

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY

RIVERBANK ARMY AMMUNITION PLANT EIR

State Clearinghouse Number: 2011022015

MARCH 28, 2013 | PUBLIC REVIEW

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1 INTRODUCTION

This Draft Environmental Impact Report (EIR) has been prepared to assess the potential environmental consequences of adopting and implementing the RAAP Specific Plan (Specific Plan). This Draft EIR is intended to inform City decision-makers, other responsible agencies, and the public of the nature of the project. This Draft EIR has been prepared in accordance with the California Environmental Quality Act (CEQA). The Riverbank Local Redevelopment Authority (RLRA) is the lead agency for this project. The Notice of Preparation is included in Appendix A.

The Specific Plan covers an approximately 146-acre area in the southeast portion of Riverbank. The Specific Plan is a planning and regulatory tool available to local governments in the State of California and provides a greater level of specificity than the General Plan. As allowed under California State law (Government Code 65450 et seq.), the City would use the Specific Plan, in part, to implement its adopted General Plan. Although the Specific Plan is broadly consistent with the adopted General Plan, the City will need to adopt minor revisions to the General Plan to ensure that it is fully consistent with the Specific Plan as required under State law.

The project also includes adoption of amendments to the Riverbank General Plan and Zoning Ordinance, changing the current land use designations in the Plan Area and establishing new development standards to replace some of the current zoning provisions applicable to the Plan Area. These amendments must be completed to ensure consistency between the Specific Plan, General Plan, and Zoning Ordinance. This EIR will be used by decision-makers in determining whether or not to adopt the Specific Plan, as well as by the public to clearly understand the environmental implications associated with adoption and implementation of the Specific Plan.

This EIR does not assess the impacts associated with the implementation of the North County Corridor Project (NCC). The purpose of the NCC is to connect SR-99 to SR-120, and one proposed alignment would be located along Claribel Road, adjacent to the RAAP site. Because the location of NCC roadways has not been fully determined, assessing the impacts of the NCC in

the context of buildout of the RAAP Specific Plan would be premature and speculative.

This document is a programmatic EIR, as described in Section 15168 of the CEQA Guidelines. A program-level document is appropriate when a project consists of a series of smaller projects or phases that may be implemented separately. 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 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 Program EIR.

If any of these conditions apply, then a project-specific Initial Study or EIR 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. This EIR is anticipated to provide a basis for future project-level CEQA analysis.

A. Proposed Action

The proposed project, the RAAP Specific Plan, contains land use goals, policies, and development standards for the form and physical design of new development within the Specific Plan Area. The Specific Plan serves as a guide to investment and development of the RAAP site of Riverbank over the next 20 years. The Plan is described in more detail in Chapter 3, Project Description. Since release of the Notice of Preparation, the Evaporation/Percolation Ponds, located on a non-contiguous parcel, has been removed as a project component.

B. Report Organization

This EIR is organized into the following chapters:

- “ **Chapter 1: Introduction.** Provides a preface and overview describing both the intended use of the document and the review and certification process of both the Plan and the EIR.
- “ **Chapter 2: Report Summary.** Summarizes environmental consequences that would result from the Plan; describes recommended mitigation measures; and indicates the level of significance of environmental impacts before and after mitigation. A Summary Table is also included for clarity.
- “ **Chapter 3: Project Description.** Describes the Plan in detail, including the Plan Area location and characteristics; Plan objectives; the planning process used to create the Plan; proposed capital improvements; and implementation.
- “ **Chapter 4: Environmental Evaluation.** Provides an analysis of the potential environmental impacts of the Plan and presents recommended mitigation measures, if required, to reduce their significance.
- “ **Chapter 5: Alternatives to the Proposed Project.** Considers three alternatives to the proposed project, including the CEQA-required “No Project Alternative.”
- “ **Chapter 6: CEQA-Required Assessment Conclusions.** Discusses growth inducement, unavoidable significant effects, and significant irreversible changes as a result of the project.
- “ **Chapter 7: List of Preparers.** Lists the individuals and firms who prepared the EIR.

C. Environmental Review Process

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

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comment period, the public is invited to submit written or e-mail comments on the Draft EIR and/or requested entitlements to the RLRA. The RLRA will also hold one or more public hearings on the Draft EIR during the review period. The public is invited to attend the hearing(s) to offer oral comments on the Draft EIR. Written comments should be submitted to:

Debbie Olson, Executive Director
Riverbank Local Redevelopment Authority
5300 Claus Road
Riverbank, CA 95367

2 REPORT SUMMARY

This summary presents an overview of the analysis contained in Chapter 4.0, Environmental Evaluation. CEQA requires that this chapter summarize the following: 1) areas of controversy; 2) significant impacts; 3) unavoidable significant impacts; 4) implementation of mitigation measures; and 5) alternatives to the project.

A. Project under Review

This Draft EIR provides an assessment of the potential environmental consequences of adoption and implementation of the RAAP Specific Plan (the Plan). This includes development of the site according to adopted land use policies, and development of supporting transportation and utilities infrastructure.

B. Areas of Controversy

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. This list does not necessarily identify all areas of concern, but attempts to capture those that are likely to generate greatest interest based on the input received during the scoping process.

- **Air Quality.** The Plan Area is located within the San Joaquin Valley Air Pollution Control District (SJVAPCD). As such, this Draft EIR will need to examine existing and post-project emissions of criteria, nuisance odors, and potential health impacts associated with toxic air contaminants. This Draft EIR must also discuss the methodology, model assumptions, inputs and results relating to air quality impacts; emission projections of Plan components, and Plan design elements, mitigation measures, and whether the Plan would cumulatively contribute to a net increase of criteria pollutants or precursor for which the area is in non-attainment. Further, the Plan itself would be subject to a variety of SJVAPCD rules and regulations.

- “ **Biological Resources.** The Plan Area includes riparian habitats and wetlands that could be impacted by buildout under the Specific Plan. There are also several special-status animals on the RAAP site, such as Swainson’s hawks and the western burrowing owl. Potential impacts to these species should be addressed.
- “ **Hazards and Hazardous Materials.** The Plan Area has industrial sites that have been contaminated by past activities. Impact to humans from the redevelopment of these parcels should be addressed.
- “ **Hydrology and Water Quality.** The Plan Area includes Oakdale Irrigation District lateral, which eventually drains into the Modesto Irrigation District main canal. Runoff impacts and impacts to drainage facilities are concerns that have been requested to be addressed in the EIR.
- “ **Transportation and Traffic.** Implementation of the Plan would result in new vehicle and truck trips to and from the RAAP site, which have the potential to impact operations at intersections and along roadway segments in the surrounding area, including the State Highway System. In addition, the Plan would increase vehicular traffic volumes at at-grade highway-rail crossings. The Draft EIR will need to consider mitigation measures to reduce impacts on traffic safety, particularly at railroad crossings.

C. Alternatives to the Project

According to CEQA, an EIR must evaluate a reasonable range of feasible alternatives to the proposed project that would achieve most of the basic project objectives and would avoid or substantially lessen any of the significant impacts of the project. Chapter 5 compares the impacts of three alternatives to those of the project, the No Project Alternative, the Reduced Density Alternative, and the Mixed Use Alternative. The Reduced Density Alternative would be the environmentally superior alternative.

- “ **Alternative 1 – No Project Alternative.** Under this alternative, which is required to be analyzed under CEQA, the RAAP site would retain its

existing zoning designations and land uses. Since the existing structures could be leased in their current condition, without any further discretionary approval from the City, this alternative assumes re-occupancy of the existing buildings in their current condition.

- “ **Alternative 2 – Reduced Density Alternative.** This alternative would reduce the intensity of proposed land uses in order to reduce impacts to air quality, cultural resources, noise, and traffic. This alternative would also prohibit demolition of the existing structures, which contribute to the eligibility of a historic district, to avoid impacts to cultural resources.
- “ **Alternative 3 – Reconfigured Site Plan Alternative.** This alternative would reconfigure the site in order to reduce impacts to biological resources and cultural resources. Specifically, the existing structures would not be demolished, and new buildings would have smaller footprints and heights compared to the proposed project.

D. Summary of 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 a project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance.

The proposed Plan has the potential to generate environmental impacts in a number of areas that could be significant:

- “ Air Quality
- “ Biological Resources
- “ Cultural Resources
- “ Greenhouse Gas Emissions
- “ Noise
- “ Public Services
- “ Transportation and Traffic
- “ Utilities and Service Systems

In Sections 4.1 through 4.17, significant impacts that have been identified for the Plan are numbered. Each numbered impact is considered significant prior to mitigation, unless it is specifically identified as less than significant. Mitigation measures have been suggested to reduce the effects of significant impacts. As shown in Table 2-1, most of the significant impacts would be reduced to a less-than-significant level if the mitigation measures recommended in this report were implemented. However, in some instances the mitigation measure that is recommended would not be sufficient to reduce a significant impact to a less-than-significant level (for example, Impact AIR-1); these impacts are identified as significant and unavoidable after mitigation.

CEQA allows environmental issues for which there is no likelihood of a significant impact to be “scoped out” during the EIR scoping process, and not analyzed further in the EIR. However, all issues have been analyzed in this Draft EIR.

Table 2-1 presents a summary of impacts and mitigation measures identified in this report. It is organized to correspond with the environmental issues discussed in Chapter 4.

The table is arranged in four columns: 1) environmental impacts, 2) significance prior to mitigation, 3) mitigation measures, and 4) significance after mitigation. A series of mitigation measures is noted where more than one measure may be required to achieve a less-than-significant impact. For a complete description of potential impacts and suggested mitigation measures, please refer to the specific discussions in Chapter 4. Additionally, this summary does not detail the timing of mitigation measures. Timing will be further detailed in the mitigation monitoring and reporting program.

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
Aesthetics			
<i>Since there are no significant impacts related to aesthetics as a result of the RAAP Site Specific Plan, no mitigation measures are required.</i>			
Agriculture and Forestry Resources			
<i>Since there are no significant impacts related to agricultural and forest resources as a result of the Plan, no mitigation measures are required.</i>			
Air Quality			
<p>AQ-1: Construction of the Specific Plan could emit significant levels of criteria pollutants, potentially contributing to an existing or projected air quality violation. Because of the project size and the uncertainty of the construction schedule, construction period emissions would be considered to remain significant with mitigation.</p>	S	<p>AQ-1a: Each individual project component of the Specific Plan shall be analyzed for significant construction period air quality impacts. For each project-level analysis, a construction emissions estimate will be made using the latest SJVAPCD accepted methodology and will be compared to accepted thresholds of significance. Means of mitigating construction period impacts to a less-than-significant level include, but are not limited to, Mitigation Measures AQ-1b through AQ-1e.</p> <p>AQ-1b: SJVAPCD Regulation VIII Control Measures. The following controls shall be required to be implemented at all construction sites:</p> <ul style="list-style-type: none"> “ All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover; “ All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant; “ All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking; “ With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition; 	SU

LTS = Less Than Significant S = Significant SU = Significant Unavoidable Impact

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
		<ul style="list-style-type: none"> “ When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of free-board space from the top of the container shall be maintained; “ All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. <i>(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);</i> “ 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; and “ Any site with 150 or more vehicle trips per day shall prevent carryout and trackout. 	
		<p><u>AQ-1c: Enhanced Control Measures.</u> The following measures should be implemented at construction sites when required to mitigate significant PM₁₀ impacts (note, these measures are to be implemented in addition to Regulation VIII requirements):</p> <ul style="list-style-type: none"> “ Limit traffic speeds on unpaved roads to 15 mph; and “ Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent. 	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
		<p><u>AQ-1d</u>: Additional Control Measures. The following control measures are strongly encouraged by the SJVAPCD at construction sites that are large in area, located near sensitive receptors, or which for any other reason warrant additional emissions reductions:</p> <ul style="list-style-type: none"> • Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site; • Install wind breaks at windward side(s) of construction areas; • Suspend excavation and grading activity when wind exceeds 20 mph (<i>Regardless of wind speed, and owner/operator must comply with Regulation VIII's 20 percent opacity limitation.</i>); and • Limit area subject to excavation, grading, and other construction activity at any one time. 	
		<p><u>AQ-1e</u>: The following measures may be implemented to mitigate emissions from construction equipment exhaust:</p> <ul style="list-style-type: none"> • Use of alternative-fueled or catalyst-equipped diesel construction equipment; • Minimize idling time (e.g. 5-minute maximum); • Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use; • Replace fossil-fueled equipment with electrically-driven equivalents (provided they are not run via a portable generator set); • Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak-hour of vehicular traffic on adjacent roadways; and • Implement activity management (e.g. rescheduling activities to reduce short-term impacts). 	

LTS = Less Than Significant S = Significant SU = Significant Unavoidable Impact

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
<p>AQ-2: Operation of the Specific Plan could emit significant levels of criteria pollutants, potentially contributing to existing or projected air quality violations.</p>	S	<p>AQ-2: Each individual project component of the Specific Plan shall be analyzed for significant construction period air quality impacts. For each project-level analysis, an operational emissions estimate will be made using the latest SJVAPCD accepted methodology and will be compared to accepted thresholds of significance. Means of mitigating operational period impacts to a less-than-significant level include, but are not limited to, improving transportation and transit design (e.g. improved bikeways, transit infrastructure, and pedestrian enhancements); contributing a project's fair share to the Air Quality Mitigation Fee Fund; and contributing a project's fair share towards Transportation Control Measures implementation programs.</p>	SU
Biological Resources			
<p>BIO-1: Buildout of the Plan would involve the demolition or redevelopment of buildings on the RAAP site where the maternity roosts of Townsend's big-eared bats are potentially present. This could result in the destruction, disturbance, or interference with the maternity roosts of a special-species bat.</p>	S	<p>BIO-1: Implementation of the Plan shall avoid disturbance to the maternity roosts of special-status bats during the breeding season in accordance with the following procedures for Pre-Construction Special-Status Bat Surveys and Subsequent Actions. No more than two weeks in advance of any demolition or construction activity involving concrete breaking or similarly noisy or intrusive activities, that would commence during the pup-rearing season (April 15 through August 31), or winter hibernacula season (October 15 through March 1, depending on weather conditions) a qualified bat biologist, acceptable to the CDFG, shall conduct pre-demolition surveys of all potential special-status bat breeding habitat in the vicinity of the planned activity. Depending on the survey findings, the following actions shall be taken to avoid potential adverse effects on breeding special-status bats:</p> <ol style="list-style-type: none"> 1. If active roosts are identified during pre-construction surveys, a no disturbance buffer will be created by the qualified bat biologist, in consultation with the CDFG, around active roosts during the breeding season. The size of the buffer will take into account factors such as the following: <ul style="list-style-type: none"> • Noise and human disturbance levels at the project site and the roost site 	LTS

LTS = Less Than Significant S = Significant SU = Significant Unavoidable Impact

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
		<p>at the time of the survey and the noise and disturbance expected during the construction activity;</p> <ul style="list-style-type: none"> “ Distance and amount of vegetation or other screening between the project site and the roost; and “ Sensitivity of individual nesting species and the behaviors of the bats. <p>2. If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required.</p> <p>3. Pre-construction surveys are not required for demolition or construction activities scheduled to occur during the non-breeding and winter hibernacula season (September 1 through October 15, and March 1 through April 15).</p> <p>4. Noisy demolition or construction activities as described above (or activities producing similar substantial increases in noise and activity levels in the vicinity) commencing during the non-breeding season and continuing into the breeding season do not require surveys (as it is assumed that any bats taking up roosts would be acclimated to project-related activities already under way). However, if trees are to be removed during the breeding season, the trees would be surveyed for roosts prior to their removal, according to the survey and protective action guidelines 1a through 1c, above.</p> <p>5. Bat roosts initiated during demolition or construction activities are presumed to be unaffected by the activity, and a buffer is not necessary.</p> <p>6. Destruction of roosts of special-status bats and overt interference with roosting activities of special-status bats shall be prohibited.</p> <p>7. The noise control procedures for maximum noise, equipment, and operations identified in Chapter 4.12, Noise, of this EIR shall be implemented.</p>	
		<p>Implementation of the above mitigation measure would reduce potential impacts to the maximum extent practicable.</p>	

LTS = Less Than Significant S = Significant SU = Significant Unavoidable Impact

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
Cultural Resources			
<p>CUL-1: Implementation of the RAAP Specific Plan would alter the significance of an historic resource. By removing individual structures that contribute to the eligibility of an historic district, the RAAP's ability to convey its importance to local and national history is significantly altered, the resource may not be eligible for inclusion on the CRHR.</p>	S	<p>CUL-1: Prior to the demolition of buildings and structures comprising the eligible district, an Historic American Building Survey/Historic American Engineering Record (HABS/HAER) recordation shall be conducted for the affected structures. HABS/HAER recordation could include archiving of original plans, undertaking archival research for preparation of a report, making measured drawings, and completing a photographic study of the structures.</p>	SU
Geology and Soils			
<i>Since there are no significant impacts related to land use as a result of the Plan, no mitigation measures are required.</i>			
Greenhouse Gas Emissions			
<p>GHG-1: Development and operation of the Specific Plan could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.</p>	S	<p>GHG-1: Each individual project component of the Specific Plan shall be analyzed for significant GHG impacts. For each project-level analysis, appropriate BPS will be implemented or a 29 percent GHG emission reduction compared to BAU will be demonstrated. Means of mitigating GHG impacts to a less-than-significant level include, but are not limited to, technological controls for stationary sources (such as for boilers, generators, and process heaters) and the GHG emission reduction measures (such as energy efficiency, transportation, and site design measures) for development projects listed in the SJVAPCD CCAP.</p>	LTS
Mineral Resources			
<i>There are no significant impacts related to agricultural resources as a result of the proposed Plan. Therefore no mitigation measures are required.</i>			
Hazards and Hazardous Materials			
<i>Since there are no significant impacts related to hazardous materials as a result of the Plan, no mitigation measures are required.</i>			

