within the Plan Area is generally a traditional grid-based network of north-south and east-west streets. Major streets are generally spaced at half-mile intervals. East of Thorne Avenue and north of California Avenue, the traditional north-south and east-west grid meets Downtown Fresno's diagonal grid-based roadway network, which creates several atypical intersections where the two grid networks meet.

Since the Plan Area follows the city limits, several roadways transition into and out of the Plan Area multiple times as they travel into and out of the City of Fresno. The existing roadway network in the Plan Area includes a mix of arterials, collectors, local residential streets, rural roadways, and industrial roadways. SR-41, 99, and 180 are located immediately east, northeast, and north of the Plan Area

[10] City of Fresno, 2013. *Short Range Transit Plan - 2014-2018.* City of Fresno - Fresno Area Express.
[11] City of Fresno, 2002. *2001 Transit Long Range Master Plan.* City of Fresno - Fresno Area Express.



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-1
Regional Context

respectively, and provide regional access to the Plan Area via interchanges at Jensen Avenue, North Avenue, Ventura Street, Fresno Street, and Marks Avenue.

Figure 4.14-2 provides existing roadway functional classifications from the Fresno General Plan and shows the existing roadway number of lanes in the Plan Area.

Freeways

Freeways are high-speed, multi-lane facilities that are designed to carry interregional and crosstown traffic. Access to freeways is restricted to interchanges at expressways, arterials, and other freeways, with no access to abutting properties and no at-grade intersections. Freeways are under the jurisdiction of Caltrans and are outside of the control of the City of Fresno.

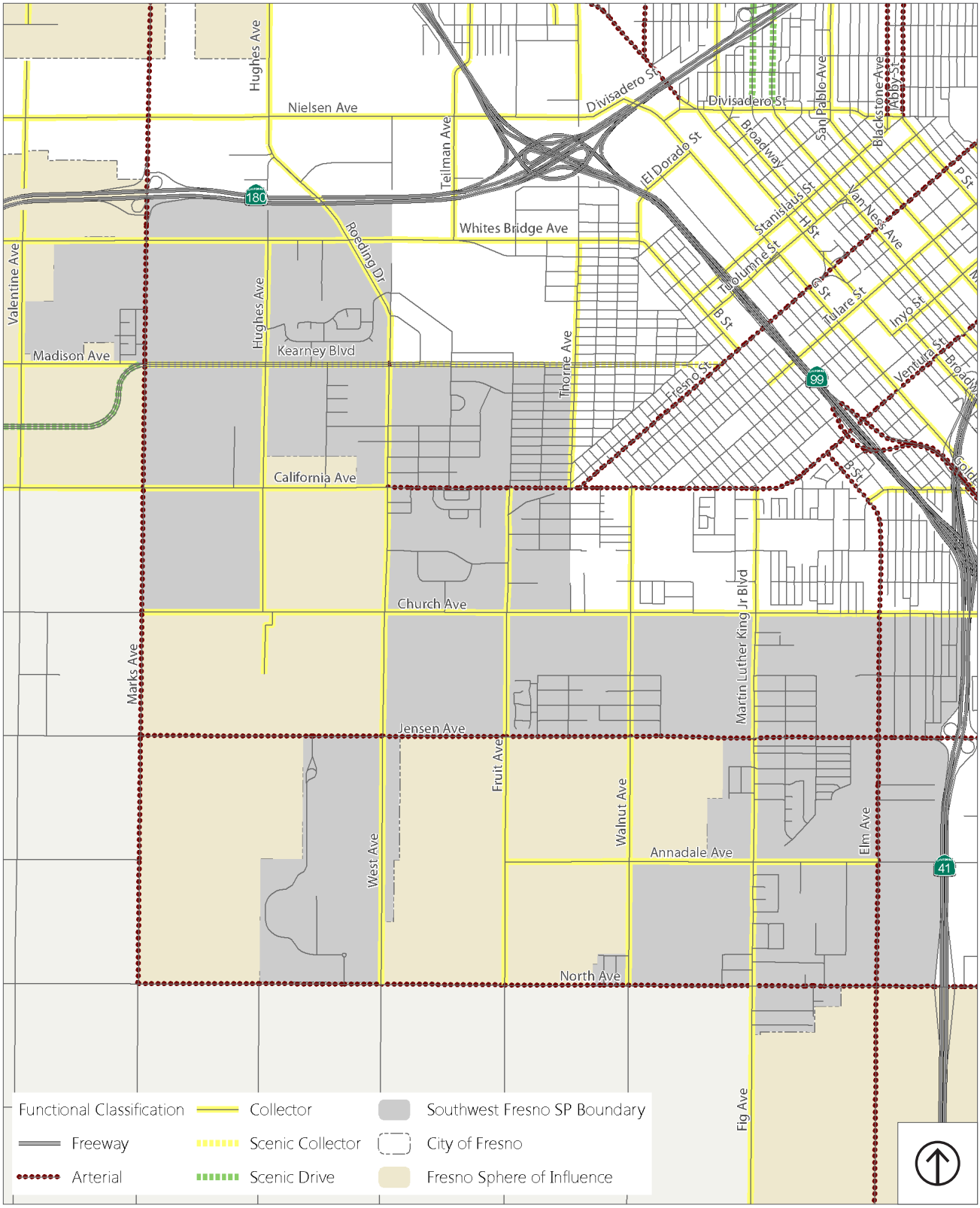
The following describes the freeway facilities in the Plan Area (and shown in Figure 4.14-3):

- SR-41 is a north-south freeway that connects Fresno to Yosemite National Park to the north and the Central Coast towns of Atascadero and Morro Bay to the south. It is located on the eastern edge of the Plan Area, where it is a four-lane freeway from Central Avenue to SR-99 with interchanges at North Avenue and Jensen Avenue. North of SR-99, SR-41 widens to a six-lane freeway. South of Central Avenue, SR-41 is a four-lane divided expressway.
- SR-99 is a north-south freeway that originates south of Bakersfield, traverses through the San Joaquin Valley as it heads north towards Sacramento. It travels along a northwest-southeast orientation to the east of the Plan Area as a six-lane freeway. Access to SR-99 is provided via interchanges at North Avenue, Jensen Avenue, Ventura Street, and Fresno Street.
- SR-180 is an east-west state highway that originates on the west in Mendota and ends on the east in Kings Canyon National Park. It is located on the northern edge of the Plan Area, where it is a four-lane freeway west of Marks Avenue and widens to a six-lane freeway east of Marks Avenue. West of Brawley Avenue, SR-180 becomes a two-lane conventional highway. Access to SR-180 in the Plan Area is provided via an interchange at Marks Avenue.

Local Roadways

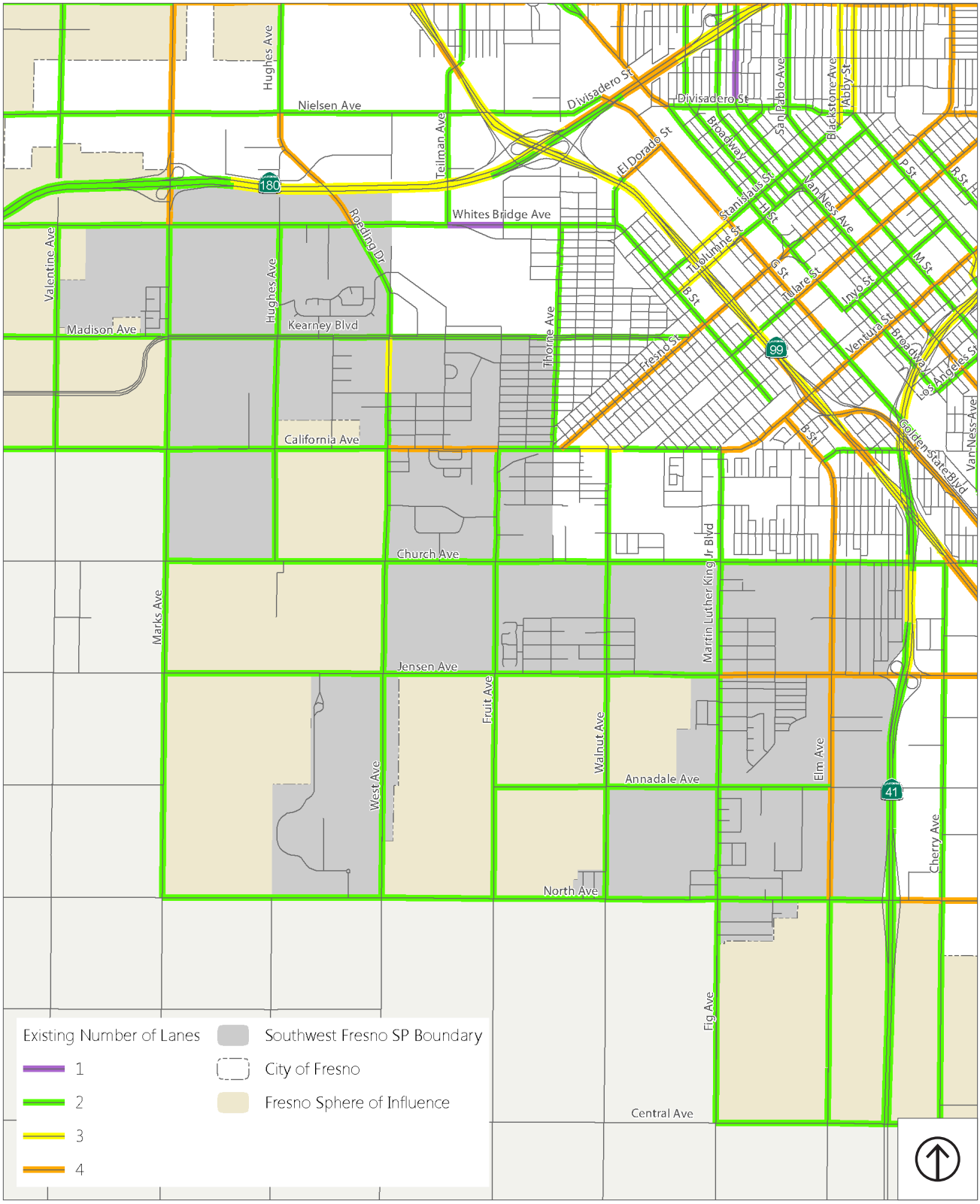
Arterial Streets

Arterial roadways have the primary purpose of moving traffic within and between neighborhoods, and to and from freeways and expressways. When built out to City standards, arterials typically feature raised landscaped medians that control cross-traffic and left-turn movements to and from the arterial streets, as well as somewhat limit motor vehicle access to abutting properties.



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-2
Roadway Classification



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-3
Existing Roadway Network

The following describes the key arterial roadways within the Plan Area:

- Marks Avenue is a north-south arterial road on the western edge of the Plan Area. South of Kearney Boulevard, it is generally a two-lane undivided rural roadway with no curb, gutter, or sidewalk treatments. From Kearney Boulevard to Whites Bridge Avenue, Marks Avenue is generally a divided two-lane roadway with a raised landscaped median, and has curb, gutter, and sidewalk treatments adjacent to recent residential development at the northwest quadrant of Kearney Boulevard. North of Whites Bridge Avenue, it transitions to a four-lane divided arterial as it meets the SR-180 interchange.
- Elm Avenue is a north-south, four-lane divided roadway that is the primary arterial street in the eastern part of the Plan Area. Elm Avenue was formerly SR-41 prior to the construction of the SR-41 freeway, which runs parallel to Elm Avenue approximately ¼-mile to the east. North of California Avenue, Elm Avenue turns northwest and becomes B Street connecting to Ventura Avenue, which provides access to Downtown Fresno and SR-99.
- Fresno Street is a northeast-southwest four-lane divided roadway that connects the Plan Area to Downtown Fresno. Fresno Street is just outside the Plan Area and currently terminates at California Avenue just east of Thorne Avenue.
- California Avenue is an east-west arterial roadway that travels into and out of the northwestern section of the Plan Area. West of West Avenue, it is generally a two-lane, undivided, rural roadway without curb, gutter, and sidewalk treatments. East of West Avenue, California Avenue has multiple transitions between a four-lane divided arterial, a three-lane just east and west of Walnut Avenue, and a two-lane section with a center two-way left turn lane. East of Martin Luther King Jr. Boulevard, California Avenue becomes Ventura Street as it travels eastward into Downtown Fresno.
- Jensen Avenue is an east-west arterial road that provides access to both SR-41 and SR-99. West of Martin Luther King Jr. Boulevard, Jensen Avenue is generally a two-lane undivided roadway. East of Martin Luther King Jr. Boulevard, it is generally a four-lane divided roadway.
- North Avenue is an east-west, two-lane undivided road with sparse curb, gutter, and sidewalk treatments. North Avenue provides access to SR-41 and SR-99 east of the Plan Area.

Collector Streets

Collector roadways primarily connect local streets and neighborhoods to arterials and expressways. When built out to City standards, collector streets typically have a center two-way left-turn lane and generally allow motor vehicle access to abutting properties, consistent with the City's engineering standards and accepted traffic engineering practices.

The following are north-south two-lane collectors in the Plan Area:

- Hughes Avenue
- West Avenue
- Roeding Drive
- Fruit Avenue
- Walnut Avenue
- Martin Luther King Jr. Boulevard (Fig Avenue)

The following are east-west two-lane collectors in the Plan Area:

- Whites Bridge Avenue
- Kearney Boulevard
- Church Avenue
- Annadale Avenue

Traffic Volumes and Roadway Operations

Figure 4.14-4 shows the Plan Area and the 30 roadway segments and eight intersections analyzed in this report. These locations were selected for analysis through consultation with the City of Fresno Public Works staff and Caltrans District 6 staff. The 30 roadway segments include all arterial and collector streets in the Plan Area. The eight study intersections consist of Caltrans off-ramp intersections at four freeway interchanges near the Plan Area.

The traffic count data for the 30 roadway segments used in this analysis was collected by the City of Fresno over a three-year period between June 2014 and May 2017.

Figure 4.14-5 presents the existing daily traffic volumes for the 30 study roadway segments, as obtained through these traffic counts.

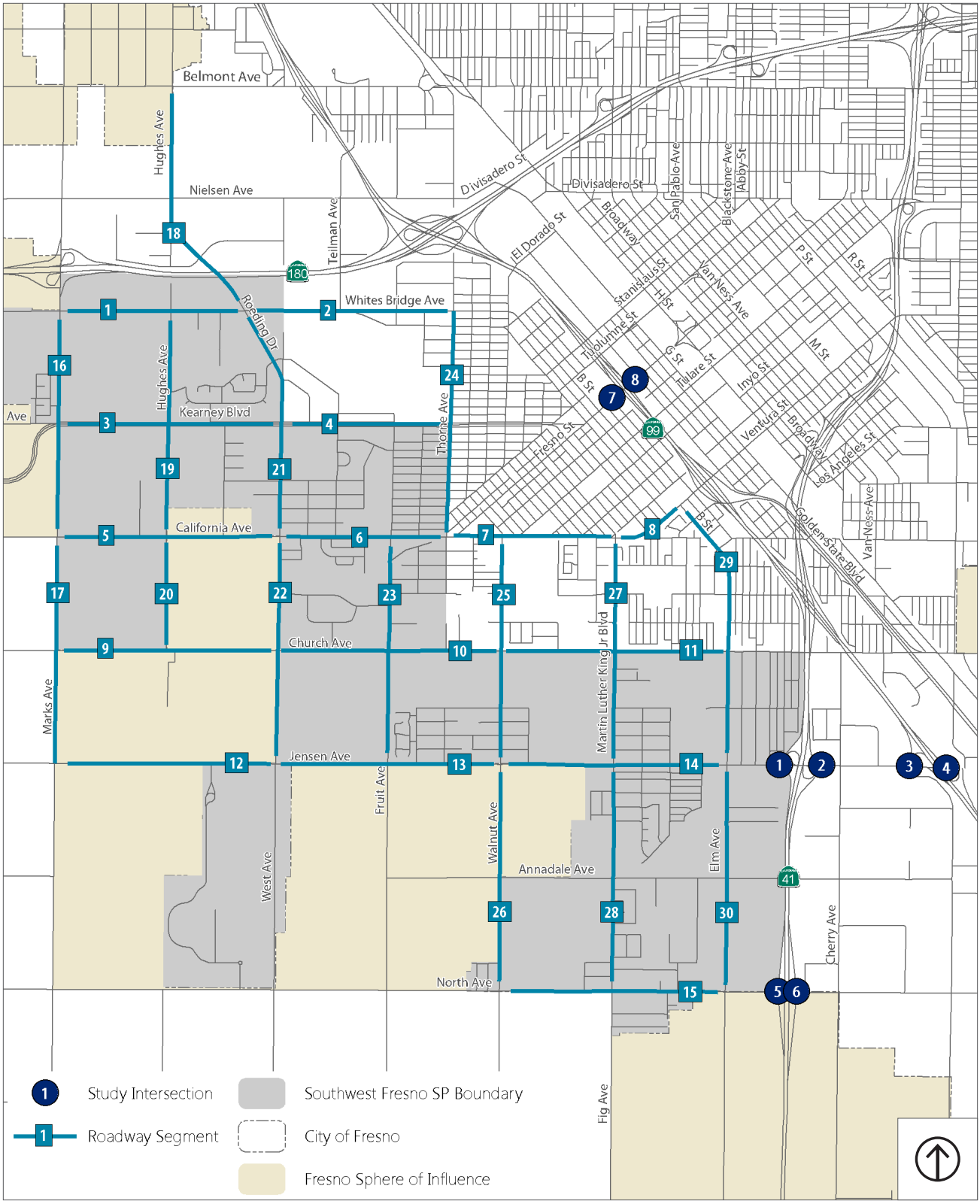
Morning (7:00 a.m. to 9:00 a.m.) and evening (4:00 p.m. to 6:00 p.m.) peak period intersection turning movement counts at the eight study intersections were collected in April 2017 (refer to Appendix H for traffic count data).

Roadway Segment Operations

The existing conditions roadway segment analysis is based on the traffic count data collected by the City of Fresno described above. Note that this analysis is based on traffic counts taken at a single location or link, which was considered representative of the entire segment. A link connects two intersections while a segment is a series of links. The segments used in this analysis were developed based on a series of links that had common physical and traffic conditions.

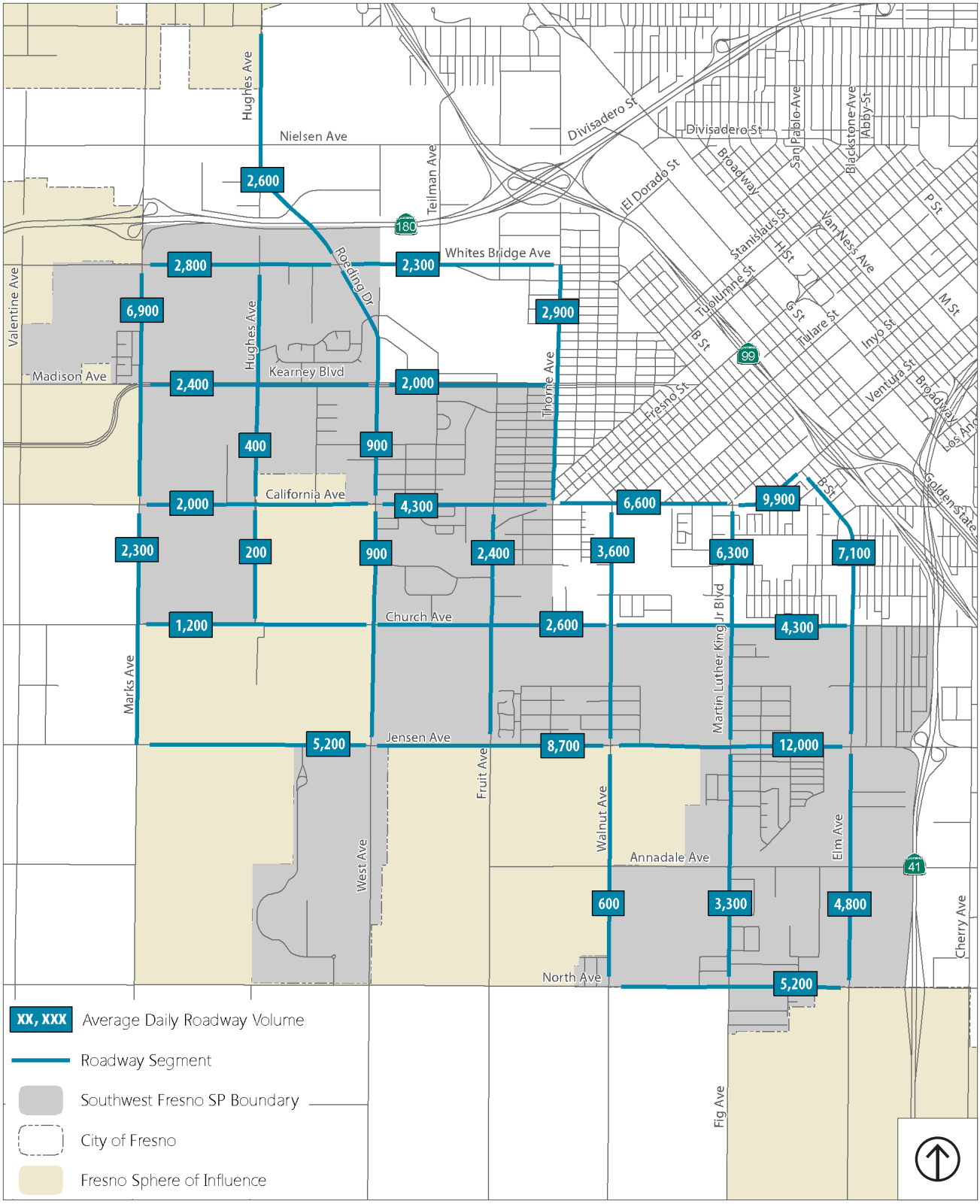
Table 4.14-2 presents the AM and PM peak hour traffic volumes and automobile level of service (LOS) for each study roadway segment under existing conditions. Automobile LOS is a qualitative description of traffic flow from the perspective of motorists. The *Highway Capacity Manual* (HCM) defines six levels of service from LOS A representing the least congested traffic conditions to LOS F representing the most congested traffic conditions. The peak hour LOS for study roadway segments is determined by comparing peak hour traffic volumes on the roadway with peak hour traffic volume thresholds.

Table 4.14-6 in the Methodology section of this chapter, presents the peak hour traffic volume thresholds used for this analysis. As described in the Methodology section, the Fresno General Plan's traffic operations policies are focused on peak hour vehicle LOS when traffic conditions are at their most congested. Therefore, this study analyzes traffic conditions during the AM and PM peak hours.



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-4
Study Roadway Segments and Intersections



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-5
Existing Daily Traffic Volumes

TABLE 4.14-2 PEAK HOUR ROADWAY SEGMENT OPERATIONS – EXISTING CONDITIONS

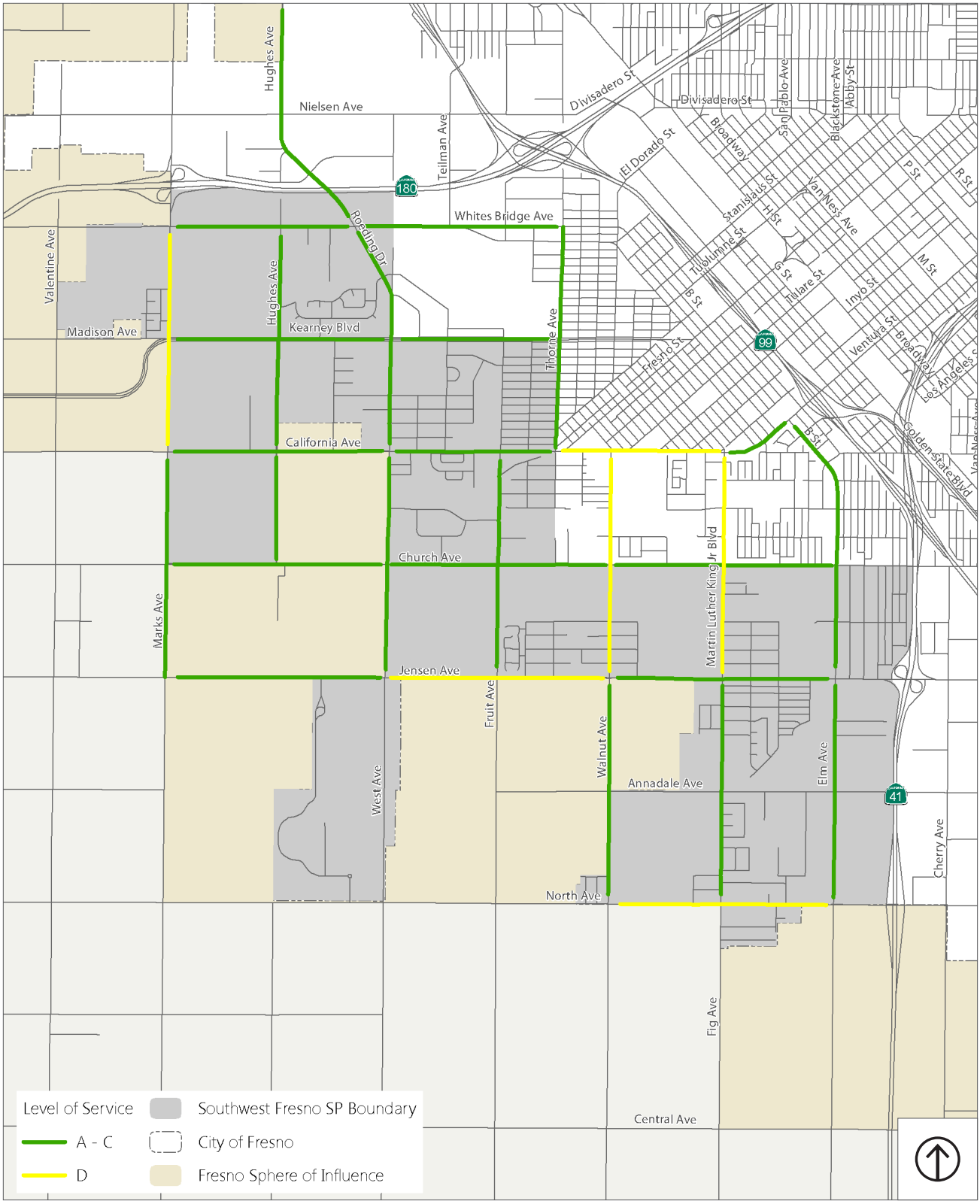
Roadway Segment	Classification[a]	Peak Hour	Volume	V/C[b]	LOS[c]
1. Whitesbridge Ave.: Marks Ave. to Roeding Dr.	2-lane Undivided Collector	AM	180	0.12	C
		PM	260	0.18	C
2. Whitesbridge Ave.: Roeding Dr. to Thorne Ave.	2-lane Undivided Collector	AM	110	0.08	C
		PM	210	0.14	C
3. Kearney Blvd.: Marks Ave. to West Ave.	2-lane Undivided Collector	AM	290	0.19	C
		PM	210	0.14	C
4. Kearney Blvd.: West Ave. to Thorne Ave.	2-lane Undivided Collector	AM	240	0.16	C
		PM	170	0.12	C
5. California Ave.: Marks Ave. to West Ave.	2-lane Undivided Collector	AM	180	0.12	C
		PM	170	0.12	C
6. California Ave.: West Ave. to Fresno St.	2-lane Divided Arterial	AM	350	0.19	C
		PM	430	0.23	C
7. California Ave.: Fresno St. to MLK Jr. Blvd.	2-lane Arterial with TWLTL	AM	590	0.34	D
		PM	550	0.31	D
8. Ventura St: MLK Jr. Blvd. to B Street	4-lane Divided Arterial	AM	930	0.25	C
		PM	840	0.22	C
9. Church Ave.: Marks Ave. to West Ave.	2-lane Undivided Collector	AM	80	0.05	C
		PM	120	0.08	C
10. Church Ave.: West Ave. to Walnut Ave.	2-lane Undivided Collector	AM	150	0.10	C
		PM	170	0.11	C
11. Church Ave.: Walnut Ave. to Elm Ave.	2-lane Collector with TWLTL	AM	390	0.22	C
		PM	370	0.21	C
12. Jensen Ave.: Marks Ave. to West Ave.	2-lane Undivided Arterial	AM	320	0.22	C
		PM	410	0.28	D
13. Jensen Ave.: West Ave. to Walnut Ave.	2-lane Undivided Arterial	AM	420	0.28	D
		PM	560	0.38	D
14. Jensen Ave.: Walnut Ave. to Elm Ave.	4-lane Divided Arterial	AM	730	0.20	C
		PM	920	0.25	C
15. North Ave.: Walnut Ave. to Elm Ave.	2-lane Undivided Arterial	AM	380	0.26	D
		PM	340	0.23	D
16. Marks Ave.: Whitesbridge Ave. to California Ave.	2-lane Divided Arterial	AM	620	0.34	D
		PM	670	0.36	D
17. Marks Ave.: California Ave. to Jensen Ave.	2-lane Undivided Arterial	AM	140	0.10	C
		PM	210	0.14	C
18. Hughes Ave./Roeding Dr.: Nielsen Ave. to Whitesbridge Ave.	4-lane Divided Collector	AM	200	0.05	C
		PM	230	0.06	C

TABLE 4.14-2 PEAK HOUR ROADWAY SEGMENT OPERATIONS – EXISTING CONDITIONS

Roadway Segment	Classification[a]	Peak Hour	Volume	V/C[b]	LOS[c]
19. Hughes Ave.: Whitesbridge Ave. to California Ave.	2-lane Undivided Collector	AM	20	0.02	C
		PM	50	0.03	C
20. Hughes Ave.: California Ave. to Church Ave.	2-lane Undivided Collector	AM	20	0.01	C
		PM	30	0.02	C
21. Roeding Dr./West Ave.: Whitesbridge Ave. to California Ave.	2-lane Undivided Collector	AM	80	0.06	C
		PM	80	0.05	C
22. West Ave.: California Ave. to Jensen Ave.	2-lane Undivided Collector	AM	70	0.05	C
		PM	80	0.05	C
23. Fruit Ave.: California Ave. to Jensen Ave.	2-lane Undivided Collector	AM	140	0.09	C
		PM	180	0.12	C
24. Thorne Ave.: Whitesbridge Ave. to California Ave.	2-lane Collector with TWLTL	AM	240	0.14	C
		PM	270	0.15	C
25. Walnut Ave.: California Ave. to Jensen Ave.	2-lane Undivided Collector	AM	380	0.26	D
		PM	350	0.24	D
26. Walnut Ave.: Jensen Ave. to North Ave.	2-lane Undivided Collector	AM	20	0.01	C
		PM	50	0.04	C
27. Martin Luther King Jr. Blvd.: California Ave. to Jensen Ave.	2-lane Collector with TWLTL	AM	500	0.28	D
		PM	520	0.29	D
28. Martin Luther King Jr. Blvd.: Jensen Ave. to North Ave.	2-lane Undivided Collector	AM	330	0.22	C
		PM	290	0.20	C
29. Elm Ave.: Ventura St to Jensen Ave.	4-lane Divided Arterial	AM	290	0.08	C
		PM	600	0.16	C
30. Elm Ave.: Jensen Ave. to North Ave.	4-lane Divided Arterial	AM	240	0.06	C
		PM	420	0.11	C

a. Roadway classifications described in Local Roadway section:
Undivided = roadways without physical separation between opposing directions of travel
TWLTL = two-way left-turn lane: a center lane exclusively for left-turning vehicles from either direction, which also provides space between opposing directions of travel
Divided = roadways with physical separation between opposing directions of travel, such as a raised median
b. Volume-to-capacity ratio; capacity defined as the LOS E/F threshold as presented in Table 4.14-6.
c. Level of service based on volume thresholds presented in Table 4.14-6.
Source: Fehr & Peers, 2017.

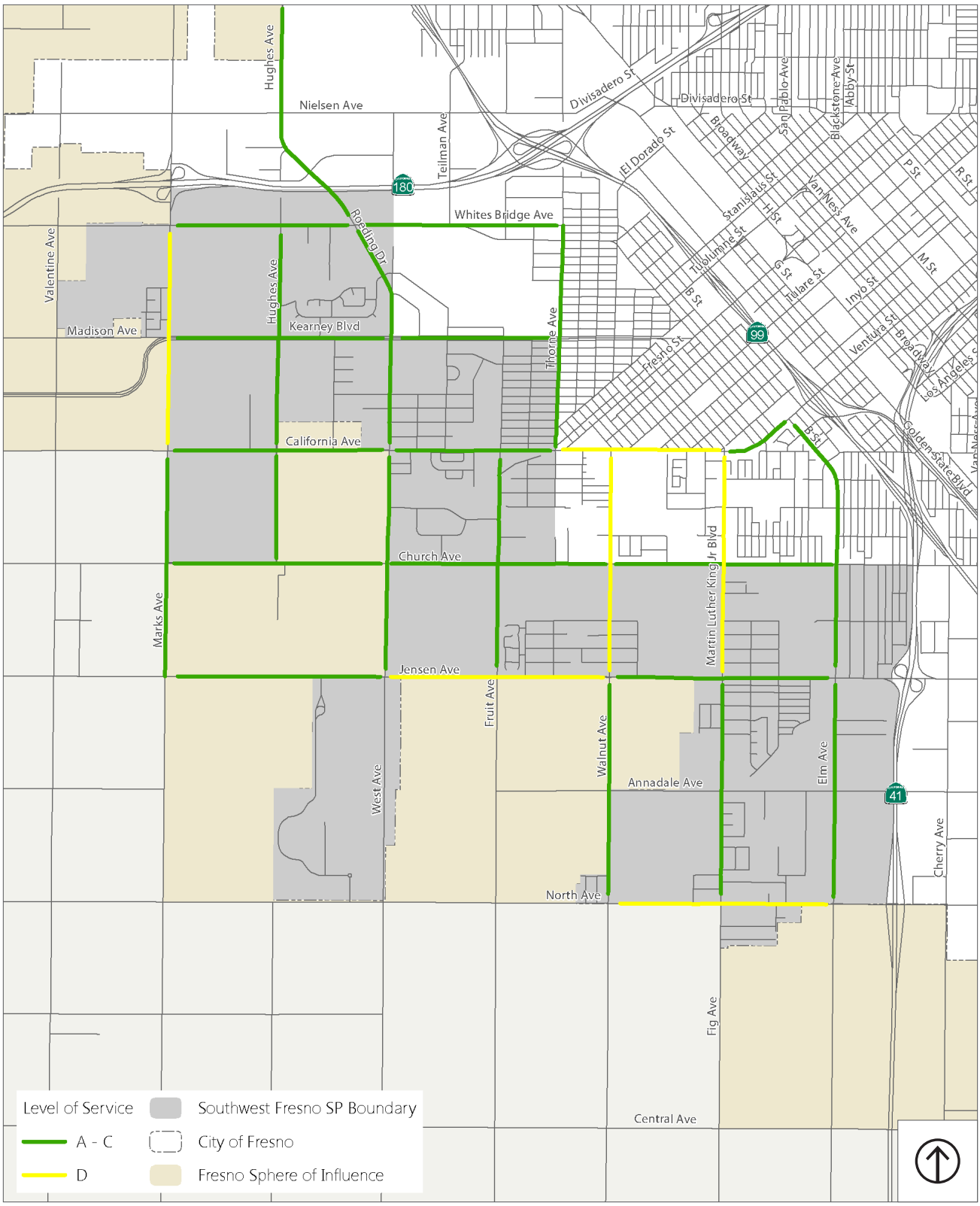
As shown in Table 4.14-2, all study roadway segments operate at LOS C or LOS D under existing conditions. Per the volume thresholds presented in Table 4.14-6, LOS A and LOS B are not achievable on arterial or collector streets per the HCM methodology; therefore, LOS C is the best achievable operation. Figure 4.14-6 presents the AM peak hour roadway LOS, while Figure 4.14-7 presents the PM peak hour roadway LOS.



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-6

Existing AM Peak Hour Roadway Segment LOS



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-7

Existing PM Peak Hour Roadway Segment LOS

Intersection Operations

The existing conditions intersection operations analysis uses the morning and evening peak period turning movement counts collected in April 2017. Intersection LOS is based on the control delay experienced by motorists traveling through the intersection. Table 4.14-6 in the Methodology section of this chapter, presents the control delay thresholds for each LOS level, as defined by the HCM.

Table 4.14-3 presents the AM and PM peak hour LOS at each study intersection under existing conditions (refer to Appendix H for calculations). As shown in Table 4.14-3, all intersections operate at LOS D or better under existing conditions with the exception of the following location:

- SR-99 Southbound Ramps/East Ave./Jensen Ave. during the AM peak hour

TABLE 4.14-3 PEAK HOUR INTERSECTION OPERATIONS – EXISTING CONDITIONS

Intersection	Traffic Control	Peak Hour	Delay[a]	LOS[b]
1. SR-41 Southbound Ramps/Jensen Ave.	Signal	AM	9	A
		PM	7	A
2. SR-41 Northbound Ramps/Jensen Ave.	Signal	AM	4	A
		PM	4	A
3. SR-99 Southbound Ramps/East Ave./Jensen Ave.	Signal	AM	**61**	**E**
		PM	29	C
4. SR-99 Northbound Ramps/East Ave./Jensen Ave.	Signal	AM	53	D
		PM	46	D
5. SR-41 Southbound Ramps/North Ave.	Signal	AM	23	C
		PM	13	B
6. SR-41 Northbound Ramps/North Ave.	Signal	AM	9	A
		PM	12	B
7. SR-99 Southbound Ramps/Fresno St.	Signal	AM	24	C
		PM	18	B
8. SR-99 Northbound Ramps/Fresno St.	Signal	AM	15	B
		PM	19	B

Note: **BOLD** text indicates the intersection operates at an unacceptable LOS based on Caltrans concept LOS.
a. The overall average intersection control delay is reported in seconds per vehicle.
b. Level of service based on Transportation Research Board, 2010. *Highway Capacity Manual 2010,* Washington, D.C.:
Source: Fehr & Peers, 2017.

Queuing

During consultation for scoping the analysis for this report, Caltrans requested that queuing at freeway off-ramps be analyzed. The Methodology section of this chapter, describes the process used to estimate queues on freeway off-ramps. Table 4.14-4 presents the AM and PM peak hour queues on freeway off-ramps; all study freeway off-ramps currently have sufficient storage for existing queues.

TABLE 4.14-4 PEAK HOUR FREEWAY OFF-RAMP QUEUING – EXISTING CONDITIONS

Freeway Off-Ramp	Ramp Length[a]	Peak Hour	95th Percentile Queue[b]
1. SR-41 Southbound Off-Ramp at Jensen Ave.	1,380 ft.	AM	75 ft.
		PM	75 ft.
2. SR-41 Northbound Off-Ramp at Jensen Ave.	1,470 ft.	AM	50 ft.
		PM	50 ft.
3. SR-99 Southbound Off-Ramp at Jensen Ave.	1,440 ft.	AM	625 ft.*
		PM	450 ft.*
4. SR-99 Northbound Off-Ramp at Jensen Ave.	1,050 ft.	AM	225 ft.*
		PM	250 ft.*
5. SR-41 Southbound Off-Ramp at North Ave.	1,575 ft.	AM	250 ft.
		PM	75 ft.
6. SR-41 Northbound Off-Ramp at North Ave.	1,700 ft.	AM	25 ft.
		PM	50 ft.
7. SR-99 Southbound Off-Ramp at Fresno St.	1,030 ft.	AM	100 ft.
		PM	150 ft.
8. SR-99 Northbound Off-Ramp at Fresno St.	1,070 ft.	AM	75 ft.
		PM	100 ft.

Notes: * = 95th percentile volume exceeds capacity; the actual queue may be longer than reported.
a. The ramp length is estimated by measuring the distance from the gore point where the off-ramp departs from the mainline to the limit line at the ramp terminal intersection with the local street, as measured from aerial imagery. Distance is reported in feet.
b. 95th Percentile Queue calculated using Synchro software. Queue is reported in feet and rounded up to the nearest 25-foot interval.
Source: Fehr & Peers, 2017.

Vehicle Miles of Travel

This study uses the base year of travel demand forecasting (TDF) model that was developed for the Fresno General Plan Master Environmental Impact Report (MEIR) to estimate the existing vehicle miles of travel (VMT) in the Plan Area. VMT is a measure of transportation network use that is directly related to fuel consumption, and is routinely used as an input for estimating air pollution emissions, greenhouse gases (GHGs), and energy consumption for environmental impact purposes. Further information regarding VMT and the methodology used to develop the VMT estimates in this study are presented in the Methodology section of this chapter.

Based on outputs from the Fresno General Plan MEIR base year TDF model, the average weekday VMT generated by existing uses in the Plan Area is 285,232 miles.

Transit Facilities

Fresno Area Express (FAX) is the primary provider of bus transit service within the City of Fresno. FAX currently operates the following four fixed-route bus lines in the Plan Area:

- Route 30 – Pinedale/Blackstone/W. Fresno
- Route 32 – Fresno St/Manchester/SW Fresno
- Route 34 – NE Fresno/First/SW Fresno
- Route 38 – Chukchansi Park/River Park/SW Fresno

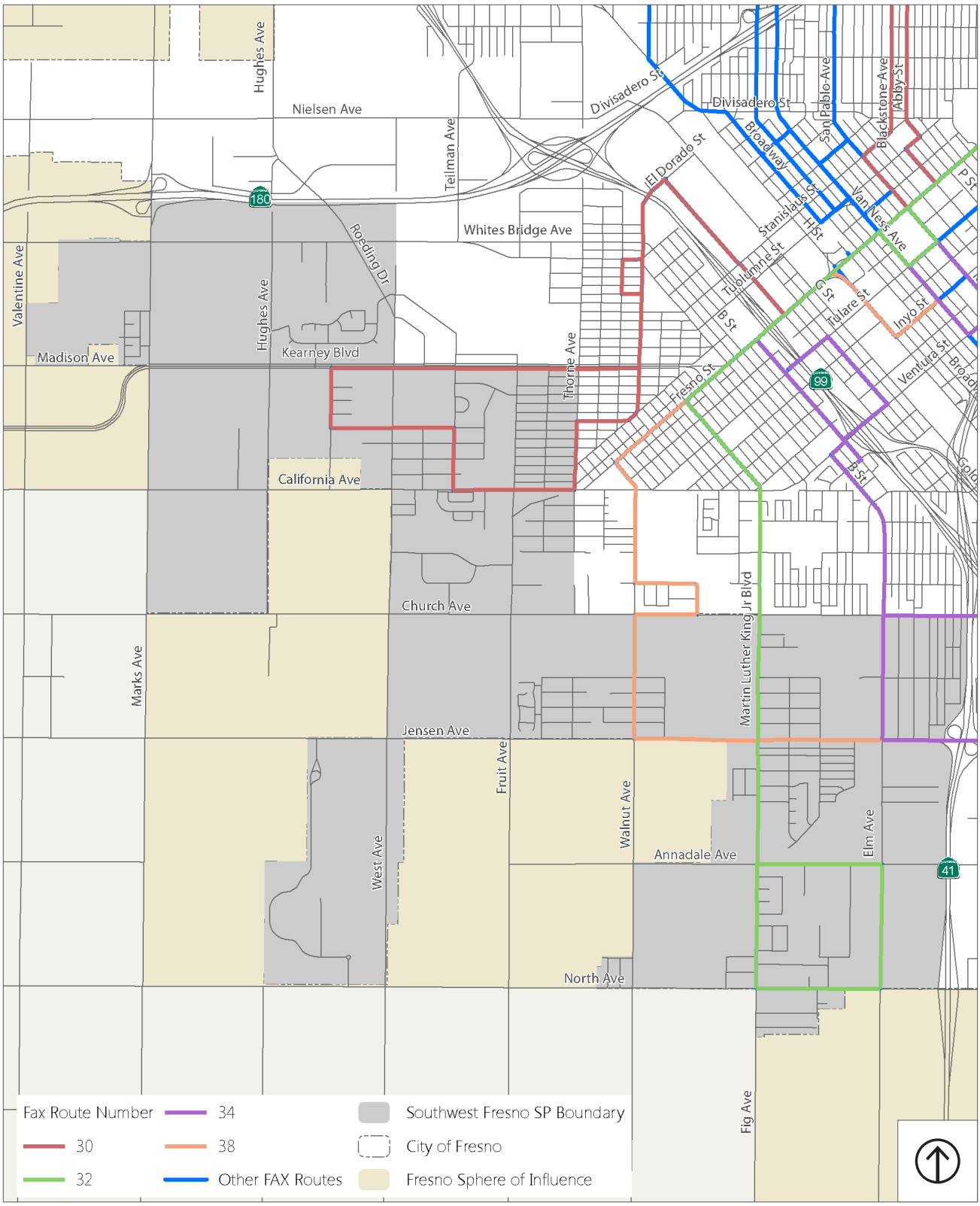
Figure 4.14-8 shows the existing fixed-route transit service in the Plan Area. The areas on the western portion of the Plan Area are less developed and are not directly served by existing fixed-route bus service. In addition to its fixed-route service, FAX Handy Ride provides paratransit service for people with disabilities and those who cannot functionally use the FAX fixed-route bus system.

Bicycle and Pedestrian Facilities

Existing Bicycle Facilities

Bikeways are classified in Chapter 1000 of the Highway Design Manual (Caltrans, 2015), which identifies four primary types of bikeways:

- Class I bike paths, often referred to as shared-use paths or trails, bike paths are off-street facilities that provide exclusive use for non-motorized travel, including bicyclists and pedestrians. Bike paths have minimal cross flow with motorists and are typically located along landscaped corridors.
- Class II bike lanes are on-street facilities that use striping, stencils, and signage to denote preferential or exclusive use by bicyclists. Bikes lanes are located adjacent to motor vehicle traffic, and are intended to alert drivers about the predictable movements of bicyclists, as well as provide adequate space for comfortable riding.
- Class III bike routes are on-street bikeways identified by on-street pavement markings or signage. Bike routes are often identified on roadways that do not provide enough space for dedicated lanes, or on low-speed, low-volume streets to create logical connections within the bicycle network.
- Class IV separated bikeways, also known as "cycle tracks," are physically separated bicycle facilities that are distinct from the sidewalk and designed for exclusive use by bicyclists. They are located within the street right-of-way, but provide similar comfort when compared to Class I shared-use paths. The key feature of a separated bikeway is a vertical element that provides further separation from motor vehicle traffic. Common vertical elements used for separation include a vertical curb, a painted buffer with flexible posts, parked cars, a landscaped area, or a fixed barrier. Separated bikeways may also be constructed by creating a bike lane at a height above the vehicular lanes, with a continuous sloped transition. Separated bikeways can be either one-way or two-way, accommodating a single direction of travel or both.



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-8
Existing Fixed Route Transit Service

Within the Plan Area, Class II bike lanes are present on the following roadways:

- Kearney Boulevard: east of West Avenue
- California Avenue: West Avenue to Fruit Avenue
- Church Avenue: east of Martin Luther King Jr. Boulevard
- Jensen Avenue: Martin Luther King Jr. Boulevard to Elm Avenue
- Thorne Avenue: north of California Avenue
- Marks Avenue: north of Whites Bridge Avenue
- Martin Luther King Jr. Boulevard: adjacent to Gaston Middle School (south of Church Avenue)
- Elm Avenue: north of North Avenue

Figure 4.14-9 presents the existing bicycle facilities in the Plan Area; the bicycle network consists of only Class II bike lanes present on a small fraction of the existing roadway network.

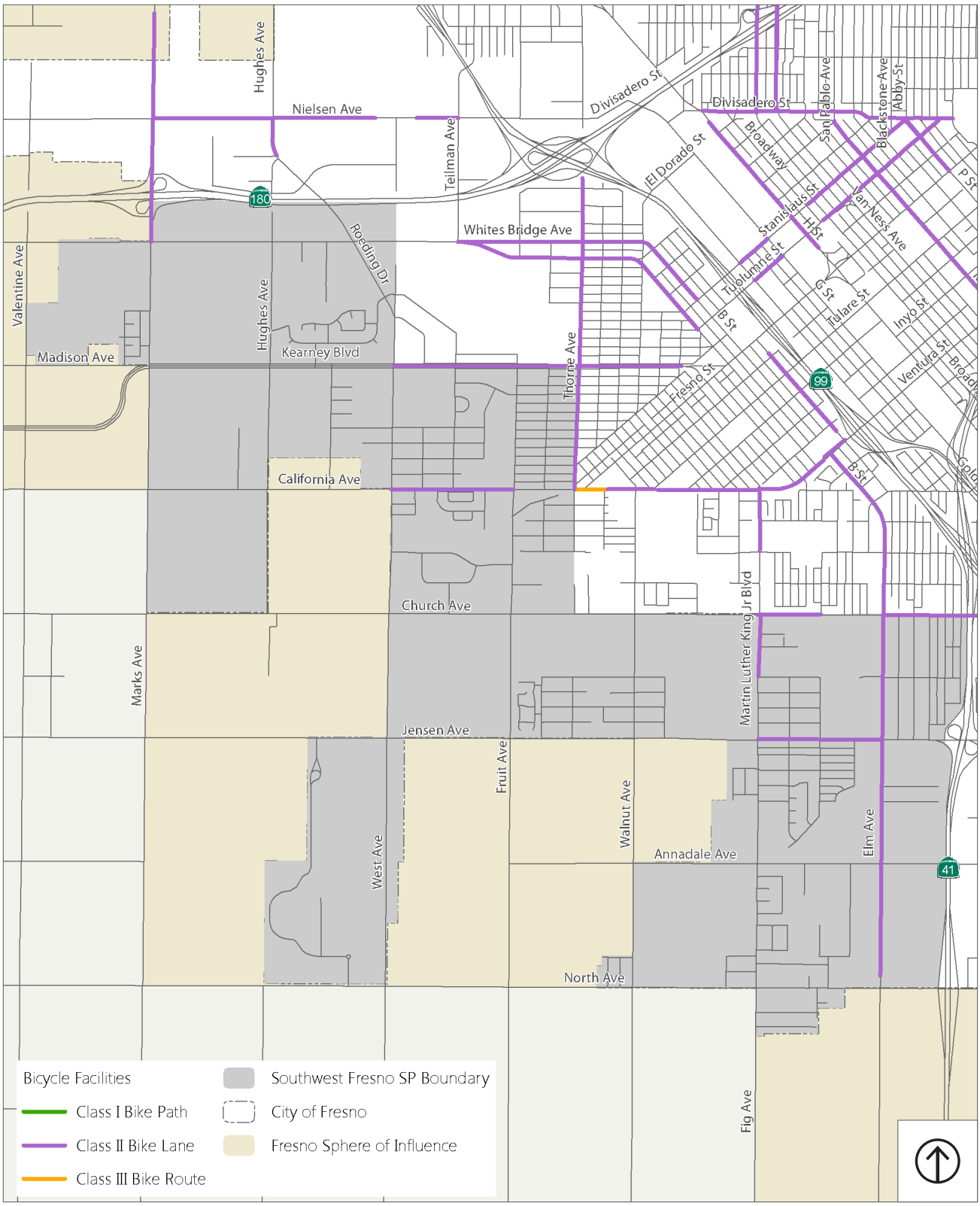
Existing Pedestrian Facilities

Within the Plan Area, sidewalks are generally found on most local residential streets in the built-out northeast portion of the Plan Area. However, there also several gaps in the sidewalk network throughout the Plan Area, most notably along many of the arterials and collectors, including most of Marks Avenue, Hughes Avenue, West Avenue, Roeding Drive, Whites Bridge Avenue, Kearney Boulevard, Church Avenue, Jensen Avenue, and North Avenue. Most of these gaps in sidewalk coverage are located in the more rural areas of the Plan Area.

The patchwork development patterns in the Plan Area have also left some developed areas isolated without any pedestrian connections to adjacent developed areas. For example, the neighborhood north of Jensen Avenue between Fruit and Walnut avenues generally has decent sidewalk coverage on the local streets within the neighborhood, but does not have any sidewalks along the collector or arterial streets that connect the neighborhood to the developed areas to its north and east.

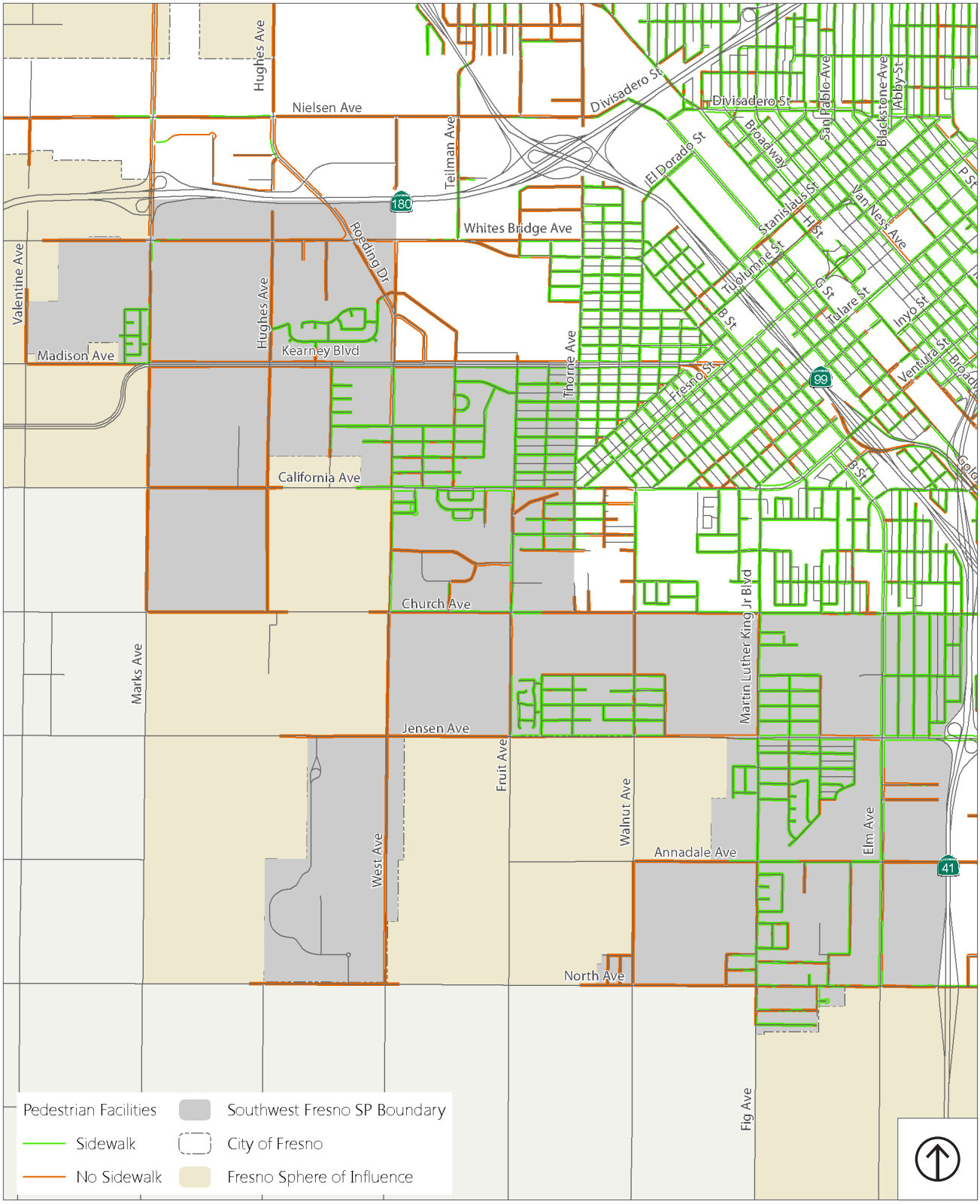
Investigation of pedestrian-involved vehicle collisions from January 2010 to December 2014 based on Statewide Integrated Traffic Records System (SWITRS) data found seven pedestrian collisions and no fatalities within the Plan Area over the four-year time period. These recorded instances do not show any key hot-spots; however, additional collisions not reported in the SWITRS database may have occurred.

Figure 4.14-10 shows the existing presence of sidewalks in the Plan Area.



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-9
Existing Bicycle Facilities



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-10
Existing Pedestrian Facilities

4.14.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact with regard to transportation and traffic if it would:

1. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
2. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
5. Result in inadequate emergency access.
6. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Methodology

This section presents a topic-by-topic discussion of the key methods that this analysis applies to estimate the proposed Plan's travel characteristics and to assess the proposed Plan's impacts on transportation and traffic using the standards of significance presented above. This includes the methodology for developing traffic forecasts and analysis methods to quantify and evaluate traffic conditions.

For bicycle, pedestrian, and transit facilities, emergency vehicle access, air traffic patterns, and roadway design features, this analysis relies upon City of Fresno standards, components of the proposed Plan, and engineering judgment to determine whether the project would cause an impact.

Travel Demand Forecasting

This study uses the travel demand forecasting (TDF) model that was developed for the Fresno General Plan Master Environmental Impact Report (MEIR) to forecast plus project and cumulative traffic volumes. The TDF model uses the following four-step process to assign traffic to the transportation network:

1. Trip Generation: estimates the amount of traffic generated by the proposed Plan based on the planned land uses
2. Trip Distribution: distributes proposed Plan's trips based on origins and destinations in the region
3. Mode Choice: determines mode of travel (walk, bike, transit, auto, etc.); auto and transit trips are identified for assignment to the roadway network

4. Trip Assignment: assigns proposed Plan trips to the roadway network based on the proposed Plan's trip generation, trip distribution, and travel mode

The proposed Plan's land use and roadway network inputs were entered into the base year TDF model to forecast traffic volumes with the project. The proposed Plan's land use and roadway network inputs replaced the future year TDF model inputs within the Plan Area to forecast cumulative traffic volumes with the proposed Plan.

Traffic Operations

This study analyzes traffic operations using level of service (LOS) as the primary measure of performance. Automobile LOS is a qualitative description of traffic flow from the perspective of motorists. The *Highway Capacity Manual* (HCM)[12] defines six levels of service from LOS A representing the least congested traffic conditions to LOS F representing the most congested traffic conditions. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving, as well as speed, travel time, traffic interruptions, and freedom to maneuver. The LOS grades are generally defined as follows:

- LOS A: represents free-flow travel with an excellent level of comfort and convenience for drivers.
- LOS B: has stable operating conditions, but the presence of other drivers causes a noticeable, though slight, reduction in comfort.
- LOS C: has stable operating conditions, but the operation of individual users is substantially affected by the interaction with others in the traffic stream.
- LOS D: represents high-density, but stable flow. Users experience severe restriction in speed and freedom to maneuver. At signalized intersections, many vehicles stop with individual cycle failures (i.e., one or more queued vehicles are not able to depart because of insufficient capacity during the cycle) becoming noticeable.
- LOS E: represents operating conditions at or near capacity. Speeds are reduced to a low but relatively uniform value. At signalized intersections, individual cycle failures become frequent.
- LOS F: represents breakdown conditions where the volume of traffic exceeds the capacity of the roadway. Long queues can form behind these bottleneck points with queued traffic traveling in a stop-and-go fashion.

This study uses methodologies contained in the *Highway Capacity Manual*[13] to analyze traffic operations. Both the City of Fresno *Traffic Impact Study Report Guidelines*[14] and Caltrans's *Guide for the Preparation of Traffic Impact Studies*[15] recommend using the HCM methodology. The HCM methodology is the prevailing methodology standard used throughout the United States.

[12] Transportation Research Board, 2010. *Highway Capacity Manual 2010,* Washington, DC.
[13] Transportation Research Board. (2010). *Highway Capacity Manual 2010.* Washington, DC: Transportation Research Board.
[14] City of Fresno. (2009). *Traffic Impact Study Report Guidelines*. City of Fresno Department of Public Works.
[15] Caltrans, 2002. *Guide for the Preparation of Traffic Impact Studies*. State of California Department of Transportation.

While the HCM methodology is the industry standard for analyzing traffic operations, it should be noted that this conventional method used to analyze the roadway system does not consider the performance of the transportation system as it relates to walking, bicycling, and transit. Pedestrians, bicyclists, and transit riders are all users of the roadway system, but the effectiveness of the roadway system in serving these modes are not considered in the traffic operations analysis and the calculation of LOS. The LOS thresholds used in this study (presented in Table 4.14-6) are based on driver comfort and convenience. Identifying the need for roadway improvements based on the resulting roadway LOS can have unintended impacts to other modes such as increasing the walking time for pedestrians. The Fresno General Plan acknowledges this and establishes goals and policies to create a system of complete streets that serve all modes of transportation. General Plan policies MT-1-g, MT-1-k, MT-1-m, and MT-1-o support this goal by creating context-sensitive LOS standards for transit corridors, activity centers, varying the LOS standard based on the adjacent development patterns, and allowing exceptions to the LOS standard if provisions are made to improve the overall transportation system and/or promote non-vehicular transportation. As a result, the LOS standard varies throughout the city, and within the Plan Area. These General Plan policies are generally focused on peak hour vehicle LOS when traffic conditions are at their most congested. Therefore, this study analyzes traffic conditions during the AM and PM peak hours to be consistent with Fresno General Plan policies and the analysis conducted for the Fresno General Plan MEIR.

Table 4.14-5 presents the LOS standard for each study roadway facility based on General Plan policies MT-1-k, MT-1-l, MT-1-m, MT-1-n, and MT-2-i.

Roadway Segments

This study uses peak hour traffic volume LOS capacity thresholds developed for the Fresno General Plan MEIR for analyzing operations on roadway segments. These thresholds shown in Table 4.14-6 were calculated based on the HCM methodology. As noted above, these thresholds do not consider the performance of the transportation system as it relates to walking, bicycling, and transit; and the traffic operations analysis is primarily focused on driver comfort and convenience.

Based on the LOS standards presented in Table 4.14-5 as established in the Fresno General Plan and the City of Fresno *Traffic Impact Study Report Guidelines*, the proposed Plan would cause a significant impact to traffic if it would:

- Cause a roadway segment operating at or better than the LOS standard identified in Table 4.14-4 to operate worse than the LOS standard (e.g., cause a roadway operating at LOS D or better to operate at LOS E or worse if the LOS standard is LOS D) during the AM or PM peak hour.

Increase the volume-to-capacity (v/c) ratio by 0.01 for a roadway segment operating worse than the LOS standard without the project during the AM or PM peak hour.

TABLE 4.14-5 STUDY ROADWAY SEGMENT LOS STANDARDS

Roadway Segment	Traffic Impact Zone (TIZ)[a]	LOS Standard[b]
1. Whitesbridge Ave.: Marks Ave. to Roeding Dr.	III	D
2. Whitesbridge Ave.: Roeding Dr. to Thorne Ave.	I	F
3. Kearney Blvd.: Marks Ave. to West Ave.	III	D
4. Kearney Blvd.: West Ave. to Thorne Ave.	II	E
5. California Ave.: Marks Ave. to West Ave.	III	D
6. California Ave.: West Ave. to Fresno St	II	E
7. California Ave.: Fresno St to MLK Jr. Blvd.	I	F
8. Ventura St: MLK Jr. Blvd. to B Street	I	F
9. Church Ave.: Marks Ave. to West Ave.	III	D
10. Church Ave.: West Ave. to Walnut Ave.	III	D
11. Church Ave.: Walnut Ave. to Elm Ave.	III	D
12. Jensen Ave.: Marks Ave. to West Ave.	III	D
13. Jensen Ave.: West Ave. to Walnut Ave.	III	D
14. Jensen Ave.: Walnut Ave. to Elm Ave.	III	D
15. North Ave.: Walnut Ave. to Elm Ave.	III	D
16. Marks Ave.: Whitesbridge Ave. to California Ave.	III	D
17. Marks Ave.: California Ave. to Jensen Ave.	III	D
18. Hughes Ave./Roeding Dr.: Nielsen Ave. to Whitesbridge Ave.	III	D
19. Hughes Ave.: Whitesbridge Ave. to California Ave.	III	D
20. Hughes Ave.: California Ave. to Church Ave.	III	D
21. Roeding Dr./West Ave.: Whitesbridge Ave. to California Ave.	II	E
22. West Ave.: California Ave. to Jensen Ave.	III	D
23. Fruit Ave.: California Ave. to Jensen Ave.	III	D
24. Thorne Ave.: Whitesbridge Ave. to California Ave.	I	F
25. Walnut Ave.: California Ave. to Jensen Ave.	I	F

TABLE 4.14-5 STUDY ROADWAY SEGMENT LOS STANDARDS

Roadway Segment	Traffic Impact Zone (TIZ)[a]	LOS Standard[b]
26. Walnut Ave.: Jensen Ave. to North Ave.	III	D
27. Martin Luther King Jr. Blvd.: California Ave. to Jensen Ave.	III	D
28. Martin Luther King Jr. Blvd.: Jensen Ave. to North Ave.	III	D
29. Elm Ave.: Ventura St to Jensen Ave.	II	E
30. Elm Ave.: Jensen Ave. to North Ave.	IV	E

a. Traffic Impact Zone based on Figure MT-4 in the Fresno General Plan.
b. Per General Plan policy MT-2-l, roadways in TIZ I have a LOS F standard, roadways in TIZ II and TIZ IV have a LOS E standard, and roadways in TIZ III have a LOS D standard. This is also consistent with General Plan policies MT-1-k, MT-1-l, MT-1-m, and MT-1-n.
Source: Fresno General Plan, 2014.

TABLE 4.14-6 ROADWAY FUNCTIONAL CLASSIFICATION AND PEAK HOUR TRAFFIC VOLUME LOS THRESHOLDS

Functional Classification	Median	Lanes	Peak Hour Traffic Volume LOS Threshold				
			A	B	C	D	E
Arterial	Raised Median	6	-	-	1,560	5,270	5,610
		4	-	-	1,000	3,470	3,730
		2	-	-	440	1,640	1,860
	TWLTL[a]	4	-	-	940	3,290	3,550
		2	-	-	420	1,550	1,760
	Undivided[b]	4	-	-	770	2,740	2,980
		2	-	-	340	1,270	1,480
Collector	Raised Median	4	-	-	1,000	3,470	3,730
		2	-	-	440	1,640	1,860
	TWLTL[a]	4	-	-	940	3,290	3,550
		2	-	-	420	1,550	1,760
	Undivided[b]	4	-	-	770	2,740	2,980
		2	-	-	340	1,270	1,480

Note: "-" LOS is not achievable.
a. TWLTL = two-way left-turn lane: a center lane exclusively for left-turning vehicles from either direction, which also provides space between opposing directions of travel.
b, Undivided = roadways with physical separation between opposing directions of travel, such as a raised median.
Source: Fresno General Plan MEIR, 2014.

Intersections

Intersection LOS is based on the control delay experienced by motorists traveling through the intersection. At signalized intersections, the LOS is determined by the average control delay per vehicle, as described in Chapter 18 of the 2010 HCM. Table 4.14-7 presents the delay range for each LOS for signalized intersections.

TABLE 4.14-7 LEVEL OF SERVICE DEFINITIONS – SIGNALIZED INTERSECTIONS

Level of Service	Description	Average Control Delay[a]
A	Volume-to-capacity ratio is low and either progression is exceptionally favorable or cycle length is very short. Most vehicles arrive during the green phase and travel through the intersection without stopping.	≤ 10
B	Volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10 to 20
C	Progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35
D	Volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35 to 55
E	Volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	>55 to 80
F	Volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80

a. Average control delay presented in seconds per vehicle. Delay values are rounded to the nearest second and evaluated for LOS based on the above thresholds (i.e., 10 seconds per vehicle = LOS A)
Source: Transportation Research Board, 2010.

This study calculates control delay and LOS at each intersection using the Synchro 9 traffic operations analysis software, which applies the 2010 HCM procedures.

Since all of the intersections analyzed in this study are under Caltrans jurisdiction, this analysis uses the concept LOS established in Caltrans CSMP and TCR documents as the LOS standard. Both the SR-41 TCR and SR-99 CSMP identify LOS D as the concept LOS for these freeways. Consistent with this concept LOS and Caltrans' *Guide for the Preparation of Traffic Impact Studies*,[16] the proposed Plan would cause a significant impact to traffic if it would:

- Cause an intersection operating at an acceptable LOS D or better to operate at LOS E or LOS F during the AM or PM peak hour.
- Result in an increase in the average delay for a study intersection that is already operating at an unacceptable LOS E or LOS F during the AM or PM peak hour.

[16] Caltrans, 2002. *Guide for the Preparation of Traffic Impact Studies*. State of California Department of Transportation.

Queuing

This study reports the 95th percentile queues at freeway off-ramps using the Synchro 9 traffic operations analysis software. The Synchro 9 queue report provides the 95th percentile queue length in feet. This report assumes that each vehicle in the queue uses approximately 25 feet. Since the Synchro 9 output does not round to the nearest vehicle length, this analysis rounds the Synchro 9 output up to the next highest 25-foot interval.

Caltrans' *Guide for the Preparation of Traffic Impact Studies* does not specify a standard for queuing. However, queues that would back onto the freeway mainline would potentially cause a hazard for traffic traveling in adjacent through lanes. Therefore, the proposed Plan would cause a significant impact to queuing if it would:

- Cause an increase the queue length on a freeway off-ramp such that the 95th percentile queue extends back to the freeway mainline.
- Add traffic to a freeway off-ramp whose 95th percentile queue already extends back to the freeway mainline.

Vehicle Miles of Travel

VMT is a measure of transportation network use. It is directly related to fuel consumption, and is routinely used as an input for estimating air pollution emissions, GHGs, and energy consumption for environmental impact purposes. As part of implementing SB 743, the draft CEQA Guidelines being developed by OPR proposes to eliminate vehicle delay and LOS and replace it with VMT to evaluate transportation CEQA impacts. Since the guidelines will require certification and adoption by the Secretary for Resources before they go into effect, this study continues to use LOS for evaluating transportation impacts. However, this report also presents the anticipated VMT generated by the proposed Plan for informational purposes.

This study uses the TDF model described in the Travel Demand Forecasting section above to estimate VMT. The TDF model is divided into travel analysis zones (TAZs) to represent specific geographic areas in Fresno County. This study reports the VMT generated by the TAZs that correspond to the project. VMT is further disaggregated into the following three categories based on the origin and destination of the trip:

- Internal-to-Internal (I-I): trips that travel within the Plan Area.
- Internal-to-External (I-X): trips that travel from the project to a location outside the Plan Area.
- External-to-Internal (X-I): trips that travel to the project from a location outside the Plan Area.

The VMT presented in this report is a "full accounting" of the trips to and from the Plan Area, tracking the lengths of trips from their origin to their destination. It does not include any trips that only pass through the Plan Area or do not start or end in the Plan Area (external-to-external trips).

4.14.3 IMPACT DISCUSSION

This section analyzes potential proposed Plan-specific impacts to transportation and traffic.

TRANS-1	**The proposed Plan would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit, non-motorized travel, and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.**

Development associated with the proposed Plan would increase the amount of vehicle traffic, which would require the improvement and expansion of the roadway network in the Plan Area to serve the associated travel demand. The traffic generated by the proposed Plan will be caused by future development within the Plan Area. Figure 4.14-11 presents the land use map for the Plan Area.

Figure 4.14-12 shows the planned number of lanes on the roadway network in the Plan Area.

Project Traffic Forecasts

This study uses the TDF model developed for the Fresno General Plan MEIR to forecast the amount of traffic generated by the proposed Plan. For the existing plus proposed Plan scenario, the development potential associated with the proposed Plan was added to the Fresno General Plan MEIR TDF model baseline land uses. The proposed Plan's land uses included residential units and retail, office, and industrial employment. In addition, the roadway network in the baseline TDF model was updated to match the roadway network presented in Figure 4.14-12.

The outputs of the proposed Plan's TDF model were reviewed and compared to the baseline model outputs. The proposed Plan's traffic forecasts were developed using a process known as the "difference method," which adjusts raw model volume forecasts based on expected incremental growth from existing conditions using the following formula:

Existing Plus Proposed Plan Traffic Forecasts = Existing Traffic Count +
(Plus Proposed Plan Raw Model Volume–Baseline Raw Model Volume)

Figure 4.14-13 presents the resulting daily traffic volumes for the 30 study roadway segments under existing plus proposed Plan's conditions.

Source: City of Fresno.

RESIDENTIAL
- Low Density (1 - 3.5 du/ac)
- Medium Low Density (3.5 - 6 du/ac)
- Medium Density (5 - 12 du/ac)
- Medium High Density (12 - 16 du/ac)
- Urban Neighborhood (16 - 30 du/ac)

COMMERCIAL
- C Community
- R Regional
- G General

EMPLOYMENT
- O Office

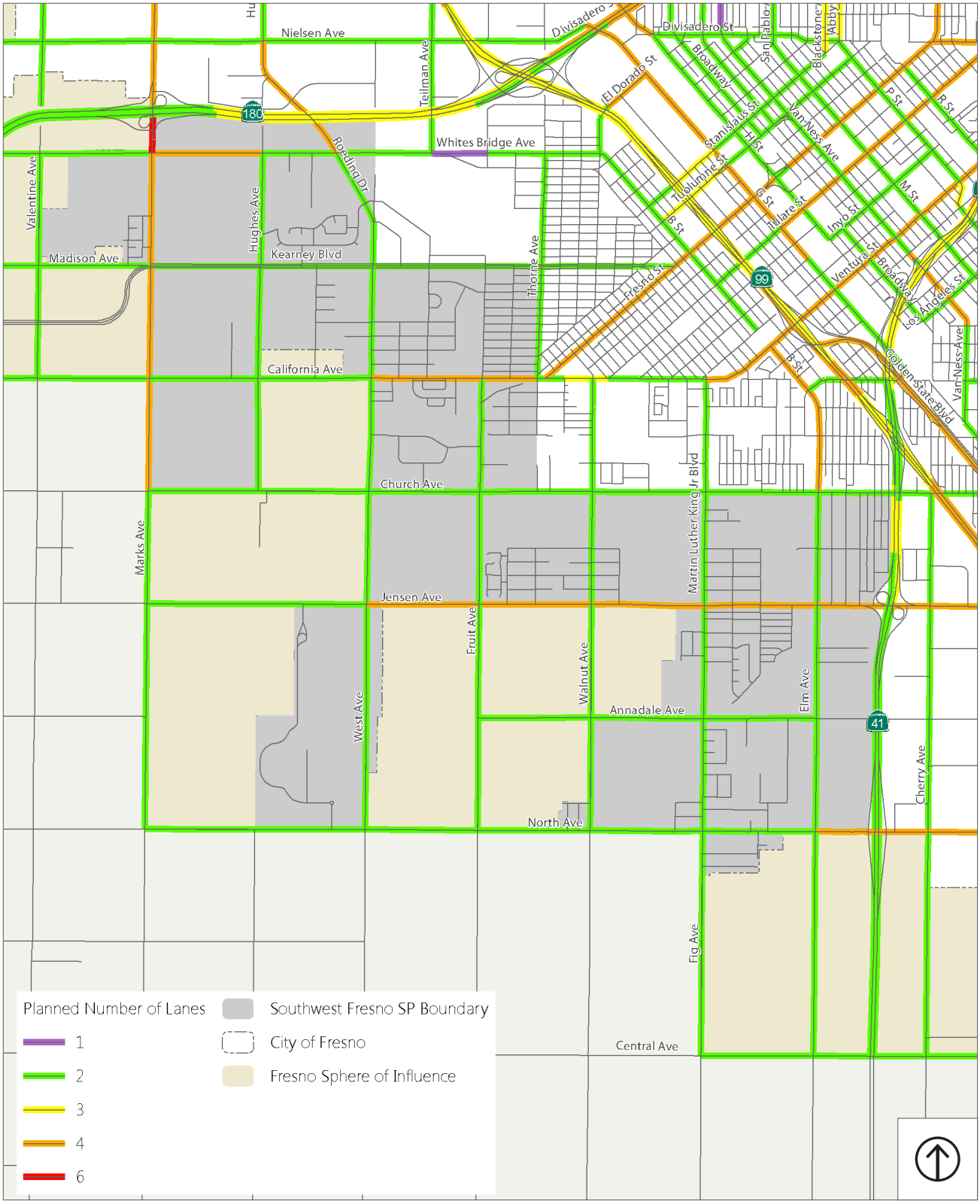
MIXED-USE
- CMX Corridor/Center Mixed-Use
- NMX Neighborhood Mixed-Use

PUBLIC FACILITIES
- PF Public Facility
- E Elementary School
- M Middle School
- C College
- PG&E PG&E Station
- WR Water Recharge Basin
- A Airport
- CH Church
- HOSP Hospital
- NC Neighborhood Center

Note: Dual land use designations for proposed public facilities and open space are shown on Figure 3-3.

OPEN SPACE
- P Park
- NP Neighborhood Park
- NP* Neighborhood Park*
  *The exact location of the parks within the Mission Ranch development will be determined in a future planning process.
- CP Community Park
- RP Regional Park
- OS Open Space
- CZ Clear Zone
- PB Ponding Basin
- PBP Ponding Basin Park

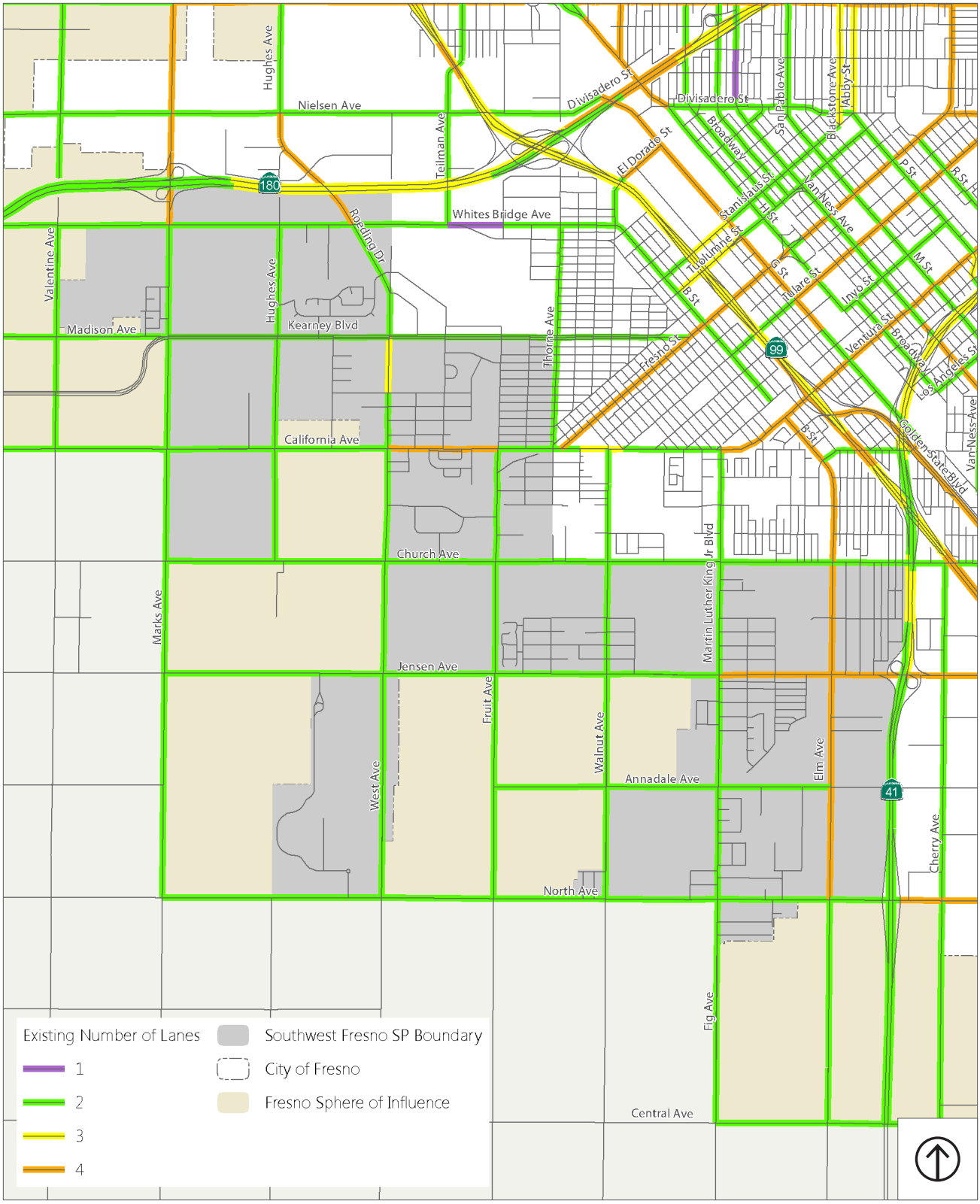
Figure 4.14-11
Proposed Land Use Plan



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-12

Existing Plus Proposed Plan's Roadway Network



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-3
Existing Roadway Network

Vehicle Miles of Travel

The Fresno General Plan MEIR TDF model is also used to estimate and forecast VMT. Table 4.14-8 compares the VMT existing condition estimate with the forecasted VMT under existing plus proposed Plan conditions. As shown in Table 4.14-8, VMT is projected to increase from 285,232 miles to 1,670,638 miles per weekday with build-out of the proposed Plan, an increase of 1,385,406 miles over existing conditions.