LTS = Less Than Significant S = Significant SU = Significant Unavoidable Impact

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
Hydrology and Water Quality			
<i>There are no significant impacts related to hydrology and water quality as a result of the proposed Plan. Therefore no mitigation measures are required.</i>			
Land Use and Planning			
<i>Since there are no significant impacts related to land use as a result of the Plan, no mitigation measures are required.</i>			
Noise			
<p>NOISE-1: The nearest residential land uses are 110 feet west of the plan area, across Claus Road. Noise levels resulting from on-site activities may exceed City standards for stationary noise sources, as described in General Plan Tables NOISE-2 and NOISE-3 (Tables 4.12-6 and 4.12-7 in this EIR), at nearby residential receivers if the noise generated by such uses are not regulated or adequately mitigated.</p>	S	<p>NOISE-1: In order to reduce noise generated by activities occurring within the RAAP site, the following mitigation measures shall be implemented:</p> <ul style="list-style-type: none"> “ Project level acoustical analyses shall be constructed for noise-generating land uses proposed as part of the Specific Plan. Exterior noise levels at residential land uses interfacing active parks, commercial land uses, or industrial land uses shall be maintained in accordance with the standards presented in the General Plan and Municipal Code. “ Parking lot cleaning activities in commercial and industrial areas shall be limited to daytime and evening hours (7 a.m. to 10 p.m.). “ Trash compactors in commercial and industrial areas shall be located away from adjacent residential receivers or shielded with noise barriers. “ Loading dock hours of operation shall be limited to daytime and evening hours (7 a.m. to 10 p.m.). 	LTS
<p>NOISE-2: Existing noise environments at outdoor activity areas of residences along Claus Road are greater than 65 dBA L_{dn}, and would increase by more than 1.5 dBA as a result of transportation noise following implementation of the Specific Plan.</p>	S	<p>NOISE-2: Noise reduction methods shall be implemented to reduce generated by activities resulting from the Specific Plan. These measures shall include, but are not limited to the following:</p> <ul style="list-style-type: none"> “ Paving streets with "quieter" pavement types such as Open-Grade Rubberized Asphaltic Concrete would reduce noise levels by 2 to 3 dBA depending on the existing pavement type, traffic speed, traffic volumes, and other factors. 	SU

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
<p>NOISE-3: While the duration and phasing of construction activities for the Specific Plan is unknown at this time, it is conceivable that a particular receiver or group of receivers would be subject to construction noise levels in excess of 60 dBA L_{eq} and the ambient by 5 dBA for durations exceeding one construction season.</p>	S	<p>“ New or larger noise barriers could reduce noise levels by 5 dBA Ldn. Final design of such barriers, including an assessment of their feasibility and reasonableness, should be completed during project level review.</p> <p>“ Sound insulation treatments to affected buildings, such as sound rated windows and doors, could reduce noise levels in interior spaces.</p> <p>“ Installing traffic calming measures to slow traffic along Claus Road could provide qualitative improvement by smoothing out the rise and fall in noise levels caused by speeding vehicles.</p> <hr/> <p><u>NOISE-3:</u> To reduce noise levels generated by construction, the following standard construction noise control measures shall be included in all construction projects within the plan area:</p> <p>“ Limit construction to the hours of 7:00 a.m. to 6:30 p.m. on weekdays, and 9:00 a.m. to 5:00 p.m. on Saturdays, with no noise-generating construction on Sundays or holidays.</p> <p>“ Equip all internal combustion engine-driven equipment with mufflers which are in good condition and appropriate for the equipment.</p> <p>“ Unnecessary idling of internal combustion engines should be strictly prohibited.</p> <p>“ Locate stationary noise generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 5 dBA.</p> <p>“ Utilize "quiet" air compressors and other stationary noise sources where technology exists.</p> <p>“ Route all construction traffic to and from the project site via designated truck routes where possible. Prohibit construction related heavy truck traffic in</p>	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
<p>NOISE-4: Traffic volume increases in the vicinity of the Specific Plan vicinity will result with the development of the plan area and other planned developments in the southeast portion of the City of Riverbank.</p>	S	<p>residential areas where feasible.</p> <ul style="list-style-type: none"> “ Control noise from construction workers’ radios to a point that they are not audible at existing residences bordering the project site. “ The contractor shall prepare and submit to the City for approval a detailed construction plan identifying the schedule for major noise-generating construction activities. “ Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g. starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule. <p>NOISE-4: Implement Mitigation Measure NOISE-2.</p>	SU
<p>Population and Housing</p>			
<p><i>Since there are no significant impacts related to cultural resources as a result of the Plan, no mitigation measures are required.</i></p>			
<p>Public Services</p>			
<p>PUB-1: In order to improve response times and ISO ratings, a new fire station is required either in the Bruinville planning area or in the RAAP Plan Area. The addition of a new Fire Station on the east side of the City near the RAAP would be necessary as the proposed Plan builds out. The new station</p>	S	<p>PUB-1: The additional personnel, station, and apparatus shall be incorporated into the RAAP Specific Plan and have benchmarks for when the staffing and facilities are added.</p>	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
<p>would need at least nine personnel hired for staffing purposes (3 per shift), and the station would need a new Type 1 Engine, Type 3 Engine, and a Water Tender for apparatus. This would be a <i>significant</i> impact.</p>			
Recreation			
<i>Since there are no significant impacts related to parks and recreational facilities as a result of the Plan, no mitigation measures are required.</i>			
Transportation and Traffic			
<p>TRANS-1: The Claribel Road/Coffee Road intersection operates at LOS F during both the AM and PM peak hours and signal warrants are met during both peak hours in the Existing Condition. The addition of project traffic would worsen operations and increase delay.</p>	S	<p>TRANS-1: Future developers within the RAAP area shall contribute their fair share, through the payment of local and regional fees, towards the construction of left-turn pockets on all approaches with appropriate storage and deceleration length, and signalization of the intersection. This improvement would improve the service level to LOS C or better (the level of service standard for this intersection) in both peak hours, as shown on Table 4.16-9. Stanislaus County plans to signalize this intersection as part of the Claribel Road widening project. Funding for signalization is provided from Congestion Mitigation and Air Quality (CMAQ) Federal funding. Construction is scheduled to begin in 2013.</p>	LTS
<p>TRANS-2: The Claribel Road/Roselle Avenue intersection operates at LOS F during both the AM and PM peak hours and signal warrants are met during both peak hours in the Existing Condition. The addition of project traffic would worsen operations and increase delay.</p>	S	<p>TRANS-2: Future developers within the RAAP area shall contribute their fair share, through the payment of local and regional fees, towards the construction of left-turn pockets on all approaches with appropriate storage and deceleration length, and signalization of the intersection. This improvement would improve the service level to LOS D or better (the level of service standard for this intersection) in both peak hours, as shown on Table 4.16-9. Signalization of this intersection is programmed in the Stanislaus County 2011-2012 budget using CMAQ funding and is scheduled for construction in 2015/2016.</p>	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
<p>TRANS-3: Future development within the RAAP area would add truck traffic to intersections on State Route 108, specifically at the intersections of Atchison Street (State Route 108)/1st Street, State Route 108/Claus Road and State Route 108/Patterson Road. As these intersections do not currently accommodate the turning movements of large trucks, this is considered a potentially significant impact based on the significance criteria.</p>	S	<p>TRANS-3: Future developers within the RAAP area shall contribute their fair share towards improvements at the intersections identified above, though the payment of local and regional traffic fees, that improve turning radii for large trucks. No improvements have been identified for these intersections.</p>	SU
<p>TRANS-4: Future Development in the RAAP Specific Plan area could substantially increase hazards due to a design feature or incompatible uses.</p>	S	<p>TRANS-4: Although construction impacts are expected to be temporary and less-than-significant, for all future development in the plan area, the following is recommended to minimize the effects of construction related activity:</p> <ul style="list-style-type: none"> • Prepare a construction management plan, including: <ul style="list-style-type: none"> ÿ Project staging plan to maximize on-site storage of materials and equipment. ÿ A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak hours; lane closure proceedings; signs, cones, and other warning devices for drivers; and designation of construction access routes. ÿ Permitted construction hours. ÿ Location of construction staging. ÿ Provision of on-site parking for all construction employees, site visitors, and inspectors. ÿ Provisions for street sweeping to remove construction related debris on public streets. 	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
TRANS-5: The Claribel Road/Coffee Road intersection is projected to operate at LOS F during the AM and LOS E during the PM peak hours. The addition of project traffic would worsen deficient operations in both peak hours. This is considered significant based on the significance criteria, as LOS C is the standard for this intersection.	S	TRANS-5: Construction of Phase 2 of the North County Corridor Project, which would connect the Phase 1 project, which is planned to terminate at McHenry Avenue, to State Route 99, is expected to shift sufficient traffic from this intersection that LOS C would be achieved. Alternatively, intersection improvements beyond the cross-section identified in the General Plan could be provided to improve peak hour operations, such as dual left-turn lanes and right-turn only lanes on all approaches. This improvement would improve the service level to LOS E during the AM peak hour and LOS D during the PM peak hour, as shown on Table 4.16-10. These service levels are considered deficient for this intersection. Given the uncertainty of constructing parallel capacity or the feasibility of additional improvements beyond the planned General Plan cross section, this impact is expected to remain significant and unavoidable.	SU
TRANS-6: The Claribel Road/Oakdale Road intersection is projected to operate at LOS F during the AM and PM peak hours. The addition of project traffic would worsen LOS F operations. This is considered significant based on the significance criteria, as LOS D is the standard for this intersection.	S	TRANS-6: Construction of Phase 2 of the North County Corridor Project, which would connect the Phase 1 project, which is planned to terminate at McHenry Avenue, to State Route 99, is expected to shift sufficient traffic from this intersection that LOS D would be achieved. Alternatively, construction of additional improvements at this intersection that would result in acceptable service levels, including dual left-turn pockets on the northbound, westbound, and eastbound approaches could be constructed. This improvement would improve the service level to LOS D or better (the level of service standard for this intersection) in both peak hours, as shown in Table 10 of the TIA, reducing this impact to a less-than-significant level. However, given the uncertainty of constructing parallel capacity or the feasibility of additional improvements beyond the planned General Plan cross section, this impact is expected to remain significant and unavoidable.	SU
Utilities and Service Systems			
UTIL-1: Buildout of the Plan would require improvements to existing stormwater facilities. The existing stormwater pipes have areas where there are	S	UTIL-1: The Stormwater Master Plan for the proposed Plan recommends the following measures: • Manholes should be repaired to ensure the lids seal properly to prevent inflow	LTS

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
<p>improperly functioning gravity systems, cracked or offset joins, or vertical and/or horizontal pipe cracks. Other deficiencies in the existing storm-water system include the squirrel hole in the reservoir and the undersized main line piping. With the existing deficiencies, the proposed Plan would have the potential to increase flooding. This would be a <i>significant</i> impact.</p>		<p>and infiltration of storm water during rain events.</p> <ul style="list-style-type: none"> “ In order to mitigate the possible contamination of polychlorinated biphenyls (PCBs) within the storm drain, one of the following options could be implemented: <ul style="list-style-type: none"> ÿ Clean and apply a lining or coating to all affected storm drain pipes; ÿ Replace affected storm drain pipes with larger pipes; ÿ A combination of lining a portion of the storm drain pipes and replacing other storm drain pipes: this involves adding a second pipe between the north reservoir lift station and the diversion structure located near Gate 10. Also includes replacing storm drain piping, with larger pipe size, from the diversion structure to the Building Group. “ Current County Standards require new systems to have a capacity to convey storm events equal to the 10-year return period or larger. Lining the interior of affected piping is a cost effective way to mitigate potential contamination of pipes while providing approximately the same (slightly improved) level of service in relation to stormwater conveyance. “ If there are opportunities to upgrade the lift station pumping capacity in the future, the LRA should use that opportunity to significantly increase lift station capacity. Increasing size (i.e. conveyance capacity) of storm drain piping upstream from the north lift station will not be effective unless the lift station capacity is increased. “ Improvements to the existing north reservoir should be completed at the LRA’s earliest opportunity. The squirrel hole(s) in the reservoir bank should be repaired and the lower outlet valve returned to the normal operating position (i.e. closed). This would allow more storage capacity of the reservoir prior to discharge, which would allow more time for suspended soils to settle out in stormwater traveling through the reservoir during rainfall events. Currently, the exterior bank slope is approximately 2:1 (horizontal to verti- 	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
		<p>cal). The slopes may be reduced as much possible within the constraints of space allotted to the reservoir (i.e. approximately 3:1) to reduce the possibility of the rodent holes extending through the bank. Additionally, the repaired slopes may be hardened with rock or crushed brick to make it more difficult for rodents to penetrate the surface.</p> <p>“ To determine the performance of the reservoir outlets, a detailed hydraulic analysis of the OID piping would need to be accomplished. The 10-year and 50-year storm events produce approximately 4.0 MGAL and 4.2 MGAL, respectively. Therefore, the combined outlet piping would need to discharge approximately 1.0 to 1.2 MGAL to prevent the reservoir from becoming full and having water overtopping the banks during these types of storm events. In order to discharge 1.2 MGAL, the outlet piping would need to discharge at an average rate of 3.2 cubic feet per second (cfs) over a 24-hour period. This is a relatively small flow rate and most likely the discharge piping connected to the OID piping and overflow piping would prevent the reservoir from reaching maximum capacity during these types of storms events (i.e. approximately 3.2 cfs is the minimum required and unrestricted gravity flow to OID piping would be approximately 10 cfs, if the OID piping was empty and able to accept full gravity flow).</p> <p>“ If the properties around the reservoir are developed, additional analysis to determine the OID piping hydraulic capacity should be conducted and, if needed, the north reservoir should be increased in size to prevent potential flooding of the newly developed sites. By removing the earthen divider and extending the basin to the northeast by approximately 120 feet, the reservoir capacity could be increased to approximately 4.5 MGAL. This would provide the additional capacity necessary to ensure the basin can adequately store stormwater runoff from larger events even if the OID has little or no capacity to receive water from the reservoir outlets.</p> <p>“ Based on the results of percolation testing, the soils within the site appear to</p>	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Before Mitigation	Mitigation Measures	Significance With Mitigation
		<p>have adequate capacity to infiltrate stormwater directed into basins, swales, or rain gardens. Final design for these areas of the site should include additional percolation testing in order to estimate infiltration rates at the locations and depths of final design basins and other LID components proposed within these areas.</p> <ul style="list-style-type: none"> “ Future development should include LID features to the maximum extent practical, and at a minimum LID components (in addition to large infiltration basins) should cover 15 percent of the total site area. This minimum percentage is based on the example site layout conducted as part of this study that incorporates LID features into a practical commercial site layout. The LID components may include, but not be limited to the following: <ul style="list-style-type: none"> ÿ Shallow infiltration basins ÿ Bioretention basin / rain gardens ÿ Porous concrete within parking stalls ÿ Rainwater harvesting system (cisterns and/or rain barrels) “ In addition to structural LID components, sites should be designed to minimize continuous impervious surfaces where possible. This includes providing landscaping around buildings and breaks between roadways and sidewalks. This also includes generally reducing the amount of impervious surfaces around sites. 	

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RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SPECIFIC PLAN EIR
REPORT SUMMARY

3 PROJECT DESCRIPTION

The Specific Plan is a planning and regulatory tool available to local governments in the State of California. As allowed under California State law (Government Code 65450 et seq.), the City of Riverbank would use the Draft Riverbank Army Ammunition Plan (RAAP) Specific Plan, in part, to implement its adopted General Plan. The Specific Plan, which must be consistent with the City's General Plan, is intended to provide a greater level of specificity in planning on the RAAP site.

This draft programmatic Environmental Impact Report (EIR) analyzes the potential impacts of adopting and implementing the Draft RAAP Specific Plan (Specific Plan), which covers an approximately 146-acre area in the southeast portion of Riverbank. As a programmatic EIR, this document will help streamline the environmental review required for future development projects within the Specific Plan Area. Specifically, environmental review for future projects will be permitted to "tier" from this EIR if certain criteria are met, as provided by State law (Public Resources Code 21094).