TABLE 4.14-8 VMT COMPARISON – EXISTING CONDITIONS AND EXISTING PLUS PROPOSED PLAN

	Average Weekday VMT	
Trip Type	Existing Conditions	Existing Plus Proposed Plan Conditions
Internal-to-Internal (I-I)	1,153	41,991
Internal-to-External (I-I)	141,973	815,020
External-to-Internal (I-I)	142,106	813,627
Total	285,232	1,670,638

Source: Fresno COG Countywide Travel Demand Forecasting Model as modified for the proposed Plan.

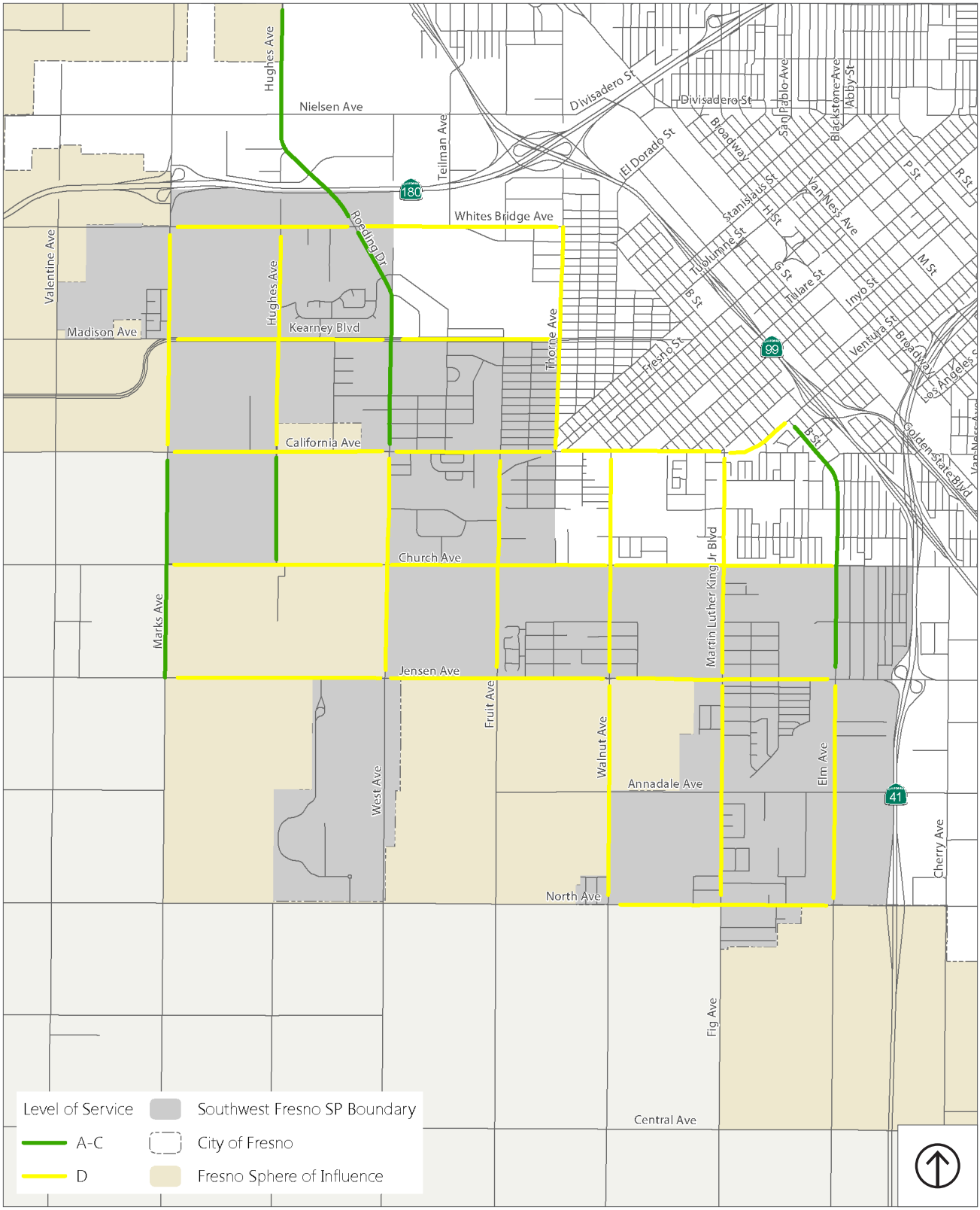
Traffic Operations

Roadway Segment Operations

Table 4.14-9 presents the AM and PM peak hour traffic volumes and LOS for each study roadway segment under existing plus proposed Plan conditions. Figure 4.14-14 presents the AM peak hour roadway LOS under existing plus proposed Plan conditions, while Figure 4.14-15 presents the PM peak hour roadway LOS. As shown in Table 4.14-9, all study roadway segments operate at LOS C or LOS D under existing plus proposed Plan conditions. While many roadway segments go from LOS C under existing conditions to LOS D under existing plus proposed Plan conditions, all roadways continue to operate at an acceptable LOS (i.e., at or better than the LOS standard identified in Tale 4.14-4).Therefore, the proposed Plan has a *less than significant* impact on roadway operations.

Intersection Operations

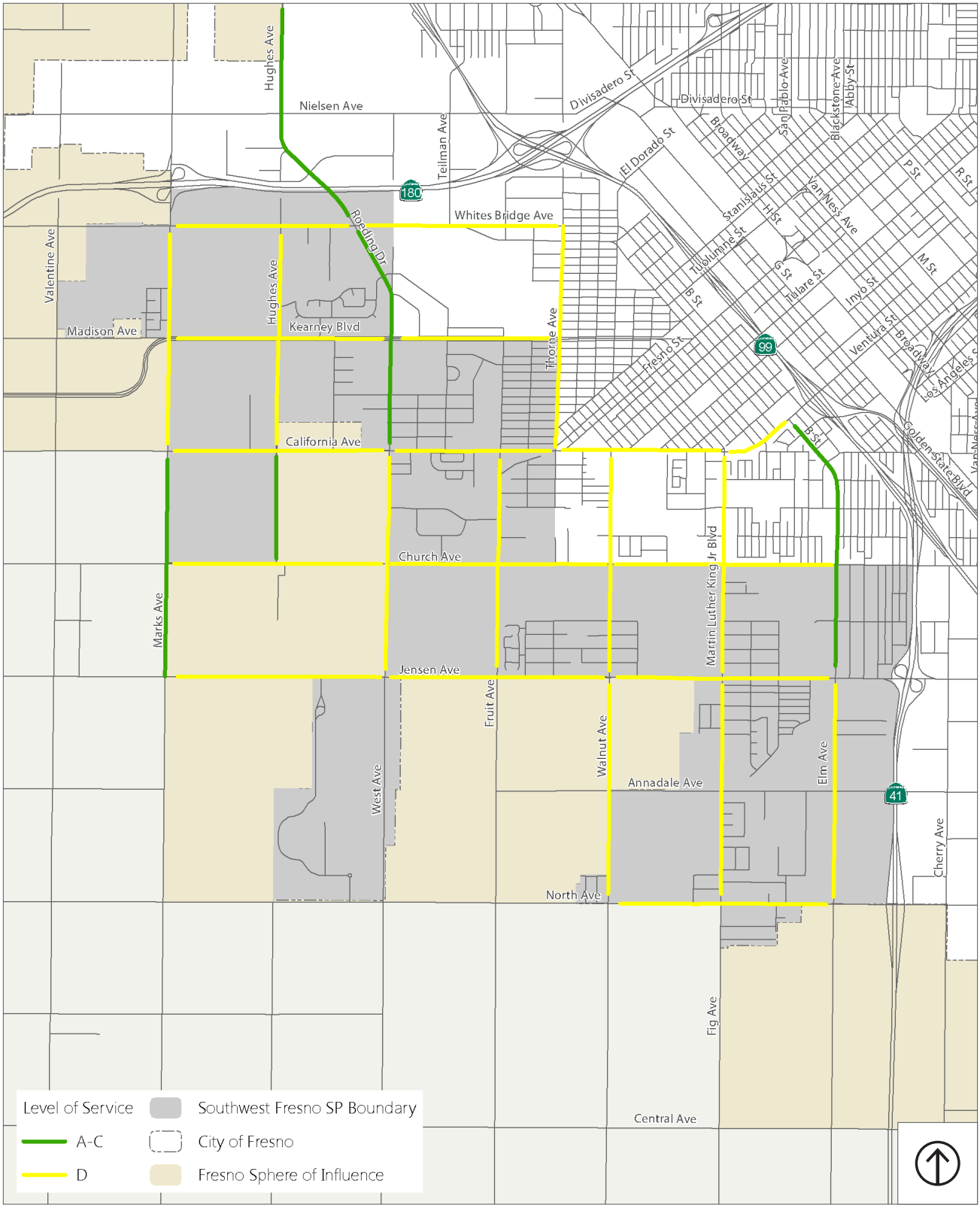
Table 4.14-10 presents the AM and PM peak hour LOS for each study intersection under existing plus proposed Plan conditions (refer to Appendix H for calculations). The results presented in Table 4.14-19 reflect signal timing changes that are anticipated to occur during routine maintenance of the traffic signals by Caltrans. This includes adjustments to cycle lengths and shifting green time to phases for movements that experience greater increases in traffic volume. These adjustments in one case (at the intersection of SR-99 Northbound Ramps/East Ave./Jensen Ave.) result in slightly better operations under existing plus proposed Plan conditions than existing conditions due to more efficient use of the traffic signal cycle.



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-14

Existing Plus Proposed Plan AM Peak Hour Roadway Segment LOS



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-15

Existing Plus Proposed Plan PM Peak Hour Roadway Segment LOS

TABLE 4.14-9 PEAK HOUR ROADWAY SEGMENT OPERATIONS – EXISTING PLUS PROPOSED PLAN CONDITIONS

Roadway Segment	Classification[a]	Peak Hour	Existing Conditions			Existing Plus Proposed Plan		
			Volume	V/C[b]	LOS[v]	Volume	V/C[b]	LOS[v]
1. Whitesbridge Ave.: Marks Ave. to Roeding Dr.	4-lane Divided Collector	AM	180	0.12	C	1,280	0.34	D
		PM	260	0.18	C	1,650	0.44	D
2. Whitesbridge Ave.: Roeding Dr. to Thorne Ave.	2-lane Undivided Collector	AM	110	0.08	C	360	0.24	D
		PM	210	0.14	C	560	0.38	D
3. Kearney Blvd.: Marks Ave. to West Ave.	2-lane Undivided Collector	AM	290	0.19	C	730	0.50	D
		PM	210	0.14	C	710	0.48	D
4. Kearney Blvd.: West Ave. to Thorne Ave.	2-lane Undivided Collector	AM	240	0.16	C	620	0.42	D
		PM	170	0.12	C	600	0.41	D
5. California Ave.: Marks Ave. to West Ave.	2-lane Collector with TWLTL	AM	180	0.12	C	440	0.25	D
		PM	170	0.12	C	480	0.27	D
6. California Ave.: West Ave. to Fresno St.	4-lane Divided Arterial	AM	350	0.19	C	1,350	0.36	D
		PM	430	0.23	C	1,510	0.40	D
7. California Ave.: Fresno St. to Martin Luther King Jr. Blvd.	2-lane Arterial with TWLTL	AM	590	0.34	D	790	0.45	D
		PM	550	0.31	D	790	0.45	D
8. Ventura St: Martin Luther King Jr. Blvd. to B Street	4-lane Divided Arterial	AM	930	0.25	C	2,100	0.56	D
		PM	840	0.22	C	2,130	0.57	D
9. Church Ave.: Marks Ave. to West Ave.	2-lane Undivided Collector	AM	80	0.05	C	570	0.39	D
		PM	120	0.08	C	670	0.45	D
10. Church Ave.: West Ave. to Walnut Ave.	2-lane Collector with TWLTL	AM	150	0.10	C	690	0.39	D
		PM	170	0.11	C	770	0.44	D
11. Church Ave.: Walnut Ave. to Elm Ave.	2-lane Collector with TWLTL	AM	390	0.22	C	870	0.49	D
		PM	370	0.21	C	880	0.50	D
12. Jensen Ave.: Marks Ave. to West Ave.	2-lane Undivided Arterial	AM	320	0.22	C	390	0.27	D
		PM	410	0.28	D	510	0.34	D
13. Jensen Ave.: West Ave. to Walnut Ave.	4-lane Divided Arterial	AM	420	0.28	D	1,300	0.35	D
		PM	560	0.38	D	1,520	0.41	D
14. Jensen Ave.: Walnut Ave. to Elm Ave.	4-lane Divided Arterial	AM	730	0.20	C	2,110	0.56	D
		PM	920	0.25	C	2,320	0.62	D
15. North Ave.: Walnut Ave. to Elm Ave.	2-lane Arterial with TWLTL	AM	380	0.26	D	1,060	0.60	D
		PM	340	0.23	D	1,150	0.65	D
16. Marks Ave.: Whitesbridge Ave. to California Ave.	4-lane Divided Arterial	AM	620	0.34	D	1,790	0.48	D
		PM	670	0.36	D	2,050	0.55	D
17. Marks Ave.: California Ave. to Jensen Ave.	2-lane Undivided Arterial	AM	140	0.10	C	100	0.07	C
		PM	210	0.14	C	170	0.12	C
18. Hughes Ave./Roeding Dr.: Nielsen Ave. to Whitesbridge Ave.	4-lane Divided Collector	AM	200	0.05	C	660	0.18	C
		PM	230	0.06	C	760	0.20	C

TABLE 4.14-9 PEAK HOUR ROADWAY SEGMENT OPERATIONS – EXISTING PLUS PROPOSED PLAN CONDITIONS

Roadway Segment	Classification[a]	Peak Hour	Existing Conditions			Existing Plus Proposed Plan		
			Volume	V/C[b]	LOS[v]	Volume	V/C[b]	LOS[v]
19. Hughes Ave.: Whitesbridge Ave. to California Ave.	2-lane Undivided Collector	AM	20	0.02	C	420	0.29	D
		PM	50	0.03	C	530	0.36	D
20. Hughes Ave.: California Ave. to Church Ave.	2-lane Undivided Collector	AM	20	0.01	C	260	0.18	C
		PM	30	0.02	C	320	0.22	C
21. Roeding Dr./West Ave.: Whitesbridge Av. to California Av.	2-lane Divided Collector	AM	80	0.06	C	410	0.22	C
		PM	80	0.05	C	440	0.24	C
22. West Ave.: California Ave. to Jensen Ave.	2-lane Collector with TWLTL	AM	70	0.05	C	530	0.30	D
		PM	80	0.05	C	580	0.33	D
23. Fruit Ave.: California Ave. to Jensen Ave.	2-lane Undivided Collector	AM	140	0.09	C	750	0.51	D
		PM	180	0.12	C	810	0.55	D
24. Thorne Ave.: Whitesbridge Ave. to California Ave.	2-lane Collector with TWLTL	AM	240	0.14	C	510	0.29	D
		PM	270	0.15	C	600	0.34	D
25. Walnut Ave.: California Ave. to Jensen Ave.	2-lane Undivided Collector	AM	380	0.26	D	1,030	0.70	D
		PM	350	0.24	D	1,100	0.74	D
26. Walnut Ave.: Jensen Ave. to North Ave.	2-lane Collector with TWLTL	AM	20	0.01	C	730	0.41	D
		PM	50	0.04	C	820	0.47	D
27. Martin Luther King Jr. Blvd.: California Ave. to Jensen Ave.	2-lane Collector with TWLTL	AM	500	0.28	D	1,370	0.78	D
		PM	520	0.29	D	1,400	0.80	D
28. Martin Luther King Jr. Blvd.: Jensen Ave. to North Ave.	2-lane Collector with TWLTL	AM	330	0.22	C	1,050	0.60	D
		PM	290	0.20	C	1,070	0.61	D
29. Elm Ave.: Ventura St to Jensen Ave.	4-lane Divided Arterial	AM	290	0.08	C	580	0.16	C
		PM	600	0.16	C	970	0.26	C
30. Elm Ave.: Jensen Ave. to North Ave.	2-lane Divided Arterial	AM	240	0.06	C	670	0.36	D
		PM	420	0.11	C	920	0.49	D

a. Roadway classifications reflect changes proposed by proposed Plan. Description of classifications are presented in the Local Roadways section:
Undivided = roadways without physical separation between opposing directions of travel
TWLTL = two-way left-turn lane: a center lane exclusively for left-turning vehicles from either direction, which also provides space between opposing directions of travel
Divided = roadways with physical separation between opposing directions of travel, such as a raised median
b. Volume-to-capacity ratio; capacity defined as the LOS E/F threshold as presented in Table 4.15-5.
c. Level of service based on volume thresholds presented in Tale 4.15-5.
Source: Fehr & Peers, 2017.

As shown in Table 4.14-10, all intersections operate at LOS D or better under existing plus proposed Plan conditions with the exception of the following location:

- SR-99 Southbound Ramps/East Avenue/Jensen Avenue during the AM peak hour

TABLE 4.14-10 PEAK HOUR INTERSECTION OPERATIONS – EXISTING PLUS PROPOSED PLAN CONDITIONS

Intersection	Traffic Control	Peak Hour	Existing Conditions		Existing Plus Proposed Plan	
			Delay[a]	LOS[b]	Delay[a]	LOS[b]
1. SR-41 Southbound Ramps/Jensen Ave.	Signal	AM	9	A	22	C
		PM	7	A	22	C
2. SR-41 Northbound Ramps/Jensen Ave.	Signal	AM	4	A	4	A
		PM	4	A	5	A
3. SR-99 Southbound Ramps/East Ave./Jensen Ave.	Signal	AM	**61**	**E**	**61**	**E**
		PM	29	C	35	D
4. SR-99 Northbound Ramps/East Ave./Jensen Ave.	Signal	AM	53	D	39	D
		PM	46	D	31	C
5. SR-41 Southbound Ramps/North Ave.	Signal	AM	23	C	53	D
		PM	13	B	45	D
6. SR-41 Northbound Ramps/North Ave.	Signal	AM	9	A	18	B
		PM	12	B	28	C
7. SR-99 Southbound Ramps/Fresno St.	Signal	AM	24	C	27	C
		PM	18	B	25	C
8. SR-99 Northbound Ramps/Fresno St.	Signal	AM	15	B	19	B
		PM	19	B	32	C

Notes: **BOLD** text indicates the intersection operates at an unacceptable LOS based on Caltrans concept LOS.
UNDERLINED text indicates the proposed Plan would have a significant impact based on the significance criteria presented in the Methodology section.
a. The overall average intersection control delay is reported in seconds per vehicle.
b. Level of service based on *Highway Capacity Manual* (Transportation Research Board, 2010).
Source: Fehr & Peers, 2017.

While the SR-99 Southbound Ramps/East Avenue/Jensen Avenue operates at an unacceptable LOS E under existing plus proposed Plan conditions, the proposed Plan does not increase the delay from existing conditions. Therefore, this is a *less than significant* impact.

The remaining intersections continue to operate at an acceptable LOS D or better under existing plus proposed Plan conditions. Therefore, the proposed Plan has a *less than significant* impact on intersection operations.

Queuing

As described above, the proposed Plan would have a *less than significant* effect on roadway operations, intersection operations, and freeway off-ramp queuing. While the proposed Plan would add trips to the roadway network, the resulting roadway, intersection, and freeway off-ramp conditions would not conflict with applicable plans, ordinances, or policies establishing measures of effectiveness (i.e., delay, LOS, and queue lengths) for the performance of the circulation system. Therefore, this impact is *less than significant*.

Table 4.14-11 presents the AM and PM peak hour queues on freeway off-ramps under existing plus proposed Plan conditions. As shown in Table 4.14-11, all study freeway off-ramps have sufficient storage for existing plus proposed Plan queues. While the proposed Plan causes increases in queue lengths on freeway off-ramps, all queues can be adequately stored on the off-ramp without backing onto the freeway mainline. Therefore, the proposed Plan has a less than significant impact on freeway off-ramp queuing.

TABLE 4.14-11 PEAK HOUR FREEWAY OFF-RAMP QUEUING – EXISTING PLUS PROPOSED PLAN CONDITIONS

			95th Percentile Queue[b]	
Freeway Off-Ramp	Ramp Length[a]	Peak Hour	Existing Conditions	Existing Plus Proposed Plan
1. SR-41 Southbound Off-Ramp at Jensen Ave.	1,380 ft.	AM	75 ft.	600 ft.*
		PM	75 ft.	550 ft.*
2. SR-41 Northbound Off-Ramp at Jensen Ave.	1,470 ft.	AM	50 ft.	50 ft.
		PM	50 ft.	50 ft.
3. SR-99 Southbound Off-Ramp at Jensen Ave.	1,440 ft.	AM	625 ft.*	650 ft.*
		PM	450 ft.*	475 ft.*
4. SR-99 Northbound Off-Ramp at Jensen Ave.	1,050 ft.	AM	225 ft.*	400 ft.*
		PM	250 ft.*	475 ft.*
5. SR-41 Southbound Off-Ramp at North Ave.	1,575 ft.	AM	250 ft.	400 ft.*
		PM	75 ft.	100 ft.
6. SR-41 Northbound Off-Ramp at North Ave.	1,700 ft.	AM	25 ft.	50 ft.
		PM	50 ft.	50 ft.
7. SR-99 Southbound Off-Ramp at Fresno St.	1,030 ft.	AM	100 ft.	400 ft.*
		PM	150 ft.	225 ft.
8. SR-99 Northbound Off-Ramp at Fresno St.	1,070 ft.	AM	75 ft.	100 ft.
		PM	100 ft.	125 ft.

Note: * = 95th percentile volume exceeds capacity; the actual queue may be longer than reported.
a. The ramp length is estimated by measuring the distance from the gore point where the off-ramp departs from the mainline to the limit line at the ramp terminal intersection with the local street, as measured from aerial imagery. Distance is reported in feet.
b. 95th Percentile Queue calculated using Synchro software. Queue is reported in feet and rounded up to the nearest 25-foot interval.
Source: Fehr & Peers, 2017.

As described above, the Proposed Plan would have a *less than significant* effect on roadway operations, intersection operations, and freeway off-ramp queuing. While the Proposed Plan would add trips to the roadway network, the resulting roadway, intersection, and freeway off-ramp conditions would not conflict with applicable plans, ordinances, or policies establishing measures of effectiveness (i.e., delay, LOS, and queue lengths) for the performance of the circulation system. Therefore, this impact is *less than significant*.

Significance Without Mitigation: Less than significant.

TRANS-2	**The proposed Plan would not conflict with an applicable congestion management program, including, but not limited to, level of service standards, travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.**

The passage of California Assembly Bill 2419 (Bowler) in 1996 allowed counties to "opt out" of the California Congestion Management Program, referenced above, if a majority of local governments elected to exempt themselves from California's congestion management plans. On September 25, 1997, the Fresno COG Policy Board rescinded the Fresno County Congestion Management Program at the request of the local member agencies. Therefore, this impact criterion is not applicable and this impact is *less than significant.*

Significance Without Mitigation: Less than significant.

TRANS-3	**The proposed Plan would not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.**

The Fresno-Chandler Executive Airport is the only aviation facility near the proposed Plan. It is a general aviation airport owned and operated by the City of Fresno located immediately northwest of the Plan Area north of Kearney Boulevard and east of West Avenue. According to the Fresno-Chandler Downtown Airport Land Use Policy Plan,[17] approximately 180 general aviation aircraft were based at the Airport as of 2000. In addition, one small cargo carrier and nine general aviation-related businesses operated at the Airport in 2000. The Airport is the smaller of two airports operated by the City of Fresno, with the larger Fresno Yosemite International Airport handling commercial airline service, air cargo operators, charter operators, and United States military, in addition to general aviation.

The Fresno-Chandler Downtown Airport Land Use Policy Plan aims to minimize the exposure of the public to high noise levels and safety hazards through land use controls and policies for property in the vicinity of the Airport. The proposed Plan is consistent with the Fresno-Chandler Downtown Airport Land Use Policy Plan. The land uses proposed for opportunity sites in the proposed Plan do not conflict with policies or allowed uses identified in Fresno-Chandler Downtown Airport Land Use Policy Plan. Since the Airport is a general aviation facility not serving commercial airline service, the population and employment growth associated with the proposed Plan is not expected to result in an increased demand for air travel at the Airport. Therefore, the proposed Plan would not cause any changes to existing aviation activity.

[17] Fresno County Airport Land Use Commission, 2000. *Fresno-Chandler Downtown Airport Land Use Policy Plan.* Fresno County Airport Land Use Commission.

The proposed Plan does not propose changing the location of airports. The proposed Plan also will not cause a change in air traffic patterns that would result in a substantial safety risk. Therefore, the proposed Plan would have a *less than significant* impact on aviation activity.

Significance Without Mitigation: Less than significant.

TRANS-4 The proposed Plan would not increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

A review of the proposed Plan revealed no potential internal policy inconsistencies or discrepancies related to hazards associated with design features or incompatible uses. Implementation of the proposed Plan would increase the amount of vehicle traffic, which would require the improvement and expansion of the roadway network in the Plan Area. The proposed Plan identifies a roadway system, bikeways, trails, and sidewalks that will be constructed along with policy direction for future transit service to facilitate transportation in the Plan Area. New transportation facilities will be designed according to applicable federal, State, and local design standards, which will minimize traffic hazards.

The proposed Plan includes the following goals and policies related to the implementation of the transportation system. These goals and policies are related to the implementation of complete streets, the design of transportation facilities to improve safety and reduce conflicts, and identifying alternative truck routes to reduce their impact on sensitive users. The policies also encourage reduced vehicle speeds on roadways, which have been shown to improve overall safety by reducing the severity of collisions and improve driver awareness.

Goal T-3: Reduce conflicts between pedestrians and drivers, especially on streets with high speeds and limited pedestrian crossings.

Policy T-3.2 Ensure that sidewalks and other facilities meet the principle of universal design and comply with the ADA standards to assure access for pedestrians and people with disabilities.

Goal T-5: Create a separated, scenic, and well-connected multi-use trails network that provides Southwest Fresnans convenient access to nature and active recreational opportunities.

Policy T-5.3 Where feasible, design the trails to have separated paths for travel by foot and by bicycle to prevent potential conflicts.

Policy T-5.4 Provide separation for trail users against vehicular traffic such as landscaping, railings, or grade separation.

Goal T-8: Invest in developing, improving, and maintaining a roadway network that provides safety and adequate capacity for automobiles and for walking, bicycling, and transit mobility.

Policy T-8.2: Reduce auto use and prioritize walking, bicycling, and transit mobility over increasing vehicle travel speeds when considering roadway improvements.

Policy T-8.3: Maintain the existing roadway network and expand its capacity as necessary to ensure safe and convenient vehicular circulation; require new development to provide safe and convenient vehicular circulation and to contribute to capacity improvements on arterials and regional roadways.

Goal T-9: Create a healthy environment for Southwest Fresno residents by intentionally routing truck traffic away from sensitive areas such as residential areas, parks, and schools.

Policy T-9.1: Work with existing industrial and heavy commercial businesses to identify alternative truck routes that limit negative impacts on sensitive areas while maintaining an efficient movement of goods.

Policy T-9.3: Improve conditions of existing and rerouted truck routes for pedestrians and bicyclists by implementing pedestrian and bicycle facilities such as reduced corner radii at intersections to slow turning vehicular traffic, protected signal phasing for truck left-turns, enhanced high-visibility crossings, protected bikeways, and wide sidewalks.

Goal T-10: Create an accessible and well-connected "complete streets" transportation network that serves community members of all ages, income groups, and abilities, and balances travel by all modes of travel such as by car, bus, bicycle, foot, or wheelchair.

Policy T-10.2 Identify streets with excessive vehicular ROW that are opportunities to implement traffic calming and other improvements to slow traffic and provide options for multi-modal travel.

Policy T-10.3 Encourage lower vehicular travel speeds for collector and local streets in the Plan Area. This could be accomplished through traffic calming measures, narrower travel lanes, reducing the number of travel lanes, neighborhood speed watch/traffic management programs, or speed enforcement programs.

Implementation of the proposed Plan would increase the amount of vehicle traffic, which will require improvement and expansion of the transportation system in the Plan Area. However, new and upgraded roadways will be designed according to applicable federal, state, and local design standards. In addition, the selected policies outlined above from the proposed Plan support development of the transportation system based on complete street concepts that accommodate mobility of all system users and trip purposes. As a result, implementation of the proposed Plan would result in a *less than significant* impact related to hazards due to roadway design features or incompatible uses.

Significance Without Mitigation: Less than significant.

TRANS-5 The proposed Plan would not result in inadequate emergency access.

A review of the proposed Plan revealed no potential internal policy inconsistencies or discrepancies related to emergency access. Implementation of the proposed Plan would increase the amount of vehicle traffic, which would require the improvement and expansion of the roadway network in the Plan Area to accommodate forecasted travel demand. The proposed Plan would expand the roadway network to serve forecasted travel demand and improve existing rural or substandard roadways to City standards. This enhanced roadway network that accommodates forecasted travel demand would also provide adequate emergency access. Therefore, the proposed Plan would have a *less than significant* impact on emergency access.

Significance Without Mitigation: Less than significant.

TRANS-6 The proposed Plan would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

A review of the proposed Plan revealed no potential internal policy inconsistencies or conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or the performance or safety of those facilities. Implementation of the proposed Plan would increase the demand for public transit, bicycle, and pedestrian travel, which would require the improvement and expansion of facilities to support these travel modes. The proposed Plan identifies a system of planned bikeways, trails, and sidewalks that will be constructed to support bicycle and pedestrian travel. The proposed Plan also recommends enhanced transit service including recommended bus rapid transit (BRT) corridors along key corridors to serve future transit demand.

The proposed Plan includes the following goals and policies related to the implementation of transit, bicycle, and pedestrian facilities. These goals and policies support the development of pedestrian and bicycle friendly infrastructure, the implementation of complete streets, and the provision of a reliable and efficient transit service in the Plan Area.

Goal T-1: Create a well-connected pedestrian network that allows Southwest Fresnans to comfortably walk to key destinations such as schools, parks, services, retail, and transit.

Policy T-1.1 Implement the pedestrian recommendations from the City of Fresno Active Transportation Plan (ATP), focusing on the high priority areas first.

Policy T-1.2 Prioritize sidewalk improvements, including the priority sidewalk network identified in the Fresno ATP, on streets that generate higher pedestrian travel demand, especially along corridors, around magnet uses, and within ¼- mile of complete neighborhood nodes.

Policy T-1.5 Fill sidewalk gaps on streets in areas where there are incomplete segments of sidewalk adjacent to existing sidewalks in order to provide a continuous walking experience, unless the area or development was intentionally planned without sidewalks. Prioritize the Plan Area's high priority area identified in the Fresno ATP.

Goal T-2: Create a vibrant pedestrian experience to enhance the character and identity of Southwest Fresno, especially in commercial and employment areas.

Policy T-2.1 Enhance streetscape by providing pedestrian amenities where sidewalk widths allow, such as benches, lighting, outdoor seating, and planters.

Goal T-3: Reduce conflicts between pedestrians and drivers, especially on streets with high speeds and limited pedestrian crossings.

Policy T-3.2 Ensure that sidewalks and other facilities meet the principle of universal design and comply with the ADA standards to assure access for pedestrians and people with disabilities.

Policy T-3.4 Provide continuous sidewalks along public streets and encourage the provision of sidewalks on both sides for all new development within the Plan Area.

Goal T-4: Create a comprehensive, well-connected, and continuous bicycle network that provides linkages between residential areas and local and regional key destinations such as schools, parks, services, retail, and transit, so that Southwest Fresnans may bicycle as a viable mode of transportation and as a means to improve health and increase physical activity.

Policy T-4.1 Implement the bicycle recommendations from the Fresno ATP.

Policy T-4.2 Prioritize the implementation of bicycle facilities, including the priority bicycle network identified in Fresno's ATP, that fill a gap between existing separated sections of the bikeway system, will likely serve the highest concentration of existing or potential bicyclists, and provide access to high activity areas.

Policy T-4.4 Ensure that all roadway widening projects in Southwest Fresno include Class II or Class IV bicycle facilities.

Goal T-5: Create a separated, scenic, and well-connected multi-use trails network that provides Southwest Fresnans convenient access to nature and active recreational opportunities.

Policy T-5.1 Implement the Class I bikeway recommendations from the City of Fresno Active Transportation Plan and General Plan Figure MT-2.

Policy T-5.4 Provide separation for trail users against vehicular traffic such as landscaping, railings, or grade separation.

Goal T-6: Develop the Southwest Fresno transit network into a viable transportation alternative to single-occupancy vehicles.

Policy T-6.1 Improve the reliability, quality, and efficiency of transit service within Southwest Fresno and to regional destinations.

Goal T-7: Focus transit improvements along corridors that have more intensive land uses to more effectively and efficiently provide transit service and promote non-automobile access to high activity uses.

Policy T-7.2 Design transit stops and bus stop platforms such that transit travel has a higher priority than through traffic on transit corridors.

Goal T-8: Invest in developing, improving, and maintaining a roadway network that provides safety and adequate capacity for automobiles and for walking, bicycling, and transit mobility.

Policy T-8.2 Reduce auto use and prioritize walking, bicycling, and transit mobility over increasing vehicle travel speeds when considering roadway improvements.

Goal T-9: Create a healthy environment for Southwest Fresno residents by intentionally routing truck traffic away from sensitive areas such as residential areas, parks, and schools.

Policy T-9.3 Improve conditions of existing and rerouted truck routes for pedestrians and bicyclists by implementing pedestrian and bicycle facilities such as reduced corner radii at intersections to slow turning vehicular traffic, protected signal phasing for truck left-turns, enhanced high-visibility crossings, protected bikeways, and wide sidewalks.

Goal T-10: Create an accessible and well-connected "complete streets" transportation network that serves community members of all ages, income groups, and abilities, and balances travel by all modes of travel such as by car, bus, bicycle, foot, or wheelchair.

Policy T-10.1 When feasible, design new roadways and retrofit existing roadways within magnet cores, complete neighborhoods, and along special corridors to prioritize travel by walking, bicycling, and riding transit, using the complete streets design guidelines contained in this chapter. For example, if adequate or excessive vehicle traffic capacity is available, create wide sidewalks, provide pedestrian amenities, and install bicycle facilities such as separated bikeways or bike lanes, bike parking, and signage. This could be in the form of a "road diet" to transform certain corridors into multi-modal streets.

Goal T-11: Foster a healthy lifestyle in Southwest Fresno through encouraging active forms of transportation such as walking and bicycling as an alternative to motorized modes of travel.

Policy T-11.1 Prioritize the implementation of facilities that encourage walking and biking, such as sidewalks, multi-use trails, and bikeways.

Policy T-11.3 Support Transportation Demand Management (TDM) programs to encourage alternative modes of travel to the single-occupancy vehicle such as transit use, car- or vanpool, rideshare, and telecommuting.

Goal T-13: Ensure that Southwest Fresno's transportation infrastructure is in well-maintained conditions to provide a comfortable travel experience for pedestrians and bicyclists.

Policy T-13.2 Monitor the conditions of roadways to ensure the repair and resurfacing of cracked and uneven roadway surfaces to provide a smooth and even surface for bicycling.

The proposed Plan identifies a system of planned bikeways, trails, and sidewalks as well as recommended transit service improvements to support bicycling, walking, and transit use. In addition, the selected policies outlined above from the proposed Plan support development of the transportation system based on complete street concepts that accommodate mobility of all system users.

FAX seeks to provide the residents of Southwest Fresno with enhanced bus service in terms of increased frequencies, fixed-route transit lines, or both based on feedback provided by residents. The enhanced bus service seeks to connect people to activity centers (employment, housing, and retail), with a specific emphasis on California Avenue, Church Avenue, Elm Avenue, Jensen Avenue, and Martin Luther King Jr. Boulevard, as identified by the proposed Plan.

As a result, implementation of the proposed Plan would result in a *less than significant* impact related to adopted policies, plans, or programs regarding public transit, bicycle, and pedestrian facilities.

Significance Without Mitigation: Less than significant.

4.14.4 CUMULATIVE IMPACTS

TRANS-7 The proposed Plan, in combination with past, present and reasonably foreseeable projects, would result in significant cumulative impacts with respect to transportation and traffic.

In combination with past, present, and reasonably foreseeable projects, development associated with the proposed Plan would increase the amount of vehicle traffic, which would require the improvement and expansion of the roadway network to serve the associated travel demand. Cumulative impacts due to increases in peak hour traffic volumes are based on planned development in the Fresno metropolitan area consistent with the Fresno General Plan, Fresno County General Plan, and Fresno COG RTP/SCS. In addition, the cumulative analysis includes funded improvements to the regional roadway network, as identified in the Fresno COG RTP/SCS, Fresno Downtown Plans, and Fresno General Plan. This includes the following roadway projects in the cumulative setting:

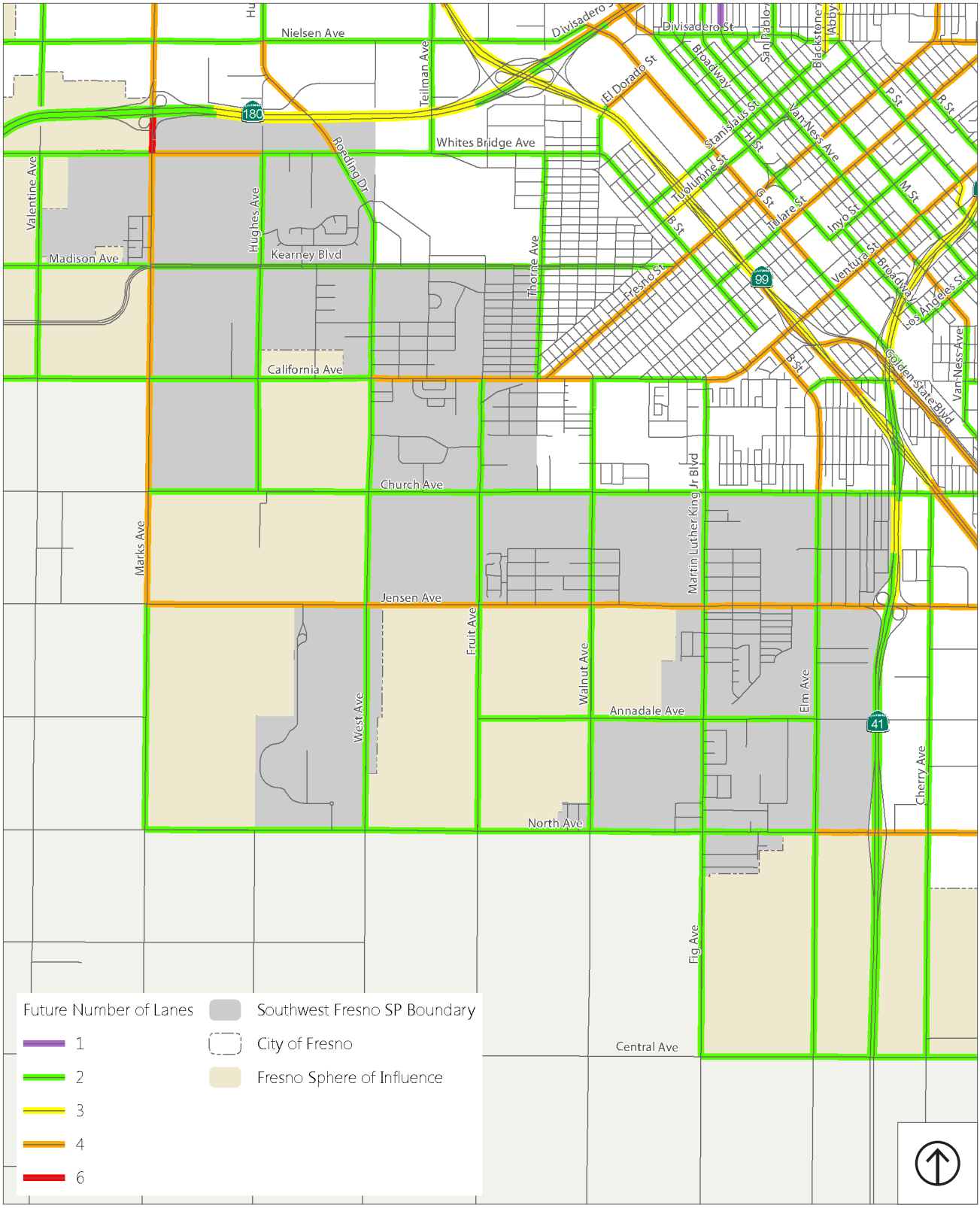
- Roadway network changes in Downtown Fresno associated with High Speed Rail, including:
  - Closure of the Divisadero Street, Kern Street, and Mono Street Union Pacific Railroad at-grade crossings.
  - Converting Tuolumne Street to two-way traffic with an overcrossing of the Union Pacific Railroad and High Speed Rail.
  - Closure and removal of the Stanislaus Street overcrossing of the Union Pacific Railroad and High Speed Rail.
  - New grade-separated crossings under the Union Pacific Railroad and High Speed Rail at Fresno Street, Tulare Street, and Ventura Street.
- Converting Whitesbridge Avenue and Amador Street to two-way traffic east of Tielman Avenue consistent with the Fresno Downtown Plan.
- Widening Marks Avenue to a four-lane divided arterial north of Jensen Avenue, and to a six-lane arterial between Whitesbridge Avenue and SR 180.
- Widening Jensen Avenue to a four-lane divided arterial east of Marks Avenue.
- Widening California Avenue to a four-lane divided arterial from Fruit Avenue to Walnut Avenue as compared to Figure 4.14-3 above.
- Widening North Avenue to a four-lane divided arterial east of Elm Avenue.

Figure 4.14-16 shows the planned number of lanes on the roadway network in the Plan Area under cumulative conditions.

Cumulative Traffic Forecasts

Consistent with the process for forecasting project traffic levels, this study uses the TDF model developed for the Fresno General Plan MEIR to forecast cumulative traffic levels with and without the proposed Plan. For cumulative traffic levels without the proposed Plan, this study assumes development consistent with the Fresno General Plan would occur instead of the development and land uses proposed by the proposed Plan.

To forecast cumulative traffic levels with the proposed Plan, the development potential associated with the proposed Plan was included in the Fresno General Plan MEIR TDF model representing 2035 conditions with the Fresno General Plan. This model includes development consistent with the Fresno General Plan and Fresno Downtown Plans outside of the Plan Area, as well as the roadway projects identified above to match the roadway network presented in Figure 4.14-16.



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-16
Cumulative Roadway Network

The outputs of the cumulative TDF model were reviewed and compared to the baseline model outputs. Cumulative traffic forecasts were developed using a process known as the "difference method," which adjusts raw model volume forecasts based on expected incremental growth from existing conditions using the following formula:

Cumulative Traffic Forecasts = Existing Traffic Count +
(Cumulative Raw Model Volume–Baseline Raw Model Volume)

Figure 4.14-17 presents the resulting daily traffic volumes for the 30 study roadway segments under cumulative conditions.

Vehicle Miles of Travel

The Fresno General Plan MEIR TDF model is also used to estimate and forecast VMT. Table 4.14-12 compares the VMT existing condition estimate with the forecasted VMT for the proposed Plan under cumulative conditions. As shown in Table 4.14-12, VMT is projected to increase from 285,232 miles to 1,806,108 miles per weekday under cumulative conditions, an increase of 1,520,876 miles over existing conditions.

TABLE 4.14-12 VMT COMPARISON – EXISTING CONDITIONS AND CUMULATIVE CONDITIONS

	Average Weekday VMT		
Trip Type	Existing Conditions	Existing Plus Proposed Plan	Cumulative Conditions
Internal-to-Internal (I-I)	1,153	41,991	27,182
Internal-to-External (I-I)	141,973	815,020	890,302
External-to-Internal (I-I)	142,106	813,627	888,624
Total	285,232	1,670,638	1,806,108

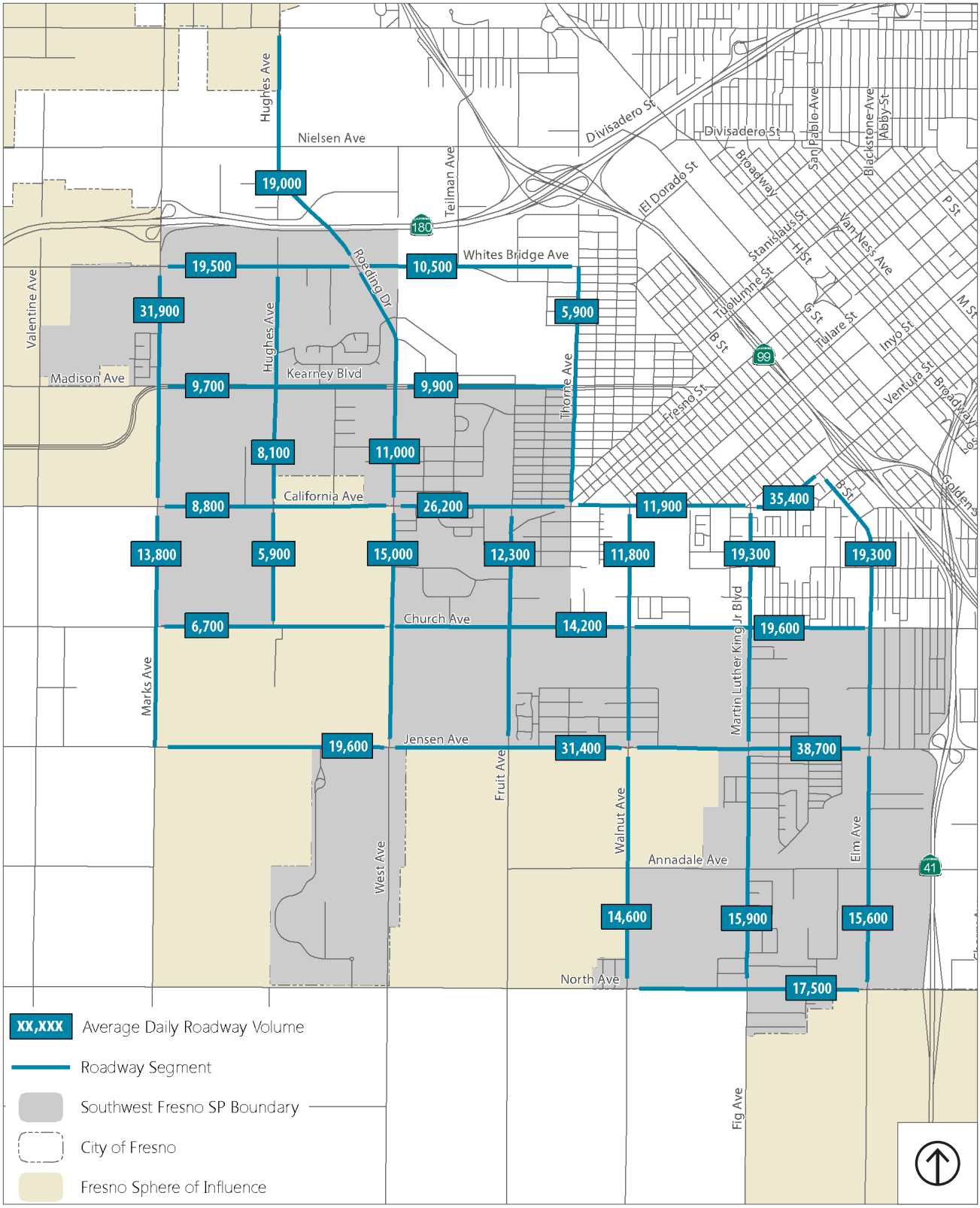
Source: Fresno COG Countywide Travel Demand Forecasting Model as modified for the proposed Plan.

Traffic Operations

Roadway Segment Operations

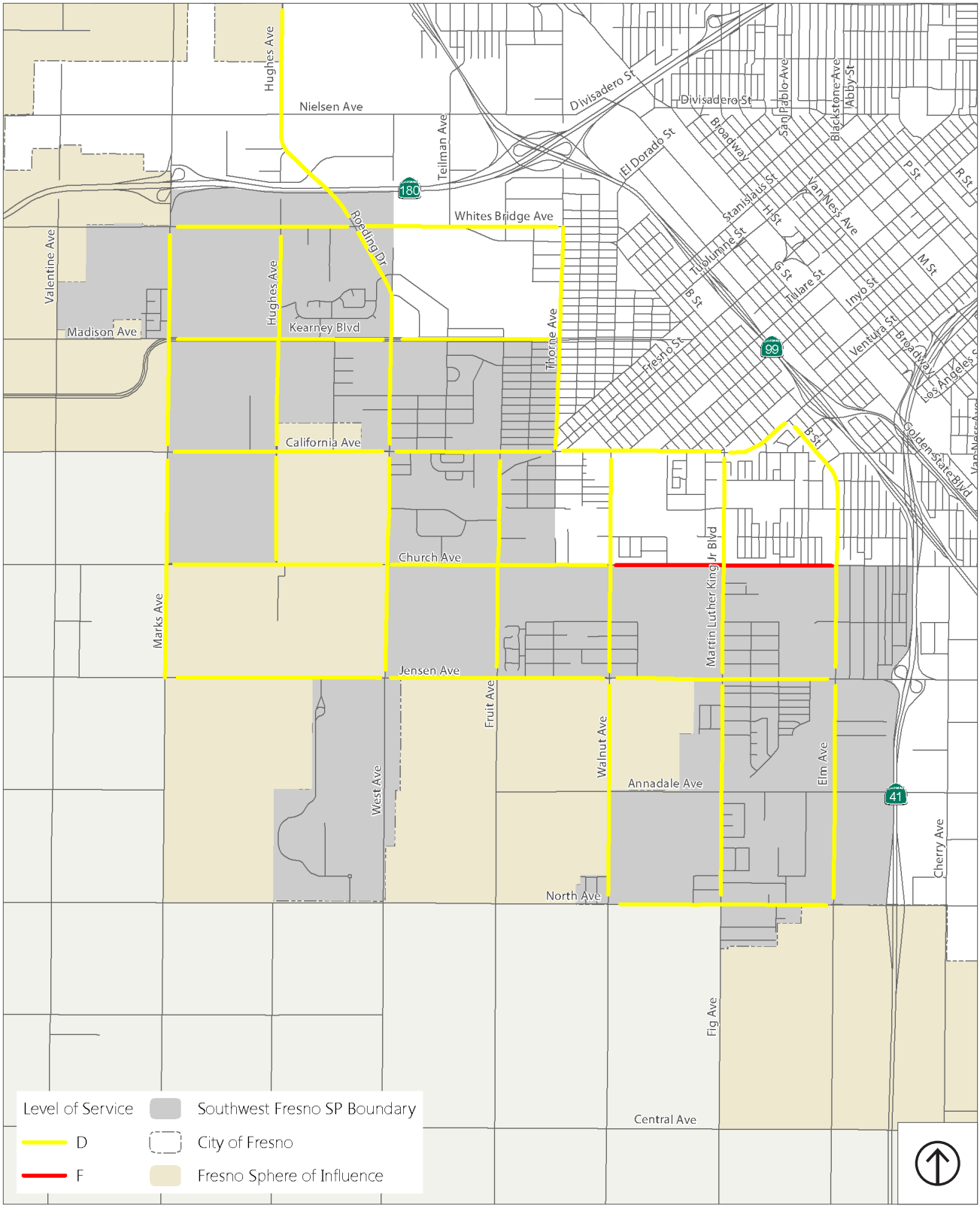
Table 4.14-13 presents the AM and PM peak hour traffic volumes and LOS for each study roadway segment under cumulative conditions. Figure 4.14-18 presents the AM peak hour roadway LOS under cumulative conditions, while Figure 4.14-19 presents the PM peak hour roadway LOS. As shown in Table 4.14-13, all study roadway segments operate at LOS C or LOS D under cumulative conditions, with the exception of the following roadway segments.

- Church Avenue: Walnut Avenue to Elm Avenue (LOS F during both AM and PM peak hours)
- North Avenue: Walnut Avenue to Elm Avenue (LOS E during the PM peak hour only)
- Walnut Avenue: California Avenue to Jensen Avenue (LOS E during the PM peak hour only)



Source: Fehr & Peers Transportation Consultants, 2017.

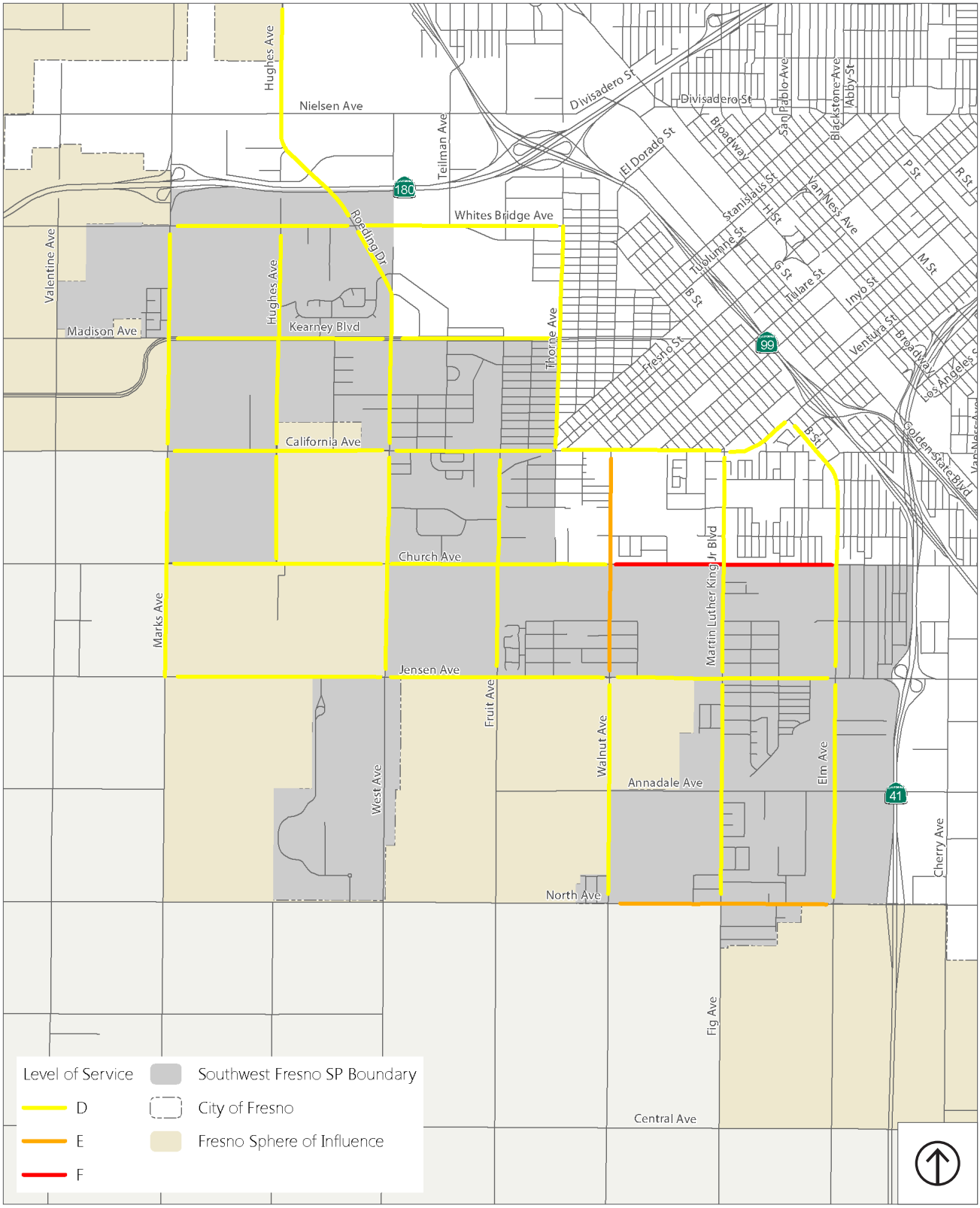
Figure 4.14-17
Cumulative Daily Roadway Volumes



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-18

Cumulative AM Peak Hour Roadway Segment LOS



Source: Fehr & Peers Transportation Consultants, 2017.

Figure 4.14-19

Cumulative PM Peak Hour Roadway Segment LOS

TABLE 4.14-13 PEAK HOUR ROADWAY SEGMENT OPERATIONS – CUMULATIVE CONDITIONS

Roadway Segment	Classification[a]	Peak Hour	Existing Conditions			Existing Plus Proposed Plan			Cumulative Conditions		
			Volume	V/C[b]	LOS[c]	Volume	V/C[b]	LOS[c]	Volume	V/C[b]	LOS[c]
1. Whitesbridge Ave.: Marks Av. to Roeding Dr.	4-lane Divided Collector	AM	180	0.12	C	1,280	0.34	D	1,970	0.53	D
		PM	260	0.18	C	1,650	0.44	D	2,310	0.62	D
2. Whitesbridge Ave.: Roeding Dr. to Thorne Av.	2-lane Collector with TWLTL	AM	110	0.08	C	360	0.24	D	1,120	0.63	D
		PM	210	0.14	C	560	0.38	D	1,340	0.76	D
3. Kearney Blvd.: Marks Ave. to West Ave.	2-lane Undivided Collector	AM	290	0.19	C	730	0.50	D	970	0.65	D
		PM	210	0.14	C	710	0.48	D	1,000	0.68	D
4. Kearney Blvd.: West Ave. to Thorne Ave.	2-lane Undivided Collector	AM	240	0.16	C	620	0.42	D	1,090	0.73	D
		PM	170	0.12	C	600	0.41	D	1,150	0.78	D
5. California Ave.: Marks Ave. to West Ave.	2-lane Collector with TWLTL	AM	180	0.12	C	440	0.25	D	1,030	0.58	D
		PM	170	0.12	C	480	0.27	D	1,140	0.65	D
6. California Ave.: West Ave. to Fresno St.	4-lane Divided Arterial	AM	350	0.19	C	1,350	0.36	D	2,280	0.61	D
		PM	430	0.23	C	1,510	0.40	D	2,700	0.72	D
7. California Ave.: Fresno St. to MLK Jr. Blvd.	2-lane Arterial with TWLTL	AM	590	0.34	D	790	0.45	D	1,200	0.68	D
		PM	550	0.31	D	790	0.45	D	1,340	0.76	D
8. Ventura St: MLK Jr. Blvd. to B Street	4-lane Divided Arterial	AM	930	0.25	C	2,100	0.56	D	2,570	0.69	D
		PM	840	0.22	C	2,130	0.57	D	2,860	0.77	D
9. Church Ave.: Marks Ave. to West Ave.	2-lane Undivided Collector	AM	80	0.05	C	570	0.39	D	670	0.45	D
		PM	120	0.08	C	670	0.45	D	740	0.50	D
10. Church Ave.: West Ave. to Walnut Ave.	2-lane Collector with TWLTL	AM	150	0.10	C	690	0.39	D	1,140	0.65	D
		PM	170	0.11	C	770	0.44	D	1,240	0.71	D
11. Church Ave.: Walnut Ave. to Elm Ave.	2-lane Collector with TWLTL	AM	390	0.22	C	870	0.49	D	**1,780**	**1.01**	**F**
		PM	370	0.21	C	880	0.50	D	**1,830**	**1.04**	**F**
12. Jensen Ave.: Marks Ave. to West Ave.	4-lane Divided Arterial	AM	320	0.22	C	390	0.27	D	1,790	0.48	D
		PM	410	0.28	D	510	0.34	D	2,130	0.57	D
13. Jensen Ave.: West Ave. to Walnut Ave.	4-lane Divided Arterial	AM	420	0.28	D	1,300	0.35	D	2,080	0.56	D
		PM	560	0.38	D	1,520	0.41	D	2,530	0.68	D
14. Jensen Ave.: Walnut Ave. to Elm Ave.	4-lane Divided Arterial	AM	730	0.20	C	2,110	0.56	D	2,870	0.77	D
		PM	920	0.25	C	2,320	0.62	D	3,260	0.87	D
15. North Ave.: Walnut Ave. to Elm Ave.	2-lane Arterial with TWLTL	AM	380	0.26	D	1,060	0.60	D	1,500	0.85	D
		PM	340	0.23	D	1,150	0.65	D	**1,620**	**0.92**	**E**
16. Marks Ave.: Whitesbridge Ave. to California Ave.	4-lane Divided Arterial	AM	620	0.34	D	1,790	0.48	D	2,400	0.64	D
		PM	670	0.36	D	2,050	0.55	D	2,830	0.76	D
17. Marks Ave.: California Av. to Jensen Av.	4-lane Divided Arterial	AM	140	0.10	C	100	0.07	C	1,290	0.35	D
		PM	210	0.14	C	170	0.12	C	1,500	0.40	D

TABLE 4.14-13 PEAK HOUR ROADWAY SEGMENT OPERATIONS – CUMULATIVE CONDITIONS

Roadway Segment	Classification[a]	Peak Hour	Existing Conditions			Existing Plus Proposed Plan			Cumulative Conditions		
			Volume	V/C[b]	LOS[c]	Volume	V/C[b]	LOS[c]	Volume	V/C[b]	LOS[c]
18. Hughes Ave./Roeding Dr.: Nielsen Ave. to Whitesbridge Ave.	4-lane Divided Collector	AM	200	0.05	C	660	0.18	C	1,600	0.43	D
		PM	230	0.06	C	760	0.20	C	1,890	0.51	D
19. Hughes Ave.: Whitesbridge Ave. to California Ave.	2-lane Undivided Collector	AM	20	0.02	C	420	0.29	D	880	0.60	D
		PM	50	0.03	C	530	0.36	D	920	0.62	D
20. Hughes Ave.: California Ave. to Church Ave.	2-lane Undivided Collector	AM	20	0.01	C	260	0.18	C	660	0.44	D
		PM	30	0.02	C	320	0.22	C	750	0.51	D
21. Roeding Dr./West Ave.: Whitesbridge Ave. to California Ave.	2-lane Divided Collector	AM	80	0.06	C	410	0.22	C	1,010	0.54	D
		PM	80	0.05	C	440	0.24	C	1,140	0.61	D
22. West Ave.: California Ave. to Jensen Ave.	2-lane Collector with TWLTL	AM	70	0.05	C	530	0.30	D	1,270	0.72	D
		PM	80	0.05	C	580	0.33	D	1,320	0.75	D
23. Fruit Ave.: California Ave. to Jensen Ave.	2-lane Undivided Collector	AM	140	0.09	C	750	0.51	D	870	0.59	D
		PM	180	0.12	C	810	0.55	D	950	0.64	D
24. Thorne Ave.: Whitesbridge Ave. to California Ave.	2-lane Collector with TWLTL	AM	240	0.14	C	510	0.29	D	700	0.39	D
		PM	270	0.15	C	600	0.34	D	810	0.46	D
25. Walnut Ave.: California Ave. to Jensen Ave.	2-lane Undivided Collector	AM	380	0.26	D	1,030	0.70	D	1,200	0.81	D
		PM	350	0.24	D	1,100	0.74	D	1,370	0.93	E
26. Walnut Ave.: Jensen Ave. to North Ave.	2-lane Collector with TWLTL	AM	20	0.01	C	730	0.41	D	1,160	0.66	D
		PM	50	0.04	C	820	0.47	D	1,240	0.71	D
27. Martin Luther King Jr. Blvd.: California Ave. to Jensen Ave.	2-lane Collector with TWLTL	AM	500	0.28	D	1,370	0.78	D	1,420	0.80	D
		PM	520	0.29	D	1,400	0.80	D	1,520	0.86	D
28. Martin Luther King Jr. Blvd.: Jensen Ave. to North Ave.	2-lane Collector with TWLTL	AM	330	0.22	C	1,050	0.60	D	1,090	0.62	D
		PM	290	0.20	C	1,070	0.61	D	1,120	0.64	D
29. Elm Ave.: Ventura St to Jensen Ave.	4-lane Divided Arterial	AM	290	0.08	C	580	0.16	C	1,090	0.29	D
		PM	600	0.16	C	970	0.26	C	1,630	0.44	D
30. Elm Ave.: Jensen Ave. to North Ave.	2-lane Divided Arterial	AM	240	0.06	C	670	0.36	D	770	0.41	D
		PM	420	0.11	C	920	0.49	D	1,090	0.58	D

Notes: **BOLD** text indicates the roadway operates at an unacceptable LOS based on the LOS standards presented in Table 4.14-5.
UNDERLINED text indicates the proposed Plan would have a significant impact based on the significance criteria presented in the Methodology section.
a. Roadway classifications reflect cumulative roadway configuration (see Figure 4.14-16). Description of classifications are presented in the Local Roadways section:
Undivided = roadways without physical separation between opposing directions of travel
TWLTL = two-way left-turn lane: a center lane exclusively for left-turning vehicles from either direction, which also provides space between opposing directions of travel
Divided = roadways with physical separation between opposing directions of travel, such as a raised median
b. Volume-to-capacity ratio; capacity defined as the LOS E/F threshold as presented in Table 4.14-6.
c. Level of service based on volume thresholds presented in Table 4.14-6.
Source: Fehr & Peers, 2017.

Per Fresno General Plan policy MT-1-l and MT-2-I, Walnut Avenue from California Avenue to Jensen Avenue is located in the Downtown Planning Area (TIZ I) where LOS F conditions are considered acceptable (see Table 4.14-6). Therefore, the LOS E conditions on Walnut Avenue are acceptable.

The remaining two segments on North Avenue and Church Avenue have a LOS D standard as shown in Table 4.14-6. Therefore, the LOS E and LOS F conditions on these roadways are considered unacceptable. Since the proposed Plan contributes to these unacceptable LOS conditions when analyzed in combination with past, present, and reasonably foreseeable projects, this is considered a significant impact.

Therefore, the proposed Plan has a significant impact on roadway operations for the following two roadway segments:

- Church Avenue: Walnut Avenue to Elm Avenue
- North Avenue: Walnut Avenue to Elm Avenue

This impact and associated mitigation is described in Impact TRANS-7.1 below.

Intersection Operations

Table 4.14-14 presents the AM and PM peak hour LOS for each study intersection under cumulative conditions (refer to Appendix H for calculations). As shown in Table 4.14-14, the following intersections would operate at LOS E or LOS F under cumulative conditions during the AM peak hour, PM peak hour, or both AM and PM peak hours:

- SR-99 Southbound Ramps/East Ave./Jensen Ave. (AM and PM peak hours)
- SR-99 Northbound Ramps/East Ave./Jensen Ave. (AM peak hour only)
- SR-41 Southbound Ramps/North Ave. (AM peak hour only)
- SR-99 Southbound Ramps/Fresno St. (AM and PM peak hours)
- SR-99 Northbound Ramps/Fresno St. (PM peak hour only)

While the SR-99 Southbound Ramps/East Avenue/Jensen Avenue operates at an unacceptable LOS E under existing conditions, the proposed Plan contributes to LOS F operations under cumulative conditions. This is considered a significant impact.

The remaining four intersections that operate at LOS E or LOS F under cumulative conditions were operating at LOS D or better under existing conditions. Since the proposed Plan contributes to these unacceptable LOS conditions when analyzed in combination with past, present, and reasonably foreseeable projects, this is considered a significant impact. Therefore, the proposed Plan has a significant impact on intersection operations at the following five intersections:

- SR-99 Southbound Ramps/East Ave./Jensen Ave.
- SR-99 Northbound Ramps/East Ave./Jensen Ave.
- SR-41 Southbound Ramps/North Ave.
- SR-99 Southbound Ramps/Fresno St.
- SR-99 Northbound Ramps/Fresno St.

This impact and associated mitigation is described in Impact TRANS-7.2 below.

TABLE 4.14-14 PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE CONDITIONS

Intersection	Traffic Control	Peak Hour	Existing Conditions		Existing Plus Proposed Plan		Cumulative Conditions	
			Delay[a]	LOS[b]	Delay[a]	LOS[b]	Delay[a]	LOS[b]
1. SR-41 Southbound Ramps/Jensen Ave.	Signal	AM	9	A	27	C	33	C
		PM	7	A	22	C	35	D
2. SR-41 Northbound Ramps/Jensen Ave.	Signal	AM	4	A	4	A	5	A
		PM	4	A	5	A	5	A
3. SR-99 Southbound Ramps/East Ave./Jensen Ave.	Signal	AM	**61**	**E**	**61**	**E**	**109**	**F**
		PM	29	C	35	D	**119**	**F**
4. SR-99 Northbound Ramps/East Ave./Jensen Ave.	Signal	AM	53	D	**94**	**F**	**73**	**E**
		PM	46	D	**74**	**E**	50	D
5. SR-41 Southbound Ramps/North Ave.	Signal	AM	23	C	**94**	**F**	**100**	**F**
		PM	13	B	**91**	**F**	48	D
6. SR-41 Northbound Ramps/North Ave.	Signal	AM	9	A	**56**	**E**	25	C
		PM	12	B	**104**	**F**	45	D
7. SR-99 Southbound Ramps/Fresno St.	Signal	AM	24	C	51	D	**60**	**E**
		PM	18	B	51	D	**59**	**E**
8. SR-99 Northbound Ramps/Fresno St.	Signal	AM	15	B	18	B	33	C
		PM	19	B	54	D	**75**	**E**

Notes: **BOLD** text indicates the intersection operates at an unacceptable LOS based on Caltrans concept LOS.
UNDERLINED text indicates the proposed Plan would have a significant impact based on the significance criteria presented in the Methodology section.
a. The overall average intersection control delay is reported in seconds per vehicle.
b. Level of service based on *Highway Capacity Manual* (Transportation Research Board, 2010).
Source: Fehr & Peers, 2017.

Queuing

Table 4.14-15 presents the AM and PM peak hour queues on freeway off-ramps under cumulative conditions. While Table 4.14-15 shows that all study freeway off-ramps have sufficient storage for cumulative queues, several are serving over-capacity volumes. As a result, the queues reported for these over-capacity ramps may be underestimated by the Synchro 9 software.

To address this limitation, this study conservatively assumes that queues would extend back onto the mainline for movements that are over capacity and have a reported 95th percentile queues within 500 feet of the off-ramp length. Using this criteria, the following freeway off-ramps would have 95th percentile queues that would back onto to the freeway mainline under cumulative conditions during the AM peak hour, PM peak hour, or both AM and PM peak hours:

- SR-41 Southbound off-ramp at Jensen Avenue (AM and PM peak hours)
- SR-99 Southbound off-ramp at Jensen Avenue (AM and PM peak hours)
- SR-99 Northbound off-ramp at Jensen Avenue (AM and PM peak hours)
- SR-41 Southbound off-ramp at North Avenue (AM and PM peak hours)
- SR-99 Southbound off-ramp at Fresno Street (AM peak hour only)

TABLE 4.14-15 PEAK HOUR FREEWAY OFF-RAMP QUEUING – CUMULATIVE CONDITIONS

Freeway Off-Ramp	Ramp Length[a]	Peak Hour	95th Percentile Queue[b] Existing Conditions	Existing Plus Proposed Plan	Cumulative Conditions
1. SR-41 Southbound Off-Ramp at Jensen Ave.	1,380 ft.	AM	75 ft.	600 ft.*	**950 ft.***
		PM	75 ft.	550 ft.*	**1,125 ft.***
2. SR-41 Northbound Off-Ramp at Jensen Ave.	1,470 ft.	AM	50 ft.	50 ft.	50 ft.
		PM	50 ft.	50 ft.	50 ft.
3. SR-99 Southbound Off-Ramp at Jensen Ave.	1,440 ft.	AM	625 ft.*	650 ft.*	**1,175 ft.***
		PM	450 ft.*	475 ft.*	**1,100 ft.***
4. SR-99 Northbound Off-Ramp at Jensen Ave.	1,050 ft.	AM	225 ft.*	400 ft.*	**600 ft.***
		PM	250 ft.*	500 ft.*	**650 ft.***
5. SR-41 Southbound Off-Ramp at North Ave.	1,575 ft.	AM	250 ft.	275 ft.*	**1,100 ft.***
		PM	75 ft.	75 ft.	**875 ft.***
6. SR-41 Northbound Off-Ramp at North Ave.	1,700 ft.	AM	25 ft.	50 ft.	75 ft.
		PM	50 ft.	50 ft.	50 ft.
7. SR-99 Southbound Off-Ramp at Fresno St.	1,030 ft.	AM	100 ft.	400 ft.*	**750 ft.***
		PM	150 ft.	150 ft.	500 ft.*
8. SR-99 Northbound Off-Ramp at Fresno St.	1,070 ft.	AM	75 ft.	100 ft.	550 ft.*
		PM	100 ft.	125 ft.	525 ft.*

Notes: **BOLD** text indicates the off-ramp queue is expected to extend back through the entire off-ramp and onto the freeway mainline.
UNDERLINED text indicates the proposed Plan would have a significant impact based on the significance criteria presented in the Methodology section.
* = 95th percentile volume exceeds capacity; the actual queue may be longer than reported.
a. The ramp length is estimated by measuring the distance from the gore point where the off-ramp departs from the mainline to the limit line at the ramp terminal intersection with the local street, as measured from aerial imagery. Distance is reported in feet.
b. 95th Percentile Queue calculated using Synchro software. Queue is reported in feet and rounded up to the nearest 25-foot interval.
Source: Fehr & Peers, 2017.

All five of these freeway off-ramps that are forecasted to experience 95th percentile queues that extend back to the mainline under cumulative conditions are able to provide adequate storage for existing 95th percentile queues under existing conditions. Since the proposed Plan contributes to these unacceptable freeway off-ramp queues when analyzed in combination with past, present, and reasonably foreseeable projects, this is considered a significant impact. Therefore, the proposed Plan has a significant impact on freeway off-ramp queuing at the following five ramps:

- SR-41 Southbound off-ramp at Jensen Avenue
- SR-99 Southbound off-ramp at Jensen Avenue
- SR-99 Northbound off-ramp at Jensen Avenue
- SR-41 Southbound off-ramp at North Avenue
- SR-99 Southbound off-ramp at Fresno Street

This impact and associated mitigation is described in Impact TRANS-7.3 below.

Impact TRANS-7.1: The addition of proposed Plan traffic to the roadway network, in combination with traffic generated by reasonably foreseeable projects, results in unacceptable roadway operations on City of Fresno study roadway segments under cumulative conditions.

Significance Without Mitigation: Significant.

Mitigation Measure TRANS-7.1: Provide transportation improvements consistent with General Plan Policy MT-1-j in the Plan Area that would encourage non-vehicular transportation and reduce auto traffic levels. These improvements shall be consistent with the goals and policies in the proposed Plan, which require the implementation of complete streets, bikeways, trails, sidewalks, and enhanced transit service to support transit use, biking, and walking as viable modes of travel. By supporting and encouraging these non-auto modes in lieu of auto travel, future traffic levels would be reduced.

The City of Fresno shall also apply General Plan Policy MT-1-o, which allows LOS E or F conditions outside of identified multimodal districts if provisions are made to sufficiently improve the overall transportation system and promote non-vehicular transportation. With the application of General Plan policy MT-1-o, the LOS F conditions on Church Avenue and LOS E conditions on North Avenue would be considered acceptable. Therefore, this impact would be *less than significant*.

Significance With Mitigation: Less than significant.

Both Church Avenue and North Avenue are planned to be two-lane roadways with a center two-way left-turn lane (TWLTL). The proposed Plan intentionally includes fewer travel lanes on these roadways to place a limit on vehicular traffic capacity and encourage walking and biking along these corridors.

In addition to providing access to Gaston Middle School, the segment of Church Avenue between Walnut Avenue and Elm Avenue that is projected to operate at LOS F will serve the planned Community College Magnet, which includes a community college, neighborhood mixed-use, community commercial, and medium-density residential uses. Given the nature of these uses, providing wide sidewalks, attractive bikeways, and transit facilities along this corridor in accordance with the Complete Streets Guidelines, and policies in the proposed Plan will encourage non-vehicular travel for this pedestrian activity center. Furthermore, the Fresno ATP shows that a Class I bike path is planned along this segment of Church Avenue to further support walking and biking. As such, it is justified for the City to accept a lower LOS for this corridor and provide fewer travel lanes for vehicular traffic to maintain and prioritize pedestrian, bicycle, and transit modes.

The 41 & North Corridor Complete Streets Plan[18] recommends that North Avenue from Martin Luther King Jr. Boulevard to Elm Avenue include buffered bike lanes, wide sidewalks, high visibility crosswalks, and a pedestrian activated signal at North Avenue and Clara Avenue to facilitate pedestrian crossings of North Avenue. Given the existing neighborhood residential uses and nearby schools, parks, and planned corridor mixed use along Elm Avenue, North Avenue is expected to serve pedestrian and bicycle travel between

[18] City of Fresno, 2016. *41 & North Corridor Complete Streeets Plan.* City of Fresno Development and Resource Management Department.

the neighborhood and these nearby destinations. Therefore, it is justified for the City to accept a lower LOS for this corridor and provide fewer travel lanes for vehicular traffic to maintain and prioritize pedestrians and bicyclists.

Impact TRANS-7.2: The addition of project traffic to the roadway network, in combination with traffic generated by reasonably foreseeable projects, results in unacceptable intersection operations at Caltrans study intersections.

Significance Without Mitigation: Significant.

Mitigation Measure TRANS-7.2: Development within the proposed Plan shall pay its regional transportation mitigation fee (RTMF) towards funding improvements to the regional highways and streets system. The City of Fresno shall coordinate with Caltrans and the Fresno Council of Governments to recommend the following intersection and ramp improvements at the SR-99/Jensen Avenue interchange and SR-41/North Avenue interchange be incorporated into the RTMF program and any applicable future City of Fresno fee update applicable to roadway facilities and/or traffic signals:

- SR-99 Southbound Off-Ramp/Jensen Avenue intersection:
  - Widen the SR-99 southbound off-ramp to add an additional left-turn pocket.
  - Restripe the existing shared through-left turn lane on the SR-99 southbound off-ramp as a dedicated through lane.
  - The resulting lane configuration on the southbound off-ramp is: two left-turn lanes, one through lane, and one right-turn lane.
  - Add an overlap phase for the northbound right-turn movement.
  - Prohibit westbound U-turn movement to allow the northbound right-turn overlap.
  - Widen the eastbound approach to stripe a third through lane; add a third receiving lane on the east leg that traps into the SR-99 southbound on-ramp.
- SR-99 Northbound Off-Ramp/Jensen Avenue intersection:
  - Change the lane configurations on the northbound off-ramp to a dedicated left-turn pocket and shared through-right turn lane.
  - Add an overlap phase for the southbound right-turn movement.
  - Prohibit eastbound U-turn movement to allow the southbound right-turn overlap.
  - Widen the westbound approach to stripe a third through lane; add a third receiving lane on the west leg that traps into the SR-99 northbound on-ramp.
  - Change the phasing for the northbound and southbound approaches to protected left-turn movements and separate.
- SR-41 Southbound Off-Ramp/North Avenue intersection:
  - Widen the SR-41 southbound off-ramp to add a left-turn pocket.
  - Change the lane configurations on the southbound off-ramp to convert the existing shared through-left turn lane to a shared right turn-through-left turn lane.

- Extend the right-turn pocket on the off-ramp to accommodate right-turn queue length shown in Table 4.14-16.
- The resulting lane configuration on the southbound off-ramp is: one left-turn lane, one shared right turn-through-left turn lane, and one right-turn lane.
- Widen the eastbound approach to add a third through lane that traps into the eastbound left-turn onto the SR-41 northbound on-ramp.