The project also includes adoption of amendments to the Riverbank General Plan and Zoning Ordinance, changing the current land use designations in the Plan Area and establishing new development standards to replace current zoning provisions applicable to the Plan Area. These amendments must be completed to ensure consistency between the Specific Plan, General Plan, and Zoning Ordinance. This EIR will be used by decision-makers in making their determination of whether or not to adopt the Specific Plan, as well as by the public to clearly understand the environmental implications associated with adoption and implementation of the Specific Plan.

This chapter describes the proposed project. It discusses the overall location and character of the Specific Plan Area, the land use changes proposed in the Specific Plan, potential new roadways and other infrastructure, and the regulatory actions that must follow adoption of the Specific Plan. For greater detail and clarification, please refer to the Specific Plan.

The applicant for the proposed project is the Riverbank Local Redevelopment Authority (LRA).

A. Plan Area

This section describes the regional and local setting of the Specific Plan Area, as well as the characteristics of the Specific Plan Area itself.

1. Regional and Local Location

The City of Riverbank is located in the heart of California's Central Valley in Stanislaus County. The City is located 5 miles northeast of the City of Modesto, 90 miles east of Oakland and 70 miles southeast of Sacramento. Figure 3-1 shows Riverbank's location within the region, and Figure 3-2 shows the RAAP site in the most southeastern portion of Riverbank's city limits.

2. Specific Plan Area

The RAAP site is located at the corner of Claus Road and Claribel Road, as shown in Figure 3-3, and was formerly owned and operated under control of the United States Army. From 1952 to 2009, the U.S. Army used the site to manufacture shell casings, mortar grenades and other ammunition components. However, the RAAP site was selected for closure as part of the Base Closure and Realignment (BRAC) 2005 round, and the Army decided to move Riverbank's munitions production facilities to Illinois. The site is approximately 146 acres in area. The northern and southern areas of the site remain undeveloped, and the central portion of the site contains the RAAP's existing buildings and infrastructure.

3. Plan Area Characteristics

The developed portion of the RAAP site contains approximately 150 existing structures, most of which are industrial in character. These structures are generally single-story, utilitarian buildings designed to house manufacturing activities. Areas between buildings are generally paved and used for parking, storage, or circulation. The undeveloped areas to the north and south of the

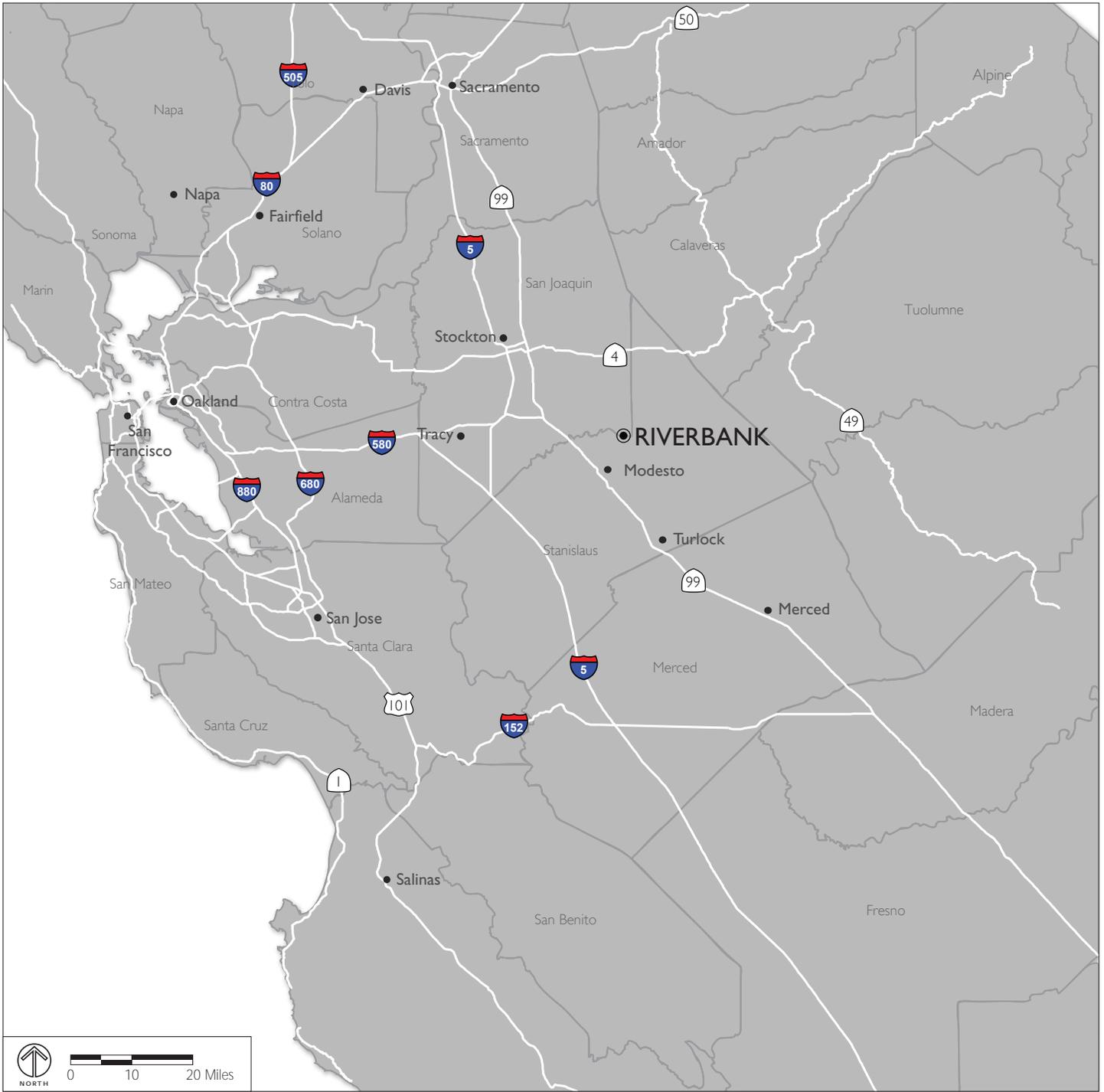


FIGURE 3-1
REGIONAL LOCATION

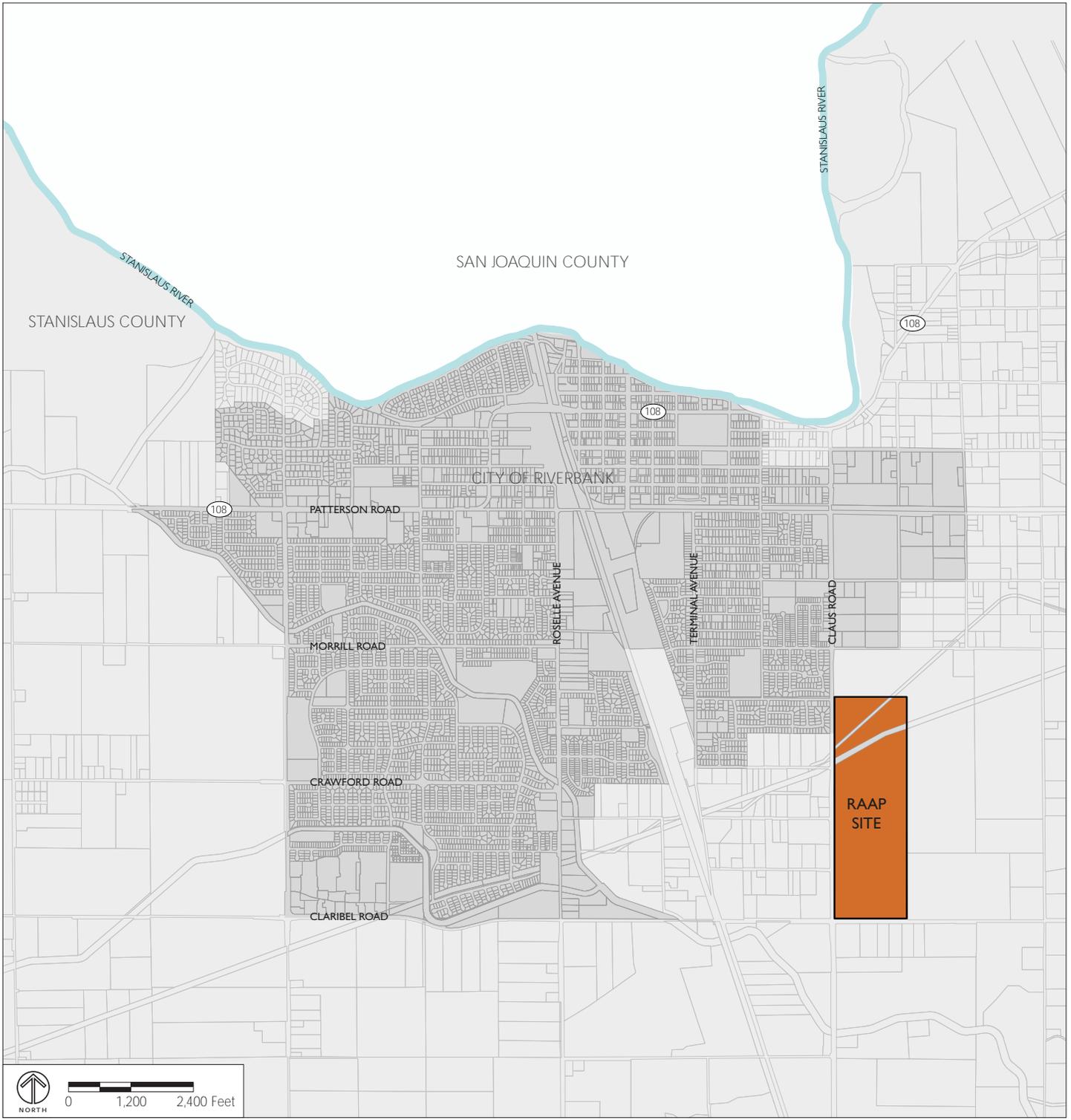


FIGURE 3-2
LOCAL LOCATION

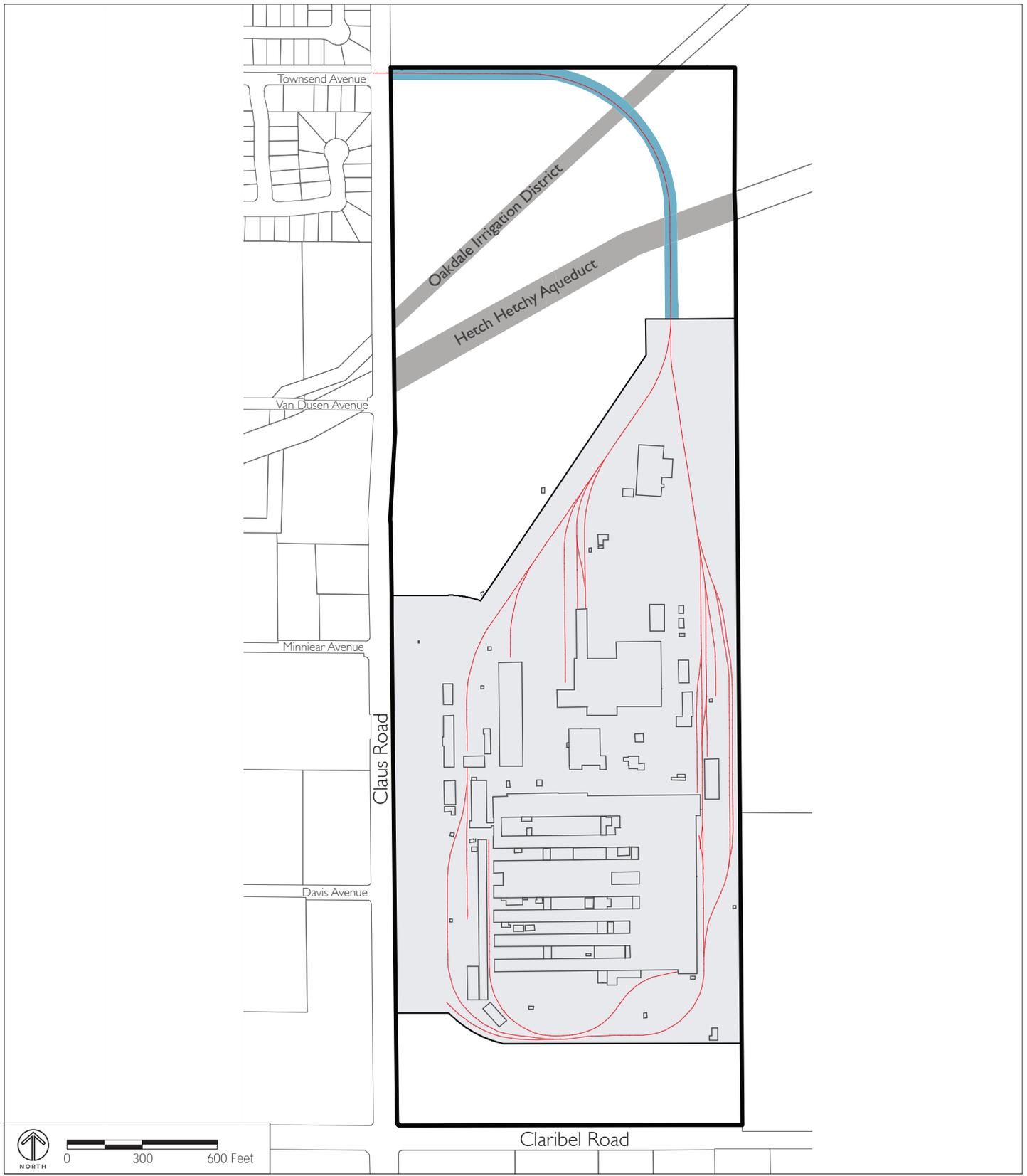


FIGURE 3-3
SPECIFIC PLAN AREA

existing RAAP site facilities are generally grasslands. Portions of the northern area serve as grazing land.

4. Surrounding Uses

The existing industrial area on the RAAP site is bordered on the north, east, and south by pasture land and rural residential uses. Low-density residential uses are located across Claus Road on the northern half of the site. A small vehicle storage lot is located across Claus Road between Minniear and Van Dusen Avenues. The Hetch Hetchy Aqueduct runs roughly east-west across the site and is approximately 100 feet wide. The Oakdale Irrigation District Canal runs northeast-southwest through the site and is approximately 60 feet wide. An active rail line with a 50-foot easement enters the site at the northwest corner, crosses both the Hetch Hetchy Aqueduct and Oakdale Irrigation District Canal, and continues into the site where it serves many of the existing buildings.

B. Purpose of the Specific Plan

The Specific Plan is intended to serve as the primary document and reference guide for future development and redevelopment at the RAAP site. The Specific Plan provides the community and decision-makers with clear documentation of the vision for the RAAP site. Furthermore, it provides a clear policy and regulatory framework for the review of future development projects and public improvements. The Specific Plan also provides guidance on design, potential public investments, and implementation.

C. Specific Plan Objectives

The City of Riverbank and its LRA conducted a community-driven planning process to develop a clear vision for the Specific Plan Area. This process involved members of the community, tenants at the RAAP site, and other stakeholders. It resulted in a Base Reuse Plan for the RAAP site that was approved by the LRA on October 30, 2008. The Environmental Assessment

for BRAC 05 Disposal and Reuse of the RAAP site was prepared in accordance with the National Environmental Policy Act (NEPA) and approved in March 2009. Based on feedback received during the Base Reuse Plan process, the Draft Specific Plan was developed to accomplish the following objectives:

- “ Define the vision for the future of the Specific Plan Area.
- “ Create goals and policies intended to facilitate achievement of the vision.
- “ Designate land for uses that implement the vision.
- “ Create development standards for the form and physical design of new development within the Specific Plan Area.
- “ Provide recommendations for circulation and infrastructure improvements required to support future buildout of the Specific Plan Area.
- “ Provide an implementation strategy for achieving the goals in the Specific Plan and putting the policies in the Specific Plan into action.

D. Draft RAAP Specific Plan

This section summarizes the key components and recommendations of the Specific Plan.

The Specific Plan would permit a mix of industrial, office/research and development (R&D), and retail uses within the Specific Plan Area. Table 3-1 shows development estimates for future buildout of the RAAP site. Overall, the redevelopment project is expected to create between 825 and 1,650 permanent jobs on-site in the next ten to fifteen years, both by attracting tenants to existing buildings and through development of the undeveloped portions of the site.

It is assumed that development would occur over the course of a 20-year period, which is considered the Plan Horizon. The rate and timeframe for

TABLE 3-1 SPECIFIC PLAN DEVELOPMENT ESTIMATES

	Existing (2010) (Square Feet)	Specific Plan Buildout (2030) (Square Feet)	Difference (Square Feet)
Commercial/Retail	0	119,058	119,058
Industrial	673,625	1,411,542	737,917
Office/R&D	0	116,637	116,637

development within the Plan Area are subject to variation based on market demands, the regional economy, and other socioeconomic factors.

1. Land Use and Urban Form Concepts

This section describes the land uses envisioned for the Plan Area, and the approach to implementation. Figure 3-4 illustrates the land use concept for the RAAP site.

- “ **Existing Industrial Areas.** The Specific Plan recommends that existing industrial areas should generally be retained as they are now. The Specific Plan does allow for additional buildings, and removal of and modifications to existing buildings in this area, with policies in place to maintain the historic character and preserve the viability of this area for future industrial uses. Additional landscaping is also recommended for this area in the Specific Plan, both for improved aesthetics and to implement principles of low-impact development (LID). It is anticipated that new development in this area would be of a similar character to existing development and not exceed 70 feet in height.
- “ **North End Cap.** The Specific Plan recommends a mix of R&D and industrial uses in this area, which would be planned for collectively as an R&D/industrial park. Recommended uses range from industrial uses to higher-end office and R&D uses. The Specific Plan recommends that more intensive industrial uses be located in the interior of the North End

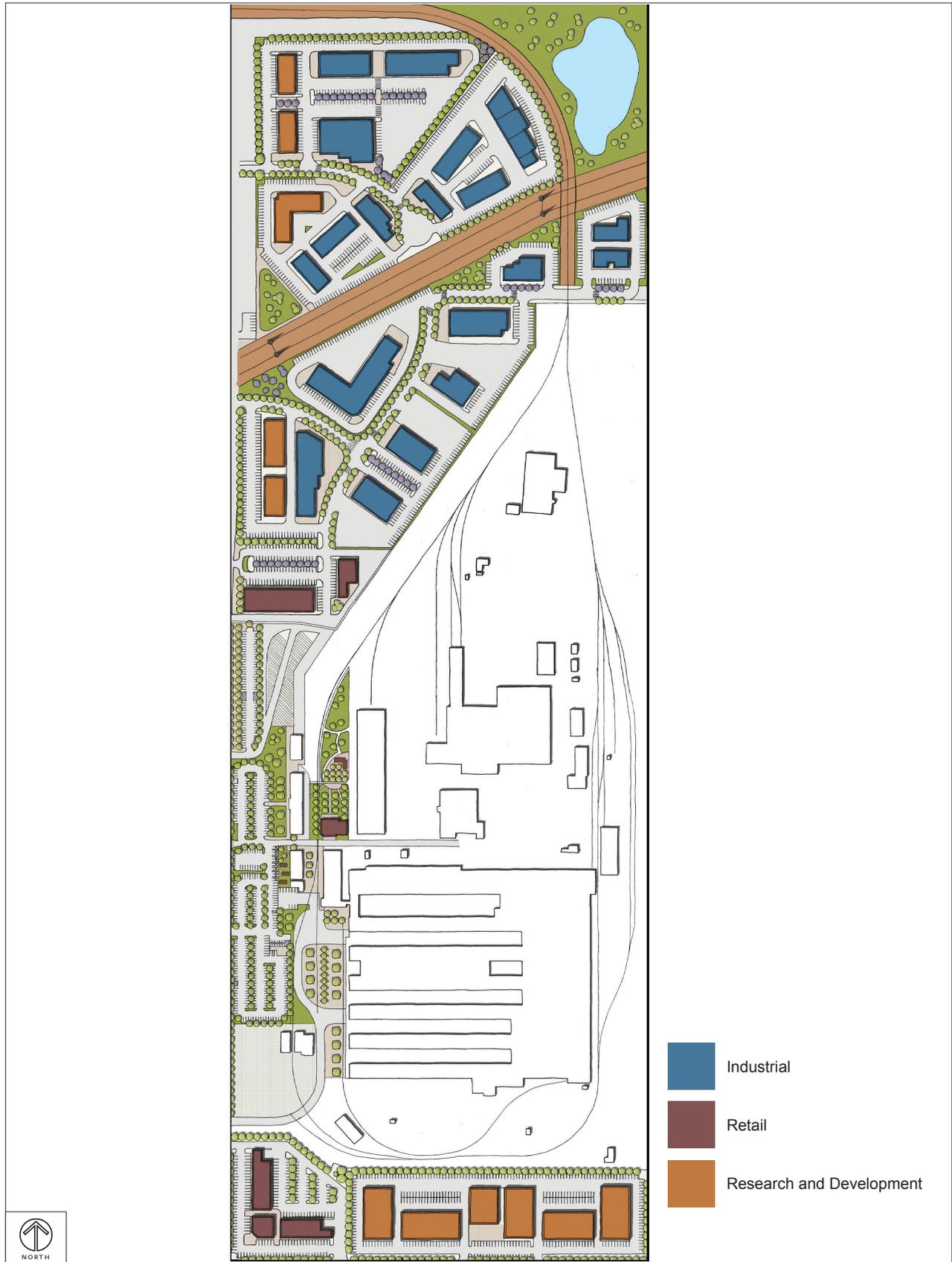


FIGURE 3-4

LAND USE CONCEPT

Cap and that less intensive uses be located closer to Claus Road, in consideration of the adjacent rural residential land uses. R&D/Industrial buildings would not exceed 55 feet in height.

- “ **Retail.** New retail uses are proposed on the west side of the RAAP site along Claus Road, between the Van Dusen Avenue and Minniear Avenue intersections, and at the prominent corner of Claribel and Claus Roads. Retail with surface parking is envisioned for this area with building heights not exceeding 55 feet.
- “ **South End Cap.** Most of the southern undeveloped area on Claribel Road is proposed for R&D/industrial uses. Higher-end R&D and office development is proposed at this location with building height not exceeding 55 feet.
- “ **Open Space: Northeast Detention Pond.** A large stormwater pond could be accommodated on the northeastern corner of the RAAP site, to serve as the primary stormwater management mechanism for the project. While the Specific Plan calls for the LRA to investigate this concept further, it does not commit the City to its construction.
- “ **Open Space: Public Open Spaces.** While the exact location of publicly accessible open space is not known at this time, it is recommended in the North End Cap area, near Claus Road. This space would provide a new resource for the community and improve the aesthetic character of the North End Cap. Programming could include passive recreational space, a dog park, small play fields, or other similar uses.
- “ **Private Open Spaces.** The Specific Plan encourages employers to provide open space for employees where feasible. In addition to providing break areas for employees, these areas could enhance the aesthetic character of the RAAP site as a whole. The location, size, and character of these spaces would be decided on a project-by-project basis.

2. Circulation Concepts

This section describes recommended circulation improvements within the Plan Area. The exact configuration of future transportation infrastructure and roadways may vary.

- “ **Exterior Roadway Concepts.** It is recommended that the western and southern project frontages, along Claribel and Claus Roads, be widened to their ultimate widths and the appropriate turn-pockets, bicycle facilities, and pedestrian amenities provided. It is recommended that four 12-foot lanes be provided for primary vehicular circulation with a two-way turn lane or possible median separating travel directions. This lane configuration will support heavier truck movement. The streetscape should include a 20-foot planter strip at the outside edge that provides a landscape buffer and a 10-foot minimum wide sidewalk/bike path. Trees should be planted within the buffer to provide shade, shield pedestrians from traffic, and enhance the aesthetic character of the RAAP site. Northbound right-turn lanes into the site from Claus Road should be constructed where heavy truck movements are expected to facilitate their movements into the site. Given the length of the site, over ½ mile, several potential transit stops should be included along the project frontage on both Claus and Claribel Roads.
- “ **North End Cap Roadway Plan.** As shown in Figure 3-5, a loop road is proposed that would serve new industrial development in the Northern Industrial Park. As shown in the cross-section in Figure 3-6, it is proposed that this roadway provide two 18-foot lanes, one in each direction. These wide lanes would allow for occasional truck queuing on the roadway without impeding through traffic. Additionally, these wider lanes would allow ample room for bicyclists and vehicles to travel along the roads simultaneously.
- “ **Pedestrian Circulation.** Sidewalks are recommended on the western and southern edges of the RAAP site to provide for safe pedestrian circulation. Furthermore, sidewalks are recommended within the street right-of-way on interior roads in the North End Cap. Sidewalks will be buffered from vehicular circulation through planting strips and street trees.

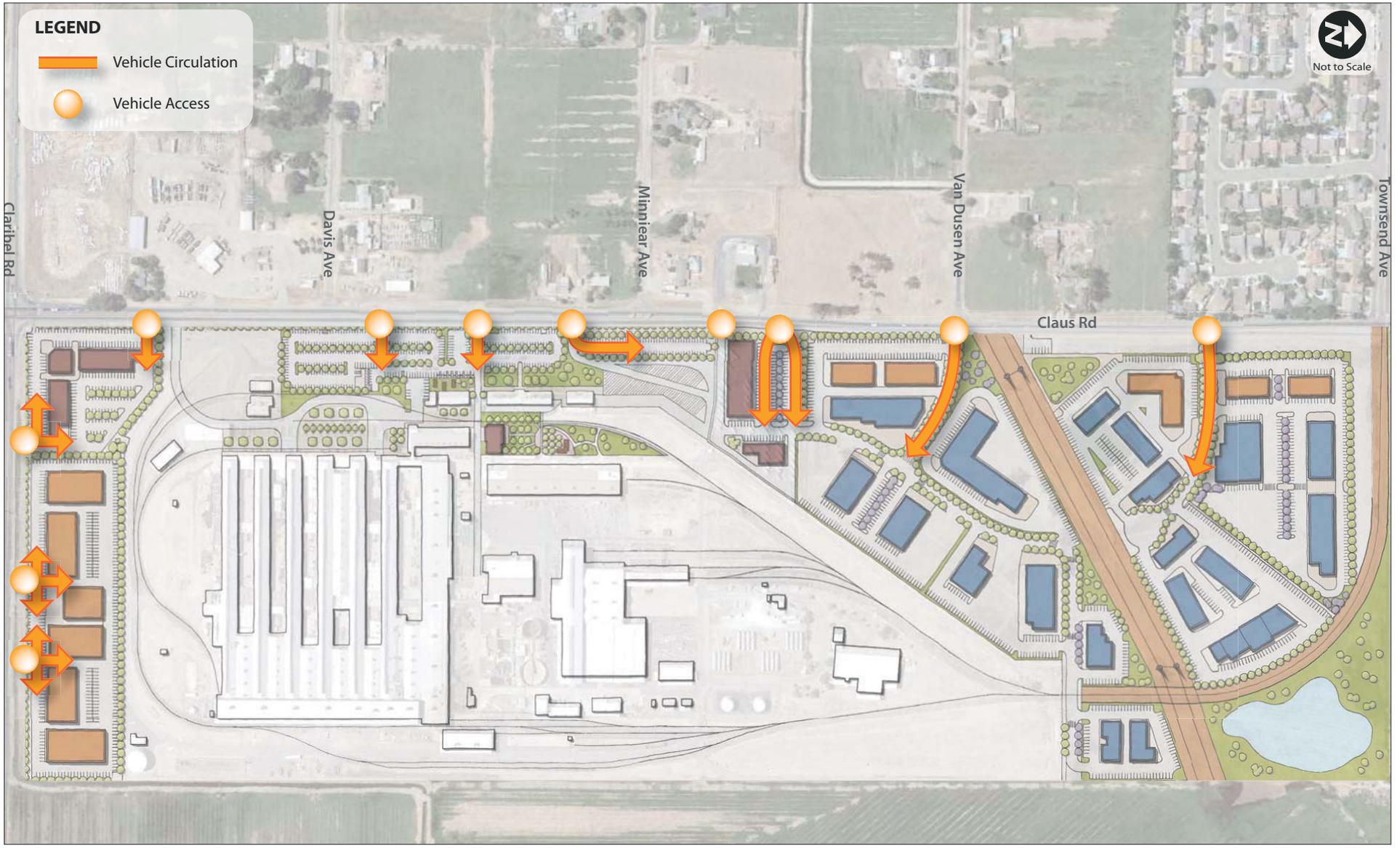


FIGURE 3-5
ROADWAY PLAN

MAIN ACCESS ROADWAYS

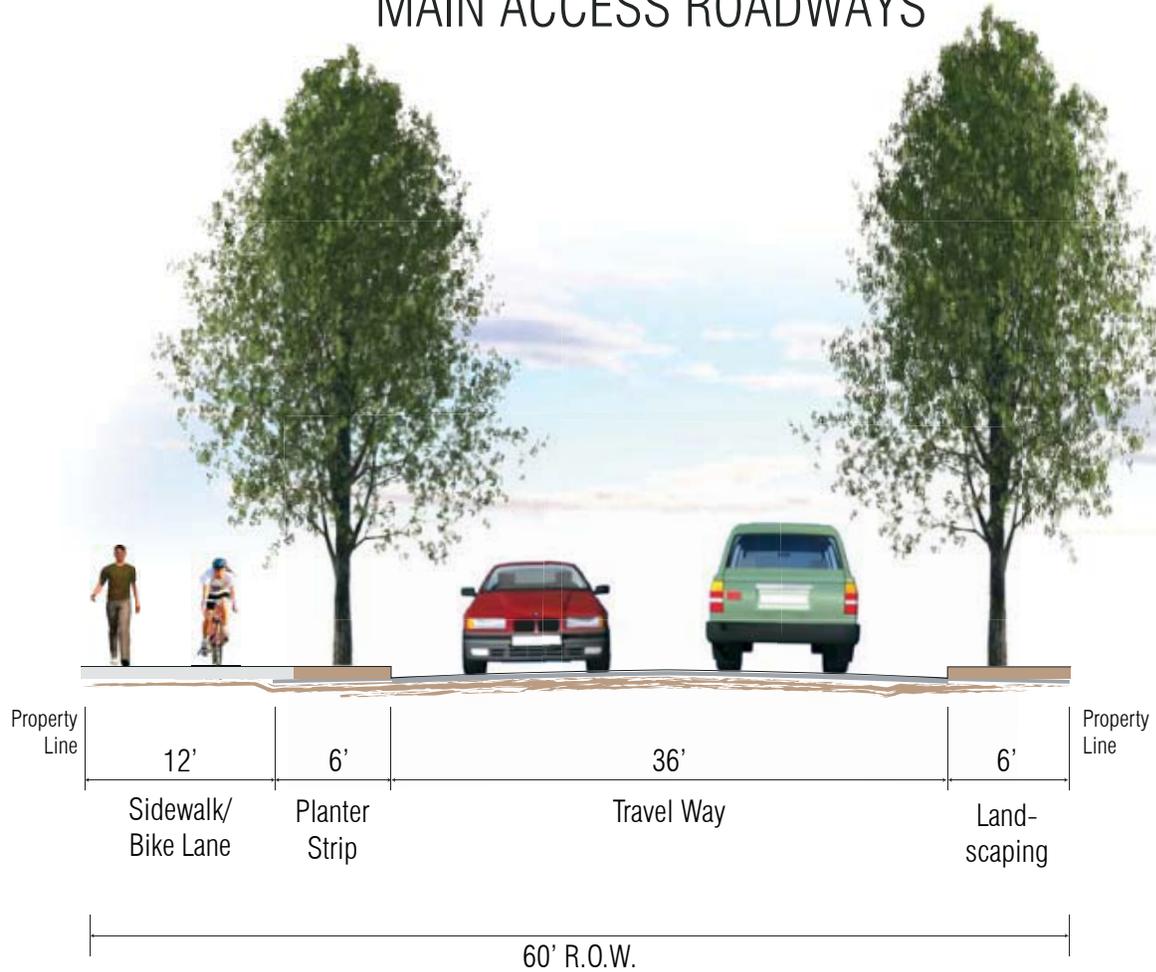


FIGURE 3-6
TYPICAL STREET CROSS-SECTION

- “ **Bicycle Circulation.** Roadway design should accommodate bicycles by providing wide lanes that accommodate bicycles and permit vehicular traffic to safely pass bicyclists. Public bicycle parking should be provided as part of private development and any public open space or amenity.
- “ **Parking.** Parking would likely be provided in surface parking lots for all future development. The Specific Plan requires parking areas to be landscaped and to provide for safe pedestrian access and vehicular circulation. The Specific Plan also limits parking between buildings and streets to improve the aesthetic character of streets and create a more pleasant pedestrian experience for workers and visitors to the RAAP site. As such, the Specific Plan calls for larger parking areas to be provided behind buildings within the interior of sites.

3. Infrastructure Concepts

This section discusses infrastructure improvements proposed for the Specific Plan Area.

- “ **Hetch Hetchy Aqueduct.** The Specific Plan does not propose any changes to the Hetch Hetchy Aqueduct, which is under the jurisdiction of the San Francisco Public Utilities Commission (SFPUC). New development will avoid the 100-foot-wide parcel that is reserved for this infrastructure feature.
- “ **Relocated Oakdale Irrigation District Canal.** The Specific Plan calls for the City to work with the Oakdale Irrigation District (OID) to explore relocating the Oakdale Irrigation Canal, an underground irrigation canal traversing the site, to create more viable development parcels. There are several possible options for relocating the Canal in the northwestern portion of the RAAP site before connecting to its current alignment west of Claus Road as shown in Figure 3-7. While the Specific Plan does not commit the City to implementation of this concept, it does set aside land where the Canal could be relocated in the future.