In addition to addressing intersection operations, the changes identified above also address freeway off-ramp queuing impacts identified in Impact TRANS-7.3 below. With the implementation of the changes listed above, the operations at these three intersections would be improved to LOS D or better during both the AM and PM peak hours, as shown in Table 4.14-16 below (refer to Appendix H for calculations).

TABLE 4.14-16 PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE CONDITIONS WITH MITIGATIONS

Intersection	Traffic Control	Peak Hour	Existing Conditions		Cumulative Conditions		Cumulative with Mitigation	
			Delay[a]	LOS[b]	Delay[a]	LOS[b]	Delay[a]	LOS[b]
3. SR-99 Southbound Ramps/East Ave./Jensen Ave.	Signal	AM	**61**	**E**	<u>**109**</u>	<u>**F**</u>	46	D
		PM	29	C	<u>**119**</u>	<u>**F**</u>	52	D
4. SR-99 Northbound Ramps/East Ave./Jensen Ave.	Signal	AM	53	D	<u>**73**</u>	<u>**E**</u>	27	C
		PM	46	D	50	D	27	C
5. SR-41 Southbound Ramps/North Ave.	Signal	AM	23	C	<u>**100**</u>	<u>**F**</u>	34	C
		PM	13	B	48	D	22	C

Notes: **BOLD** text indicates the intersection operates at an unacceptable LOS based on Caltrans concept LOS.
<u>UNDERLINED</u> text indicates the proposed Plan would have a significant impact based on the significance criteria presented in the Methodology section.
a. The overall average intersection control delay is reported in seconds per vehicle.
b. Level of service based on *Highway Capacity Manual* (Transportation Research Board, 2010).
Source: Fehr & Peers, 2017.

While these changes would improve traffic operations to an acceptable LOS, these improvements require alterations to signals operated by Caltrans as well as physical expansion of intersections and ramps that are under Caltrans jurisdiction. Since these improvements are not within the City of Fresno's jurisdiction to control, it cannot be guaranteed that these improvements will be implemented.

In addition to the three intersections at the SR-99/Jensen Avenue and SR-41/North Avenue interchanges that operate at LOS E or LOS F under cumulative conditions, the following improvements would address unacceptable LOS E operations at the SR-99/Fresno Street interchange:

- SR-99 Southbound Ramps/Fresno Street intersection:
  - Widen the SR-99 southbound frontage road to add an additional right-turn pocket.
  - Restripe the existing through lane as a shared through-left turn lane on the SR-99 southbound off-ramp.

- The resulting lane configuration on the southbound off-ramp is: one left-turn lane, one shared through left-turn lane, and two right-turn lanes.

- SR-99 Northbound Ramps/Fresno Street intersection:
  - Add a through lane to the westbound approach on Fresno Street that traps into the left-turn onto the SR-99 southbound on-ramp.
  - Adding the third through lane on Fresno Street would require removing the existing raised median and prohibiting eastbound left-turns at the Fresno Street/E Street intersection.

With the implementation of the changes listed above, the operations at these two intersections would be improved to LOS D or better during both the AM and PM peak hours, as shown in Table 4.14-17 below (refer to Appendix H for calculations).

TABLE 4.14-17 PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE CONDITIONS WITH MITIGATIONS

Intersection	Traffic Control	Peak Hour	Existing Conditions		Cumulative Conditions		Cumulative with Mitigation	
			Delay[a]	LOS[b]	Delay[a]	LOS[b]	Delay[a]	LOS[b]
7. SR-99 Southbound Ramps/Fresno St.	Signal	AM	24	C	<u>60</u>	<u>E</u>	46	D
		PM	18	B	<u>59</u>	<u>E</u>	52	D
8. SR-99 Northbound Ramps/Fresno St.	Signal	AM	15	B	33	C	27	C
		PM	19	B	<u>75</u>	<u>E</u>	27	C

Notes: **BOLD** text indicates the intersection operates at an unacceptable LOS based on Caltrans concept LOS.
<u>UNDERLINED</u> text indicates the proposed Plan would have a significant impact based on the significance criteria presented in the Methodology section.
a. The overall average intersection control delay is reported in seconds per vehicle.
b. Level of service based on *Highway Capacity Manual* (Transportation Research Board, 2010).
Source: Fehr & Peers, 2017.

While the intersection and ramp changes at the SR-99/Fresno Street interchange would improve intersection LOS, physical constraints on the SR-99 southbound frontage road would make the proposed widening of the southbound approach infeasible.

Significance with Mitigation: Significant and Unavoidable. The improvements to the SR-99/Jensen Avenue and SR-41/North Avenue interchanges require changes to intersections and ramps under Caltrans jurisdiction. Therefore, the City of Fresno cannot guarantee that these changes will be implemented. In addition, some of the improvements to the SR-99/Fresno Street interchange are physically infeasible. Therefore, the proposed Plan's cumulative contribution to unacceptable operations at these intersections remain significant and unavoidable.

Impact TRANS-7.3: The addition of proposed Plan traffic to the roadway network in combination with traffic generated by reasonably foreseeable projects results in freeway off-ramp queues that extend back onto the freeway mainline.

Significance Without Mitigation: Significant.

Mitigation Measure TRANS-7.3: Development within the proposed Plan shall pay its regional transportation mitigation fee (RTMF) towards funding improvements to the regional highways and streets system. In addition to the recommended improvements listed in Mitigation Measure TRANS-7.2, the City of Fresno shall coordinate with Caltrans and the Fresno Council of Governments to recommend the following intersection and ramp improvements at the SR-41/Jensen Avenue interchange be incorporated into the RTMF program and any applicable future City of Fresno fee update applicable to roadway facilities and/or traffic signals:

- SR-41 Southbound Off-Ramp/Jensen Avenue intersection:
  - Change the existing shared left-right turn lane on the SR-41 southbound off-ramp as a dedicated right-turn lane SR-99 southbound off-ramp
  - The resulting lane configuration on the southbound off-ramp is: one left-turn lane and two right-turn lanes
  - Add a southbound right-turn phase to run concurrently with the eastbound through phase by taking green time from the westbound through phase

The implementation of the changes to the SR-41 southbound off-ramp at Jensen Avenue listed above would reduce queuing on the SR-41 southbound off-ramp. These changes in combination with the improvements to the SR-99/Jensen Avenue, SR-41/North Avenue, and SR-99/Fresno Street interchange listed in Mitigation Measure TRANS-7.2, would reduce freeway off-ramp queuing under cumulative conditions.

Table 4.14-18 presents the estimated freeway off-ramp queues with the improvements presented in Mitigation Measure TRANS-7.2 and TRANS-7.3 (refer to Appendix H for calculations). While these changes would reduce the 95th percentile queues on freeway off-ramps to within the available storage on the off-ramp, these improvements require alterations to signals operated by Caltrans as well as physical expansion of intersections and ramps that are under Caltrans jurisdiction. Since these improvements are not within the City of Fresno's jurisdiction to control, it cannot be guaranteed that these improvements will be implemented.

TABLE 4.14-18 PEAK HOUR FREEWAY OFF-RAMP QUEUING – CUMULATIVE CONDITIONS WITH MITIGATIONS

			95th Percentile Queue[b]		
Freeway Off-Ramp	Ramp Length[a]	Peak Hour	Existing Conditions	Cumulative Conditions	Cumulative with Mitigation
1. SR-41 Southbound Off-Ramp at Jensen Ave.	1,380 ft.	AM	75 ft.	950 ft.*	550 ft.
		PM	75 ft.	1,125 ft.*	675 ft.*
3. SR-99 Southbound Off-Ramp at Jensen Ave.	1,440 ft.	AM	625 ft.*	1,175 ft.*	625 ft.*
		PM	450 ft.*	1,100 ft.*	650 ft.*
4. SR-99 Northbound Off-Ramp at Jensen Ave.	1,050 ft.	AM	225 ft.*	600 ft.*	250 ft.
		PM	250 ft.*	650 ft.*	450 ft.*

TABLE 4.14-18 PEAK HOUR FREEWAY OFF-RAMP QUEUING – CUMULATIVE CONDITIONS WITH MITIGATIONS

Freeway Off-Ramp	Ramp Length[a]	Peak Hour	95th Percentile Queue[b] Existing Conditions	Cumulative Conditions	Cumulative with Mitigation
5. SR-41 Southbound Off-Ramp at North Ave.	1,575 ft.	AM	250 ft.	**1,100 ft.***	550 ft.
		PM	75 ft.	**875 ft.***	275 ft.
7. SR-99 Southbound Off-Ramp at Fresno St.	1,030 ft.	AM	100 ft.	**750 ft.***	500 ft.
		PM	150 ft.	500 ft.*	475 ft.*

Notes: **BOLD** text indicates the off-ramp queue extends through the entire off-ramp and onto the freeway mainline.
UNDERLINED text indicates the proposed Plan would have a significant impact based on the significance criteria presented in the Methodology section.
* = 95th percentile volume exceeds capacity; the actual queue may be longer than reported.
a. The ramp length is estimated by measuring the distance from the gore point where the off-ramp departs from the mainline to the limit line at the ramp terminal intersection with the local street, as measured from aerial imagery. Distance is reported in feet.
b. 95th Percentile Queue calculated using Synchro software. Queue is reported in feet and rounded up to the nearest 25-foot interval.
Source: Fehr & Peers, 2017.

Significance with Mitigation: Significant and unavoidable. The improvements to the SR-99/Jensen Avenue, SR-41/North Avenue, and SR-41/Jensen Avenue interchanges require changes to intersections and ramps under Caltrans jurisdiction. Therefore, the City of Fresno cannot guarantee that these changes will be implemented. In addition, some of the improvements to the SR-99/Fresno Street interchange are physically infeasible. Therefore, the proposed Plan's cumulative contribution to unacceptable freeway off-ramp queuing at these off-ramps remains significant and unavoidable.

4.15 UTILITY SYSTEMS

This section describes the baseline utilities and service systems in the Plan Area and evaluates potential environmental consequences that could occur by adopting and implementing the proposed Plan.

Wastewater, water supply, reclaimed water, stormwater, and solid waste, are each addressed in separate subsections. Stormwater as it relates to both water quality and capacity is addressed in Section 4.9, Hydrology and Water Quality, of this Draft EIR. In each section, a summary of the relevant regulatory settings and baseline conditions is followed by a discussion of impacts and cumulative impacts from implementation of the proposed Plan.

4.15.1 WASTEWATER

This section outlines the regulatory setting, describes baseline conditions, and discusses potential impacts from buildout of the proposed Plan.

4.15.1.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

The federal government regulates wastewater treatment and planning through the Federal Water Pollution Control Act of 1972, more commonly known as the Clean Water Act (CWA), as well as through the National Pollutant Discharge Elimination System (NPDES) permit program, both of which are discussed in further detail below.

Federal Clean Water Act

The CWA regulates the discharge of pollutants into watersheds throughout the nation. It is the primary federal law governing water pollution. Under the CWA, the US Environmental Protection Agency (EPA) implements pollution control programs and sets wastewater standards. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source storm water runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution

prevention, self-monitoring, and other activities. Wastewater discharge is regulated under the NPDES permit program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a sewage treatment plant.

State Regulations

Wastewater treatment and planning are regulated at the State level. Specific regulations relevant to the proposed Plan are described below.

State Water Resources Control Board

On May 2, 2006, the State Water Resources Control Board (SWRCB) adopted a General Waste Discharge Requirement (Order No. 2006-0003) for all publicly owned sanitary sewer collection systems in California with more than 1 mile of sewer pipe. The order provides a consistent statewide approach to reducing sanitary sewer overflows (SSOs) by requiring public sewer system operators to take all feasible steps to control the volume of waste discharged into the system, to prevent sanitary sewer waste from entering the storm sewer system, and to develop a Sewer System Management Plan (SSMP). The General Waste Discharge Requirement also requires that storm sewer overflows be reported to the SWRCB using an online reporting system.

The SWRCB has delegated authority to nine Regional Water Quality Control Boards (RWQCB) to enforce these requirements within their region. The Central Valley RWQCB issues and enforces NPDES permits in Fresno. NPDES permits allow the RWQCB to regulate where and how the waste is disposed, including the discharge volume and effluent limits of the waste and the monitoring and reporting responsibilities of the discharger. The RWQCB is also charged with conducting inspections of permitted discharges and monitoring permit compliance.

Sanitary District Act of 1923

The Sanitary District Act of 1923 (Health and Safety Code Section 6400 et seq.) authorizes the formation of sanitation districts and enforces the Districts to construct, operate, and maintain facilities for the collection, treatment, and disposal of wastewater.[1] The Act was amended in 1949 to allow the Districts to also provide solid waste management and disposal services, including refuse transfer and resource recovery.

Local Regulations

Fresno General Plan

The City's General Plan contains the following goals, policies, and objectives relevant to the provision of wastewater service and facilities (Table 4.15-1):

[1] California Health and Safety Code, http://leginfo.ca.gov/cgi-bin/calawquery?codesection=hsc, accessed November 18, 2011.

TABLE 4.15-1 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO UTILITY SYSTEMS

Objective/ Policy Number	Objective/Policy Text
Objective PU-4	*Ensure provision of adequate trunk sewer and collector main capacities to serve baseline and planned urban development, consistent with the Wastewater Master Plan.*
Policy PU-4-c	System Extension and Cost Recovery. Pursue enlargement or extension of the sewage collection system where necessary to serve planned urban development, with the capital costs and benefits allocated equitably and fairly between the baseline users and new users.
Objective PU-5	*Preserve groundwater quality and ensure that the health and safety of the entire Fresno community is not impaired by use of private, on-site disposal systems.*
Policy PU-5-b	Non-Regional Treatment. Discourage, and when determined appropriate, oppose the use of private wastewater (septic) disposal systems, community wastewater disposal systems, or other non-regional sewage treatment and disposal systems within or adjacent to the Metropolitan Area if these types of wastewater treatment facilities would cause discharges that could result in groundwater degradation.
Policy PU-5-c	Satellite Facilities. Work with the Regional Water Quality Control Board to ensure that approval of any satellite treatment and reclamation facility proposal is consistent with governing statutes and regulations.
Objective PU-6	*Ensure the provision of adequate sewage treatment and disposal by utilizing the Fresno-Clovis Regional Wastewater Reclamation Facility as the primary facility, when economically feasible, for all existing and new development within the Metropolitan Area.*
Policy PU-6-a	Treatment Capacity and Cost Recovery. Prepare for and consider the implementation of increased wastewater treatment and reclamation facility capacity in a timely manner to facilitate planned urban development within the Metropolitan Area consistent with this General Plan. Accommodate increase in flows and loadings from the existing community with the capital costs and benefits allocated equitably and fairly between existing users and new users, as authorized by law.
Policy PU-6-b	Treatment Capacity and Cost Recovery. Prepare for and consider the implementation of increased wastewater treatment and reclamation facility capacity in a timely manner to facilitate planned urban development within the Metropolitan Area consistent with this General Plan. Accommodate increase in flows and loadings from the existing community with the capital costs and benefits allocated equitably and fairly between existing users and new users, as authorized by law.
Objective PU-7	*Promote reduction in wastewater flows and develop facilities for beneficial reuse of reclaimed water and biosolids for management and distribution of treated wastewater.*
Policy PU-7-a	Reduce Wastewater. Identify and consider implementing water conservation standards and other programs and policies, as determined appropriate, to reduce wastewater flows.
Policy PU-7-b	Reduce Stormwater Leakage. Reduce storm water infiltration into the sewer collection system, where feasible, through a program of replacing old and deteriorated sewer collection pipeline; eliminating existing stormwater sewer cut-ins to the sanitary sewer system; and avoiding any new sewer cut-ins except when required to protect health and safety.
Policy PU-7-c	Biosolid Disposal. Investigate and consider implementing economically effective and environmentally beneficial methods of biosolids handling and disposal.
Policy PU-7-d	Wastewater Recycling. Pursue the development of a recycled water system and the expansion of beneficial wastewater recycling opportunities, including a timely technical, practicable, and institutional evaluation of treatment, facility siting, and water exchange elements.
Policy PU-7-e	Infiltration Basins. Continue to rehabilitate existing infiltration basins, and if determined appropriate, pursue acquiring additional sites for infiltration basins, as needed.
Policy PU-7-f	Food and Drink Industry. Ensure adequate provision of facilities for the appropriate management of wastewater from wineries and food processing and beverage facilities, including conformance with Waste Discharge Requirements issued by the Regional Water Quality Control Board.

Baseline

Wastewater Collection

Since 1968, Fresno has administered a Mandatory Sewering Ordinance that requires discontinued use of on-site disposal and connection to the Regional Sewer System when it becomes available.[2] In total, the City's wastewater collection system consists of:

- Approximately 1,500 miles of gravity sewer pipes ranging from 6 inches to 84 inches in diameter;
- More than 24,000 manholes;
- 15 lift stations;
- 54 junction structures; and
- Approximately 1 mile of force mains.

Existing Average Dry Weather Flows (ADWF) within the Plan Area were estimated by assigning each parcel in the proposed Plan to one of the land use classifications. The corresponding Wastewater Collection System Master Plan (WCSMP) wastewater generation rate for each classification was then multiplied by the measured parcel area to calculate an existing wastewater flow. These flows were summed by collection area to obtain the ADWF for each contributing sewer collection area, and the collection areas were summed to obtain a total for the entire proposed Plan. To estimate the peak flow rates that are used to determine the capacity needed for pipes and other collection facilities, the ADWF was multiplied by the WCSMP's peaking factor of 1.49 to account for fluctuations in wastewater flow over the course of a day, and then increased by 10,000 gallons per day (gpd) per acre to account for the combined effects of infiltration and inflow (jointly referred to as "I&I").

Wastewater Treatment and Disposal

As a condition of a Clean Water Grant issued by the federal government, the City of Fresno was designated the Regional Sewer Agency for the Fresno-Clovis Metropolitan Area (FCMA) in 1966. The City operates the Fresno-Clovis Regional Wastewater Reclamation Facility (RWRF) under a Joint Powers Agreement with Clovis and the County of Fresno. The 3,000-acre RWRF was originally constructed in 1947 and is located inside the City limit but within a non-contiguous area situated approximately 3.5 miles southwest of the Chandler Executive Airport at Jensen and Cornelia Avenues. Over the past 40 years, the RWRF has been expanded and rehabilitated several times, most recently in 2010 when process units were added to the facility to address high organic concentrations within incoming wastewater. The treatment plant includes a number of redundant facilities that allow for regular maintenance and provide backup capacity in the event of equipment failure. The RWRF currently provides secondary treatment and has an average annual rated capacity of 80 million gallons per day (mgpd), with equipment redundancy to accommodate maintenance schedules or equipment failures. Peak hour flow is 160 mgpd. Effluent disposal occurs primarily through a combination of infiltration beds located at the RWRF and agricultural irrigation (Sherwood Design Engineers 2011). Table 4.15-2 on the next page provides a detailed comparison of wastewater generation of the General Plan and proposed Plan projections by land use classification.

[2] City of Fresno, Wastewater Collection System Master Plan, 2006.

TABLE 4.15-2 COMPARISON OF BASELINE AND PROPOSED WASTEWATER GENERATION

Land Use Classification	Land Use Abbreviation	General Plan Water Usage (mgpd)	Proposed Plan (mgpd)	Difference (%)
Employment - Business Park	cbp	0.136	0	-100%
Commercial - Community	cc	0.048	0.088	83.50%
Corridor/Center Mixed Use	cmx	0.249	0.263	5.80%
Employment - Office	co	0.016	0.115	614%
Commercial - Regional	cr	0.036	0.06	66.30%
Industrial - Heavy	ih	0.042	0	-100%
Industrial - Light	il	0.13	0	-100%
Neighborhood Mixed Use	nmx	0	0.273	100%
Open Space - Ponding Basin	obp	0.052	0.045	-11.90%
Open Space - Park	orp	0.001	0.002	141%
Open Space - Community Park	orpc	0.024	0.021	-14.70%
Open Space - Regional Park	orpr	0.062	0.034	-45.30%
Public Facilities - Airport	pa	0.001	0.001	0.00%
Public Facilities - College	pc	0	0.033	100%
Public Facilities	pf	0.018	0.113	526%
Public Facilities - Neighborhood Center	pnc	0.002	0.002	0.00%
Public Facilities - Church	pqch	0.001	0	-100%
Public Facilities - PG&E Substation	pqge	0.002	0.002	0.00%
Public Facilities - Hospital	pqmh	0.02	0.02	0.00%
Public Facilities - Elementary School	pse	0.026	0.03	14.40%
Public Facilities - Middle School	psm	0.045	0.034	-23.40%
Residential High Density	rh	0.079	0	-100%
Residential Low Density	rl	0.025	0.025	0.00%
Residential Medium Density	rm	0.746	0.775	3.90%
Residential Medium High Density	rmh	0.09	0.045	-49.80%
Residential Medium Low Density	rml	0.912	0.857	-6.10%
Residential Urban Neighborhood	run	0.365	0.373	2.20%
Totals		**3.128**	**3.219**	**2.90%**

Source: Blair, Church & Flynn, 2017.

4.15.1.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact if it would:

1. Exceed wastewater treatment requirements of the applicable RWQCB.
2. Require or result in the construction of new wastewater treatment facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.
3. Result in a determination by the wastewater treatment provider which serves or may serve the proposed Plan that it has adequate capacity to serve the Plan's projected demand in addition to the provider's baseline commitments.

4.15.1.3 IMPACT DISCUSSION

UTIL-1	**Implementation of the proposed Plan could exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.**

The proposed Plan proposes a modest transfer of density from the proposed Plan compared with the General Plan, which would modify the distribution of wastewater generation throughout the Plan Area. Under both the proposed Plan and the General Plan, wastewater generation is projected to increase as growth occurs over the next 25 years. For the purposes of this wastewater analysis, it was assumed growth within the Plan Area will occur as described above, on currently vacant or underutilized parcels. As shown in detail in this Draft EIR, this will result in a maximum of new or reoccupied dwelling units and million square feet of new or repurposed commercial/industrial space within the Plan Area.

Under the proposed Plan, the Plan Area has capacity for over 6,000 dwelling units, over 1.5 million square feet of commercial space, nearly 750,000 square feet of office space, 78 acres of parks or open space, and 2.4 million square feet of public facilities.

As shown in Table 4.15-2, there would be an estimated increase of 2.9 percent in wastewater annually produced for the proposed Plan compared with the baseline General Plan. The Plan Area is currently forecast to produce an estimated 3.13 million gallons per day at buildout with masterplan land uses compared to 3.22 million gallons per day under the proposed Plan. A 2.9 percent increase is not considered significant, however, with implementation of the specific policies below, the implementation of the General Plan was found to have a *potentially significant* impact associated with wastewater treatment requirements and waste discharge requirements.

To reduce the potential impacts associated with wastewater discharge permits, the City would be required to increase wastewater treatment capacity as well as obtain revised and new waste discharge permits. The policies included in the adopted General Plan would reduce the potential impacts associated with wastewater treatment requirements and waste discharge requirements, including those associated with the proposed Plan. The General Plan requirements that are applicable to the proposed Plan are listed in Table 4.15-1.

Significance Without Mitigation: Significant.

The following mitigation measures were included in the Master EIR (MEIR) and remain applicable to this proposed Plan:

Impact UTIL-1: Implementation of the proposed Plan would exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

MEIR Mitigation Measure USS-1: The City shall develop and implement a wastewater master plan update.

MEIR Mitigation Measure USS-2: Prior to exceeding existing wastewater treatment capacity, the City shall evaluate the wastewater system and shall not approve additional development that contributes wastewater to the wastewater treatment facility that could exceed capacity until additional capacity is provided. By approximately the year 2025, the City shall construct the following improvements.

- Construct an approximately 70 million gallons per day (mgd) expansion of the Regional Wastewater Treatment Facility and obtain revised waste discharge permits as the generation of wastewater is increased.
- Construct an approximately 0.49 mgd expansion of the North Facility and obtain revised waste discharge permits as the generation of wastewater is increased.

MEIR Mitigation Measure USS-3: Prior to exceeding existing wastewater treatment capacity, the City shall evaluate the wastewater system and shall not approve additional development that contributes wastewater to the wastewater treatment facility that could exceed capacity until additional capacity is provided. After approximately the year 2025, the City shall construct the following improvements.

- Construct an approximately 24 mgd Wastewater Treatment Facility within the Southeast Development Area and obtain revised waste discharge permits as the generation of wastewater is increased.
- Construct an approximately 9.6 mgd expansion of the Regional Wastewater Treatment Facility and obtain revised waste discharge permits as the generation of wastewater is increased.

Significance With Mitigation: Less than significant.

UTIL-2	**Implementation of the proposed Plan would require or result in the construction of new wastewater treatment facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.**

Wastewater Treatment Facilities

As discussed in Impact UTIL-1, the implementation of the proposed Plan and Fresno General Plan will result in the need for expansion and new wastewater treatment facilities to serve future land uses and population. In addition, according to the City of Fresno Metropolitan Water Resources Management Plan

Phase 2, the expansion and new surface water treatment facilities will be needed to increase water supplies within the Plan Area. Therefore, development in accordance with proposed Plan could result in a significant impact on the existing wastewater treatment facilities.

A summary of the wastewater treatment facilities that could require at least partial construction to accommodate future development associated with the proposed Plan includes the following.

- Construct 70 mgd expansion at the Fresno-Clovis Regional Wastewater Reclamation Facility, in accordance with the City of Fresno 2006 Wastewater Master Plan.
- Construct 25,000 acre-feet per year recycled water expansion to the Fresno-Clovis Regional Wastewater Reclamation Facility, in accordance with the January 2012 City of Fresno Metropolitan Water Resources Management Plan.
- Construct a 0.49 mgd expansion of the North Facility.
- Construct 24 mgd wastewater treatment facility within the Southeast Development Area, in accordance with the City of Fresno 2006 Wastewater Master Plan.
- Construct 9.6 mgd expansion at the Fresno-Clovis Regional Wastewater Reclamation Facility.

The estimated increase of 2.9 percent in wastewater annually produced for the proposed Plan compared with the baseline General Plan will not appreciably impact the wastewater system. The area is currently forecast to produce an estimated 3.13 million gallons per day at buildout with masterplan land uses compared to 3.22 million gallons per day for the Plan Area. A 2.9 percent increase is not significant, however, with implementation of the specific policies below, the implementation of the General Plan was found to result in potential significant effects associated with wastewater treatment requirements and waste discharge requirements.

To reduce the potential impacts associated with expansion of facilities, the City will need to increase wastewater treatment capacity as well as obtain revised and new waste discharge permits. The policies in the Fresno General Plan are designed to reduce the potential effect associated with expansion of wastewater treatment capacity including those associated with the proposed Plan. The measures required by the 2014 General Plan include the above listed improvements as well as surface water treatment facilities, additional wastewater collection system infrastructure, water conveyance facilities, and additional pipeline and storage facilities. Potential environmental impacts are identified in the 2014 Master Plan and mitigation measures will be required to minimize and mitigate impacts in the areas of:

- Traffic
- Air Emissions
- Greenhouse Gas Emissions
- Noise
- Water Quality
- Aesthetics
- Agricultural Resources
- Biological Resources
- Cultural Resources

The following mitigation measures were included in the MEIR and remain applicable to this proposed Plan:

Impact UTIL-2: Implementation of the proposed Plan would require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Significance Without Mitigation: Significant.

MEIR Mitigation Measure USS-4: A Traffic Control/Traffic Management Plan to address traffic impacts during construction of water and sewer facilities shall be prepared and implemented subject to approval by the City prior to construction. The plan shall identify hours of construction and for deliveries, include haul routes, identify access and parking restrictions, plan for notifications, identify pavement markings and signage, and plan for coordination with emergency service providers and schools.

MEIR Mitigation Measure USS-5: Prior to exceeding existing water supply capacity, the City shall evaluate the water supply system and shall not approve additional development that demand additional water until additional capacity is provided. By approximately the year 2025, the following capacity improvements shall be provided.

- Construct an approximately 80 mgd surface water treatment facility near the intersection of Armstrong and Olive Avenues, in accordance with Chapter 9 and Figure 9-1 of the City of Fresno Metropolitan Water Resources Management Plan Update Phase 2 Report, January 2012 (2012 Metro Plan Update).
- Construct an approximately 30 mgd expansion of the existing northeast surface water treatment facility for a total capacity of 60 mgd, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update.
- Construct an approximately 20 mgd surface water treatment facility in the southwest portion of the City, in accordance with Chapter 9 and Figure 9- 1 of the 2012 Metro Plan Update.

MEIR Mitigation Measure USS-6: Prior to exceeding capacity within the existing wastewater collection system facilities, the City shall evaluate the wastewater collection system and shall not approve additional development that would generate additional wastewater and exceed the capacity of a facility until additional capacity is provided. By approximately the year 2025, the following capacity improvements shall be provided.

- Orange Avenue Trunk Sewer: This facility shall be improved between Dakota and Jensen Avenues. Approximately 37,240 feet of new sewer main shall be installed and approximately 5,760 feet of existing sewer main shall be rehabilitated. The size of the new sewer main shall range from 27-inches to 42-inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are RS03A, RL02, C01-REP, C02-REP, C03-REP, C04-REP, C05-REP, C06-REL and C07-REP.
- Marks Avenue Trunk Sewer: This facility shall be improved between Clinton Avenue and Kearney Boulevard. Approximately 12,150 feet of new sewer main shall be installed. The size of the new

sewer main shall range from 33 inches to 60 inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are CM1-REP and CM2-REP.

- North Avenue Trunk Sewer: This facility shall be improved between Polk and Fruit Avenues and also between Orange and Maple Avenues. Approximately 25,700 feet of new sewer main shall be installed. The size of the new sewer main shall range from 48 inches to 66 inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are CN1-REL1 and CN3-REL1.
- Ashlan Avenue Trunk Sewer: This facility shall be improved between Hughes and West Avenues and also between Fruit and Blackstone Avenues. Approximately 9,260 feet of new sewer main shall be installed. The size of the new sewer main shall range from 24 inches to 36 inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are CA1-REL and CA2-REP.

MEIR Mitigation Measure USS-7: Prior to exceeding capacity within the existing 28 pipeline segment shown on Figures 1 and 2 in Appendix J-1 of the Fresno General Plan MEIR, the City shall evaluate the wastewater collection system and shall not approve additional development that would generate additional wastewater and exceed the capacity of one of the 28 pipeline segments until additional capacity is provided.

MEIR Mitigation Measure USS-8: Prior to exceeding capacity within the existing water conveyance facilities, the City shall evaluate the water conveyance system and shall not approve additional development that would demand additional water and exceed the capacity of a facility until additional capacity is provided. The following capacity improvements shall be provided by approximately 2025.

- Construct 65 new groundwater wells, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update.
- Construct a 2.0 million gallon potable water reservoir (Reservoir T2) near the intersection of Clovis and California Avenues, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update.
- Construct a 3.0 million gallon potable water reservoir (Reservoir T3) near the intersection of Temperance and Dakota Avenues, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update.
- Construct a 3.0 million gallon potable water reservoir (Reservoir T4) in the Downtown Planning Area, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update.
- Construct a 4.0 million gallon potable water reservoir (Reservoir T5) near the intersection of Ashlan and Chestnut Avenues, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update.
- Construct a 4.0 million gallon potable water reservoir (Reservoir T6) near the intersection of Ashlan Avenue and Highway 99, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update.
- Construct 50.3 miles of regional water transmission mains ranging in size from 24-inch to 48-inch, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update.

- Construct 95.9 miles of 16-inch transmission grid mains, in accordance with Chapter 9 and Figure 9-1 of the 2012 Metro Plan Update.

MEIR Mitigation Measure USS-9: Prior to exceeding capacity within the existing water conveyance facilities, the City shall evaluate the water conveyance system and shall not approve additional development that would demand additional water and exceed the capacity of a facility until additional capacity is provided. The following capacity improvements shall be provided after approximately the year 2025 and additional water conveyance facilities shall be provided prior to exceedance of capacity within the water conveyance facilities to accommodate full buildout of the General Plan.

- Construct a 4.0 million gallon potable water reservoir (SEDA Reservoir 1) within the northern part of the Southeast Development Area.
- Construct a 4.0 million gallon potable water reservoir (SEDA Reservoir 2) within the southern part of the Southeast Development Area. Additional water conveyance facilities shall be provided prior to exceedance of capacity within the water conveyance facilities to accommodate full buildout of the General Plan Update.

Significance With Mitigation: Less than significant.

UTIL-3	**Implementation of the proposed Plan would result in a determination by the wastewater treatment provider which serves or may serve the proposed Plan that it has adequate capacity to serve the proposed Plan's projected demand in addition to the provider's baseline commitments.**

The potential long-term impacts related to wastewater collection, treatment, and disposal requirements of the baseline versus proposed Plan differ by 2.9 percent and are considered both nominal and less than significant for full implementation of the proposed Plan.

Public utility districts and other municipalities exist near or adjacent to the Plan Area and include the Malaga Utility District. These entities have wastewater treatment facilities that could cause significant environmental impacts. However, the operation of these treatment facilities would be required to comply with the same wastewater treatment requirements and RWQCB waste discharge requirements explained above. Since the proposed Plan would result in potential significant impacts associated with wastewater treatment requirements and waste discharge requirements, the proposed Plan's contribution to potential cumulative impacts are considerable and would be a significant cumulative impact.

Significance Without Mitigation: Significant.

Mitigation Measure UTIL-3: Implement MEIR Mitigation Measures USS-1 through USS-3.

Significance With Mitigation: Less than significant.

4.15.1.4 CUMULATIVE IMPACTS

UTIL-4	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in significant cumulative impacts with respect to wastewater.**

The study area for cumulative impacts regarding wastewater is the City of Fresno Planning Area and the City of Clovis because the City of Fresno acts as the Regional Sewering Agency and is responsible for operating the Fresno/Clovis Regional Wastewater Reclamation Facility. No significant adverse cumulative impacts are anticipated with the forecast increase in wastewater associated with the proposed Plan. Wastewater service cumulative impacts would be less than significant upon compliance with regulatory requirements and proposed policies for full implementation of the proposed Plan.

Public utility districts and other municipalities exist near or adjacent to the Plan Area and include the Malaga Utility District. These entities have wastewater treatment facilities that could cause significant environmental impacts. However, the operation of these treatment facilities would be required to comply with the same wastewater treatment requirements and RWQCB waste discharge requirements explained above. Since the proposed Plan would result in potential significant impacts associated with wastewater treatment requirements and waste discharge requirements, the proposed Plan's contribution to potential cumulative impacts are considerable and would be a significant cumulative impact.

Impact UTIL-4: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in a significant cumulative impacts with respect to wastewater.

Significance Without Mitigation: Significant.

Mitigation Measure UTIL-4: Implement MEIR Mitigation Measures USS-1 through USS-9.

Significance With Mitigation: Less than significant.

4.15.2 WATER SUPPLY

4.15.2.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

Federal Clean Water Act

The CWA establishes regulatory requirements for potable water supplies including raw and treated water quality criteria. The City of Fresno is required to monitor water quality and conform to the regulations and requirements of the CWA.

Federal Safe Drinking Water Act

The Safe Drinking Water Act authorizes the EPA to set national standards for drinking water, called the National Primary Drinking Water Regulations, to protect against both naturally-occurring and man-made contaminants. These standards set enforceable maximum contaminant levels in drinking water and require all water providers in the United States to treat water to remove contaminants, except for private wells serving fewer than 25 people. In California, the Division of Drinking Water (DDW) within the SWRCB regulates public drinking water systems. If a water system does not meet standards, it is the water supplier's responsibility to notify its customers.

State Regulations

California Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act (Porter-Cologne), which was passed in California in 1969, the SWRCB has the ultimate authority over State water rights and water quality policy. Porter-Cologne also establishes nine RWQCBs to oversee water quality on a day-to-day basis at the local and regional levels. RWQCBs engage in a number of water quality functions in their respective regions. RWQCBs regulate all pollutant or nuisance discharges that may affect either surface water or groundwater.[3] Fresno is overseen by the Central Valley RWQCB.

California Urban Water Management Planning Act

Through the Urban Water Management Planning Act of 1983, the California Water Code requires all urban water suppliers within California to prepare and adopt an Urban Water Management Plan (UWMP) and update it every five years. This requirement applies to all suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre-feet of water per year (afy).[4] This Act is intended to support conservation and efficient use of urban water supplies. The Act requires that total proposed Plan water use be compared to water supply sources over the next 20 years in five-year increments, that planning occur for single and multiple dry water years, and that plans include a water recycling analysis that incorporates a description of the wastewater collection and treatment system within the agency's service area along with current and potential recycled water uses[5].

Senate Bills 610 and 221

Senate Bill (SB) 610 and SB 221 amended State law to ensure better coordination between local water supply and land use decisions and confirm that there is an adequate water supply for new development. Both statutes require that detailed information regarding water availability be provided to City and County decision-makers prior to approval of large development projects. SB 610 requires the preparation of a

[3] California Wetlands Information System, Summary of the Porter-Cologne Water Quality Control Act, http://ceres.ca.gov/wetlands/permitting/Porter_summary.html, accessed February 5, 2015.

[4] One acre-foot is the amount of water required to cover 1 acre of ground (43,560 square feet) to a depth of 1 foot.

[5] Department of Water Resources, About Urban Water Management, http://www.water.ca.gov/urbanwatermanagement/, accessed February 5, 2015.

WSA for certain types of projects, as defined by Water Code Section 10912, which are subject to CEQA. Projects required to prepare a WSA are defined as follows:

- Residential development of more than 500 dwelling units.
- Shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor area.
- Hotel or motel, or both, having more than 500 rooms.
- Industrial, manufacturing or processing plant, or industrial park planned to employ more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- Mixed-use project that includes one or more of the projects specified above.
- Project that would demand an amount of water equivalent to, or greater than, the amount of water required for 500 dwelling units.

SB 221 establishes consultation and analysis requirements related to water supply planning for residential subdivisions including more than 500 dwelling units. Written verification by the water supplier that sufficient water is available for the proposed Plan is required before construction begins. The document used to determine compliance with both SB 610 and SB 221 is the UWMP.

California Groundwater Management Act of 1992

The Groundwater Management Act (Assembly Bill (AB) 3030) was signed into law in 1992 and provides guidance for applicable local agencies to develop voluntary Groundwater Management Plans (GMP) in State-designated groundwater basins. GMPs can allow agencies to raise revenue to pay for measures influencing the management of the basin, including extraction, recharge, conveyance, facilities' maintenance, and water quality.[6] The Groundwater Management Act and has since been modified by SB 1938 in 2002 and AB 359 in 2011.

Sustainable Groundwater Management Act of 2014

On September 16, 2014, a three-bill legislative package was signed into law, composed of AB 1739, SB 1168, and SB 1319, collectively known as the Sustainable Groundwater Management Act.[7] The Governor's signing message states "a central feature of these bills is the recognition that groundwater management in California is best accomplished locally".

[6] Department of Water Resources Planning and Local Assistance Central District, Groundwater, *Groundwater Management*, http://www.cd.water.ca.gov/groundwater/gwab3030.cfm, accessed February 5, 2015.

[7] Department of Water Resources, Groundwater Information Center, http://www.water.ca.gov/groundwater/groundwater_management/legislation.cfm, accessed February 5, 2015.

The Water Conservation Act of 2009 (SB X7-7)[8]

SB X7-7, which was enacted in 2009, requires all water suppliers to increase water use efficiency. The legislation sets an overall goal of reducing per capita water by 20 percent by 2020, with an interim goal of a 10 percent reduction in per capita water use by 2015.

State Updated Model Water Efficient Landscape Ordinance (AB 1881 [2006])[9]

The updated Model Water Efficient Landscape Ordinance requires cities and counties to adopt landscape water conservation ordinances by January 31, 2010 or to adopt a different ordinance that is at least as effective in conserving water as the updated Model Ordinance (MO). See Fresno Municipal Code below for a discussion of local ordinances that are required to reduce water consumption and conserve water.

State Mandated Water Reductions

On April 1, 2015, as a result of severe drought conditions in California, the Governor issued an executive order directing the SWRCB to implement mandatory water reductions in cities and towns across California to reduce water usage by 8 percent to 36 percent. The water reductions vary depending on per capita water usage in each municipality and are based on the water usage for a three month period in 2014 (July through September). Cities that use more water will have to make larger cuts. Fresno will be subject to water reductions of 16 percent. The order also requires:

- Replacement of 50 million square feet of lawns throughout the State with drought tolerant landscaping.
- Creation of a temporary, statewide consumer rebate program to replace old appliances with more water and energy efficient models.
- Requirement that campuses, golf courses, cemeteries, and other large landscapes make significant cuts to water use.
- Prohibit new homes and development from irrigating with potable water unless water-efficient drip irrigation systems are used and ban the watering of ornamental grass on public street medians.

CALGreen Building Code

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24, known as "CALGreen") was adopted as part of the California Building Standards Code (Title 24, California Code of Regulations [CCR]) to apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure, unless otherwise indicated in this code, throughout the State of California. CALGreen established planning and design standards for sustainable site development, including water

[8] Department of Water Resources, Senate Bill SBX7-7 2009 Information, http://www.water.ca.gov/wateruseefficiency/sb7/, accessed February 5, 2015.

[9] Department of Water Resources, Water Efficient Landscape Ordinance, http://www.water.ca.gov/wateruseefficiency/landscapeordinance/, accessed February 5, 2015.

conservation, and requires new buildings to reduce water consumption by 20 percent.[10] The mandatory provisions of CALGreen became effective January 1, 2011. The building efficiency standards are enforced through the local building permit process.

The purpose of CALGreen is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts that would reduce a potential negative impact and/or contribute to a positive environmental impact and encouraging sustainable construction practices in the following categories:

- Planning and design
- Energy efficiency
- Water efficiency and conservation
- Material conservation and resource efficiency
- Environmental quality

The provisions of this code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure, unless otherwise indicated in this code, throughout the State of California. Compliance with the CALGreen Code is not a substitution for meeting the certification requirements of any green building program. CALGreen requires new buildings to reduce water consumption by 20 percent.

The California Plumbing Code

The 2010 California Plumbing Code (Part 5, Title 24, CCR) was adopted as part of the California Building Standards Code. The general purpose of the universal code is to prevent disorder in the industry as a result of widely divergent plumbing practices and the use of many different, often conflicting, plumbing codes by local jurisdictions. Among many topics covered in the code are water fixtures, potable and non-potable water systems, and recycled water systems. Water supply and distribution shall comply will all applicable provisions of the current edition of the California Plumbing Code.

Local Regulations

Fresno General Plan

The City's General Plan contains the following goals, policies, and objectives relevant to the provision of water service and facilities (Table 4.15-3):

TABLE 4.15-3 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO WATER SERVICE AND FACILITIES

Objective/ Policy Number	Objective/Policy Text
Objective PU-8	*Manage and develop the City's water facilities on a strategic timeline basis that recognizes the long life cycle of the assets and the duration of the resources, to ensure a safe, economical, and reliable water supply for existing customers and planned urban development and economic diversification.*

[10] The green building standards became mandatory in the 2010 edition of the code.

TABLE 4.15-3 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO WATER SERVICE AND FACILITIES

Objective/ Policy Number	Objective/Policy Text
Policy PU-8-a	**Forecast Need.** Use available and innovative tools, such as computerized flow modeling to determine system capacity, as necessary to forecast demand on water production and distribution systems by urban development, and to determine appropriate facility needs.
Policy PU-8-c	**Conditions of Approval.** Set appropriate conditions of approval for each new development proposal to ensure that the necessary potable water production and supply facilities and water resources are in place prior to occupancy.
Policy PU-8-g	**Review Project Impact on Supply:** Mitigate the effects of development and capital improvement projects on the long-range water budget to ensure an adequate water supply for current and future uses.

Fresno Municipal CodeModel Water Efficient Landscape Ordinance

The Model Water Efficient Landscape Ordinance was adopted by the Office of Administrative Law in September 2009, and requires local agencies to implement water efficiency measures as part of its review of landscaping plans. Local agencies can either adopt the Model Water Efficient Landscape Ordinance or incorporate provisions of the ordinance into its own code requirements for landscaping. For new landscaping projects of 2,500 square feet or more that require a discretionary or ministerial approval, the applicant is required to submit a detailed "Landscape Documentation Package" that discusses water efficiency, soil management, and landscape design elements.

Baseline Conditions

This section describes existing water supply sources, water supply infrastructure, water treatment facilities, as well as projected demand and supply for the current General Plan. Baseline water usage is shown in Table 4.15-4.

Water Supply Sources and Infrastructure

The City of Fresno Water Division manages and operates the City of Fresno's water system. The City delivers drinking water to over 500,000 urban residential, commercial, and industrial customers in over 114 square miles of the City. This area includes many County islands (unincorporated areas within the City) and areas within the City's Sphere of Influence (SOI). Fresno meets its demand for domestic water from a combination of groundwater, treated surface water, and reclaimed water sources.

The City of Fresno operates approximately 260 municipal supply wells that access groundwater from the Kings River Sub-basin of the San Joaquin Valley Groundwater Basin, as well as the Northeast Surface Water Treatment Facility (NESWTF), a 30 mgd surface water treatment facility. As growth within the City increases demands, this facility will be expanded by another 30 mgd for a total capacity of 60 mgd. The planned schedule for expansion to planned capacity is buildout by approximately 2035. The City will adjust the schedule for this proposed Plan as required to meet projected water system demands and maintain the sustainable use of available water resources. Groundwater quality generally meets primary and secondary drinking water standards for municipal use, although chemical contaminant plumes and

nitrates are risks that require monitoring and adjustments to the groundwater supply. Water treatment or removal of specific wells from service are conducted as required to maintain drinking water supply quality.

The Surface Water Treatment Facility (SWTF) located in northeast Fresno receives supplies from the United States Bureau of Reclamation (USBR), Fresno Irrigation District (FID) contract for Kings River Water, and a wastewater recycle exchange agreement with the Fresno Irrigation District. The USBR would supply 60,000 afy in year 2010 through year 2025, the FID would supply an estimated 108,200 afy in year 2010 (125,543 afy actual) (increasing to 132,400 afy by 2035) for the Kings River contracted water, and the FID wastewater exchange agreement would supply 13,800 afy in year 2010 through year 2025.[11]

[11] City of Fresno, Urban Water Management Plan, 2015.

TABLE 4.15-4 COMPARISON OF BASELINE AND PROPOSED WATER USAGE

Land Use Classification	Land Use Abbreviation	General Plan Water Usage (mgpd)	Proposed Plan Water Usage (mgpd)	Increase or Decrease (%)
Employment – Business Park	cbp	0.289	0.0	-100%
Commercial – Community	cc	0.102	0.187	84%
Commercial – General	cgh	0.001	0.001	0%
Corridor/Center Mixed-Use	cmx	0.149	0.157	6%
Employment–Office	co	0.027	0.196	614%
Commercial – Regional	cr	0.065	0.108	66%
Clear Zone	cz	0.000	0.003	100%
Industrial - Heavy	ih	0.044	0.000	-100%
Industrial - Light	il	0.195	0.000	-100%
Neighborhood Mixed Use	nmx	0.000	0.409	100%
Open Space - Ponding Basin	obp	0.052	0.045	-12%
Open Space - Park	orp	0.005	0.013	141%
Open Space - Community Park	orpc	0.072	0.062	-15%
Open Space - Neighborhood Park	orpn	0.067	0.078	17%
Open Space - Regional Park	orpr	0.369	0.202	-45%
Public Facilities - Airport	pa	0.003	0.003	0%
Public Facilities - College	pc	0.000	0.066	N/A
Public Facilities	pf	0.051	0.319	526%
Public Facilities - Neighborhood Center	pnc	0.007	0.007	0%
Public Facilities - Church	pqch	0.002	0.000	N/A
Public Facilities - PG&E Substation	pqge	0.007	0.007	0%
Public Facilities - Hospital	pqmh	0.027	0.027	0%
Public Facilities - Elementary School	pse	0.098	0.112	14%
Public Facilities - Middle School	psm	0.166	0.127	-23%
Residential High Density	rh	0.079	0.000	-100%
Residential Low Density	rl	0.066	0.066	0%
Residential Medium Density	rm	3.109	3.231	4%
Residential Medium High Density	rmh	0.143	0.072	-50%
Residential Medium Low Density	rml	1.449	1.361	-6%
Residential Urban Neighborhood Density	run	0.483	0.494	2%
Total		**7.126**	**7.351**	**3%**

Source: Blair, Church & Flynn, 2017.

In 2004, the NESWTF, located at Chestnut and Behymer Avenues, began operation. The NESWTF has reduced the dependence on groundwater pumping by the City needed to meet water demand. Prior to NESWTF operation, 100 percent of the City's water demand was met through groundwater pumping. According to the 2015 UWMP, the City had a high in groundwater pumping of 165,540 afy in 2002. Since the NESWTF went online in 2004, groundwater production has dropped to half this value in 2015. In addition, the City has started construction on a new 54-mgd SWTF in southeast Fresno (SESWTF), a 13-mile, 72-inch-diameter raw water gravity main from the Fresno Irrigation District's Fresno Canal to the proposed SESWTF, and approximately 13 miles of Regional Transmission Mains (RTM) throughout the City. Production from this facility may ultimately reach 80 mgd, with the City demonstrating to DDW that the facility is capable of safely running at higher loading rates. All of these major water system improvements began construction in 2016 with completion planned in 2017 and 2018. Surface water use will help to alleviate groundwater demand.

The SWTF has an existing design capacity of 92.07 acre-feet per day (30 mgd). Based on this design capacity, and assuming the SWTF is inoperable for a total of 30 days throughout the year for maintenance activities, the SWTF can provide up to approximately 30,800 afy of treated surface water. Because of operational constraints, the SWTF has a current capacity of only 28,300 afy (27.5 mgd). Plans call for increasing total treatment capacity through correction of the operational constraints bringing the SWTF to its design capacity of 30,800 afy by year 2010. Additional proposed improvements at the facility would increase the capacity to 61,700 afy by year 2020. In addition to the SWTF improvements, the proposed Southeast Surface Water Treatment Plant with a design capacity of 61,700 afy, would bring the total supply to 123,400 afy.[12]

Groundwater is obtained from the Kings Sub-basin within the San Joaquin Valley Groundwater basin, a natural underground basin (i.e., aquifer). Using approximately 260 City-operated municipal groundwater supply wells, the estimated groundwater pumped in year 2011 was 119,8013 afy, with a steady decrease to 83,360 afy in 2015.

Because this groundwater replaces a similar volume of surface water that FID contractors would otherwise use for irrigation, the City receives a surface water credit from FID for 46 percent of the water it pumps into the canals under the terms of the Wastewater Recycle Exchange Agreement, up to a maximum of 13,800 afy. Surface water obtained under this agreement is treated at the City's SWTF along with its other surface supplies, and pumped into the potable distribution system. To help reduce its use of limited potable water supplies and control groundwater contamination associated with percolation disposal, the City plans to begin using treated effluent from the City-operated Fresno/Clovis Regional Wastewater Reclamation Facility (RWRF) for landscape irrigation and other approved uses by 2030. Refer to the discussion below under the heading "Wastewater Collection" for a detailed discussion of the RWRF. This would require upgrading at least a portion of the RWRF treatment facilities to produce the tertiary quality effluent required for unrestricted use on publicly accessible landscape. It is now estimated the use of recycled water will total 25,000 afy by 2025.

[12] City of Fresno, Urban Water Management Plan, 2015.

Projected Water Supply and Demand

The existing average water use for the City of Fresno is 300 gallons per capita per day. Total water demand for all sectors (industrial, public landscape irrigation, commercial/institutional, multi-family residential, single-family residential) in 2015 was 132,843 afy, and is projected by the 2015 UWMP to reach 262,500 afy by the year 2040. This projection includes conservation savings that will be achieved by the year 2040. Beginning late 2008 through January 2013, the City had initiated and completed the implementation of a residential water meter program through the installation of 113,000 water meters for single-family homes. From the period of 2008 through 2015, there has been a dramatic decline of water usage for all water use sectors.[13]

Water Supply Reliability

Aging infrastructure is one of the Plan Area's deficits. Portions of the utility networks in the Plan Area are over 50 years old. These networks are either nearing or past their intended design life and are subject to capacity, reliability, and potential failure issues. The City of Fresno (particularly in areas developed more recently) has some of the highest water use per capita in the State and at the same time the lowest water rates of any major California city, which promotes the water demand. This water resource issue will only intensify if more stringent water conservation measures are not implemented and water rates are not raised to fund needed infrastructure improvements. In 2015, the City implemented new water rates, and currently, several infrastructure improvements funded by the new rates are in various stages of development.

4.15.2.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact if it would:

1. Require or result in the construction of new water or water treatment facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.
2. Have insufficient water supplies available to serve the project from baseline entitlements and resources, or are new or expanded entitlements needed.

4.15.2.3 IMPACT DISCUSSION

UTIL-5	**Implementation of the proposed Plan would not require or result in the construction of new water or wastewater treatment facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.**

The potential long-term impacts related to water supply, treatment and distribution requirements of the baseline versus proposed plans differ by 3 percent and are considered nominal and therefore, *less than significant* for full implementation of the proposed Plan.

[13] City of Fresno, Urban Water Management Plan, 2015.

Significance Without Mitigation: Less than significant.

UTIL-6	**Implementation of the proposed Plan would not have sufficient water supplies available to serve the proposed Plan from baseline entitlements and resources, or are new or expanded entitlements needed.**

Waste supply and water treatment impacts would be *less than significant* upon compliance with regulatory requirements and proposed policies for full implementation of the proposed Plan.

Significance Without Mitigation: Less than significant.

4.15.2.4 CUMULATIVE IMPACTS

UTIL-7	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would/would not result in significant cumulative impacts with respect to water supply.**

The study area for cumulative impacts regarding water supply is the City of Fresno Planning Area and the groundwater basins from which the Plan Area derives water. Water supply and water treatment impacts would be *less than significant* upon compliance with regulatory requirements and proposed policies for full implementation of the proposed Plan.

Significance Without Mitigation: Less than significant.

4.15.3 RECYCLED WATER SUPPLY

4.15.3.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

Federal Safe Drinking Water Act

The Safe Drinking Water Act authorizes the EPA to set national standards for drinking water, called the National Primary Drinking Water Regulations, to protect against both naturally-occurring and man-made contaminants. These standards set enforceable maximum contaminant levels in drinking water and require all water providers in the United States to treat water to remove contaminants, except for private wells serving fewer than 25 people. In California, the DDW within the SWRCB regulates public drinking water systems. If a water system does not meet standards, it is the water supplier's responsibility to notify its customers.

State Regulations

California Porter-Cologne Water Quality Control Act

Under the Porter-Cologne, which was passed in California in 1969, the SWRCB has the ultimate authority over State water rights and water quality policy. Porter-Cologne also establishes nine RWQCBs to oversee water quality on a day-to-day basis at the local and regional level. RWQCBs engage in a number of water quality functions in their respective regions. RWQCBs regulate all pollutant or nuisance discharges that may affect either surface water or groundwater.[14] Fresno is overseen by the Central Valley RWQCB.

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Senate Bills 610 and 221

SB 610 and SB 221 amended State law to ensure better coordination between local water supply and land use decisions and confirm that there is an adequate water supply for new development. Both statutes require that detailed information regarding water availability be provided to City and County decision-makers prior to approval of large development projects. SB 610 requires the preparation of a WSA for certain types of projects, as defined by Water Code Section 10912, which are subject to CEQA. Projects required to prepare a WSA are defined as follows:

- Residential development of more than 500 dwelling units.
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SB X7-7, which was enacted in 2009, requires all water suppliers to increase water use efficiency. The legislation sets an overall goal of reducing per capita water by 20 percent by 2020, with an interim goal of a 10 percent reduction in per capita water use by 2015.

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The updated Model Water Efficient Landscape Ordinance requires cities and counties to adopt landscape water conservation ordinances by January 31, 2010 or to adopt a different ordinance that is at least as effective in conserving water as the updated Model Ordinance (MO). See Fresno Municipal Code below for a discussion of local ordinances that are required to reduce water consumption and conserve water.

[17] Department of Water Resources Planning and Local Assistance Central District, Groundwater, *Groundwater Management*, http://www.cd.water.ca.gov/groundwater/gwab3030.cfm, accessed February 5, 2015.

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[19] Department of Water Resources, Senate Bill SBX7-7 2009 Information, http://www.water.ca.gov/wateruseefficiency/sb7/, accessed February 5, 2015.

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- Replacement of 50 million square feet of lawns throughout the State with drought tolerant landscaping.
- Creation of a temporary, statewide consumer rebate program to replace old appliances with more water and energy efficient models.
- Requirement that campuses, golf courses, cemeteries, and other large landscapes make significant cuts to water use.
- Prohibit new homes and development from irrigating with potable water unless water-efficient drip irrigation systems are used and ban the watering of ornamental grass on public street medians.

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The purpose of CALGreen is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories:

- Planning and design
- Energy efficiency
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- Material conservation and resource efficiency
- Environmental quality

[21] The green building standards became mandatory in the 2010 edition of the code.

The provisions of this code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure, unless otherwise indicated in this code, throughout the State of California. Compliance with the CALGreen Code is not a substitution for meeting the certification requirements of any green building program. CALGreen requires new buildings to reduce water consumption by 20 percent.

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Local Regulations

Fresno General Plan

The City's General Plan contains the following goals, policies, and objectives relevant to the provision of water service and facilities (Table 4.15-5):

TABLE 4.15-5 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO RECYCLED WATER SUPPLY

Objective/ Policy Number	Objective/Policy Text
Objective PU-8	*Manage and develop the City's water facilities on a strategic timeline basis that recognizes the long life cycle of the assets and the duration of the resources, to ensure a safe, economical, and reliable water supply for existing customers and planned urban development and economic diversification.*
Policy PU-8-a	**Forecast Need.** Use available and innovative tools, such as computerized flow modeling to determine system capacity, as necessary to forecast demand on water production and distribution systems by urban development, and to determine appropriate facility needs.
Policy PU-8-c	**Conditions of Approval.** Set appropriate conditions of approval for each new development proposal to ensure that the necessary potable water production and supply facilities and water resources are in place prior to occupancy.
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Fresno Municipal CodeModel Water Efficient Landscape Ordinance

The Model Water Efficient Landscape Ordinance was adopted by the Office of Administrative Law in September 2009, and requires local agencies to implement water efficiency measures as part of its review of landscaping plans. Local agencies can either adopt the Model Water Efficient Landscape Ordinance or incorporate provisions of the ordinance into its own code requirements for landscaping. For new landscaping projects of 2,500 square feet or more that require a discretionary or ministerial approval, the

applicant is required to submit a detailed "Landscape Documentation Package" that discusses water efficiency, soil management, and landscape design elements.

Baseline Conditions

This section describes water supply sources, water supply infrastructure, water treatment facilities, as well as projected demand and supply.

Recycled Water Supply Sources and Infrastructure

Recycled water, an important water source for the City of Fresno, is not yet utilized in the Plan Area. The proposed Plan presents an opportunity to integrate recycled water use into the associated improvements with buildout of the City of Fresno's Recycled water system. Green field installation of a distribution system at the initial development stage provides opportunity to plan optimum recycled water utilization within the Plan Area.

Water Supply Reliability

Recycled water supply is not limited by the amount of recycled water available as it is possible and may be beneficial and economical to augment the supply of recycled water with higher grades of water if available. Untreated surface water or even potable water may be used to augment as available and required to meet demands of recycled water users.

4.15.3.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact if it would:

1. Require or result in the construction of new water or wastewater treatment facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.
2. Have insufficient water supplies available to serve the proposed Plan from baseline entitlements and resources, or are new or expanded entitlements needed.

4.15.3.3 IMPACT DISCUSSION

UTIL-8	**Implementation of the proposed Plan would not require or result in the construction of new reclaimed water treatment facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.**

Recycled water is a major contributor to the area's water supply system. The principal impact of providing recycled water is the overall water supply rather than direct shortages for end users. This is due to the ability to trade off and supplement recycled water supply from other sources. Overall water impacts are covered in the water supply discussion and omitted here. Under Impacts UTIL-5 and UTIL-6, impacts were found to be less than significant. Therefore, impacts related to the construction of new reclaimed water treatment facilities or expansion of baseline facilities would be *less than significant*.

Significance Without Mitigation: Less than significant.

UTIL-9	**Implementation of the proposed Plan would have sufficient reclaimed water supplies available to serve the proposed Plan from baseline entitlements and resources, or are new or expanded entitlements needed.**

Recycled water supply shortage impacts would be significant both in real impacts but also in the cost of non-compliance with regulatory requirements and proposed policies. Mitigation measures are those identified in the wastewater supply discussion, under Impact UTIL-1. With implementation of MEIR Mitigation Measures USS-1 through USS-3, impacts related to the sufficient of reclaimed water supplies available to serve the proposed Plan would be *less than significant*.

Significance Without Mitigation: Less than significant.

4.15.3.4 CUMULATIVE IMPACTS

UTIL-10	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would/would not result in significant cumulative impacts with respect to reclaimed water supply.**

The study area for cumulative impacts regarding recycled water supply is the City of Fresno Planning Area and the groundwater basins from which the Plan Area derives water. Recycled water supply cumulative impacts would be *less than significant* upon compliance with regulatory requirements and proposed policies for full implementation of the proposed Plan.

Significance Without Mitigation: Less than significant.

4.15.4 STORMWATER

This section outlines the regulatory setting, describes baseline conditions, and discusses potential impacts from buildout of the proposed Plan.

The Fresno Metropolitan Flood Control District (FMFCD) manages stormwater runoff in the Plan Area and the Fresno metropolitan area. The FMFCD is authorized to control stormwater within an approximately 400 square mile urban and rural foothill watershed (defined as the Fresno County Stream Group). The district's flood control program is comprised of eight major flood control facilities and related streams and channel features that control the flows from the Fresno County Stream Group. This area includes several low-elevation streams. The watershed drains a part of the west slope of the Sierra Nevada between the San Joaquin and Kings Rivers. The major structural elements of this flood control system include the following (Sherwood Design Engineers 2011):

- Dams and Reservoirs: Big Dry Creek, Fancher Creek, and Redbank Creek
- Detention Basins: Pup Creek, Alluvial Drain, Redbank Creek, Fancher Creek, and Big Dry Creek

The FMFCD is responsible for flood control and stormwater planning and management. The District Services Plan (DSP) provides comprehensive policies and implementation actions for flood control, rural streams management, local storm water drainage, stormwater quality management, water conservation, recreation, and related wildlife management. Policy coordination among the FMFCD, cities, and the County of Fresno occurs through a framework provided by the Storm Drainage and Flood Control Master Plan, which is prepared by the district as a specific element within the general plan of each agency. The Storm Drainage and Flood Control Master Plan identifies urban and rural drainage area boundaries, computes runoff flows based on planned land use, identifies facility size and location, establishes street grades necessary to accomplish drainage of the runoff from the point of origin to the nearest collector facility, and identifies natural channels requiring preservation.

The District is responsible for reviewing all land use proposals for drainage and flood control needs/impacts, including evaluation of the proximity of development to floodplains, the need for the application of floodplain management requirements, and acceptability of proposed floodplain modifications' compliance with and implementation of the Storm Drainage and Flood Control Master Plan and identification of stormwater quality best management practices.[22]

4.15.4.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

The federal government regulates storm water treatment and planning through the Federal Water Pollution Control Act of 1972, more commonly known as the CWA, as well as through the NPDES permit program, both of which are discussed in further detail below.

Clean Water Act

The CWA regulates the discharge of pollutants into watersheds throughout the nation. It is the primary federal law governing water pollution. Under the CWA, the EPA implements pollution control programs and sets storm water discharge standards. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of stormwater discharges, and maintaining the integrity of wetlands.

National Pollutant Discharge Elimination System

The NPDES permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal storm water discharges and nonpoint-source storm water runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges

[22] City of Fresno General Plan, adopted 2014.

not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities. Storm water discharge is regulated under the NPDES permit program for direct discharges into receiving waters and by the National Pretreatment Program for indirect discharges to a sewage treatment plant.

State Regulations

Wastewater treatment and planning is regulated at the State level. Specific regulations relevant to the proposed Plan are described below.

State Water Resources Control Board

The General Waste Discharge Requirement also requires that storm sewer overflows be reported to the SWRCB using an online reporting system. The SWRCB has delegated authority to nine RWQCBs to enforce these requirements within their region. The Central Valley RWQCB issues and enforces NPDES permits in Fresno. NPDES permits allow the RWQCB to regulate where and how the waste is disposed, including the discharge volume and effluent limits of the waste and the monitoring and reporting responsibilities of the discharger. The RWQCB is also charged with conducting inspections of permitted discharges and monitoring permit compliance.

Sanitary District Act of 1923

The Sanitary District Act of 1923 (Health and Safety Code Section 6400 et seq.) authorizes the formation of sanitation districts and enforces the Districts to construct, operate, and maintain facilities for the collection, treatment, and disposal of wastewater.[23] The Act was amended in 1949 to allow the Districts to also provide solid waste management and disposal services, including refuse transfer and resource recovery.

Local Regulations

Fresno General Plan

The City's General Plan contains the following goals, policies, and objectives relevant to the provision of wastewater service and facilities (Table 4.15-6).

Baseline

Stormwater Collection

Stormwater collection in the Plan Area generally begins in street gutters that convey runoff to existing storm drain inlets and underground storm drain conveyance infrastructure. In some cases, developed property collects stormwater in private collection systems that connect directly to a FMFCD line. Within the Plan Area and the City of Fresno, the City of Fresno Street Maintenance Division is responsible for

[23] California Health and Safety Code, http://leginfo.ca.gov/cgi-bin/calawquery?codesection=hsc, accessed on November 18, 2011.

TABLE 4.15-6 GENERAL PLAN OBJECTIVES AND POLICIES RELEVANT TO WASTEWATER SERVICE AND FACILITIES

Objective/ Policy Number	Objective/Policy Text
Objective PU-4	*Ensure provision of adequate trunk sewer and collector main capacities to serve baseline and planned urban development, consistent with the Wastewater Master Plan.*
Policy PU-4-c	System Extension and Cost Recovery. Pursue enlargement or extension of the sewage collection system where necessary to serve planned urban development, with the capital costs and benefits allocated equitably and fairly between the baseline users and new users.
Objective PU-5	*Preserve groundwater quality and ensure that the health and safety of the entire Fresno community is not impaired by use of private, on-site disposal systems.*
Policy PU-5-b	Non-Regional Treatment. Discourage, and when determined appropriate, oppose the use of private wastewater (septic) disposal systems, community wastewater disposal systems, or other non-regional sewage treatment and disposal systems within or adjacent to the Metropolitan Area if these types of wastewater treatment facilities would cause discharges that could result in groundwater degradation.
Objective PU-7	*Promote reduction in wastewater flows and develop facilities for beneficial reuse of reclaimed water and biosolids for management and distribution of treated wastewater.*
Policy PU-7-a	Reduce Wastewater. Identify and consider implementing water conservation standards and other programs and policies, as determined appropriate, to reduce wastewater flows.

maintaining the gutters, as well as all public streets and sidewalks and is responsible for keeping these surface storm drain facilities operating efficiently. The FMFCD storm water system begins at the storm drain inlets and includes all downstream drainage facilities, including the underground pipes and pump stations that convey runoff to District-owned infiltration basins.

Stormwater Management

Most annual runoff is managed through percolation into the underlying groundwater table. When storms generate larger volumes of runoff than these basins can handle water overflows into a network of relief channels that discharge to the San Joaquin River, its tributary streams, or local agricultural canals. The runoff from the Plan Area is routed to infiltration basins to the west of the Plan Area where it infiltrates into the groundwater table.

Within the City of Fresno, FMFCD's Storm Drain Master Plan divides the District into local drainage areas of one to two square miles. All inlets, pipes and pumping stations within each drainage area are maintained by the District. It is assumed that this maintenance arrangement will remain in place for the foreseeable future and the City will continue to maintain the gutter and surface portion of the Plan Area's storm drain infrastructure.

FMFCD has based planning for the 14 drainage areas using the General Plan land use classifications for each drainage area. Beyond planning, the basins have been located, sized and in most cases basin property acquisition has been completed. All of the basin sites except for Basin AV have been purchased by the FMFCD. Basins AS and CQ require additional improvements before they become operational. The Plan must be analyzed and evaluated for impacts on the aggregate area as well as for each of the 14 planned basin areas. FMFCD guidelines allow a 20 percent change in required volume before FMFCD is required to resize the basin and either enlarge or change the location of the affected basin. The analysis in

Table 4.15-7 shows all of the fourteen FMFCD drainage basins are sized sufficiently for the Plan as compared to the current General Plan.

Irrigation System Integration

The Fresno Irrigation District (FID) currently serves portions of the Plan Area. Irrigation water is provided by six FID facilities including the Kearney Boulevard Basin No. 189 and five canal and/or pipeline facilities. While no additional capacity is required with implementation of the Plan, the irrigation system remains a factor and in place for three important reasons.

1. Existing service is required throughout the development period. In-holdings and undeveloped parcels still require irrigation water.
2. Irrigation facilities serve as a water transmission function across the area. This transmission capacity will be required following full buildout of the Plan.
3. The FID irrigation system serves a dual function: a) delivery of irrigation water, and b) stormwater transmission during the wet season. The irrigation facilities serve a vital role in the stormwater system as that capacity for conveying irrigation water is utilized to convey storm water during the wet season.

Improvements in the irrigation system will be required with implementation of the proposed Plan. Modifications will be required so that facilities are consistent with a developed urban context. These improvement costs are not controlled nor borne by the FID, but by developers which lead in determining both the scope and cost of the associated improvements. Those costs are included in general improvement budgets such as street construction and stormwater projects. This is appropriate as no primary irrigation benefit accrues to the utility owner. The requirements of the final design are principally a function of the property developer. As a rule, the FID easement generally remains but whether a canal is preserved as-is, improved, or replaced with a pipeline is determined by the developer of the project. FID is an interested participant and remains the facility owner involved in planning, design, and approving improvements, but scope and costs for these improvements are included in the development projects.

4.15.4.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact if it would:

1. Exceed storm water discharge NPDES requirements and applicable RWQCB standards.
2. Require or result in the construction of new stormwater facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.
3. Result in a determination by the FMFCD or FEMA that the project will adversely impact flooding potential in the Plan Area or adjacent environments up or down stream.

TABLE 4.15-7 DRAINAGE SYSTEM REQUIRED CAPACITY BY DRAINAGE AREA

Drainage Area	Basin Size (Acres)	General Plan Required Basin Volume (Acre-Feet)	Proposed Plan Required Basin Volume (Acre-Feet)	Difference (%)
Basin AR	0.5	.23	.23	0.0%
Basin AS	637	126.06	130.79	3.8%
Basin Au	376	70.76	81.07	14.6%
Basin AV	526	178.00	148.92	-16.3%
Basin CE	0	0.0	0.0%	0.0%
Basin CP	311	61.97	53.82	-13.2%
Basin CQ	220	46.76	52.25	11.8%
Basin FF	273	62.68	62.68	0.0%
Basin II1	168	39.88	41.51	4.1%
Basin KK	250	79.83	73.61	-7.8%
Basin NN	789	170.92	163.35	-4.4%
Basin OO	113	33.49	33.46	0.0%
Basin RR	12.4	1.41	1.41	0.0%
Basin SS	520	117.44	119.28	1.6%
Basin TT	563	140.39	138.85	-3.9%
Basin ZZ	225	57.59	61.34	6.5%
EXEMPT	101	43.86	43.74	-.3%
Out of Drainage Area	774	115.03	144.97	26.0%
Total	**5,859**	**1,346.3**	**1347.3**	**0.1%**

Source: Blair, Church & Flynn, 2017.

4.15.4.3 IMPACT DISCUSSION

UTIL-11 Implementation of the proposed Plan would not exceed NPDES stormwater discharge requirements or applicable standards of the California Regional Water Quality Control Board.

As development occurs throughout the Plan Area in accordance with the General Plan and Development Code Update, new and expanded stormwater drainage facilities will be needed to adequately accommodate the increases in stormwater flow due to the addition of impervious surfaces. Therefore, implementation of the Fresno General Plan would result in a significant impact on existing storm water drainage facilities.

The proposed Plan proposes a modest transfer of density from the proposed Plan compared with the Fresno General Plan, which would modify the distribution of stormwater generation throughout the Plan Area. Under both the proposed Plan and the General Plan, storm water generation will increase as growth occurs over the next 25 years. For the purposes of this stormwater analysis, it was assumed growth within the Plan Area will occur as described above, on currently vacant or underutilized parcels. As shown in detail in this Draft EIR, this will result in a maximum of new dwelling units and million square feet of new commercial/industrial space within the Plan Area.

Under the proposed Plan, the Plan Area has capacity for over 6,000 dwelling units, over 1.5 million square feet of commercial space, nearly 750,000 square feet of office space, 78 acres of parks or open space, and 2.4 million square feet of public facilities.

Significance Without Mitigation: Less than significant.

UTIL-12	**Implementation of the proposed Plan would not require or result in the construction of new stormwater treatment facilities or expansion of baseline facilities, the construction of which could cause significant environmental effects.**

The Plan Area as a whole, as well as the 16 individual watershed areas associated with the Plan Area, have FMFCD-planned facilities, which are sufficient to handle the projected flows. The baseline facilities for the Plan Area are sufficient to provide drainage for the planned improvements without significant environmental impacts. Compliance with planning and regulatory requirements requires additions and adjustments to capacity are incorporated into planning and improvement buildout within the Plan Area.

FMFCD plans for drainage facilities but does not construct facilities until such time as development. Therefore, impacts related to the construction of new stormwater treatment facilities or expansion of baseline facilities would be *less than significant*.

Significance Without Mitigation: Less than significant.

UTIL-13	**Implementation of the proposed Plan would result in a determination by the stormwater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's baseline commitments.**

FMFCD has planned stormwater facilities for each of the planned watershed areas sufficient to accommodate planned storm water in the Plan Area. Stormwater and flood control system impacts would be *less than significant* upon compliance with regulatory requirements and proposed policies for full implementation of the proposed Plan.

Significance Without Mitigation: Less than significant. Mitigation measures related to storm drain systems are established and required in the 2014 Master Plan and have nearly become standard operating practices. Stormwater collection and handling must adhere to the mitigation measures identified in the

2014 master Plan EIR as well as regulatory requirements which codify the same fundamental practices. The practices from the Master Plan are summarized below:

Mitigation Measure	Description
MM-USS-10	Maintain operational intermittent flows during the dry season within define channel capacity and downstream capture capabilities for recharge.
MM-USS-11	FMFCD and Wetlands Requirements (Preliminary)
MM-USS-12	FMFCD and Wetlands Requirements (Design Assessment)
MM-USS-13	FMFCD and Wetlands Requirements (Design Survey)
MM-USS-14	FMFCD and Wetlands Requirements (Special Survey)
MM-USS-15	FMFCD and Wetlands Requirements (Nesting Bird Survey)
MM-USS-16	FMFCD and Wetlands Requirements (Breeding Season Survey)
MM-USS-17	FMFCD and Salmonoid Protection
MM-USS-18	Trail Protection
MM-USS-19	Air Quality Protection
MM-USS-20	Storm Drain Conveyance Capacity

4.15.4.4 CUMULATIVE IMPACTS

UTIL-14 Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to stormwater.

The study area for cumulative impacts regarding storm water drainage is the Fresno-Clovis Metropolitan Area because the Fresno Metropolitan Flood Control District (District) includes an area of approximately 400 square miles and covers almost the entire portion of the Fresno-Clovis Metropolitan Area. Stormwater and flood control system impacts would be less than significant upon compliance with regulatory requirements and proposed policies for full implementation of the proposed Plan.

Mitigation measures USS-12 through USS-20, shown under UTIL-13 above, are required to mitigate and potentially significant impacts to the environment within the Plan Area and cumulative setting. Therefore, cumulative impacts related to stormwater would be *less than significant*.

Significance Without Mitigation: Less than significant. Mitigation measures related to storm drain systems are established and required in the 2014 Master Plan and have nearly become standard operating practices. Stormwater collection and handling must adhere to the mitigation measures identified in the 2014 master Plan EIR as well as regulatory requirements which codify the same fundamental practices.

4.15.5 SOLID WASTE

4.15.5.1 ENVIRONMENTAL SETTING

Regulatory Framework

State Regulations

California Integrated Waste Management Act

California's Integrated Waste Management Act of 1989, AB 939, subsequently amended by SB 1016, set a requirement for cities and counties throughout the State to divert 50 percent of all solid waste from landfills by January 1, 2000 though source reduction, recycling, and composting. To help achieve this, the Act required that each city and county prepare and submit a Source Reduction and Recycling Element. AB 939 also established the goal for all California counties to provide at least 15 years of on-going landfill capacity.

As part of the California Integrated Waste Management Board's (CIWMB's) Zero Waste Campaign, regulations affect what common household items can be placed in the trash. As of February 2006, household materials including fluorescent lamps and tubes, batteries, electronic devices, and thermostats that contain mercury are no longer permitted in the trash.[24]

In 2007, SB 1016 amended AB 939 to establish a per capita disposal measurement system. The per capita disposal measurement system is based on two factors: a jurisdiction's reported total disposal of solid waste divided by a jurisdiction's population. The California Integrated Waste Management Board was replaced by the California Department of Resources Recycling and Recovery (CalRecycle) in 2010. CalRecycle sets a target per capita disposal rate for each jurisdiction. Each jurisdiction must submit an annual report to CalRecycle with an update of its progress in implementing diversion programs and its current per capita disposal rate. In 2013, the statewide residential per capita disposal rate was 4.4 pounds per resident per day, and the statewide employee per capita disposal rate was 10.2 pound per employee per day.[25]

Assembly Bill 341

In 2011, AB 341 was passed that sets a State policy goal of not less than 75 percent of solid waste that is generated to be source reduced, recycled, or composted by the year 2020. CalRecycle was required to submit a report to the legislature by January 1, 2014 outlining the strategy that will be used to achieve this policy goal. This bill affects local governments in that each jurisdiction is required to implement a commercial solid waste recycling program that consists of education, outreach, and monitoring of

[24] California Department of Resources, Recycling, and Recovery (Cal Recycle), http://www.calrecycle.ca.gov/homehazwaste, accessed February 26, 2015.

[25] CalRecycle, California's Statewide Per Resident, Per Employee, and Total Disposal Since 1989, www.calrecycle.ca.gov/lgcentral/GoalMeasure/DisposalRate/Graphs/Disposal.htm , accessed February 26, 2015.

businesses. An annual report of the progress of such efforts is required by the law. CalRecycle is responsible for reviewing each jurisdiction's commercial recycling program.

California Solid Waste Reuse and Recycling Access Act of 1991

The California Solid Waste Reuse and Recycling Access Act requires areas in development projects to be set aside for collecting and loading recyclable materials. The Act requires CalRecycle (formerly CIWMB) to develop a model ordinance for adoption by any local agency relating to adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model, or an ordinance of their own, providing for adequate areas in development projects for the collection and loading of recyclable materials.

Global Warming Solutions Act of 2006, Scoping Plan[26]

The California Global Warming Solutions Act of 2006 (also known as AB 32) Scoping Plan, which was adopted by the Air Resources Board (ARB), included a Mandatory Commercial Recycling Measure. The Mandatory Commercial Recycling Measure focuses on diverting commercial waste as a means to reduce greenhouse gas (GHG) emissions, with the goal of reducing GHG emissions by 5 million metric tons of carbon dioxide equivalents (MTCO2e), consistent with the 2020 targets set by AB 32. To achieve the Measure's objective, the commercial sector will need to recycle an additional 2 to 3 million tons of materials annually by the year 2020.

CalRecycle adopted this Measure at its January 17, 2012 Monthly Public Meeting. The regulation was approved by the Office of Administrative Law on May 7, 2012 and became effective immediately. On June 27, 2012, the Governor signed SB 1018, which included an amendment requiring both businesses that generate 4 cubic yards or more of commercial solid waste per week and multi-family residences with five or more units to arrange for recycling services. This requirement became effective on July 1, 2012.