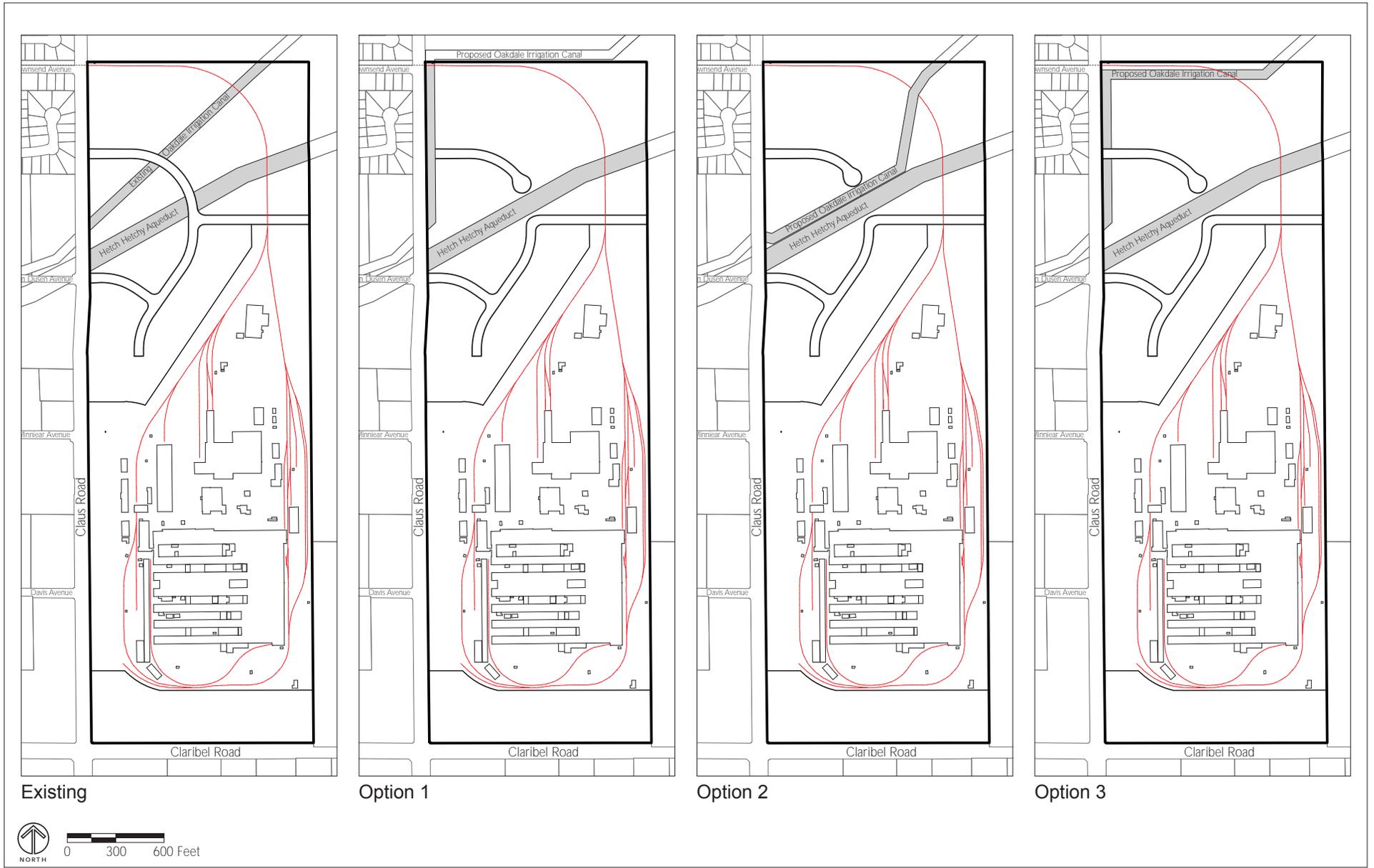


FIGURE 3-7
POTENTIAL OID REALIGNMENT

- “ **Stormwater Pond.** The Specific Plan proposes a number of stormwater management strategies, which could be employed on a project-by-project basis. As discussed above, the City will explore creation of a new stormwater pond at the northeast corner of the RAAP site, which would collect much of the on-site runoff. At present, the Specific Plan proposes expanding the existing on-site stormwater pond, which collects runoff from the existing industrial areas, to accommodate future development.
- “ **On-Site Stormwater Management Concepts.** The Specific Plan proposes several on-site stormwater management strategies that could be employed on a project-by-project basis, depending on project-specific issues and conditions. The Specific Plan recommends several LID techniques, including rain catchments, cisterns, rain gardens, and permeable paving.
- “ **Rail Infrastructure.** The Specific Plan proposes to retain the existing rail line that connects the Burlington Northern Sante Fe (BNSF) rail line to the privately operated rail line on the RAAP site. If feasible, the rail line could be improved or expanded to create additional spurs that connect to buildings. It could also potentially be expanded to create a “team track” that allows for the loading and unloading of shipments between trucks and rail cars. While the Specific Plan does not call for any of these improvements, it acknowledges that they may be desired in the future.

4. Specific Plan Goals, Policies and Standards

The following goals, policies, and standards are set forth in the Specific Plan to implement the concepts and recommendations discussed above.

- “ **Goals and Policies.** The Specific Plan outlines a clear set of goals and policies addressing future development in the Plan Area. Goals are statements that represent a specific condition or end state that would fulfill the vision and concepts outlined in the Specific Plan. Each goal is accompanied by a set of policies that help guide decision-making as statements of City regulation. Goal and policy topics include economic development, land use and community design, transportation and circulation, and public facilities and services. Future development proposals and public im-

provements in the Specific Plan Area would be evaluated for consistency with the Plan's goals and policies.

- “ **Land Use Designations.** The proposed land use designations, shown in Figure 3-8, specify a range of typical allowed land uses.
- “ **Land Use Regulations and Development Standards.** To implement the design goals for the Specific Plan Area, the Specific Plan contains tailored development standards that regulate the permitted uses and conditional uses and provide parameters for the physical character of buildings, site design, landscaping, and other components of site planning and architectural design.
- “ **Design Standards and Guidelines.** The Specific Plan also provides a set of required design standards, as well as flexible design guidelines for public improvements and private development. The design standards and guidelines provide a range of design recommendations, including guidance on public rights-of-way, site planning, building materials and design, landscaping, signage and other features.

E. General Plan Amendments

The proposed project includes amendments to the Riverbank General Plan, to ensure consistency between the Specific Plan and the existing General Plan, as required by State law. For the purposes of analysis in this EIR, it is assumed that the General Plan Amendments only apply to the Specific Plan Area. The proposed General Plan land use designations for the Specific Plan Area are shown in Figure 3-8.

In addition, a revision to General Plan Figure DESIGN.36 is required to add the Claus/Claribel intersection as an additional gateway.



FIGURE 3-8

F. Zoning Amendments

This section describes amendments to the Zoning Ordinance necessary to implement the vision outlined in the Specific Plan.

The Specific Plan contains a chapter identifying development standards for new projects within the Plan Area. The development standards will modify the allowable uses and development standards in the existing Zoning Ordinance. The proposed project includes a zoning overlay district that will be added to the existing Zoning Ordinance. The zoning overlay district boundaries will be consistent with the Specific Plan Area. For those provisions not modified by the Specific Plan, the similar zoning classifications in the City's existing Zoning Ordinance will apply. Should conflicts exist between the Specific Plan and Zoning Ordinance, the provisions in the Specific Plan will apply.

G. Agency Consultation Requirements

California Senate Bill 18 (2004) mandates that Cities contact and consult with California Native American tribes in preparation of Specific Plans. Tribal consultation has been undertaken for the Specific Plan.

The City and its LRA will pursue delisting the RAAP site as a Superfund site by working with the U.S. Environmental Protection Agency (EPA), the California Environmental Protection Agency (Cal/EPA), and the California Department of Toxic Substances Control (DTSC).

H. Required Permits and Approvals

The proposed project will require the following permitting and approval actions:

- Certification of the EIR by the Riverbank City Council.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SPECIFIC PLAN EIR
PROJECT DESCRIPTION

- “ Adoption of the RAAP Specific Plan by the Riverbank City Council.
- “ Adoption of a series of General Plan amendments by the City Council to ensure required consistency between the Riverbank General Plan and the Specific Plan.
- “ Adoption of the Specific Plan’s Development Standards by the City Council as a zoning overlay district for the Plan Area.

4 ENVIRONMENTAL EVALUATION

This chapter evaluates the direct, indirect, and cumulative environmental impacts of the Plan by examining the following environmental issue areas:

- “ Aesthetics
- “ Agriculture and Forestry Resources
- “ Air Quality
- “ Biological Resources
- “ Cultural Resources
- “ Geology and Soils
- “ Greenhouse Gas Emissions
- “ Mineral Resources
- “ Hazards and Hazardous Materials
- “ Hydrology and Water Quality
- “ Land Use and Planning
- “ Noise
- “ Population and Housing
- “ Public Services
- “ Recreation
- “ Transportation and Traffic
- “ Utilities and Service Systems

A. *Chapter Organization*

This chapter consists of 17 sections that evaluate the environmental impacts of the proposed Project. Each issue area uses the same format and consists of the following subsections:

- “ The *Regulatory Setting* section describes which local, State and/or federal regulations are applicable to the Plan.
- “ The *Existing Conditions* section describes current conditions with regard to the environmental factor reviewed.
- “ The *Standards of Significance* section describes how an impact is judged to be significant in this EIR. These standards are derived from CEQA Appendix G Guidelines unless stated otherwise.

- “ The *Impact Analysis* assesses potential impacts (direct and indirect), and tells why impacts were found to be significant or less than significant. The impact determination is summarized at the end of the checklist heading, and impact statement, as *SU (Significant and Unavoidable)*, *LTS with Mitigation (Less than Significant with Mitigation)*, *LTS (Less than Significant)*, and *NI (No Impact)*.
- “ The *Cumulative Impacts* section analyzes impacts that the Plan may have when considered in addition to other past, present, and reasonably foreseeable projects. (See further discussion below.)
- “ The *Impacts and Mitigation Measures* section numbers and lists identified impacts, and presents measures that would mitigate each impact. In each case, the significance following mitigation is also explained.

B. 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 projects causing related impacts. 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.”

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 projects is not significant, the EIR must briefly indicate why the cumulative impact is not significant.

The CEQA Guidelines provide two approaches to analyzing cumulative impacts. The first is the “list approach,” which requires a listing of past, present, and reasonably anticipated future projects producing related or cumulative impacts. The second is the projections-based approach, which summarizes the relevant growth projections contained in an adopted General Plan or re-

lated planning document that is designed to evaluate regional or area-wide conditions. A reasonable combination of the two approaches may also be used.

The cumulative impact analysis in this Draft EIR uses a projections-based approach. For some environmental topics (such as traffic, air quality, greenhouse gas emissions), a greater geographic extent is used for the cumulative analysis and foreseeable development projects outside of the City of Riverbank are taken into consideration.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SPECIFIC PLAN EIR
ENVIRONMENTAL EVALUATION

4.1 AESTHETICS

This chapter discusses the existing aesthetic character of the Plan Area and evaluates the potential impacts to aesthetics associated with the RAAP Specific Plan. The following evaluation assesses visual character, scenic vistas, scenic highways, and light, and glare.

A. Regulatory Framework

This section summarizes key State and city regulations and programs related to aesthetics at the RAAP site. There are no federal regulations pertaining to aesthetics that apply to this project.

1. California Scenic Highway Program

The California Scenic Highway Program, maintained by the California Department of Transportation (Caltrans), protects scenic State highway corridors from changes which would diminish the aesthetic value of lands adjacent to the highways. According to the California Scenic Highway Program, there are no State-designated scenic highways within the Planning Area.¹

2. City of Riverbank General Plan

The Riverbank General Plan includes several goals and policies that relate to aesthetics. Table 4.1-1 lists these goals and policies.

3. Riverbank Municipal Code

In addition to the existing General Plan, the City of Riverbank's Municipal Code regulates the form and character of development in the city through the Land Use Code, the Building and Construction Code, and the Grading Ordinance.

¹ California Department of Transportation website, Officially Designated State Scenic Highways, <http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm>, accessed March 10, 2010.

TABLE 4.1-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO
 AESTHETICS

Goal/Policy Number	Goal/Policy Content
Goal DESIGN-2	Amenities and features along neighborhood residential and commercial streets that accommodate all travel modes
Policy DESIGN- 2.5	The City will require visually attractive streetscapes with street trees and sidewalks on both sides of streets, planting strips, attractive transit shelters, benches, and pedestrian scale streetlights in appropriate locations.
Goal DESIGN-11	Urban design of commercial projects and neighborhood centers enhance the character of the city
Policy DESIGN- 11.1	The City will support urban design programs that incorporate public and semi-public improvements to enhance the connections among special activity districts. Improvements may include, but should not be limited to, public spaces, parks and plazas, pedestrian walkways, and crosswalk definition.
Policy DESIGN- 11.2	The City will require the use of durable, high quality building materials to lower maintenance and replacement needs and ensure the aesthetic appeal of new development.
Goal DESIGN-13	New industrial and bulk retail developments consider human scale
Policy DESIGN- 13.1	Approved plans, projects, and subdivision requests shall reduce the overall perceived size and scale of large projects through such means as sensitive massing, articulation, and organization of buildings; the use of color and materials; and the use of landscaped screening.
Policy DESIGN- 13.2	The City will encourage the use of public art, in particular murals and integrated designs in wall architecture, to add visual interest and to break up the monotony of unarticulated walls of large industrial buildings.
Policy DESIGN- 13.3	The City will encourage small-scale, pedestrian-oriented commercial uses that serve the industrial district's employee population with sensitivity to potential conflicts with truck and automobile transportation modes.
Policy DESIGN- 13.4	New industrial projects shall incorporate innovative site design and treatment of surface parking areas in order to avoid the appearance of a sea of asphalt and reduce storm water runoff and increase percolation.

TABLE 4.1-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO AESTHETICS (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Goal DESIGN-14	Site and building design of industrial and bulk retail projects, consider the context and potential linkages to surrounding area
Policy DESIGN- 14.1	The City will arrange streets in industrial districts as an interconnecting network that facilitates access.
Policy DESIGN- 14.2	Where appropriate, the City will require alternative arrangement or design of buildings to respect the scale of neighboring nonindustrial buildings.
Policy DESIGN- 14.3	When new development, re-development, or maintenance of industrial and bulk retail complexes occurs, the City will require aesthetic and landscaping improvements of facades and entry features oriented to the street that will strengthen the identity of Riverbank.
Policy DESIGN- 14.4	When new development, re-development, or maintenance of industrial and bulk retail complexes occurs adjacent to environmentally-sensitive areas, the City will require landscaping improvements that will maintain or strengthen existing aesthetic qualities and environmental functions.
Goal DESIGN-16	Riverbank protects its natural features.
Policy DESIGN- 16.2	The City will encourage the preservation of healthy, attractive native vegetation during land development. Where this is not possible, the City will require site landscaping that uses appropriate native plant materials.
Goal DESIGN-17	Environmental sensitivity and low-impact development principles in the design and construction of all projects.
Policy DESIGN- 17.2	Lighting in development projects shall include low, pedestrian scaled, ornamental street lights, and shall otherwise design lighting as to prevent glare and spillover onto adjacent properties and to prevent any glare that could affect motorists or bicyclists.
Goal DESIGN-18	Renewable resource use and energy-efficiency in site and architectural design
Policy DESIGN-18.1	The City will promote safe and sustainable energy collection and distribution systems that draw from renewable energy sources.
Policy DESIGN-18.2	The City will encourage passive and natural lighting systems in architectural design to conserve electricity.

TABLE 4.1-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO
 AESTHETICS (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Policy DESIGN-18.3	The City will encourage building-site orientation, articulated windows, roof overhangs, appropriate insulation materials and techniques, and other architectural features that allow for improved passive interior climate control.
Policy DESIGN-18.4	The City will ensure that municipal buildings are LEEDTM certified and promote LEEDTM certification of multi-family, commercial, and industrial properties.
Goal DESIGN-19	Water quality is protected throughout the development process and occupation of the site
Policy DESIGN-19.1	The City will establish site design criteria for allowing natural hydrological systems to function with minimum or no modification.
Policy DESIGN-19.2	The City will promote the use of rain gardens, open ditches or swales, and pervious driveways and parking areas in site design to maximize infiltration of storm water and minimize runoff into environmentally critical areas.
Policy DESIGN-19.3	The City will promote inclusion of passive rainwater collection systems in site and architectural design for non-potable water (gray-water) storage and use, thereby saving potable (drinking) water for ingestion.
Goal CONS-7	Maintain and increase public access to Riverbank's scenic resources
Policy CONS- 7.5	The City will coordinate with the City of Oakdale to implement policies to preserve open space for scenic and other benefits in the Scenic Highway 108 corridor (see Figure CONS-2).
Policy CONS- 7.6	Lighting shall be designed to avoid glare, prevent light spillage onto adjacent properties, avoid adverse impacts to nocturnal wildlife, and avoid light pollution that would contribute light to the nighttime sky.

a. Land Use Code

Title 15, Chapter 153 of the Riverbank Municipal Code establishes eleven classes of district which regulate the heights and bulk of buildings, as well as the area of yards and other open spaces around buildings. Development standards for the Light Industrial Zone include a requirement that proposed

buildings be subject to site plan review by the Planning Commission prior to issuance of a building permit.

b. Building and Construction Code

Title 15, Chapter 150 of the Riverbank Municipal Code regulates the building and construction requirements in the city. Several standard codes have been incorporated by reference, including the Uniform Building Code, the Uniform Housing Code, the Uniform Code for Building Conservation, the Uniform Code for Building Conservation, and the Uniform Code for Solar Energy Installations.

c. Grading Ordinance

Title 15, Chapter 155 of the Riverbank Municipal Code regulates grading and excavation activities in the city, establishing performance standards applicable on public and private lands. These regulations are designed to conserve the general visual character of grading/clearing sites and settings; enhance the aesthetic value of new development; conserve the aesthetic value of surrounding properties; and reduce propagation of noxious weeds.