CALGreen Building Code

As previously stated in Section 4.15.1.1 under "Regulatory Framework," the purpose of CALGreen is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices related to material conservation and resource efficiency. The provisions of this code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure, unless otherwise indicated in this code, throughout the State of California.

Section 4.408, Construction Waste Reduction Disposal and Recycling, mandates that, in the absence of a more stringent local ordinance, a minimum of 50 percent of non-hazardous construction and demolition debris must be recycled or salvaged. CALGreen requires the applicant to have a Waste Management Plan, for on-site sorting or construction debris, which is submitted to the City for approval.

[26] CalRecycle, http://www.calrecycle.ca.gov/Recycle/Commercial/, accessed February 26, 2015.

The Waste Management Plan does the following:

- Identifies the materials to be diverted from disposal by recycling, reuse on the project, or salvage for future use or sale.
- Specifies if materials will be sorted on-site or mixed for transportation to a diversion facility.
- Identifies the diversion facility where the material collected can be taken.
- Identifies construction methods employed to reduce the amount of waste generated.
- Specifies that the amount of materials diverted shall be calculated by weight or volume, but not by both.

Baseline Conditions

Fresno diverts a majority of its solid waste away from landfills and into recycling and composting programs. Diversion conserves limited landfill space, keeps toxic chemicals and materials from contaminating landfills, and enhances the reuse of materials. In 2009, Fresno was ranked highest in the state among larger cities by the CIWMB for diverting 71 percent of its solid waste. A Council resolution commits the City to the goal of a 75 percent Waste Diversion Rate by the year 2012 and a Zero Waste goal by the year 2025. Recycling of construction & demolition is required for any City-issued building, relocation or demolition permitted project that generates at least 8 cubic yards of material by volume and all waste must be hauled to a City-approved facility.[27]

The Solid Waste Division of the City of Fresno provides the following services: collection of residential and commercial solid waste, recyclables, and greenwaste throughout the community at least once a week; disposes of solid waste at the County of Fresno landfill; provides and maintains containers; responds to customer complaints/concerns and provides roll-off and compactor services to residential, multi-family and commercial customers.[28]

American Avenue Landfill is owned and operated by Fresno County and began operation in 1992 for public and commercial solid waste haulers. It is estimated that the landfill will be able to continue operation until 2031 when it will be full and will have to be closed. Fresno County has planned and is planning for an additional facility to be in place and in operation prior to closing the American Avenue Landfill.

American Avenue Landfill is considered a sanitary landfill. The EPA defines a sanitary landfill as a disposal site for non-hazardous solid waste spread in layers, compacted to the smallest practical volume, and covered by material applied at the end of each operating day.

[27] City of Fresno, 2011. Working paper 5: Resource Conservation.
[28] City of Fresno Public Utilities, 2012.

The American Avenue Landfill (i.e., American Avenue Disposal Site 10-AA-0009) has a maximum permitted capacity of 32,700,000 cubic yards and a remaining capacity of 29,358,535 cubic yards, with an estimated closure date of August 31, 2031. The maximum permitted throughput is 2,200 tons per day.[29]

Other landfills within the County of Fresno include the Clovis Landfill with a maximum remaining permitted capacity of 7,740,000 cubic yards, a maximum permitted throughput of 2,000 tons per day, and an estimated closure date of 2047.[30] There is also the Coalinga Landfill with a maximum remaining capacity of 1,930,062 cubic yards, a maximum permitted throughput of 200 tons per day, and an estimated closure date of 2029.[31]

The City of Fresno and Fresno County co-sponsor two household hazardous waste drop-off events each year, one in the spring and one in the fall. Additionally, the County of Fresno provides a Door-to-Door program that provides household hazardous waste pickup for individuals who, because of special circumstances, cannot participate in the household hazardous waste drop off events held twice a year.

The baseline forecast for solid waste generated in the Plan Area with existing General Plan build-out is 57.2 tons per day.

Projected Solid Waste Generation

The forecast for solid waste generated by the proposed Plan is 59.4 tons per day representing a 3.9 percent increase in the amount of solid waste generated at full build-out of the proposed Plan.

4.15.5.2 STANDARDS OF SIGNIFICANCE

The proposed Plan would result in a significant impact if it would:

1. Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.
2. Not comply with federal, State, and local statutes and regulations related to solid waste.

4.15.5.3 IMPACT DISCUSSION

UTIL-15	**Future development under the proposed Plan would be served by a landfill with sufficient capacity to accommodate the proposed Plan's solid waste disposal needs.**

The 2014 Master Plan development was found to have potential for significant impact principally due to the planned closure of the American Avenue landfill scheduled for 2031. To reduce the *potentially significant* impacts associated with the solid waste disposal, the City will need to increase disposal

[29] CalRecycle, 2014.
[30] CalRecycle, 2014.
[31] CalRecycle, 2014.

capacity. The policies the Fresno General Plan are designed to reduce the potential effect associated with solid waste disposal including those associated with the proposed Plan.

The following mitigation measures were included in the MEIR and remain applicable to this proposed Plan:

Impact UTIL-15: Future development under the proposed Plan would not be served by a landfill with sufficient permitted capacity to accommodate the proposed Plan's solid waste disposal needs.

Significance Without Mitigation: Significant.

> MEIR Mitigation Measure USS-22: Prior to exceeding landfill capacity, the City shall evaluate additional landfill locations and shall not approve additional development that could contribute solid waste to a landfill that is at capacity until additional capacity is provided.

Significance With Mitigation: Less than significant.

UTIL-16	**Implementation of the proposed Plan would comply with federal, State, and local statutes and regulations related to solid waste.**

Solid Waste disposal service impacts would be less than significant upon compliance with regulatory requirements and proposed policies for full implementation of the proposed Plan.

Significance Without Mitigation: Less than significant.

4.15.5.4 CUMULATIVE IMPACTS

UTIL-17	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to solid waste.**

Shortage of waste disposal capacity can have significant impacts on adjacent areas. If refuse is exported to adjacent areas with existing spare capacity, significant impacts due to increased travel distances can result in additional transportation related impacts. If not mitigated, the project's contribution to potential cumulative would be *significant*.

The following mitigation measures were included in the MEIR and remain applicable to this project:

Impact UTIL-17: Implementation of the proposed Plan in combination with past, present, and reasonably foreseeable projects would not be served by a landfill with sufficient permitted capacity to accommodate the proposed Plan's solid waste disposal needs.

Significance Without Mitigation: Significant.

MEIR Mitigation Measure USS-22: Prior to exceeding landfill capacity, the City shall evaluate additional landfill locations and shall not approve additional development that could contribute solid waste to a landfill that is at capacity until additional capacity is provided.

Significance With Mitigation: Less than significant.

4.15.6 ENERGY CONSERVATION

4.15.6.1 ENVIRONMENTAL SETTING

Regulatory Framework

Federal Regulations

Energy Independence and Security Act of 2007

Signed into law in December 2007, this Act is an energy policy law that contains provisions designed to increase energy efficiency and the availability of renewable energy. The Act contains provisions for increasing fuel economy standards for cars and light trucks, while establishing new minimum efficiency standards for lighting as well as residential and commercial appliance equipment.

Energy Policy Act of 2005

Passed by Congress in July 2005, the Energy Policy Act includes a comprehensive set of provisions to address energy issues. The Act includes tax incentives for the following: energy conservation improvements in commercial and residential buildings; fossil fuel production and clean coal facilities; and construction and operation of nuclear power plants, among other things. Subsidies are also included for geothermal, wind energy, and other alternative energy producers.

National Energy Policy

Established in 2001 by the National Energy Policy Development Group, this policy is designed to help the private sector and state and local governments promote dependable, affordable, and environmentally sound production and distribution of energy for the future. Key issues addressed by the energy policy are energy conservation, repair and expansion of energy infrastructure, and ways of increasing energy supplies while protecting the environment.

State Regulations

California Public Utilities Commission

In September 2008, the California Public Utilities Commission (CPUC) adopted the *Long Term Energy Efficiency Strategic Plan*, which provides a framework for energy efficiency in California through the year 2020 and beyond. It articulates a long-term vision, as well as goals for each economic sector, identifying specific near-term, mid-term, and long-term strategies to assist in achieving these goals. The *Long Term*

Energy Efficiency Strategic Plan sets forth the following four goals, known as Big Bold Energy Efficiency Strategies, to achieve significant reductions in energy demand:

1. All new residential construction in California will be zero net energy by 2020;
2. All new commercial construction in California will be zero net energy by 2030;
3. Heating, Ventilation, and Air Conditioning (HVAC) will be transformed to ensure that its energy performance is optimal for California's climate; and
4. All eligible low-income customers will be given the opportunity to participate in the low-income energy efficiency program by 2020.

With respect to the commercial sector, the *Long Term Energy Efficiency Strategic Plan* notes that commercial buildings, which include schools, hospitals, and public buildings, consume more electricity than any other end-use sector in California. The commercial sector's five billion-plus square feet of space accounts for 38 percent of the state's power use and over 25 percent of natural gas consumption. Lighting, cooling, refrigeration, and ventilation account for 75 percent of all commercial electric use, while space heating, water heating, and cooking account for over 90 percent of gas use. In 2006, schools and colleges were in the top five facility types for electricity and gas consumption, accounting for approximately 10 percent of state's electricity and gas use.

The CPUC and the California Energy Commission (CEC) have adopted the following goals to achieve zero net energy (ZNE) levels by 2030 in the commercial sector:

- Goal 1: New construction will increasingly embrace zero net energy performance (including clean, distributed generation), reaching 100 percent penetration of new starts in 2030.
- Goal 2: 50 percent of baseline buildings will be retrofit to zero net energy by 2030 through achievement of deep levels of energy efficiency and with the addition of clean distributed generation.
- Goal 3: Transform the commercial lighting market through technological advancement and innovative utility initiatives.

California Building Code

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2013 (Title 24, Part 6, of the California CCR). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On May 31, 2012, the CEC adopted the 2013 Building and Energy Efficiency Standards, which went into effect on July 1, 2014. Buildings that are constructed in accordance with the 2013 Building and Energy Efficiency Standards are 25 percent (residential) to 30 percent (non-residential) more energy efficient than those constructed under the prior 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

CALGreen Building Code

As previously stated in Section 4.15.1.1 under "Regulatory Framework," the purpose of CALGreen is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices related to energy efficiency. The provisions of this code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure, unless otherwise indicated in this code, throughout the State of California. Compliance with the CALGreen Code is not a substitution for meeting the certification requirements of any green building program. CALGreen requires new buildings to reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills, and install low pollutant-emitting materials.

2006 Appliance Efficiency Regulations

The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. Though these regulations are now widely accepted within the state as "business-as-usual," they exceed the standards imposed by all other states and they reduce GHG emissions by reducing energy demand.

State Greenhouse Gas Regulations

The Governor's GHG Reduction Executive Order S-3-05 was signed on June 1, 2005, and set GHG reduction targets for the State. Soon after, AB 32 was passed by the California state legislature on August 31, 2006, to place the State on a course toward reducing its contribution of GHG emissions. In response to AB 32, the California Air Resources Board (CARB) developed a *Scoping Plan* outlining California's approach to achieving the goal of reducing GHG emissions to 1990 levels by 2020. The final *Scoping Plan* was adopted by CARB on December 11, 2008. CARB approved the first 5-year *Update to the Climate Change Scoping Plan* on May 22, 2014, as required by AB 32. For a detailed discussion on these regulations, see Chapter 4.6, Greenhouse Gas Emissions, of this Draft EIR

Senate Bill X1-2

Signed into law in 2011, SB X1-2 directs CPUC's Renewable Energy Resources Program to increase the amount of electricity generated from eligible renewable energy resources per year to an amount that equals at least 20 percent of the total electricity sold to retail customers in California per year by December 31, 2013, 25 percent by December 31, 2016, and 33 percent by December 31, 2020. SB X1-2 codifies the 33 percent by 2020 renewable portfolio standard (RPS) goal established pursuant to the Global Warming Solutions Act of 2006. This new RPS applies to all electricity retailers in the state including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must adopt the new RPS goals of 20 percent of retail sales from renewables by the end of 2013, 25 percent by the end of 2016, and the 33 percent requirement being met by the end of 2020

4.15.6.2 STANDARDS OF SIGNIFICANCE

Appendix F, Energy Conservation, of the CEQA Guidelines, requires a discussion of the potential energy impacts of proposed projects; however, no specific thresholds of significance for potential energy impacts are suggested in the State CEQA Guidelines or are established by the City. Therefore, this EIR analysis determined that impacts would be significant if the proposed Plan, upon buildout, would result in a substantial increase in natural gas and electrical service demands that would require the new construction of energy supply facilities and transmission infrastructure, or capacity enhancing alterations to baseline facilities. This parallels the threshold determinations for other utility and service systems under Appendix G of the State CEQA Guidelines. In addition, to further the intent of Appendix F, relevant potential impacts related to energy demand and energy conservation listed in Appendix F are also incorporated in the evaluation of impacts.

Appendix F lists the following impacts to energy conservation that may result from projects:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials maybe discussed.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.
4. The degree to which the project complies with baseline energy standards.
5. The effects of the project on energy resources.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

The Appendix F list of potential energy conservation impacts represents a range of impacts that might be applicable to a range of project types. When assessing the potential impacts of the proposed Plan, the analysis included in Section 4.15.4.3 below focuses on discussions related to item numbers 2, 4, 5, and 6 on the list. Focus was placed on these potential impacts because the proposed Plan does not represent a unique or energy-intensive use that would be substantially different than other similar development projects.

4.15.6.3 IMPACT DISCUSSION

UTIL-18	**Implementation of the proposed Plan would not result in a substantial increase in natural gas and electrical service demands, would use appropriate energy conservation and efficiency measures, and would not require new energy supply facilities and distribution infrastructure or capacity enhancing alterations to baseline facilities.**

New development under the proposed Plan would continue to be served by Pacific Gas and Electric Company (PG&E) in accordance with Fresno Municipal Code, Chapter 15 as described in Section 4.15.4.1, Environmental Setting, above. New underground electrical and gas lines would be required to replace existing lines when realignment is required under future development. The proposed development would result in a long-term increase in energy demand associated with the operation of lighting and space heating/cooling in the added building space, and vehicle travel. In addition, construction activities associated with development require the use of energy (e.g., electricity and fuel) for various purposes such as the operation of construction equipment and tools, as well as excavation, grading, demolition, and construction vehicle travel.

Construction

Even with energy-saving practices in place (as discussed below), new electrical connections, switches and/or transformers might be required to serve new structures and/or carry additional loads within the Plan Area. Similarly, new gas distribution lines and connections may be necessary. These are anticipated infrastructure improvements and part of the proposed Plan. Most of the work would be in existing public rights-of-way or facilities. Although creation of new or re-located gas and electric lines could create short-term construction-related environmental effects (e.g., noise, dust, traffic, temporary service interruption, etc.), the work would be subject to compliance with the City's and PG&E's regulations and standard conditions for new construction related to infrastructure improvements. For example, these regulations and conditions would require gas and electric line construction to include best management practices that require construction areas to minimize dust generation, limit construction noise to daytime hours to limit impacts to sensitive receptors, and use modern equipment to limit emissions. In addition, these types of infrastructure improvements are anticipated as part of the proposed Plan. Also, any such work would be subject to compliance with applicable regulations and standard conditions of approval for construction projects, including City permits/review for construction (e.g., grading permits, private development review, encroachment permits, etc.)

Construction vehicles would consume fuel. As discussed in Section 4.8, Greenhouse Gas Emissions, the EPA adopted the Heavy-Duty National Program to establish fuel efficiency and GHG emission standards in the heavy-duty highway vehicle sector, which includes combination tractors (semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). These standards include targets for gallons of fuel consumed per mile beginning in model year 2014. These standards are being extended through model year 2018 through current rulemaking by the EPA. While construction activities require a commitment of energy sources, these efficiency standards improve energy security and innovation in clean energy technology and further the goal of conserving energy in the context of project development. As a result, construction impacts for future development under the proposed Plan would result in a *less-than-significant* impact.

Operational

Implementation of the proposed Plan would result in a total buildout of over 6,000 dwelling units, over 1.5 million square feet of commercial space, nearly 750,000 square feet of office space, 78 acres of parks or open space, and 2.4 million square feet of public facilities. The proposed increase in development would result in a long-term increase in energy demand, associated with the operation of lighting and

space heating/cooling in the added building space, and vehicle travel. In addition, construction activities associated with development require the use of energy (e.g., electricity and fuel) for various purposes such as the operation of construction equipment and tools, as well as excavation, grading, demolition, and construction vehicle travel.

Development Energy Impacts

Proposed new development would be constructed using energy efficient modern building materials and construction practices, in accordance with CALGreen Building Code, CPUC's *Long Term Energy Efficiency Strategic Plan* (2008), and the Chapter 11 of the City's Municipal Code, which contain the Green Building Ordinance and Energy Code, respectively. The new buildings also would use new modern appliances and equipment, in accordance with the 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608). Under these requirements, future development under the proposed Plan would use recycled construction materials, environmentally sustainable building materials, building designs that reduce the amount of energy used in building heating and cooling systems as compared to conventionally built structures, and landscaping that incorporates water efficient irrigation systems, all of which would conserve energy.

With its infill development effort, the proposed Plan inherently furthers objectives of energy conservation by focusing activities in areas of existing infrastructure and services. Land Use (LU), Public Facilities, (PF) and Transportation (T) policies of the proposed Plan incorporate energy efficiency principles. Also, there are several General Plan policies intended to ensure energy conservation is practiced in Fresno, as shown above in Table 4.15-3.

Therefore, with the implementation of these proposed Plan policies and compliance with the General Plan policies and CALGreen Building Code and the other applicable state and local energy efficiency measures, cited above, significant energy conservation and savings would be realized from future development under the proposed Plan. Therefore, impacts would be *less than significant* and no mitigation measures are required.

Transportation Energy Impacts

As an infill development, the proposed Plan inherently furthers objectives of energy conservation related to transportation by focusing activities in areas of existing infrastructure and services. Transportation design features are incorporated in the proposed Plan which would benefit transportation efficiencies.

Chapter 4.13, Transportation and Traffic, provides an evaluation of the expected traffic and transit trips generated by the proposed Plan. As discussed, the proposed Plan would potentially generate an increase in typical weekday trips consisting of vehicular, transit and walk/bike trips that would vary between 2014 and 2040 due to region-wide transportation system improvements that are projected to alter travel patterns and modes of proposed Plan trips.

As discussed above, the EPA adopted standards that include targets for gallons of fuel consumed per mile beginning in model year 2014. These standards are being extended through model year 2018 through current rulemaking by the EPA. While future transportation would require a commitment of energy sources, these efficiency standards improve energy security and innovation in clean energy technology

further the goal of conserving energy in the context of project development. As with impacts of future development discussed above, implementation of proposed Plan policies and compliance with General Plan policies listed above, would ensure energy impacts from transportation would be *less than significant*.

Renewable Energy Impacts

The Plan Area would be within the 70,000-square-mile PG&E service territory for electricity and natural gas generation, transmission and distribution. Due to the Plan Area's size and location within an urban development, buildout of the proposed Plan would not significantly increase energy demands within the service territory and would not require new energy supply facilities. Where new transportation/transmission infrastructure is required, as discussed above under Future Construction Energy Impacts, these projects would be subject to separate environmental review and would be required to comply with applicable regulations for construction projects, including construction permits/review for construction within public rights-of-way (e.g., grading permits, private development review, encroachment permits, etc.). In addition, developments such as the proposed Plan are anticipated in the energy projections of energy providers within the State. As a result, impacts from new energy supply facilities and transportation/transmission infrastructure, or capacity-enhancing alterations to baseline facilities, would be *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

UTIL-19	**Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to energy conservation.**

The discussion under UTIL-18 described the proposed Plan's impacts in relationship to the PG&E service territory and therefore includes a discussion of cumulative impacts. Under Impact UTIL-18, impacts were found to be less than significant. Therefore, cumulative impacts related to energy conservation would be *less than significant*.

Significance Without Mitigation: Less than significant.

5. Alternatives Analysis

The CEQA Guidelines set forth the intent and extent of alternatives analysis to be provided in an EIR. Section 15126.6(a) of the CEQA Guidelines states that:

> *An EIR shall describe a range of reasonable alternatives to the project, or the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.*

The following discussion is intended to inform the public and decision makers of feasible alternatives to the proposed Plan that would avoid or substantially lessen any significant effects of the proposed Plan. This chapter describes the purpose of the alternatives discussion; provides a summary of the reasonable range of alternatives, including a summary of potentially significant impacts and the relationship of each alternative to the Plan objectives; and identifies the environmentally superior alternative.

5.1 PURPOSE

The alternatives evaluated in this Draft EIR were developed consistent with Section 15126.6(b) of the CEQA Guidelines, which states that:

> *Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly*.

5.2 POTENTIALLY SIGNIFICANT IMPACTS

A list of the potential impacts is provided in Table 2-1 in Chapter 2, Executive Summary, of this Draft EIR. The choice of alternatives to the proposed Plan for analysis in this Draft EIR focused on those that would further reduce and avoid the impacts found to be significant and unavoidable and potentially significant, but less than significant with mitigation measures.

The significant-but-mitigable impacts under the proposed Plan include the following:

- BIO-1.1: Potential development resulting from the proposed Plan could result in the loss of rare plant species.
- BIO-1.2: The proposed Plan could result in mortality of Swainson's hawks.
- BIO-1.3: The proposed Plan could result in mortality of San Joaquin kit fox.
- BIO-1.4: The proposed Plan could result in impacts to roosting habitat or maternity colonies of special-status bats.
- BIO-1.5: Potential development resulting from the proposed Plan could result in disruption of denning badgers and mortality of badgers.
- BIO-1.6: The proposed Plan could result in mortality of, and loss of habitat for, burrowing owls.
- BIO-1.7: The proposed Plan could result in impacts to Western pond turtle nests and mortality of pond turtles.
- BIO-1.8: The proposed Plan could result in take of birds or nests.
- BIO-2: The proposed Plan could result in the loss of riparian habitat.
- BIO-3: The proposed Plan could result in loss of federally protected wetlands or waters.
- CUL-1: Implementation of the proposed Plan could cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines.
- CUL-2: Implementation of the proposed Plan could cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines.
- CUL-3: Implementation of the proposed Plan could directly or indirectly affect a unique paleontological resource or site, or unique geologic feature.
- CUL-4: Implementation of the proposed Plan could disturb human remains, including those interred outside of formal cemeteries.
- CUL-5: Implementation of the proposed Plan could cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Sections, 21074, 5020.1(k), or 5024.1.
- HAZ-3: Implementation of the proposed Plan would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school.
- HAZ-4: Implementation of the proposed Plan would occur 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, create a potentially significant hazard to the public or the environment.
- NOISE-2: Construction activities could result in vibration-induced architectural damage at nearby structures or hardscape features, or could result in vibration-induced annoyance at nearby sensitive receptors.
- PS-7: Implementation of the proposed Plan could result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities in order

to maintain acceptable service ratios, response times, or other performance objectives for parks, the construction of which could cause significant environmental impacts.

- TRANS-7.1: The addition of proposed Plan traffic to the roadway network, in combination with traffic generated by reasonably foreseeable projects, results in unacceptable roadway operations on City of Fresno study roadway segments under cumulative conditions.
- UTIL-1: Implementation of the proposed Plan could exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.
- UTIL-2: Implementation of the proposed Plan would require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- UTIL-3: Implementation of the proposed Plan would result in a determination by the wastewater treatment provider which serves or may serve the proposed Plan that it has adequate capacity to serve the proposed Plan's projected demand in addition to the provider's baseline commitments.
- UTIL-4: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in a significant cumulative impacts with respect to wastewater.
- UTIL-15: Future development under the proposed Plan would not be served by a landfill with sufficient permitted capacity to accommodate the proposed Plan's solid waste disposal needs.
- UTIL-17: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects would not be served by a landfill with sufficient permitted capacity to accommodate the proposed Plan's solid waste disposal needs.

5.3 PROJECT OBJECTIVES

As stated above, the range of potential alternatives to the proposed Plan shall include those that could feasibly accomplish most of the basic objectives of the proposed Plan. The City has developed the following project objectives:

- Create a healthy community that offers a positive physical, social, natural and economic environment to support the health and wellbeing of all its members.
- Attract high quality new development while protecting existing neighborhoods.
- Provide a mix of high quality housing types, with an emphasis on single-family housing that is compatible with community character and located close to amenities such as parks, schools, transit, services, shopping and employment.
- Attract needed retail, such as department stores, restaurants, and grocery stores, in order to serve resident needs with fewer, shorter vehicle trips.
- Provide quality open space and recreational opportunities by improving existing parks and creating new parks within walking distance (1/2 mile) of all residences.

- Increase economic and educational opportunity through programs, services and facilities to prepare, mentor and train Southwest Fresno residents to access high quality employment opportunities.
- Enhance transportation connectivity both within Southwest Fresno and between Southwest Fresno and other Fresno neighborhoods in order to provide more access to economic, social and educational opportunities.
- Improve the quality of life in Southwest Fresno through high quality investment, compatible land uses, increased park and recreational opportunities and a multi-modal and connected transportation system.

5.4 SELECTION OF A REASONABLE RANGE OF ALTERNATIVES

Section 15126.6(c) of the State CEQA Guidelines states:

> *The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any 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. Additional information explaining the choice of alternatives may be included in the administrative record. 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.*

5.4.1 ALTERNATIVES CONSIDERED AND REJECTED AS BEING INFEASIBLE

As described above, Section 15126.6(c) of the State CEQA Guidelines requires EIRs to identify any 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. Section 15126.6(c) provides that 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. The following is a discussion of alternatives that were considered and rejected, along with the reasons they were not included in the analysis.

As described in Chapter 3, Project Description, of this Draft EIR, in April 2015, the City initiated a community planning process to identify opportunities for improving the Plan Area. The City formed a Steering Committee and a Technical Advisory Committee, met with key stakeholders, held three community workshops, and numerous topic groups to identify the community's vision for the Plan Area. Based on the feedback received, the City prepared three alternatives for land use and circulation in the Plan Area. The alternatives established a framework for land use planning, design, and development in the Plan Area and included three distinct development patterns. The first alternative, the Corridors and Neighborhoods Alternative, emphasized three neighborhoods—complete with housing, retail, parks, and

employment areas—linked by well-defined corridors lined with higher, more intensive development, and multimodal transportation improvements. The second alternative, the Many Smaller Neighborhood Alternative, emphasized a number of roughly one-square-mile neighborhoods; each would include housing and community-serving uses, such as a small neighborhood park, school, and local retail. Multimodal transportation improvements would be dispersed along the existing grid of arterial roadways throughout the Plan Area. This alternative was lower in density and had more single-family residential development than the other two alternatives. The third alternative, the Neighborhoods around Magnet Uses Alternative, focused on three neighborhoods developed around higher intensity cores each with a primary magnet use: a new community college activity center, an improved regional sports complex, and a new regional retail center. Each neighborhood core would be ringed with housing and/or employment areas that support the core. The neighborhoods would be linked with pedestrian and bicycle connections that follow the existing water canals and roadways with less vehicular traffic.

With input from the Steering Committee, the City determined that merging components of the three alternatives to create a single land use and circulation concept alternative was preferred. This alternative is the proposed preferred alternative that is analyzed in this Draft EIR. Accordingly, the Corridors and Neighborhoods Alternative, the Many Small Neighborhoods Alternative, and the Neighborhoods around Magnet Uses Alternative were rejected because they did not meet the project objectives.

5.4.2 ALTERNATIVES ANALYSIS

In accordance with the CEQA Guidelines, two alternatives are discussed below. As previously stated, the alternatives were selected because of their potential to reduce significant and unavoidable impacts as well as significant-but-mitigable impacts of the proposed Plan.

The alternatives to be analyzed in comparison to the proposed Plan include:

- No Project Alternative
- Mixed-Use Corridor Alternative

The first alternative discussed is the CEQA-required “No Project” Alternative. The second alternative, Mixed-Use Corridor Alternative, would focus growth along two corridors, one of which is currently designated for future Bus Rapid Transit (BRT) development, while land use intensities in other portions of the Plan Area would be reduced to achieve an overall reduction by about one-third of the buildout projections of the proposed Plan.

5.4.3 ASSUMPTIONS AND METHODOLOGY

The alternatives analysis is presented as a comparative analysis to the proposed Plan.

As described in Chapter 4.3 Air Quality, 4.4 Biological Resources, 4.5 Cultural Resources, 4.7 Greenhouse Gas Emissions, 4.8 Hazards and Hazardous Materials, 4.11 Noise, 4.14 Transportation and Traffic, and 4.15 Utilities and Service Systems, mitigation measures would be required to reduce impacts in these resource categories. For, this reason, this alternatives analysis assumes that all regulations and mitigation measures recommended for the proposed Plan and the MEIR would be implemented.

ALTERNATIVES ANALYSIS

The following analysis compares the potentially significant environmental impacts of the two alternatives with those of the Plan-related impacts for each of the environmental topics analyzed in detail in Sections 4.1 through 4.15 of this Draft EIR. The impacts of each alternative are classified as greater, fewer, or essentially similar to (or comparable to) the level of impacts associated with the proposed Plan. Table 5-1 summarizes the relative impacts of each of the alternatives compared to the proposed Plan.

TABLE 5-1 COMPARISON OF PROPOSED PLAN ALTERNATIVES

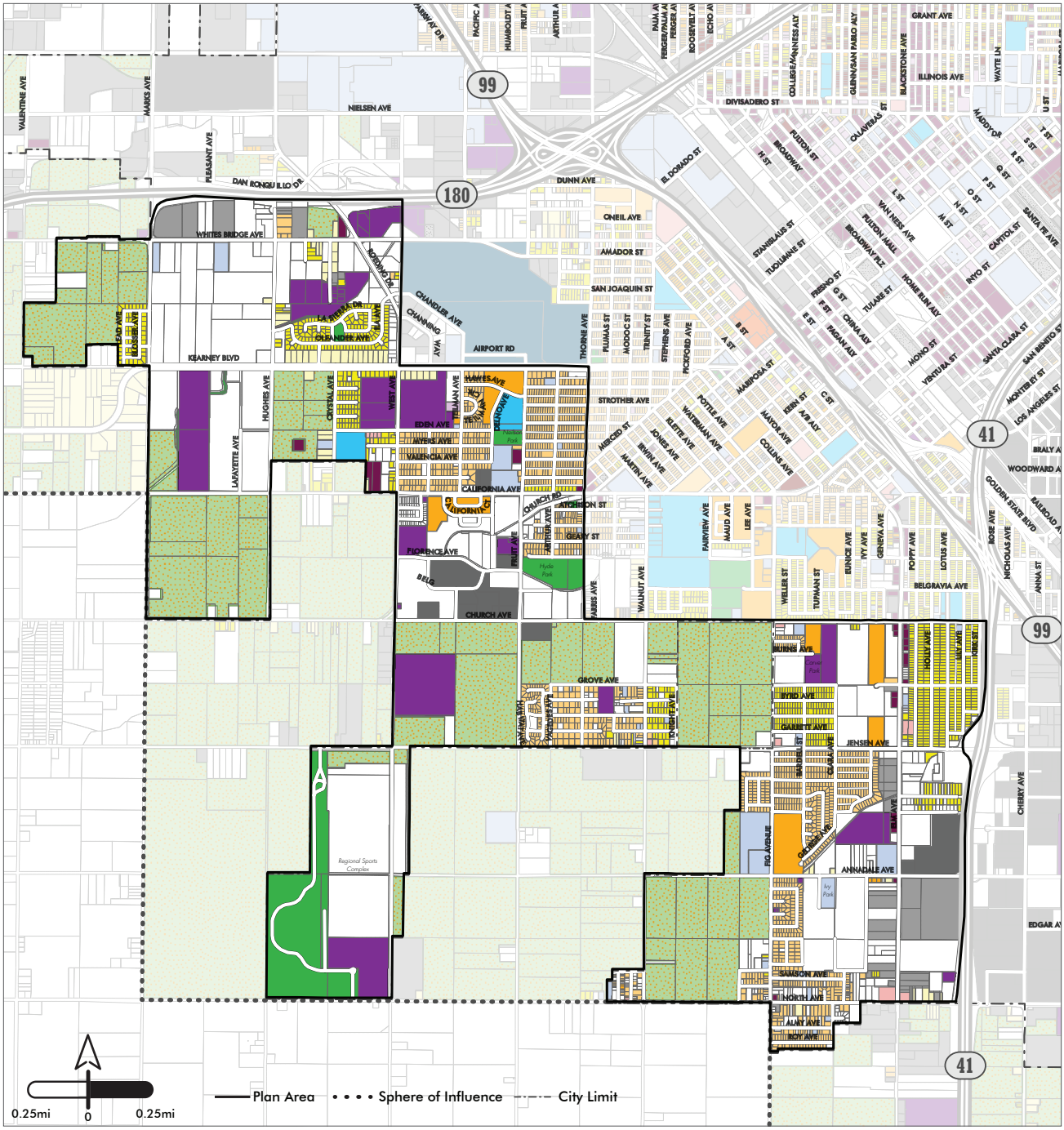
Topic	Proposed Plan	No Project Alternative	Mixed-Use Corridor Alternative
Aesthetics	SU	=	=
Agriculture	SU	=	<
Air Quality	SU	<	<
Biological Resources	LTS/M	=	<
Cultural and Tribal Cultural Resources	LTS/M	=	<
Geology and Soils	LTS	=	=
Greenhouse Gas Emissions	SU	<	<
Hazards and Hazardous Materials	LTS/M	=	=
Hydrology and Water Quality	LTS	=	=
Land Use and Planning	LTS	=	=
Noise	SU	=	=
Population and Housing	LTS	<	<
Public Services	LTS	=	<
Transportation and Traffic	SU	<	<
Utility Systems	LTS/M	<	<

Notes: LTS = Less than Significant
LTS/M = Less than Significant with Mitigation
SU = Significant and Unavoidable
< Fewer impact in comparison to the proposed Plan
= Similar impacts in comparison to the proposed Plan
> Greater impact in comparison to the proposed Plan

5.5 NO PROJECT ALTERNATIVE

5.5.1 DESCRIPTION

Pursuant to CEQA Guidelines Section 15126.6(e)(1), the No Project Alternative is required as part of the "reasonable range of alternatives" to allow decision makers to compare the impacts of approving the proposed Plan with the impacts of taking no action or not approving the proposed Plan. Under this alternative, the proposed Plan would not be implemented, and the Plan Area would remain in its current condition with future development occurring in accordance with the objectives and policies of the Fresno General Plan. Figure 5-1 shows land use designations under the Fresno General Plan.



Source: City of Fresno.

RESIDENTIAL
- Mobile Home Park
- Low Density
- Medium-low Density
- Medium Density
- Medium-high Density
- High Density

COMMERCIAL
- Neighborhood/Neighborhood Center
- Community/Neighborhood Limited
- Heavy/Regional
- Office
- Professional Services Office

INDUSTRIAL
- Light
- Heavy

- School
- Community Services/Institutional
- Agriculture
- Open Space/Park
- Airport
- Utility
- Parking
- Vacant

Figure 5-1
Existing Land Use

Table 5-2 below compares the projected development capacity of the Specific Plan compared to that of the General Plan. It should be noted that, like the General Plan, the development capacities pertain to new development within the identified opportunity sites in the Plan area, including parcels that are vacant, open agriculture, or rural residential (partially vacant). In order to provide a conservative analysis, this Draft EIR assumes the Dual Designation Scenario development capacity under the proposed Plan, unless specifically noted otherwise. The Dual Designation Scenario assumes dual land uses consistent with the dual land use designations presented in Section 3.2.4.1 of Chapter 3, Project Description, of this Draft EIR, and shown on Figure 3-3 of the May 2017 draft Specific Plan.[1] The General Plan MEIR also analyzes the dual land use designation, as shown on Figure LU-2.

TABLE 5-2 DEVELOPMENT CAPACITIES FOR THE PLAN AND GENERAL PLAN IN THE PLAN AREA

	Single-Family Housing (DU)	Multi-Family Housing (DU)	Housing Total (DU)	Commercial (Bldg. SF)	Employment (Bldg. SF)	Parks/Open Space (Acre)[c]	Public Facilities (Acre)	Public Facilities (Bldg. SF)
Plan Area – Standard Development Scenario[a]	4,307	1,840	6,148	1,552,676	748,820	78	192	2,411,064
Plan Area –Dual Designation Scenario	4,221	2,910	7,131	1,220,596	2,489,065	0	32	325,482
Specific Plan Area included in General Plan[b]	4,108	2,616	6,723	1,330,831	1,780,080	184[d]	57	643,377

Notes: DU = dwelling units SF = square feet
a. Includes the MLK Activity Center. Development capacities consistent with February 2017 Draft Specific Plan.
b. Development capacity numbers for the General Plan were calculated using the planned land uses shown in the General Plan Land Use map approved February 29, 2016.
c. Excludes land uses designated as "clear zone, ""ponding basin," and "ponding basin park."
d. Includes approximately 112 acres of landfill located directly east of the Regional Sports Complex. The Steering Committee does not consider this land to be parkland and therefore the Plan shows this acreage designated as "public facility."

The following discussion explains the differences between the No Project Alternative and the proposed Specific Plan under each of the major land use types:

- **Housing.** The total number of projected housing units in the proposed Specific Plan is lower than the General Plan's total number of housing units. The General Plan's ratio of single-family housing to multi-family housing within the Plan Area is 61 percent single-family housing to 39 percent multi-family housing. The proposed Plan's ratio is 70 percent single-family housing to 30 percent multi-family housing in the Plan Area. Therefore, housing developed under the proposed Plan would result in 575 fewer dwelling units than the total number of dwelling units proposed within the Plan Area under the General Plan. However, under the Dual Designation Scenario, the ratio would be 59 percent single family housing to 41 percent multi-family housing, and would result in 408 more dwelling units developed within the Plan Area than under the General Plan.
- **Commercial.** Under the Standard Development Scenario, the amount of commercial development in the Plan Area is greater under the proposed Specific Plan than in the General Plan by approximately

[1] The dual land use designation was applied to all parcels within the Plan Area, except for the parcel designated to be developed as a college near the MLK activity center. This exception was made based on the decision that the college would be a more intensive land use designation than the dual land use designation.

222,000 square feet. Several factors contribute to this increase, including new areas designated as corridor/center mixed-use, neighborhood mixed-use, regional commercial, and community commercial. However, under the Dual Designation Development Scenario, the amount of commercial development in the Plan Area would be 110,235 square feet less than the General Plan.

- Employment. Under the Standard Development Scenario, the projected amount of employment space in the Plan Area (i.e., office, business park, regional business park, light industrial, and heavy industrial uses) under the proposed Specific Plan is less than in the General Plan by approximately 1 million square feet. The reason for this decrease is because of the change of business park and regional business park uses to other land uses such as residential, park, mixed use, and commercial. However, under the Dual Designation Development Scenario, the amount of employment space would be 708,985 square feet more than the General Plan.
- Parks/Open Space. The proposed Plan includes a refined definition of parkland compared to the definition in the adopted General Plan. As a result, the Plan Area's total park acreage in the proposed Plan under the Standard Development Scenario is less than in the General Plan because the General Plan counts the 112 acres directly east of the Regional Sports Complex, as well as the 16-acre Hyde Park, as parkland. Since these areas do not provide locally-serving park facilities, they were removed from the inventory of park land in the Plan Area. With the exclusion of the 112-acre Regional Sports Complex from the General Plan's parks/open space development capacity, the amount of parkland within the Plan Area under the proposed Plan is slightly less than the General Plan's park acreage. In addition, the amount of parks/open space in the SOI increases more significantly in the proposed Plan by 55 acres, largely because of the new parkland located directly to the west of the Regional Sports Complex that is accessible to residents of the Plan Area. Under the Dual Designation Development Scenario, the dual land use pattern is assumed, which results in zero acres of parkland within the Plan Area.

  Public Facilities. The amount of public facilities development in the proposed Plan under the Standard Development Scenario is larger than the amount in the General Plan (1,767,687 square feet; 135 acres). The primary reasons for this increase include the re-designation of the aforementioned 112-acre landfill from park to public facilities, the inclusion of a new college in the MLK Activity Center, and the re-designation of single-family housing to public facilities along North Avenue in an effort to create a buffer between residential areas and nearby industrial uses. However, under the Dual Designation Development Scenario, the amount of public facilities development is less than the amount in the General Plan (317,895 square feet; 25 acres).

In general, the development capacity in the proposed Specific Plan is higher due to the increased area of land designated for public facilities compared to the General Plan. While this is partially offset by the reduced area designated for employment uses, the overall development capacity would be higher.

5.5.2 IMPACT DISCUSSION

The potential environmental impacts associated with the No Project Alternative when compared to the proposed Plan are described below.

5.5.2.1 AESTHETICS

Most impacts related to aesthetics under the proposed Plan incorporate MEIR mitigation measures to reduce potentially significant impacts to less than significant levels. As with the proposed Specific Plan, future development under the No Project Alternative would not block views, and would not degrade the existing visual character or quality of the area. However, impacts related to nighttime sky illumination, would occur under the No Project Alternative and under the proposed Specific Plan, resulting in significant and unavoidable impacts. Thus, overall impacts related to aesthetics would be *similar* when comparing the No Project Alternative to the proposed Plan.

5.5.2.2 AGRICULTURE

Similar to the proposed Specific Plan, the No Project Alternative would result in the conversion of prime farmland to non-agriculture use. Although the densities of development would differ between the No Project Alternative and the proposed Plan, both would result in development on prime farmland, thus resulting in a significant and unavoidable impact. Thus, overall impacts related to agriculture would be *similar when* comparing the No Project Alternative to the proposed Plan.

5.5.2.3 AIR QUALITY

The proposed Specific Plan would result in significant and unavoidable impacts related to air quality. Because the development capacity is greater under the Dual Designation Development Scenario, compared to the No Project alternative, air quality impacts would be *fewer* under the No Project alternative.

5.5.2.4 BIOLOGICAL RESOURCES

The biological resources impacts under the proposed Plan are fully mitigable with implementation of MEIR mitigation measures as well as mitigation measures proposed in this Draft EIR.

Under the No Project Alternative the potential to modify habitat for any special-status species identified in the Draft EIR would be similar to that of the impacts potentially resulting from the proposed Plan. Given the areas of impact, any development occurring in the Plan Area would result in impacts to habitat and special status species. As a result, impacts to biological resources would be *similar* when comparing the No Project Alternative to the proposed Plan.

5.5.2.5 CULTURAL AND TRIBAL CULTURAL RESOURCES

The cultural and tribal cultural resources impacts under the proposed Plan are fully mitigable with implementation of MEIR mitigation measures. Under the proposed Plan, potential impacts to cultural resources would result on a site-by-site basis mostly from previously-unknown sites. Under the No Project Alternative, future development under the General Plan would be similar and would require the same mitigation measures to reduce the potential impacts to less-than-significant levels. As a result, impacts to cultural and tribal cultural resources would be *similar* when comparing the No Project Alternative to the proposed Plan.

5.5.2.6 GEOLOGY AND SOILS

The proposed Plan would result in less-than-significant impacts related to geology and soils primarily because of the Plan Area's proximity to active faults, and potential impacts being addressed by regulatory compliance. Under the No Project Alternative, the conditions and the regulatory requirements do not change as development occurs under the General Plan. As a result, impacts related to geology and soils would be *similar* when comparing the No Project Alternative to the proposed Plan.

5.5.2.7 GREENHOUSE GAS EMISSIONS

The existing General Plan, which would be carried forward under the No Project Alternative, identified significant impacts related to greenhouse gas emissions. The proposed Specific Plan would result in a significant and unavoidable impact related to greenhouse gas emissions. Because the development capacity is greater under the proposed Specific Plan, compared to the No Project alternative, greenhouse gas emissions impacts would be *fewer* under the No Project alternative.

5.5.2.8 HAZARDS AND HAZARDOUS MATERIALS

As a result of the proposed Plan, impacts related to hazards and hazardous materials would be fully mitigable with implementation of mitigation measures proposed in this Draft EIR. Implementation of the proposed Plan would occur on sites which contain hazardous materials and could create a potentially significant hazard to the public or the environment. Under the No Project Alternative, development would occur on the same sites; however additional site analysis would be required to ensure that potentially-hazardous conditions would not adversely affect the public or the environment. As a result, impacts related to hazards and hazardous materials would be *similar* under the No Project Alternative when compared to the proposed Plan.

5.5.2.9 HYDROLOGY AND WATER QUALITY

The hydrology and water quality impacts under the proposed Plan would be considered less-than-significant with implementation of the General Plan. Similarly, as a result of buildout of the General Plan, the No Project Alternative would be required to implement policies of the General Plan. As a result, impacts related to hydrology and water quality would be *similar* under the No Project Alternative when compared to the proposed Plan.

5.5.2.10 LAND USE AND PLANNING

Impacts to land use and planning would be considered less than significant under the proposed Plan because the proposed Plan would be largely consistent with the Fresno General Plan. Because the No Project Alternative would result in the implementation of General Plan, the No Project Alternative and the proposed Plan would result in *the similar* impacts.

5.5.2.11 NOISE

The proposed Plan would result in significant and unavoidable impacts related to noise generated by increased vehicle activity in the Plan Area. The No Project Alternative would also result in significant and unavoidable impacts related to increased ambient noise volumes. Given the increase in development to occur under the General Plan, as well as the development included under proposed Plan, the impacts related to noise would be considered *similar*.

5.5.2.12 POPULATION AND HOUSING

The proposed Plan would result in an increase in population, housing and employment, but the impacts would be considered less than significant given that the projected growth under the General Plan would be less than the proposed Plan. Because the No Project Alternative would result in implementation of the General Plan, when compared to the proposed Plan, the No Project Alternative would result in *fewer* impacts with respect to population and housing.

5.5.2.13 PUBLIC SERVICES

As a result of the proposed Plan, impacts related to public services would be less than significant. As discussed in relation to population and housing, the General Plan would result in greater housing density when compared to the proposed Plan. The No Project Alternative would result in *similar* impacts with respect to public services.

5.5.2.14 TRANSPORTATION AND TRAFFIC

Under the No Project Alternative, improvements to the roadway network, transit and bicycle/pedestrian facilities would be required to accommodate growth under the General Plan. As a result of the proposed Plan, similar improvements would be required to accommodate growth within the Plan Area. However, because development under the proposed Plan, (Dual Designation Development Scenario), would be higher than under the No Project alternative, transportation impacts would be considered *fewer under* the No Project alternative. Utility Systems

As a result of the proposed Plan, impacts related to utility systems would be fully mitigable with implementation of mitigation measures proposed in this Draft EIR as well as MEIR mitigation measures. The overall development capacity would be less under the No Project Alternative when compared to the proposed Plan. As a result, the No Project Alternative would result in *fewer* impacts when compared to the proposed Plan.

5.5.3 RELATIONSHIP OF THE ALTERNATIVE TO THE OBJECTIVES

Under the No Project Alternative, the proposed Plan would not be implemented and therefore this alternative does not meet any of the project objectives.

5.6 MIXED-USE TRANSIT CORRIDOR ALTERNATIVE

5.6.1 DESCRIPTION

The purpose of the Mixed-Use Transit Corridor Alternative is to provide an alternative that could reduce potential impacts from future development when compared to the proposed Plan. This alternative would focus growth along California Avenue, which is currently designated for Bus Rapid Transit (BRT). Additional growth would be focused along the South Elm Avenue corridor, which could provide a transit connection to the California Avenue BRT project at a later date. Under this alternative, the CMX (Corridor/Center Mixed-Use) land use designation would be applied along the north side of the California Avenue corridor, and along the portions of the South Elm Avenue corridor currently proposed for C (Community Commercial), and NMX (Neighborhood Mixed-Use). The proposed land use intensities in other portions of the Planning Area would be reduced to achieve an overall reduction by about one-third of the development capacity projections of the proposed Plan. The policies in the proposed Plan would apply under this alternative; however, the overall development footprint would be lower under the Mixed-Use Transit Corridor alternative.

5.6.2 IMPACT DISCUSSION

The potential environmental impacts associated with the Mixed-Use Transit Corridor alternative when compared to the proposed Plan are described below.

5.6.2.1 AESTHETICS

Most impacts related to aesthetics under the proposed Plan are less than significant and incorporate MEIR mitigation measures to reduce potentially significant impacts. Same as the proposed Plan, the Mixed-Use Transit Corridor Alternative would not block views, and would not degrade the existing visual character or quality of the site and its surroundings. However, similar to the proposed Plan, the Mixed-Use Transit Corridor Alternative would also result in development that would increase illumination of the nighttime sky. Although most impacts under the proposed Plan and the Mixed-Use Transit Corridor Alternative are less than significant with mitigation, impacts to the nighttime sky cannot be fully mitigated and would result in significant and unavoidable impacts. Thus, overall impacts related to aesthetics would be *similar* when comparing the Mixed-Use Corridor Alternative to the proposed Plan.

5.6.2.2 AGRICULTURE

Similar to the proposed Plan, the Mixed-Use Transit Corridor Alternative would result in the conversion of prime farmland to non-agriculture use. Although the densities of development would differ between the Mixed-Use Corridor Alternative and the proposed Plan, both would result in development on prime farmland, thus resulting in a significant and unavoidable impact. However, the Mixed-Use Transit Corridor would focus future development along to corridors in the Plan Area, resulting in a smaller development footprint; Thus, overall impacts related to agriculture would be *fewer* when comparing the Mixed-Use Transit Corridor Alternative to the proposed Plan.

5.6.2.3 AIR QUALITY

The proposed Plan would result in significant and unavoidable impacts related to air quality generated by increased vehicle activity in the Plan Area. The Mixed-Use Transit Corridor Alternative would result in a reduction of overall development by one-third compared to the proposed Plan, and focus growth along future BRT corridors, resulting in a reduction in vehicle miles travelled, and a reduction in construction and operational air quality impacts compared to the proposed Plan. These characteristics of the Mixed-Use Transit Corridor alternative would result in *fewer* impacts compared to the proposed Plan.

5.6.2.4 BIOLOGICAL RESOURCES

The biological resources impacts under the proposed Plan are fully mitigable with implementation of MEIR mitigation measures as well as mitigation measures proposed in this Draft EIR.

Under the Mixed-Use Transit Corridor Alternative the potential for adverse impacts on special-status species habitat identified in this Draft EIR would be lower t than the proposed Plan, as the development footprint would be less. As a result, impacts to biological resources would be *fewer* when comparing the Mixed-Use Transit Corridor Alternative to the proposed Plan.

5.6.2.5 CULTURAL AND TRIBAL CULTURAL RESOURCES

The cultural and tribal cultural resources impacts under the proposed Plan are fully mitigable with implementation of MEIR mitigation measures. Under the proposed Plan, potential impacts to cultural resources would result on a site-by-site basis mostly from previously-unknown sites. Under the Mixed-Use Transit Corridor Alternative, the development footprint would be lower and would require the same mitigation measures to reduce the potential impacts to less-than-significant levels. As a result, impacts to cultural and tribal cultural resources would be *fewer when* comparing the Mixed-Use Transit Corridor Alternative to the proposed Plan.

5.6.2.6 GEOLOGY AND SOILS

The proposed Plan would result in less-than-significant impacts related to geology and soils primarily because of the Plan Area's proximity to active faults, and potential impacts being addressed by regulatory compliance. Under the Mixed-Use Transit Corridor Alternative, the conditions and the regulatory requirements do not change as development occurs under the General Plan. As a result, impacts related to geology and soils would be *similar* when comparing the Mixed-Use Corridor Alternative to the proposed Plan.

5.6.2.7 GREENHOUSE GAS EMISSIONS

The Mixed-Use Transit Corridor Alternative would focus mixed-use development along two primary corridors, one of which is planned for BRT service. With mixed-use development providing residential and commercial development in a more walkable area, and with a reduction in overall development by one third, VMT would be less than that of the proposed Plan, resulting in *fewer* impacts than the proposed Plan.

5.6.2.8 HAZARDS AND HAZARDOUS MATERIALS

As a result of the proposed Plan, impacts related to hazards and hazardous materials would be fully mitigable with implementation of mitigation measures proposed in this Draft EIR. Implementation of the proposed Plan would occur on sites which contain hazardous materials and could create a potentially significant hazard to the public or the environment. Under the Mixed-Use Transit Corridor Alternative, development would occur on the same sites, at a reduced density in some locations and higher density in corridors adjacent to future BRT corridors; however as with the proposed Plan, additional site analysis would be required to ensure that potentially-hazardous conditions would not adversely affect the public or the environment. As a result, impacts related to hazards and hazardous materials would be *similar* under the Mixed-Use Transit Corridor Alternative when compared to the proposed Plan.

5.6.2.9 HYDROLOGY AND WATER QUALITY

The hydrology and water quality impacts under the proposed Plan would be considered less-than-significant with implementation of regulations controlling stormwater runoff. Similarly, future development under the Mixed-Use Transit Corridor Alternative would be subject to the same regulations. As a result, impacts related to hydrology and water quality would be *similar* under the Mixed-Use Transit Corridor Alternative when compared to the proposed Plan.

5.6.2.10 LAND USE AND PLANNING

Impacts to land use and planning would be considered less than significant under the proposed Plan because the proposed Plan would be largely consistent with the Fresno General Plan. Because the Mixed-Use Transit Corridor Alternative would similarly result in the implementation of General Plan, the Mixed-Use Corridor Alternative and the proposed Plan would result in *similar* impacts.

5.6.2.11 NOISE

The proposed Plan would result in significant and unavoidable impacts related to noise generated by increased vehicle activity in the Plan Area. The Mixed-Use Transit Corridor Alternative would also result in significant and unavoidable impacts related to increased ambient noise volumes. Although the development footprint of the Mixed-Use Transit Corridor alternative would be lower than the proposed Plan, the impacts related to noise would be considered *similar*, given the overall scale of development under this alternative.

5.6.2.12 POPULATION AND HOUSING

The proposed Plan would result in an increase in population, housing and employment, but the impacts would be considered significant given that the projected growth under the Dual Designation Development Scenario would be greater than the General Plan. Because the Mixed-Use Transit Corridor Alternative would result in a reduction of overall development by one-third, and thus generate fewer residents and employees than under the proposed Plan, when compared to the proposed Plan, the Mixed-Use Corridor Alternative would result in *fewer* impacts with respect to population and housing.

5.6.2.13 PUBLIC SERVICES

As a result of the proposed Plan, impacts related to public services would be less than significant. As discussed in relation to population and housing, the Mixed-Use Corridor Alternative would result in reduced development by one-third when compared to the proposed Plan. The Mixed-Use Corridor Alternative would result in *fewer* impacts with respect to public services.

5.6.2.14 TRANSPORTATION AND TRAFFIC

As a result of the proposed Plan, significant and unavoidable cumulative impacts would occur in relation to the uncertainties of implementation of mitigation measures proposed in this Draft EIR. Increased traffic resulting from the proposed Plan would require improvements to intersections and ramps that are not under the jurisdiction of the City of Fresno. As a result, implementation of those mitigation measures is uncertain. The Mixed-Use Transit Corridor Alternative would result in impacts to traffic; however, because this alternative focuses growth along future BRT corridors, and reduces overall development by one-third, impacts related to traffic may be reduced when compared to the proposed Plan. As a result, the Mixed-Use Corridor Alternative would result in *fewer* impacts when compared to the proposed Plan.

5.6.2.15 UTILITY SYSTEMS

As a result of the proposed Plan, impacts related to utility systems would be fully mitigable with implementation of mitigation measures proposed in this Draft EIR as well as MEIR mitigation measures. The overall demand for utility infrastructure would be lower under the Mixed-Use Corridor Alternative when compared to the proposed Plan. As a result, the Mixed-Use Corridor Alternative would result in *fewer* impacts when compared to the proposed Plan.

5.6.3 RELATIONSHIP OF THE ALTERNATIVE TO THE OBJECTIVES

The Mixed-Use Corridor Alternative would meet many of the objectives of the proposed Plan. However, this Alternative would conflict with Objective #3 (“Provide a mix of high quality housing types, with an emphasis on single-family housing…”) because of its emphasis on multi-family housing. In addition, the Alternative would not meet Objective #4 (“Attract needed retail…) as it would bring fewer new residents to the Plan Area, which could potentially affect the viability of retail. Similarly, this Alternative would conflict with Objective #8 (“Improve the quality of life in Southwest Fresno through high quality investment…) as the reduced area of development would bring fewer people to the Plan Area, thereby affecting the ability to achieve this Objective to the same extent that the proposed Plan would.

5.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In addition to the discussion and comparison of impacts of the project and the alternatives, Section 15126.6 of the State CEQA Guidelines requires that an "environmentally superior" alternative be selected and the reasons for such a selection be disclosed. In general, the environmentally superior alternative is the alternative that would be expected to generate the least environmental impact. Identification of the environmentally superior alternative is an informational procedure and the alternative selected may not be the alternative that best meets project objectives.

As shown in Table 5-1, the No Project Alternative would result in fewer impacts to air quality, GHG emissions, population and housing, transportation and traffic, and utilities and service systems when compared to the proposed Plan. Furthermore, this alternative would not meet any of the project objectives.

As shown in Table 5-1, the Mixed-Use Corridor Alternative would result in fewer impacts to agricultural resources, air quality, biological resources, cultural and tribal resources, GHG emissions, population and housing, public services and recreation, transportation and traffic, and utility and service systems. Therefore, this Alternative would have the fewest environmental impacts as compared to the other two alternatives, and would be considered the environmentally superior alternative. However, this alternative would meet some, but not all, of the project objectives.

6. CEQA-Mandated Assessment

This chapter provides an overview of the impacts of the proposed Plan based on the analyses presented in Chapters 4 through 5 of this Draft EIR. The topics covered in this chapter include impacts found not to be significant, growth inducement, significant and unavoidable impacts, and significant irreversible changes. A more detailed analysis of the effects the proposed Plan would have on the environment and proposed mitigation measures to minimize significant impacts are provided in Chapters 4.1 through 4.15.

6.1 IMPACTS FOUND NOT TO BE SIGNIFICANT

The California Environmental Quality Act (CEQA) Guidelines Section 15128 allows environmental issues, for which there is no likelihood of significant impact to be briefly discussed and not analyzed further in the EIR. This section explains the reasoning by which it was determined that impacts to agricultural and forestry resources, and mineral resources potentially resulting from buildout of the proposed Plan would be less than significant.

- Forestry Resources. According to 2006 mapping data from the California Department of Forestry and Fire Protection, the city of Fresno does not contain any woodland or forestland cover;[1] therefore, the city does not contain land zoned for Timberland Production. Consequently, there would be no impacts to forestry resources under CEQA.
- Mineral Resources. The City of Fresno permits mining only within the Mining (M) Overlay District (Citywide Development Code). Moreover, the boundaries of the Southwest Fresno Plan Area are classified as Mineral Resource Zone (MRZ)-3, which are defined as potential, but unproven mineral resource reserves (State of California, Division of Mines and Geology, Open File Report 99-02). MRZ-2 zones are those areas documented to have regionally significant mineral resources.

  Because neither the State nor the City of Fresno identifies the Plan Area as containing known regional mineral resource reserves, implementation of the proposed Plan would not result in impacts to known mineral resources or locally important mineral resources.

6.2 GROWTH INDUCEMENT

Section 15126.2(d) of the CEQA Guidelines requires that an EIR discuss the ways in which a proposed project or the construction of additional housing, either directly or indirectly, could foster economic or population growth in the surrounding environment. Typical growth inducing factors might include the

[1] California Department of Forestry and Fire Protection Fire and Resource Assessment Program, Land Cover Map, http://frap.fire.ca.gov/data/frapgismaps/pdfs/fvegwhr13b_map.pdf, accessed May 26, 2017.

extension of urban services or transportation infrastructure to a previously unserved or under-served area, or the removal of major barriers to development. This section evaluates the proposed Plan's potential to create such growth inducements. Not all aspects of growth inducement are negative; rather, negative impacts associated with growth inducement occur only where the growth associated with the proposed Plan would cause adverse environmental impacts. As described in Chapter 4.12, Population and Housing, implementation of the proposed Plan would not exceed the City's projections for population growth in the Plan Area.

The proposed Plan is not expected to result in indirect growth inducement because the additional housing units and population resulting from implementation of the proposed Plan would not exceed projections of the City. Additional employment growth would occur incrementally over a period of approximately 25 years and would be consistent with the planning objectives of the City.

Development of the proposed Plan would involve demolition and construction activities that could generate some temporary employment opportunities; however, given the temporary nature of such opportunities, it is unlikely that construction workers would relocate to Fresno as a result of the proposed Plan. Thus, the proposed Plan would not be considered growth-inducing from an employment perspective.

6.3 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. This section lists the impacts for the proposed Plan that were found to be significant and unavoidable.

6.4 SIGNIFICANT IRREVERSIBLE CHANGES

Section 15126.2(c) of the CEQA Guidelines requires an EIR to discuss the extent to which the proposed Plan would commit nonrenewable resources to uses that future generations would probably be unable to reverse. The three CEQA-required categories of irreversible changes are discussed below.

6.4.1 CHANGES IN LAND USE THAT COMMIT FUTURE GENERATIONS

The proposed Plan would guide future development in the Plan Area, and would also involve the redevelopment of previously developed sites. The Plan Area currently contains retail, industrial/non-retail, and residential uses. Because the Plan Area is already developed and is located in an urban area that already contains these uses, the proposed Plan is not expected to result in any land use changes that would commit future generations to uses that are not already prevalent in the vicinity of the Plan Area.

TABLE 6-1 SUMMARY OF SIGNIFICANT AND UNAVOIDABLE (SU) IMPACTS

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
AESTHETICS			
AES-4: Implementation of the proposed Plan would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	S	AES-1: Lighting systems for street and parking areas shall include shields to direct light to the roadway surfaces and parking areas. Vertical shields on the light fixtures shall also be used to direct light away from adjacent light sensitive land uses such as residences. AES-2: Lighting systems for public facilities such as active play areas shall provide adequate illumination for the activity; however, low-intensity light fixtures and shields shall be used to minimize spillover light onto adjacent properties. AES-3: Lighting systems for non-residential uses, not including public facilities, shall provide shields on the light fixtures and orient the lighting system away from adjacent properties. Low-intensity light fixtures shall also be used if excessive spillover light onto adjacent properties will occur. AES-4: Lighting systems for freestanding signs shall not exceed 100 foot-Lamberts (FT-L) when adjacent to streets which have an average light intensity of less than 2.0 horizontal footcandles and shall not exceed 500 FT-L when adjacent to streets that have an average light intensity of 2.0 horizontal footcandles or greater. AES-5: Materials used on building façades shall be non-reflective.	SU
AES-5: Implementation of the proposed Plan would result in an increase in glare.	S	AES-5: Implement Mitigation Measures AES-1 through AES-5 of the MEIR.	SU
AGRICULTURE			
AG-1: Implementation of the proposed Plan would 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.	SU	No mitigation measures available.	SU
AG-4: Implementation of the proposed Plan, in combination with past, present and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to agriculture resources.	SU	No mitigation measures available.	SU

TABLE 6-1 SUMMARY OF SIGNIFICANT AND UNAVOIDABLE (SU) IMPACTS

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
AIR QUALITY			
AQ-1: Implementation of the proposed Plan would result in the generation of substantial long-term criteria air pollutant emissions that would exceed the SJVAPCD regional significance thresholds and would therefore not be considered consistent with the existing AQMPs.	S	N/A	SU
AQ-2: Construction activities associated with implementation of the proposed Plan would exceed the SJVAPCD regional significance thresholds.	S	AQ-2a: In order to contribute in minimizing exhaust emission from construction equipment, prior to issuance of grading, demolition or building permits whichever occurs first, the property owner/developer shall provide a list of all construction equipment proposed to be used on the project site for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects). This list may be provided on the building plans. The construction equipment list shall state the make, model, and equipment identification number of all the equipment. AQ-2b: During construction activities, for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects), the construction contractors shall ensure that the equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations; and, that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9. AQ-2c: In order to reduce VOC emissions from construction activities, prior to issuance of a building permit for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects), the property owner/developer shall require the construction contractor and provide a note on construction plans indicating that: ▪ All coatings and solvents will have a volatile organic compound (VOC) content lower than required under Rule 4601 (i.e., super compliant paints). ▪ All architectural coatings shall be applied either by (1) using a high-volume, low-pressure spray method operated at an air pressure between 0.1 and 10 pounds per square inch gauge to achieve a 65 percent application efficiency; or (2) manual application using a paintbrush, hand-roller, trowel, spatula, dauber, rag, or sponge, to achieve a 100 percent applicant efficiency.	SU

TABLE 6-1 SUMMARY OF SIGNIFICANT AND UNAVOIDABLE (SU) IMPACTS

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		▪ The construction contractor shall also use precoated/natural colored building materials, where feasible.	
AQ-3: Operation of development projects accommodated under the proposed Plan would generate emissions that would exceed the SJVAPCD regional significance thresholds for VOC, NOX, CO, PM_{10}, and $PM_{2.5}$.	S	▪ N/A	SU
AQ-4: Development of land uses accommodated under the proposed Plan could result in short- and long-term emissions that could cause or contribute to a violation of the AAQS.	S	AQ-4a: Implement Mitigation Measures AQ-2a through AQ-2e to further reduce construction-related criteria air pollutant emissions. AQ-4b: In order to reduce fugitive dust particulate matter emissions during construction activities, prior to issuance of grading, demolition or building permits, whichever occurs first, for projects subject to the California Environmental Quality Act (i.e., non-exempt projects), but that would be outside the purview of San Joaquin Valley Air Pollution Control District's (SJVAPCD) Regulation VIII the property owner/developer shall submit a dust control plan that includes, but not limited to the following measures during ground-disturbing activities to further reduce PM10 and PM2.5 emissions: ▪ Disturbed areas (including storage piles) that are not being actively utilized for construction purposes shall be effectively stabilized using water, chemical stabilizer/suppressant, or covered with a tarp or other suitable cover (e.g., revegetated). ▪ On-site unpaved roads and off-site unpaved access roads shall be effectively stabilized using water or chemical stabilizer/suppressant. ▪ Land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled utilizing application of water or by presoaking. ▪ Material shall be covered, or effectively wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained when materials are transported off-site. ▪ Operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)	SU

TABLE 6-1 SUMMARY OF SIGNIFICANT AND UNAVOIDABLE (SU) IMPACTS

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		▪ Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant. ▪ Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday. ▪ Any site with 150 or more vehicle trips per day shall prevent carryout and trackout. ▪ Limit traffic speeds on unpaved roads to 15 mph. ▪ Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than 1 percent. ▪ Install wheel washers for all exiting trucks or wash off all trucks and equipment leaving the project area. ▪ Adhere to Regulation VIII's 20 percent opacity limitation, as applicable.	
AQ-7: Construction activities associated with implementation of the proposed Plan would exceed the SJVAPCD regional significance thresholds for VOC and NO_X.	S	AQ-7: Implement Mitigation Measures AQ-2a through AQ-4b of the DEIR.	SU
GREENHOUSE GAS EMISSIONS			
GHG-1: Implementation of the proposed Plan would result in a substantial increase in GHG emissions.	S	GHG-1: Implement Mitigation Measure AQ-2b as follows: Mitigation Measure AQ-2b: During construction activities, for projects that are subject to the California Environmental Quality Act (i.e., non-exempt projects), the construction contractors shall ensure that the equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations; and, that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.	SU
GHG-3: GHG emissions associated with implementation of the proposed Plan would substantially cumulatively contribute to climate change impacts.	S	GHG-3: Implement Mitigation Measure AQ-2b .	SU
NOISE			
NOISE-1: Development in accordance with the proposed Plan would cause increases in traffic along local roadways of	SU/LTS	N/A	SU/LTS

TABLE 6-1 SUMMARY OF SIGNIFICANT AND UNAVOIDABLE (SU) IMPACTS

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
more than 3 dBA over existing conditions.			
NOISE-3: Implementation of the proposed Plan would cause a substantial permanent increase in ambient noise levels in the vicinity of the Plan Area above levels existing without the proposed Plan.	S	N/A	SU
NOISE-4: Implementation of the proposed Plan could potentially cause a substantial temporary or periodic increase in ambient noise levels in the vicinity of the Plan Area above levels existing without the proposed Plan.	PS	NOISE-4a: As required by the City of Fresno Municipal Code, construction activity shall be limited to the hours between 7 AM and 10 PM on weekdays and Saturdays, and shall require a permit issued by the City. NOISE-4b: Prior to the issuance of demolition, grading, and/or construction permits, applicants for individual development projects within 500 feet of noise-sensitive receptors (e.g., residences, hospitals, schools) shall conduct a project-level construction noise analysis to evaluate potential impacts on sensitive receptors. The analysis shall be conducted once the final construction equipment list that will be used for demolition and grading activities is determined. The project-level noise analysis shall be prepared, reviewed, and approved by the City of Fresno Community Development Director. If the analysis determines that demolition and construction activities would result in an impact to identified noise-sensitive receptors, then specific measures to attenuate the noise impact shall be outlined in the analysis and reviewed and approved by the City of Fresno Community Development Director. Specific measures may include, but are not limited to, the following best management practices: ▪ Post a construction site notice near the construction site access point or in an area that is clearly visible to the public. The notice shall include the following: job site address; permit number, name, and phone number of the contractor and owner; dates and duration of construction activities; construction hours allowed; and the City of Fresno Community Development Director and construction contractor phone numbers where noise complaints can be reported and logged. ▪ Consider the installation of temporary sound barriers for construction activities immediately adjacent to occupied noise-sensitive structures. ▪ Restrict haul routes and construction-related traffic to the least noise-sensitive times of the day. ▪ Reduce non-essential idling of construction equipment to no more than five minutes. ▪ Ensure that all construction equipment is monitored and properly maintained in	SU

TABLE 6-1 SUMMARY OF SIGNIFICANT AND UNAVOIDABLE (SU) IMPACTS

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		accordance with the manufacturer's recommendations to minimize noise. ▪ Fit all construction equipment with properly-operating mufflers, air intake silencers, and engine shrouds, no less effective than as originally equipped by the manufacturer, to minimize noise emissions. ▪ If construction equipment is equipped with back-up alarm shut offs, switch off back-up alarms and replace with human spotters, as feasible. ▪ Stationary equipment (such as generators and air compressors) and equipment maintenance and staging areas shall be located as far from existing noise-sensitive land uses, as feasible. ▪ To the extent feasible, use acoustic enclosures, shields, or shrouds for stationary equipment such as compressors and pumps. ▪ Shut off generators when generators are not needed. ▪ Coordinate deliveries to reduce the potential of trucks waiting to unload and idling for long periods of time. ▪ Grade surface irregularities on construction sites to prevent potholes from causing vehicular noise. ▪ Minimize the use of impact devices such as jackhammers, pavement breakers, and hoe rams. Where possible, use concrete crushers or pavement saws rather than hoe rams for tasks such as concrete or asphalt demolition and removal. The final noise-reduction measures to be implemented and their associated details shall be determined by the construction-level noise analysis. The final noise-reduction measures shall be included on all construction and building documents and/or construction management plans and submitted for verification to the City; implemented by the construction contractor through the duration of the construction phase; and discussed at the pre-demolition, -grade, and/or -construction meetings.	
NOISE-7: Implementation of the proposed Plan, in combination with past, present, and reasonably foreseeable projects, would result in significant cumulative impacts with respect to noise.	SU/LTS/PS	N/A	SU/LTS
TRANSPORTATION AND TRAFFIC			
TRANS-7.2: The addition of project traffic to the roadway	S	TRANS-7.2: Development within the project shall pay its regional transportation mitigation	SU

TABLE 6-1 SUMMARY OF SIGNIFICANT AND UNAVOIDABLE (SU) IMPACTS

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
network in combination with traffic generated by reasonably foreseeable projects results in unacceptable intersection operations at Caltrans study intersections.		fee (RTMF) towards funding improvements to the regional highways and streets system. The City of Fresno shall coordinate with Caltrans and the Fresno Council of Governments to recommend the following intersection and ramp improvements at the SR-99/Jensen Avenue interchange and SR-41/North Avenue interchange be incorporated into the RTMF program: ▪ SR-99 Southbound Off-Ramp/Jensen Avenue intersection: - Widen the SR-99 southbound off-ramp to add an additional left-turn pocket. - Restripe the existing shared through-left turn lane on the SR-99 southbound off-ramp as a dedicated through lane. - The resulting lane configuration on the southbound off-ramp is: two left-turn lanes, one through lane, and one right-turn lane. - Add an overlap phase for the northbound right-turn movement. - Prohibit westbound U-turn movement to allow the northbound right-turn overlap. - Widen the eastbound approach to stripe a third through lane; add a third receiving lane on the east leg that traps into the SR-99 southbound on-ramp. ▪ SR-99 Northbound Off-Ramp/Jensen Avenue intersection: - Change the lane configurations on the northbound off-ramp to a dedicated left-turn pocket and shared through-right turn lane. - Add an overlap phase for the southbound right-turn movement. - Prohibit eastbound U-turn movement to allow the southbound right-turn overlap. - Widen the westbound approach to stripe a third through lane; add a third receiving lane on the west leg that traps into the SR-99 northbound on-ramp. - Change the phasing for the northbound and southbound approaches to protected left-turn movements and separate. ▪ SR-41 Southbound Off-Ramp/North Avenue intersection: - Widen the SR-41 southbound off-ramp to add a left-turn pocket. - Change the lane configurations on the southbound off-ramp to convert the existing shared through-left turn lane to a shared right turn-through-left turn lane. - Extend the right-turn pocket on the off-ramp to accommodate right-turn queue length shown in Table 4.14-16. - The resulting lane configuration on the southbound off-ramp is: one left-turn lane, one shared right turn-through-left turn lane, and one right-turn lane. - Widen the eastbound approach to add a third through lane that traps into the eastbound left-turn onto the SR-41 northbound on-ramp.	

TABLE 6-1 SUMMARY OF SIGNIFICANT AND UNAVOIDABLE (SU) IMPACTS

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		In addition to addressing intersection operations, the changes identified above also address freeway off-ramp queuing impacts identified in Impact TRANS-7.3 below. With the implementation of the changes listed above, the operations at these three intersections would be improved to LOS D or better during both the AM and PM peak hours, as shown in Table 4.14-16 below (refer to Appendix H for calculations). While these changes would improve traffic operations to an acceptable LOS, these improvements require alterations to signals operated by Caltrans as well as physical expansion of intersections and ramps that are under Caltrans jurisdiction. Since these improvements are not within the City of Fresno's jurisdiction to control, it cannot be guaranteed that these improvements will be implemented. In addition to the three intersections at the SR-99/Jensen Avenue and SR-41/North Avenue interchanges that operate at LOS E or LOS F under cumulative conditions, the following improvements would address unacceptable LOS E operations at the SR-99/Fresno Street interchange: ▪ SR-99 Southbound Ramps/Fresno Street intersection: - Widen the SR-99 southbound frontage road to add an additional right-turn pocket. - Restripe the existing through lane as a shared through-left turn lane on the SR-99 southbound off-ramp. - The resulting lane configuration on the southbound off-ramp is: one left-turn lane, one shared through left-turn lane, and two right-turn lanes. ▪ SR-99 Northbound Ramps/Fresno Street intersection: - Add a through lane to the westbound approach on Fresno Street that traps into the left-turn onto the SR-99 southbound on-ramp. - Adding the third through lane on Fresno Street would require removing the existing raised median and prohibiting eastbound left-turns at the Fresno Street/E Street intersection. With the implementation of the changes listed above, the operations at these two intersections would be improved to LOS D or better during both the AM and PM peak hours, as shown in Table 4.14-17 below (refer to Appendix H for calculations). While the intersection and ramp changes at the SR-99/Fresno Street interchange would improve intersection LOS, physical constraints on the SR-99 southbound frontage road would make the proposed widening of the southbound approach infeasible.	

TABLE 6-1 SUMMARY OF SIGNIFICANT AND UNAVOIDABLE (SU) IMPACTS

Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
TRANS-7.3: The addition of project traffic to the roadway network in combination with traffic generated by reasonably foreseeable projects results in freeway off-ramp queues that extend back onto the freeway mainline.	S	TRANS-7.3: Development within the project shall pay its regional transportation mitigation fee (RTMF) towards funding improvements to the regional highways and streets system. In addition to the recommended improvements listed in Mitigation Measure TRANS-7.2, the City of Fresno shall coordinate with Caltrans and the Fresno Council of Governments to recommend the following intersection and ramp improvements at the SR-41/Jensen Avenue interchange be incorporated into the RTMF program: ▪ SR-41 Southbound Off-Ramp/Jensen Avenue intersection: - Change the existing shared left-right turn lane on the SR-41 southbound off-ramp as a dedicated right-turn lane SR-99 southbound off-ramp - The resulting lane configuration on the southbound off-ramp is: one left-turn lane and two right-turn lanes - Add a southbound right-turn phase to run concurrently with the eastbound through phase by taking green time from the westbound through phase The implementation of the changes to the SR-41 southbound off-ramp at Jensen Avenue listed above would reduce queuing on the SR-41 southbound off-ramp. These changes in combination with the improvements to the SR-99/Jensen Avenue, SR-41/North Avenue, and SR-99/Fresno Street interchange listed in Mitigation Measure TRANS-7.2, would reduce freeway off-ramp queuing under cumulative conditions. Table 4.14-18 presents the estimated freeway off-ramp queues with the improvements presented in Mitigation Measure TRANS-7.2 and TRANS-7.3 (refer to Appendix H for calculations). While these changes would reduce the 95th percentile queues on freeway off-ramps to within the available storage on the off-ramp, these improvements require alterations to signals operated by Caltrans as well as physical expansion of intersections and ramps that are under Caltrans jurisdiction. Since these improvements are not within the City of Fresno's jurisdiction to control, it cannot be guaranteed that these improvements will be implemented.	SU

6.4.2 IRREVERSIBLE DAMAGE FROM ENVIRONMENTAL ACCIDENTS

Demolition and construction activities associated with implementation of the proposed Plan would involve some risk for environmental accidents. However, these activities, such as accidental spills and soil contamination, would be monitored by City, State, and federal agencies, and would follow professional industry standards for safety and construction. Additionally, the land uses proposed by the proposed Plan would not include any uses or activities that are likely to contribute to or be the cause of a significant environmental accident, such as industrial-related leaks. As a result, the proposed Plan would not pose a substantial risk of environmental accidents.

6.4.3 LARGE COMMITMENT OF NONRENEWABLE RESOURCES

Consumption of nonrenewable resources includes issues related to increased energy consumption, conversion of agricultural lands, and lost access to mining reserves. The proposed Plan would require water, electric, and gas service, as well as additional resources for construction. Additionally, the ongoing operation of uses within the Plan Area would involve the use of nonrenewable resources. Construction and ongoing maintenance would irreversibly commit some materials and nonrenewable energy resources. Materials and resources used would include, but are not limited to, nonrenewable and limited resources such as oil, gasoline, sand, gravel, asphalt, and steel. These materials and energy resources would be used for infrastructure development, transportation of people and goods, and utilities. During the operational phase of the proposed Plan (post-construction), energy sources including oil and gasoline would be used for lighting, heating, and cooling of residences, as well as transportation of people to and from the Plan Area.

However, the proposed Plan would include several features that would offset or reduce the need for nonrenewable resources. The proposed Plan would be required to comply with all applicable building and design requirements, including those set forth in Title 24 relating to energy conservation. In compliance with CALGreen, the State's Green Building Standards Code, the proposed Plan would be required to reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills, and install low pollutant-emitting materials. The landscaping plan for the proposed Plan would group plants with similar water, climatic, and soil requirements to conserve water and create a drought responsive landscape. In addition, the proposed Plan presents an opportunity to integrate recycled water use into Plan Area with buildout of the City of Fresno's Recycled water system. Green field installation of a distribution system at the initial development stage provides opportunity to plan optimum recycled water utilization within the Plan Area.

Although the construction and ongoing operation of the proposed Plan would involve the use of nonrenewable resources, through the inclusion of energy-conserving Plan features and compliance with applicable standards and regulations, the proposed Plan would not represent a large commitment of nonrenewable resources.

7. Persons and Organizations Consulted

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