B. Existing Conditions

1. Visual Character

The project site is located on Claus Road, north of Claribel Road. In total, the site occupies 146 acres. The Riverbank Army Ammunition Plant itself occupies only 98 acres of the total area. The remainder is made up of former grazing lease land and other undeveloped areas. The Oakdale Irrigation Canal and Hetch Hetchy Pipeline both run through undeveloped portions of the site. The area to the south and east of the site contains farmlands in active use. To the west of the site there are medium and low-density residential neighborhoods within the City of Riverbank.

In total, there are 191 structures on the site. The production facilities are located at the south end of the site. Buildings 1 to 6, which housed aluminum production and later shell casing production lines, are laid out from east to

west in parallel lines. The majority of the remaining buildings are clustered nearby to the north. Near the main gates on Claus Road is a grouping of administrative buildings and on-site visitor parking.

With the exception of the administrative buildings, which show greater attention to architectural detail, the buildings on the site are stark, utilitarian, and industrial, mostly constructed of corrugated steel with steel-frame construction and large, open interior spaces. While Buildings 1 to 6 are strikingly repetitive in scale and design, they do not dominate views on the ground. The property is characterized by dense construction, a variety of building heights, forms, and materials, and the myriad network of pipes, tanks, machines, rail lines, roads, and other utilities serving and connecting the structures. Views of within the RAAP site are shown in Figure 4.1-1. Support structures on the site include a series of small buildings and sheds, most of them entirely of steel construction with minimal or no windows. These support structures are notable for their utilitarian design. Their placement is almost exclusively functional, sometimes a short distance from a much larger building and sometimes isolated in an open area.

The administration building grouping is unique in its form and location. These brick gable- and hip-roof buildings are domestic in scale, at one standard story, as well as in form. Regular fenestration, originally matching typical double-hung windows, and a prominent location just inside the gate to the plant give the buildings a civilian and non-industrial character, which acts in part as a buffer between the large scale manufacturing buildings and structures of the plant and the agrarian and residential landscape outside it.

2. Scenic Vistas

The Riverbank General Plan emphasizes the importance of scenic views along the Stanislaus River and includes Policy CONS-7.1 which aims to improve public access to areas along the Stanislaus River where scenic views are available. The General Plan does not designate any other scenic vistas.



FIGURE 4.1-1
VIEWS WITHIN THE RAAP SITE

3. Scenic Highways

The 28-mile stretch of Interstate 5, running through Stanislaus County from the Merced County Line north to the San Joaquin County Line, is an Officially Designated State Scenic Highway. Interstate 5, which is about 20 miles west of the project site, runs parallel to the Delta-Mendota Canal and the California Aqueduct, which transformed portions of the Central Valley from semi-desert land into a thriving agricultural area. No other roadway segments in the county are officially designated or identified as eligible for designation as a scenic highway in the California Scenic Highway Mapping System.²

4. Light and Glare

Light pollution refers to all forms of unwanted light in the night sky, including glare, light trespass, sky glow, and overlighting. Excessive light and glare can also be visually disruptive to humans and nocturnal animal species, and often indicate an unnecessarily high level of energy consumption. Current sources of light at the RAAP site include the existing structures and security lighting.

Glare is mainly the result of the sun reflecting off surfaces such as glass windows in buildings, the windshields of vehicles in surface parking lots, or warehouse roof-tops and other light-colored surfaces. Trees or vegetative cover can serve to lessen the effects of glare. The southern portion of the site has almost no vegetative cover, and there are many sources of glare on-site, including vehicles in surface parking lots, metallic structures on the roofs of site buildings, large expanses of concrete between buildings, silver-colored hazardous waste storage tanks, glass windows, and flat, light-colored roof-tops.

² CalTrans, California Scenic Highway mapping System, http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm, accessed on February 15, 2012.

C. Standards of Significance

The RAAP Site Specific Plan would have a significant aesthetics impact if they would:

- a. Have a substantial adverse effect on a scenic vista.
- b. Substantially degrade the view from a scenic highway, including, but not limited to, trees, rock outcroppings, and historic buildings.
- c. Substantially degrade the existing visual character or quality of the site and its surroundings.
- d. Expose people on- or off-site to substantial light or glare.

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative aesthetic impacts that could occur as a result of implementation of the RAAP Site Specific Plan.

1. Project Impacts

- a. Have a substantial adverse effect on a scenic vista.

The Plan would have a significant environmental impact if it would substantially, demonstrably, and negatively affect the scenic views identified in the Riverbank General Plan. As described above, the General Plan emphasizes the importance of scenic views along the Stanislaus River, but no other scenic views are identified in the Riverbank General Plan. Implementation of the Plan would not impact scenic views along the Stanislaus River, and therefore there would be *no impact* on General-Plan-designated scenic views.

- b. Substantially degrade the view from a scenic highway, including, but not limited to, trees, rock outcroppings, and historic buildings.

The Plan Area is located approximately 20 miles to the east of Interstate 5, an Officially Designated State Scenic Highway, as it runs through Stanislaus County from the Merced County Line north to the San Joaquin County

Line. It is not visible from Interstate 5. Therefore, buildout of the Plan would have *no impact* on views from a scenic highway.

- c. Substantially degrade the existing visual character or quality of the site and its surroundings.

The existing visual character of the RAAP site is predominantly industrial. The site's visual character is composed of corrugated metal warehouses, chillers, smokestacks, water and gas storage tanks, the metal tubing, and electrical wiring. Viewing the site is possible from all directions surrounding the property, through barbed wire fences.

Surrounding the RAAP site are low- and medium-density residential neighborhoods. The boundary between the RAAP site limits and the adjacent residences is abrupt and striking. The industrial warehouse character of the RAAP site is buffered from the neighboring residences by fallow grass fields and fences. The character of the industrial site presents a significant contrast to the surrounding residential area. The single-family homes belong to recently-built subdivisions, with architectural appeal and maintained landscaping.

The RAAP Site Specific Plan contains several policies that address potential aesthetic impacts. Policy LUD-2 ensures that new development follows standards and guidelines for architectural and landscape design included in the Specific Plan. Additionally, Policy LUD-3 ensures that new development should respond appropriately to adjacent development, particularly residential neighborhoods through screening, setbacks, and other mechanisms. Policy LUD-4 encourages significant climate-appropriate landscaping along frontages as part of private development, and Policy LUD-5 encourages appropriate setbacks, screening, and landscaping along Claus Road, Claribel Road, and the anticipated Central Avenue extension. Finally, Policy LUD-6 states that all entries to the North End Cap property and Riverbank Industrial Complex should be accentuated with gateway features, such as special landscaping, building accents, signage, open space, or other design features. Taken together, the implementation of the RAAP Site Specific Plan would provide a

beneficial impact to the existing visual character or quality of the site and its surroundings.

d. Expose people on- or off-site to substantial light or glare.

Development and improvements recommended in the Specific Plan could have an adverse effect on day or nighttime views by contributing to substantial light or glare. New development could introduce additional nighttime lighting, particularly for commercial uses. As described above, the southern portion of the site has many sources of glare on-site, including vehicles in surface parking lots, metallic structures on the roofs of site buildings, large expanses of concrete between buildings, silver-colored hazardous waste storage tanks, glass windows, and flat, light-colored roof-tops.

However, the Riverbank General Plan contains policies that would mitigate these potential impacts. As listed in Section A.2 above, Policy DESIGN-17.2 states that lighting in development projects shall include low, pedestrian scaled, ornamental street lights, and shall otherwise prevent glare and spillover onto adjacent properties and to prevent any glare that could affect motorists or bicyclists. Additionally, Policy CONS-7.6 states that lighting shall be designed to avoid glare, prevent light spillage onto adjacent properties, avoid adverse impacts to nocturnal wildlife, and avoid light pollution that would contribute light to the nighttime sky. The Design Guidelines of the RAAP provides significant guidance for exterior lighting, including design, height, and operation. The Design Guidelines call for at least 75 percent of a building's front façade and at least 25 percent of all other building façades to consist of non-metallic surfaces and encourage trees and vegetation on-site, which would lessen the effects of glare. Taken together, implementation of the Riverbank General Plan and the RAAP Site Specific Plan would result in a *less-than-significant* impact from substantial light or glare.

2. Cumulative Impacts

This section analyzes potential impacts to aesthetics and visual quality that could occur from a combination of the Plan with other reasonably foreseeable projects in the surrounding area. For this analysis, the area of potential

effect is taken as the City of Riverbank and the unincorporated portions of Stanislaus County to the south and east of the Plan Area. A cumulative impact would be considered significant if, taken together with past, present and reasonably foreseeable projects in area of potential effect, it would result in a substantial adverse effect on a designated scenic vista, a degradation of the view from a scenic highway, exposure of people on- or off-site to substantial light or glare, or if it would result in a substantial degradation of the visual quality or character of the Plan Area and its surroundings.

As noted above, the Specific Plan would have no impact on scenic vista or views from a scenic highway, so it would not contribute to cumulative impacts. The Riverbank General Plan policies listed in Table 4.1-1 in the Riverbank General Plan are enhanced by the policies included in the Specific Plan with respect to aesthetics. The requirements and recommendations in the RAAP Site Specific Plan are intended to improve the visual and aesthetic character of the site, resulting in beneficial impacts. Therefore, the RAAP Site Specific Plan would result in a *less-than-significant* cumulative impact on aesthetic resources.

E. Impacts and Mitigation Measures

Since there are no significant impacts related to aesthetics as a result of the RAAP Site Specific Plan, no mitigation measures are required.

4.2 AGRICULTURE AND FORESTRY RESOURCES

This chapter discusses agricultural resources in and around the Plan Area and evaluates the potential impacts to agricultural and forest resources associated with implementation of the RAAP Specific Plan. The following evaluation assesses farmland and forestland conversion, Williamson Act contracts, and changes in the physical environment that could contribute to farmland and forestland conversion.

A. Regulatory Framework

This section summarizes key State and local regulations, policies and programs pertaining to agriculture and forestry in the RAAP Plan Area.

1. State Regulations

a. Farmland Mapping and Monitoring Program

Within the California Natural Resources Agency, the State Department of Conservation 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), which supports agriculture throughout California by developing maps and statistical data for analyzing land use impacts to farmland. 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 1 unit to 1.5 acres, or approximately 6 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, brush, timber, wetlands, riparian areas not suitable for livestock grazing, confined livestock, poultry, aquaculture facilities, and strip mines. Vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as other land.
- “ **Water** is used to describe perennial water bodies with an extent of at least 40 acres.

b. Williamson Act

The California Land Conservation Act, better known as the Williamson Act, preserves agricultural and open space lands through property tax incentives and voluntary restrictive use contracts administered by the County under State regulations. Private landowners voluntarily restrict their land to agricultural and compatible open space uses under minimum 10-year rolling term contracts, with counties and cities also acting voluntarily. In return, restricted parcels are assessed for property tax purposes at a rate consistent with their

actual use, rather than potential market value.¹ Local governments receive an annual subvention of forgone property tax revenues from the State via the Open Space Subvention Act of 1971.

c. Z'Berg Nejedly Forest Practice Act

The 1973 Z'Berg Nejedly Forest Practice Act (FPA) is the primary governing statute on matters related to forestry in the State of California. The FPA requires an owner of timberland who wishes to harvest timber for commercial purposes to submit one of several types of timber harvest plans, depending on the nature of the operation and the type of landowner involved, to the California Department of Forestry and Fire Protection (CDF) for its review and approval.

d. Timberland Productivity Act

California has also enacted the 1976 Timberland Productivity Act (TPA), which establishes a special zoning designation for commercial timberland that restricts the use of such land to timberland production and compatible uses and which offers certain tax advantages.

e. California Forest Practice Rules

The purpose of the Forest Practice Rules is to implement the provisions of the Z'Berg-Nejedly Forest Practice Act in a manner consistent with other laws, including but not limited to, the Timberland Productivity Act, the California Environmental Quality Act (CEQA), the Porter Cologne Water Quality Act, and the California Endangered Species Act. The California Forest Practice Rules protect the forest and associated resources on non-Federal lands from depletion and degradation through specific rules applicable to timber harvest planning and operations. These detailed rules apply whenever forest products are sold, bartered, exchanged, or traded.

¹ California Department of Conservation, 2002. *California Land Conservation (Williamson) Act Status Report*, page 1.

2. Local Regulations

a. City of Riverbank General Plan

The Riverbank General Plan includes several goals and policies that relate to agricultural resources. Table 4.2-1 lists these goals and policies.

b. Sustainable Agricultural Strategy

General Plan Policy CONS-3.1 calls for the City to prepare a Sustainable Agricultural Strategy so as to minimize the loss of agricultural production to urban development through annexation to Riverbank and to ensure that, on a regional level, there is no significant net loss of agricultural production within the Stanislaus River Watershed. The Strategy would provide a roadmap for decision-makers, laying out guidance for reasonably balancing the economic, social, and environmental benefits of a proposed project with the need to conserve the agricultural production of the Stanislaus Watershed.

As of April 2011, the Sustainable Agricultural Strategy had not yet been prepared; however, a Draft Sustainable Agricultural Strategy Report was produced by the Sustainable Agricultural Committee in January 2010. The Draft Report recommends the use of the California Agricultural Land Evaluation and Site Assessment (LESA) Model prepared by the California Department of Conservation as an objective-based system for identifying impacts to agricultural resources. Appendix G of CEQA also recommends the LESA Model for determining the significance of impacts to agricultural resources.

B. Existing Conditions

This section discusses the existing conditions pertaining to agricultural and forest resources in the Plan Area.

Riverbank and the Plan Area are located in California's Central Valley, one of the most highly productive agricultural regions in the world.² The region produces high-value agricultural products, including fruits, vegetables, nuts, meats, and dairy products.³ Sales of agricultural commodities from the Central Valley account for 6.5 percent of all agricultural commodities sold nationwide. The economic productivity and diversity of agricultural commodities from the Central Valley is a result of the region's high quality agricultural land.

Generally in Riverbank, soils on the west side of the city are more conducive to long term agricultural production than those on the east side.⁴ East side soils are generally less productive as farmland, and as a result, east side property owners have tended to subdivide their land into ranchettes so as to maximize investment return. By contrast, west side properties have generally remained in large parcels and in active agricultural use.

1. Farmland of Concern

Agricultural land exists within and surrounding the City of Riverbank. Under CEQA, farmland of concern is Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. These categories are defined according to the United States Department of Agriculture land inventory and monitoring criteria, as modified for California. Approximately 62 percent (5,351 acres) of land within the City of Riverbank sphere of influence is made up of farmland of concern, including almost 40 percent (3,431 acres) consists of Prime Farmland as defined by the FMMP.⁵ As shown in Figure 4.2-1, most land to the west of Riverbank is Prime Farmland, while land to the east and southeast of

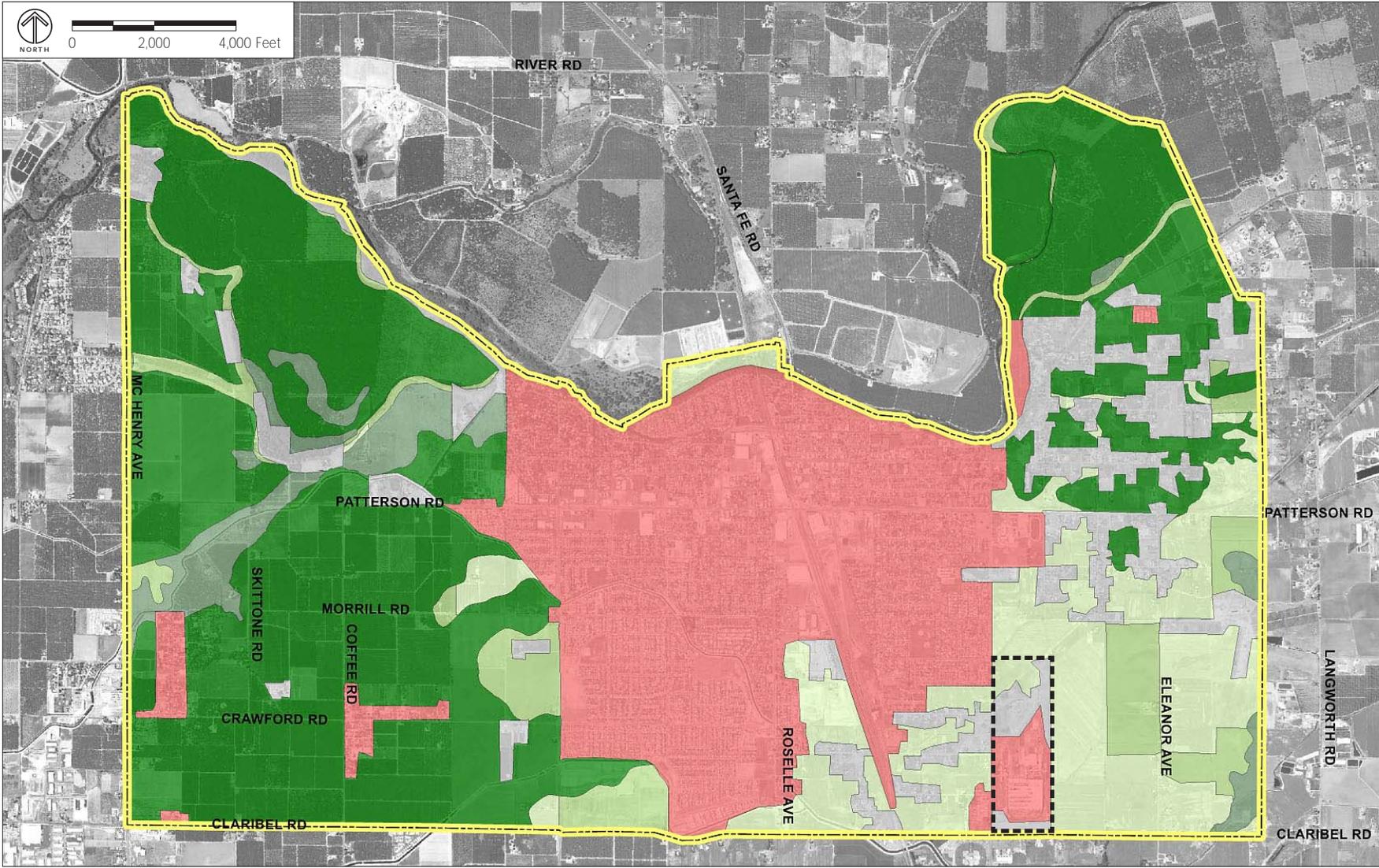
² For the purposes of this EIR, the Central Valley is comprised of the following eleven California counties: Fresno, Kern, Kings, Madera, Merced, Sacramento, San Joaquin, Stanislaus, Sutter, Tulare, and Yolo.

³ United States Department of Agriculture, 2009. *2007 Census of Agriculture*.

⁴ City of Riverbank, 2010. *Draft Sustainable Agricultural Strategy Report*.

⁵ City of Riverbank, 2005. *City of Riverbank General Plan Draft Environmental Impact Report*, page 4.3-10.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
 RAAP SPECIFIC PLAN EIR
 AGRICULTURE AND FORESTRY RESOURCES



Source: City of Riverbank General Plan EIR.

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- RAAP Site
- Farmland of Local Importance
- Urban and Built-Up Land
- Other Land
- Planning Area

FIGURE 4.2-1
 IMPORTANT FARMLAND

the city is generally Farmland of Local Importance or Unique Farmland.⁶ Farmland to the west of Riverbank is generally used for fruit and nut orchards; to the south and east it is used as pastureland. There is no farmland of concern in the Plan Area.

2. Williamson Act Land

There is no land under active Williamson Act contract in the Plan Area. However, parcels to the north, east, and south of the Plan Area are protected under the Williamson Act. Stanislaus County has almost 700,000 acres protected by the Williamson Act, by a Farmland Security Zone, by an agricultural conservation easement, or by some other restriction on the conversion of agricultural uses.⁷ Stanislaus County ranks seventh among California counties for the most acres protected under the Williamson Act.

3. Other Agricultural Land

Historically, before the establishment of the RAAP, the Plan Area was used for agriculture.⁸ After military purchase in 1942, the majority of the agricultural land on the site was developed; however, 20 acres at the northern end of the Plan Area remained as open space. Since closure of the base, the area has been leased to local farmers as grazing land. Under the FMMP, this land is designated as Farmland of Local Importance.⁹ Adjacent land immediately to the north and east of the Plan Area is similarly designated.

⁶ City of Riverbank, 2005. *General Plan Update Background Report: Land Use, Population, and Agricultural Resources*, page LAND-14.

⁷ City of Riverbank, 2005. *City of Riverbank General Plan Draft Environmental Impact Report*, page 4.2-2.

⁸ U.S. Army Corps of Engineers: Mobile District, 2009. *Environmental Assessment for BRAC 05 Disposal and Reuse of the Riverbank Army Ammunition Plant, California*, page 4-4.

⁹ Farmland Mapping and Monitoring Program, "Northern Stanislaus County," http://redirect.conservation.ca.gov/DLRP/fmmp/county_info_results.asp, accessed on April 12, 2011.

4. Forest Land

Forest land is defined, according to the California Public Resources Code Section 12220, as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The Plan Area currently contains very few trees and there is no forest land meeting this definition within the Plan Area.

C. Standards of Significance

The RAAP Specific Plan would have a significant impact on agriculture if it would:

- a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (or “farmlands of concern under CEQA”), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- b. Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).
- d. Result in the loss of forest land or conversion of forest land to non-forest use.
- e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or of conversion of forest land to non-forest use.

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative agricultural and forest resource impacts that could occur as a result of implementation of the RAAP Site Specific Plan.

1. Project Impacts

- a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (or “farmlands of concern under CEQA”), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

As shown in Figure 4.2-1, the Plan Area does not contain any areas of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The areas of Farmland of Local Significance in the Plan Area are not considered farmland of concern under CEQA. Therefore implementation of the Plan would result in *no impact* with respect to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

- b. Conflict with existing zoning for agricultural use, or a Williamson Act contract.

The General Plan land use designation for the principal site is Industrial/Business Park (I/BP). Surrounding land use designations include Medium Density Residential (MDR), Low Density Residential (LDR), and Community Commercial (CC). There are no Agricultural Resource Conservation Areas (AG) in the immediate vicinity of the Plan Area. Further, neither of the two non-contiguous sites that make up the Plan Area contains Williamson Act parcels. Therefore, implementation of the Plan would no conflict with existing agricultural zoning or Williamson Act contracts and there would be *no impact*.

- c. Conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.

There are no timber resources in Riverbank, so the City of Riverbank Zoning Ordinance (Municipal Code Title XV, Chapter 153) does not establish zoning for either forest or timberland. Therefore, implementation of the Plan would

not conflict with existing zoning for forest or timberland and there would be *no impact*.

- d. Result in the loss of forest land or conversion of forest land to non-forest use.

The Plan Area currently contains very few trees and buildout of the Plan would not result in conversion of forest land in this area. Consequently, there would be *no impact* with respect to conversion of forest land as a result of Plan implementation.

- e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or of conversion of forest land to non-forest use.

- i. *On-site conversion of farmland.*

As described above, a portion of the Project Area, approximately 20 acres in size, is designated as Farmland of Local Importance under the FMMP. This land is currently leased to local farmers for grazing; however, with implementation of the proposed Plan, this land would be redeveloped as an industrial/business park, featuring light industrial uses, landscaping, and structures housing research and development activities as described in Chapter 3 of this EIR. In order to determine whether this conversion of agricultural land to non-agricultural uses would be considered a significant environmental impact, the LESA model was used, pursuant to CEQA Appendix G and the City of Riverbank Draft Sustainable Agricultural Committee Report of January 2010.

The LESA model is a point-based system used to rate the relative value of agricultural land resources. The model measures two separate sets of factors: Land Evaluation (LE) factors, which includes factors that measure the inherent soil based qualities of land as they relate to agricultural suitability; and Site Assessment (SA) factors, which includes factors that are intended to measure social, economic, and geographic attributes that also contribute to the overall value of agricultural land. For a given project, each factor is separately rated on a 100 point scale, then weighted relative to the others, and combined to derive a single numeric score out of a maximum attainable score

of 100 points. A LESA score of 39 points or less is not considered significant under CEQA. A significant environmental impact would result with a score of:

- 40 to 59 points, only if LE and SA sub-scores are each greater than or equal to 20 points
- 60 to 79 points, unless either LE or SA sub-score is less than 20 points
- 80 to 100 points

The conversion of the 20-acre portion of the Plan Area designated as Farmland of Local Importance would not result in a significant LESA score. Based on the land capability classification and the storie index rating, conversion of the 20-acre portion of the Plan Area would result in an LS subscore of 17.5.

It was not possible to determine the SA subscore given the amount of information available related to water availability and surrounding uses. However, because a weighted factor rating for the project size was determined to be 6, and assuming the other factor areas achieved the highest point values (for a total of 35 points), under a worst case scenario, the SA subscore would total no more than 41 points.

Adding the LS subscore (17.5) to the SA subscore (41) results in a Total LESA Score of 58.5. Accordingly, based on the LESA Model Scoring Threshold above, conversion of the 20-acre portion of the Plan Area would not be considered significant because the point total would be less than 60 and only one subscore is greater than 20 points. As a result, a *less-than-significant* impact would occur.

ii. Off-site conversion of farmland.

Agricultural uses on neighboring lands would not be adversely affected by the establishment of conversion of Farmland of Local Importance in the Plan Area because Williamson Act contracts are in place to preserve agricultural use on these neighboring parcels. Additionally, the Industrial Design Guidelines proposed in the Plan include a stipulation that landscaping be used to buffer and merge various uses. Compliance with these design guidelines

would further reduce the effects of Plan buildout on neighboring agricultural activity.

2. Cumulative Impacts

This section analyzes potential impacts to agricultural and forest resources that could occur from a combination of the Plan with other reasonably foreseeable projects in the surrounding area. The geographic scope of this analysis is taken as the City of Riverbank sphere of influence, as defined in the 2005-2025 Riverbank General Plan. A cumulative impact would be considered significant if, taken together with past, present, and reasonably foreseeable projects in the City of Riverbank sphere of influence, it would result in the conversion of farmland of concern to non-agricultural use, the conversion of forest land to non-forest use, a conflict with existing zoning for agricultural or forest use, a conflict with a Williamson Act contract, or otherwise involve changes in the existing environment which could cause the conversion of farmland to non-agricultural use or forest land to non-forest use.

As described above, implementation of the Plan would not directly result in the conversion of farmland of concern to non-agricultural use or forest land to non-forest use, and therefore would not cause or contribute to an associated cumulative impact. Neither would implementation of the Plan result in a conflict with existing zoning for agricultural or forest use or with a Williamson Act contract on land in the Plan Area. As such, implementation of the Plan would not cause or contribute to a cumulative impact related to conflict with existing zoning or Williamson Act contracts. Implementation of the Plan would not cause rezoning of forest land, timberland, or timberland zoned Timberland Production, and therefore there would be no cumulative impact.

A 20-acre portion of the Plan Area is currently designated as Farmland of Local Importance under the FMMP, and parcels to the north and east of the Plan Area, also designated as Farmland of Local Importance, are under Williamson Act contract. In and of itself, the conversion of the 20-acre portion of the Plan Area to non-agricultural use would not be considered significant

under CEQA by virtue of its LESA score, as detailed above. Additionally, the General Plan designated the RAAP site and surrounding parcels as industrial and anticipated conversion of agricultural land to non-agricultural uses. Although the General Plan EIR determined this loss of agricultural land to be a significant and unavoidable impact, this conversion has already been anticipated through the General Plan.

However, other projects in the vicinity of the RAAP site could convert to non-agricultural use through the implementation of the General Plan for the City of Riverbank. The General Plan EIR identified a significant unavoidable impact resulting from the loss of important farmland resulting from buildout under the General Plan. For this reason, implementation of the RAAP Specific Plan would contribute to a *significant impact* resulting from the conversion of farmland. Overall, cumulative impacts to agricultural and forest resources would be consider *less than significant*.

E. Impacts and Mitigation Measures

Since there are no significant impacts related to agricultural and forest resources as a result of the Plan, no mitigation measures are required.

4.3 AIR QUALITY

This section assesses the air quality impacts associated with implementation of the Specific Plan. Included in this section is background information on air quality and criteria air pollutants, a summary of the regulatory framework that pertains to the Specific Plan, and a summary of existing air quality conditions.

A. Background Information

1. Topographic Considerations

The City of Riverbank (City) is located in the northern portion of the San Joaquin Valley Air Basin. The California Air Resources Board (CARB) defines the boundaries of the basin by the San Joaquin Valley within the Sierra Nevada Mountains to the east, the Coast Ranges in the west, and the Tehachapi mountains in the south. The valley is basically flat with a slight downward gradient to the northwest. The valley opens to the ocean at the Carquinez Straits where the San Joaquin-Sacramento Delta empties into San Francisco Bay. The San Joaquin Valley, thus, could be considered a “bowl” with the primary opening to the north. The surrounding topographic features restrict air movement through and out of the basin and, as a result, impede the dispersion of air pollutants from the basin. Wind flow is usually down the valley from the north, but the Tehachapi Mountains block or restrict the southward progression of airflow. The Sierra Nevada is a substantial barrier from the usual winds that have a general westerly flow. The topographical features result in weak airflow. The flow is further restricted vertically by inversion layers that are common in the San Joaquin Valley air basin throughout the year. An inversion layer is created when a mass of warm dry air sits over cooler air near the ground, preventing vertical dispersion of pollutants from the air mass below. During the summer, the San Joaquin Valley experiences daytime temperature inversions at elevations from 1,500 to 3,000 feet above the valley floor. Airflow is considerably restricted since mountain ranges surrounding the valley are generally above the inversion. These inversions lead to a build-up of ozone and ozone precursor pollutants. During the fall and winter months, strong surface-based inversions occur from 500 to 1,000 feet above the valley floor (SJVAPCD, 1998). Win-

tertime inversions trap very stable air near the surface and lead primarily to a build-up of particulate matter air pollutants. Very light winds are also characteristic with these wintertime surface-based inversions.

2. Air Basin Characteristics

The climate of the Specific Plan Area is characterized by hot dry summers and cool, mild winters. Clear days are common from spring through fall. Daytime temperatures in the summer often approach or exceed 100 degrees, with lows in the 60s. In the winter, daytime temperatures are usually in the 50s, with lows around 35 degrees. Radiation fog is common in the winter, and may persist for days. Partly to mostly cloudy days are common in winter, as most precipitation received in the Valley falls from November through April.

Winds are predominantly up-valley (flowing from the north) in all seasons, but more so in the summer and spring months.¹ In this flow, winds are usually from the north end of the Valley and flow in a south-southeasterly direction, through Tehachapi Pass, into the Southeast Desert Air Basin. Annually, up-valley wind flow (i.e. northwest flow with marine air) is most common, occurring about 40 percent of the time. This type of flow is usually trapped below marine and subsidence inversions, restricting outflow through the Sierra Nevada and Tehachapi Mountains. The occurrence of this wind flow is almost 70 percent of the time in summer, but less than 20 percent of the time in winter. Winter and fall are characterized by mostly light and variable wind flow. Pacific storm systems do bring southerly flows to the valley during late fall and winter. Light and variable winds, less than 10 mph, are common in the colder months.

Superimposed on this seasonal regime is the diurnal wind cycle. In the Valley, this cycle takes the form of a combination of a modified sea breeze-land breeze and mountain-valley regimes. The sea breeze-land breeze regime typically has a modified sea breeze flowing into the Valley from the north during

¹ California Air Resources Board (CARB), 1984.

the late day and evening and then a land breeze flowing out of the Valley late at night and early in the morning. The mountain-valley regime has an upslope (mountain) flow during the day and a down slope (valley) flow at night. These effects create a complexity of regional wind flow and pollutant transport within the Valley.

The pollution potential of the San Joaquin Valley is very high. The San Joaquin Valley has one of the most severe air pollution problems in the State and the Country. Surrounding elevated terrain in conjunction with temperature inversions frequently restrict lateral and vertical dilution of pollutants. Abundant sunshine and warm temperatures in late spring, summer, and early fall are ideal conditions for the formation of ozone, where the Valley frequently experiences unhealthy air pollution days. Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high PM₁₀ (particulate matter with a diameter less than 10 microns) concentrations and elevated carbon monoxide levels.

3. Criteria Air Pollutants and Their Health Effects

The primary criteria air pollutants emitted by the Specific Plan would include ozone (O₃) precursors (NO_x and ROG), carbon monoxide (CO), and suspended particulate matter (PM₁₀ and PM_{2.5}). Other criteria pollutants, such as lead (Pb) and sulfur dioxide (SO₂), would not be substantially emitted by the Specific Plan or associated traffic, and air quality standards for these criteria pollutants are being met throughout the San Joaquin Valley Air Basin. Accordingly, Pb, and SO₂ are not discussed further.

a. Ozone (O₃)

While ozone serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation potentially harmful to humans, when it reaches elevated concentrations in the lower atmosphere it can be harmful to the human respiratory system and to sensitive species of plants. Ozone concentrations build to peak levels during periods of light winds, bright sunshine, and high temperatures. Research has shown that exposure to ozone damages the alveoli (the individual air sacs in the lung where the ex-

change of oxygen and carbon dioxide between the air and blood takes place). Ozone is a strong irritant that attacks the respiratory system, leading to the damage of lung tissue. Short-term ozone exposure can reduce lung function in children, make persons susceptible to respiratory infection, and produce symptoms that cause people to seek medical treatment for respiratory distress. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. A healthy person exposed to high concentrations may become nauseated or dizzy, may develop headache or cough, or may experience a burning sensation in the chest. Sensitivity to ozone varies among individuals, but about 20 percent of the population is sensitive to ozone with exercising children being particularly vulnerable.

Ozone is formed in the atmosphere by a complex series of photochemical reactions that involve “ozone precursors” that are two families of pollutants: oxides of nitrogen (NO_x) and reactive organic gases (ROG). NO_x and ROG are emitted from a variety of stationary and mobile sources. While NO_2 , an oxide of nitrogen, is another criteria pollutant itself, ROGs are not in that category, but are included in this discussion as ozone precursors.

b. Carbon Monoxide (CO)

CO is a colorless, odorless, poisonous gas. Carbon monoxide’s health effects are related to its affinity for hemoglobin in the blood. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause dizziness and fatigue, and causes reduced lung capacity, impaired mental abilities and central nervous system function, and induces angina in persons with serious heart disease. Primary sources of CO in ambient air are passenger cars, light-duty trucks, and residential wood burning. The monitored CO levels in the Valley during the last 10 years have been well below ambient air quality standards.

c. Nitrogen Dioxide (NO_2)

The major health effect from exposure to high levels of NO_2 is the risk of acute and chronic respiratory disease. NO_2 is a combustion by-product, but it can also form in the atmosphere by chemical reaction. NO_2 is a reddish-

brown colored gas often observed during the same conditions that produce high levels of O_3 and can affect regional visibility. NO_2 is one compound in a group of compounds consisting of oxides of nitrogen (NO_x). As described above, NO_x is an O_3 precursor compound. Monitored levels of NO_2 in the Valley are below ambient air quality standards.

d. Particulate Matter (PM)

Respirable particulate matter, PM_{10} , and fine particulate matter, $PM_{2.5}$, consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled and cause adverse health effects. PM_{10} and $PM_{2.5}$ are a health concern, particularly at levels above the Federal and State ambient air quality standards. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health because minute particles are able to penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Children are more susceptible to the health risks of $PM_{2.5}$ because their immune and respiratory systems are still developing. These fine particulates have been demonstrated to decrease lung function in children. Certain components of PM are linked to higher rates of lung cancer. Very small particles of certain substances (e.g. sulfates and nitrates) can also directly cause lung damage or can contain absorbed gases (e.g. chlorides or ammonium) that may be injurious to health.

Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as mining and demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. In addition to health effects, particulates also can damage materials and reduce visibility. Dust comprised of large particles (diameter greater than 10 microns) settles out rapidly and is more easily filtered by human breathing pas-

sages. This type of dust is considered more of a soiling nuisance rather than a health hazard.

In 1983, CARB replaced the standard for “suspended particulate matter” with a standard for suspended PM₁₀ or “respirable particulate matter.” This standard was set at 50 µg/m³ for a 24-hour average and 30 µg/m³ for an annual average. CARB revised the annual PM₁₀ standard in 2002, pursuant to the Children's Environmental Health Protection Act. The revised PM₁₀ standard is 20 µg/m³ for an annual average. PM_{2.5} standards were first promulgated by the EPA in 1997 and were recently revised in late 2006 to lower the 24-hour PM_{2.5} standard to 35 µg/m³ for 24-hour exposures. That same action by EPA and revoked the annual PM₁₀ standard due to lack of scientific evidence correlating long-term exposures of ambient PM₁₀ with health effects. CARB has only adopted an annual average PM_{2.5} standard, which is set at 12 µg/m³. This is more stringent than the NAAQS of 15 µg/m³.

4. Toxic Air Contaminants

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred to as Hazardous Air Pollutants (HAPs) under the Federal Clean Air Act and Toxic Air Contaminants (TACs) under the California Clean Air Act. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. They are regulated at the local, state, and federal level.

HAPs are the air contaminants identified by US EPA as known or suspected to cancer, serious illness, birth defects, or death. Many of these contaminants originate from human activities, such as fuel combustion and solvent use. Mobile source air toxics (MSATs) are a subset of the 188 HAPs. Of the 21 HAPs identified by EPA as MSATs, a priority list of six priority HAPs were identified that include: diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. While vehicle miles traveled in the United States is expected to increase by 64 percent over the period 2000 to 2020, emissions of MSATs are anticipated to decrease substantially as a result of efforts to

control mobile source emissions (by 57 percent to 67 percent depending on the contaminant)².

California developed a program under the Tanner Toxics Act (AB 1807) to identify, characterize, and control toxic air contaminants (TACs). Subsequently, AB 2728 incorporated all 188 HAPs into the AB 1807 process. TACs include all HAPs plus other contaminants identified by CARB. These are a broad class of compounds known to cause morbidity or mortality (cancer risk). TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g. dry cleaners). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by ARB, and are listed as carcinogens either under State Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB reports that recent air pollution studies have shown an association that diesel exhaust and other cancer-causing toxic air contaminants emitted from vehicles are responsible for much of the overall cancer risk from TACs in California. Particulate matter emitted from diesel-fueled engines (diesel particulate matter [DPM]) was found to comprise much of that risk. CARB has adopted and implemented a number of regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid

² Federal Highway Administration, 2006. *Interim Guidance on Air Toxic Analysis in NEPA Documents*.

waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008 CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles³. The regulation requires affected vehicles to meet specific performance requirements between 2011 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

Exposure to TACs is usually evaluated in terms of health risk or cancer risk. For cancer health effects, the risk is expressed as the number of chances in a population of a million people who might be expected to get cancer over a 70-year lifetime.

B. Regulatory Framework

The Federal and California Clean Air Acts have established ambient air quality standards for different pollutants. National ambient air quality standards (NAAQS) were established by the Federal Clean Air Act of 1970 (amended in 1977 and 1990) for six "criteria" pollutants. These criteria pollutants now include CO, ozone, NO₂, PM₁₀, SO₂, and lead. In 1997, EPA added fine particulate matter or PM_{2.5} as a criteria pollutant. The air pollutants for which standards have been established are considered the most prevalent air pollutants that are known to be hazardous to human health. California ambient air quality standards (CAAQS) include the NAAQS pollutants and also hydrogen sulfide, sulfates, vinyl chloride, and visibility reducing particles. These additional CAAQS pollutants tend to have unique sources and are not typically examined in environmental air quality assessments. In addition, lead concentrations have decreased dramatically since it was removed from motor vehicle fuels.

³ <http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm>.

1. Federal Regulations

At the federal level, the United States Environmental Protection Agency (US EPA) administers and enforces air quality regulations. Federal air quality regulations were developed primarily from implementation of the Federal Clean Air Act. If an area does not meet NAAQS over a set period (three years), EPA designates it as a "nonattainment" area for that particular pollutant. EPA requires states that have areas that do not comply with the national standards to prepare and submit air quality plans showing how the standards would be met. If the states cannot show how the standards would be met, then they must show progress toward meeting the standards. These plans are referred to as the State Implementation Plan (SIP). Under severe cases, EPA may impose a federal plan to make progress in meeting the federal standards.

EPA also has programs for identifying and regulating hazardous air pollutants. The Clean Air Act requires EPA to set standards for these pollutants and sharply reduce emissions of controlled chemicals. Industries were classified as major sources if they emitted certain amounts of hazardous air pollutants. The US EPA also sets standards to control emissions of hazardous air pollutants through mobile source control programs. These include programs that reformulated gasoline, national low emissions vehicle standards, Tier 2 motor vehicle emission standards, gasoline sulfur control requirements, and heavy-duty engine standards.

The San Joaquin Valley Air Basin is subject to major air quality planning programs required by the federal Clean Air Act (CAA) (1977, last amended in 1990, 42 United States Code [USC] 7401 *et seq.*) to address ozone, particulate matter air pollution, and carbon monoxide. The CAA requires that regional planning and air pollution control agencies prepare a regional Air Quality Plan to outline the measures by which both stationary and mobile sources of pollutants can be controlled in order to achieve all standards within the deadlines specified in the Clean Air Act. These plans are submitted to the State, which after approval, submits them to US EPA as the State Implementation Plan (SIP).

2. State Regulations

The California Clean Air Act of 1988, amended in 1992, outlines a program for areas in the State to attain the CAAQS by the earliest practical date. The California Air Resources Board (CARB) is the state air pollution control agency and is a part of the California Environmental Protection Agency. The California Clean Air Act sets more stringent air quality standards for all of the pollutants covered under national standards, and additionally regulates levels of vinyl chloride, hydrogen sulfide, sulfates, and visibility-reducing particulates. If an area does not meet CAAQS, CARB designates the area as a nonattainment area. The San Joaquin Valley Air Basin does not meet the CAAQS for ozone, PM₁₀ and PM_{2.5}. CARB requires regions that do not meet CAAQS for ozone to submit clean air plans that describe measures to attain the standard or show progress toward attainment.

In addition to the US EPA, CARB further regulates the amount of air pollutants that can be emitted by new motor vehicles sold in California. Motor vehicle emissions standards have always been more stringent than federal standards since they were first imposed in 1961. CARB has also developed Inspection and Maintenance (I/M) and "Smog Check" programs with the California Bureau of Automotive Repair. Inspection programs for trucks and buses have also been implemented. CARB also sets standards for motor vehicle fuels sold in California.

In April 2005, CARB released the final version of its *Air Quality and Land Use Handbook: A Community Health Perspective*. This handbook is intended to encourage local land use agencies to consider the risks from air pollution before they approve the siting of sensitive land uses, including residences, near sources of air pollution. CARB makes recommendations regarding the siting of sensitive land uses near freeways, truck distribution centers, rail yards, marine ports, dry cleaners, gasoline dispensing stations, and other air pollution sources. These "advisory" recommendations include general setbacks or buffers from air pollution sources. Unlike industrial or stationary sources of air pollution, the siting of new sensitive land uses does not require air quality

permits or approval by air districts. CARB recommends setbacks of 500 feet between freeways and new sensitive receptors, such as residences.⁴

3. Regional and Local Regulations

a. San Joaquin Valley

The San Joaquin Valley Air Pollution Control District (SJVAPCD) is made up of eight counties in California's Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings Tulare and the San Joaquin Valley portion of Kern. The primary role of the SJVAPCD is to develop plans and implement control measures in the San Joaquin Valley 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.

i. SJVAPCD Indirect Source Review Rule

On December 15, 2005, the SJVAPCD adopted the Indirect Source Review Rule (ISR or Rule 9510) to reduce ozone precursor (i.e. ROG and NOx) and PM10 emissions from new land use development projects. The rule is the result of state requirements outlined in the regions' portion of the State Implementation Plan (SIP). The SJVAPCD's SIP commitments are contained in the 2004 Extreme 1-Hour Ozone Attainment Demonstration Plan, the 2007 8-Hour Ozone Plan, the 2007 PM₁₀ Maintenance Plan and the 2008 PM_{2.5} Plan. New projects that would generate substantial air pollutant emissions, for which final discretionary approval was granted after March 1, 2006 are subject to this rule. The rule requires projects to mitigate both construction and operational period emissions by applying the SJVAPCD-approved mitigation measures and paying fees into the Air Quality Mitigation Fee Fund to support programs that reduce emissions. Fees apply to the unmitigated portion of the emissions and are based on estimated costs to reduce the emissions from other sources plus expected costs to cover administration of the program.

⁴ California Air Resources Board (CARB), 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*, page 4.

ii. *Regulation VIII – Fugitive PM₁₀*

SJVAPCD controls fugitive PM₁₀ through Regulation VIII (Fugitive PM₁₀ Prohibitions). The purpose of this regulation is to reduce ambient concentrations of PM₁₀ by requiring actions to prevent, reduce or mitigate anthropogenic (human caused) fugitive dust emissions. This applies to activities such as construction, bulk materials, open areas, paved and unpaved roads, material transport, and agricultural areas. Sources regulated are required to provide dust control plans that meet the regulation requirements. Fees are collected by SJVAPCD to cover costs for reviewing plans and conducting field inspections.

b. Riverbank General Plan

The overarching goal of the City's General Plan⁵ in regards to air quality is to minimize Riverbank's contribution to existing and potential future air quality problems, whether experienced locally, regionally, or globally. The following are goals and policies that relate to the Specific Plan (see Table 4.3-1):

4. National and State Ambient Air Quality Standards

The CAA and CCAA promulgate, respectively, national and state ambient air quality standards. Air quality standards have been established by US EPA (i.e. NAAQS) and California (i.e. CAAQS) for specific air pollutants most pervasive in urban environments. The NAAQS and CAAQS are shown in Table 4.3-2. Ambient standards specify the concentration of pollutants to which the public may be exposed without adverse health effects. Individuals vary widely in their sensitivity to air pollutants, and standards are set to protect more pollution-sensitive populations (e.g. children and the elderly). National and state standards are reviewed and updated periodically based on new health studies. California ambient standards tend to be at least as protective as national ambient standards and are often more stringent. For planning purposes, regions like the San Joaquin Valley Air Basin are given an air quality status designation by the federal and state regulatory agencies. Areas with monitored pollutant concentrations that are lower than ambient air quality

⁵ City of Riverbank, 2009. City of Riverbank General Plan 2005-2025. Adopted April 22, 2009.

TABLE 4.3-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO AIR QUALITY

Goal/Policy Number	Goal/Policy Content
Goal AIR-1	Create and enhance development patterns that encourage people to walk, bicycle, or use public transit for a significant number of their daily trips.
Policy AIR-1.2	Approved plans, subdivisions, and projects shall provide highly-connected circulation networks that accommodate safe, direct, and convenient alternatives to vehicular travel.
Policy AIR-1.7	New major activity centers, office, and commercial development shall accommodate alternatives to automobile access, including provision of secure bicycle storage and parking facilities.
Policy AIR-1.10	Projects or portions of projects that implement a fine-grained mixing ^a of housing types and land uses, and that include other pedestrian, bicycle, and transit oriented design elements, which generate fewer vehicle trips, will have a correspondingly lower contribution towards any roadway or intersection improvement mitigation measures required in City environmental documents and conditions or approval.
Goal AIR-2	Construction practices and materials used in Riverbank minimize direct and indirect air pollutant emissions.
Policy AIR-2.1	The City of Riverbank, in coordination with the San Joaquin Valley Air Pollution Control District, will require approved projects, plans, and subdivisions to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.
Policy AIR-2.2	The City of Riverbank will require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate and reactive organic gas emissions and are appropriate to the scale and intensity of use.
Policy AIR-2.5	The City of Riverbank will require new residential, commercial, and industrial development to reduce air quality impacts from area sources and from energy consumption.
Goal AIR-3	Avoid land use incompatibility that causes local exposure to harmful and hazardous air pollutants.
Policy AIR-3.1	The City will provide adequate sites for industrial development, while minimizing the health risks to people resulting from industrial toxic or hazardous air pollutant emissions.

TABLE 4.3-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO AIR QUALITY (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Policy AIR-3.3	The City of Riverbank will ensure that industrial, manufacturing, and processing facilities that may produce toxic or hazardous air pollutants are located at an adequate distance from residential areas and other sensitive receptors.

^a The term “grain” can be used to describe the degree to which land uses are mixed and the size of development blocks. “Fine grain” development involves land uses located in proximity with one another on relatively smaller parcel or development blocks, allowing residents and employees to walk or bicycle among different destinations to meet their daily or occasional needs without use of a private automobile. By contrast, “coarse grain” development involves land uses that isolated from one another, with non-residential land uses typically occurring on larger parcels. This presents a situation in which residents and employees have a more difficult time traveling among destinations except by automobile. Public transit service is less feasible because transit routes would be located at a significant distance from potential transit users.

standards are designated “attainment” on a pollutant-by-pollutant basis. When monitored concentrations exceed ambient standards within an air basin, it is designated “nonattainment” for that pollutant. US EPA designates areas as “unclassified” when insufficient data are available to determine the attainment status; however, these areas are typically considered to be in attainment of the standard.

C. Existing Conditions

Air quality is affected by the rate of pollutant emissions and by meteorological conditions such as wind speed, atmospheric stability, and mixing height, all of which affect the atmosphere's ability to mix and disperse pollutants. Long-term variations in air quality typically result from changes in air pollutant emissions, while short-term variations result from changes in atmospheric conditions.

The Specific Plan Area is bordered by farmland to the north and east, Clari-bel Road the south, and Claus Road to the west. “Sensitive receptors” are defined as facilities where sensitive population groups, such as children, the

TABLE 4.3-2 **AMBIENT AIR QUALITY STANDARDS – FEBRUARY 2012^a**

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards ¹		National Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)		
Respirable Particulate Matter (PM₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		—		
Fine Particulate Matter (PM_{2.5})	24 Hour	—	—	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m ³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—	—	
Nitrogen Dioxide (NO₂)⁸	1 Hour	0.18 ppm (339 µg/m ³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m ³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)		53 ppb (100 µg/m ³)	Same as Primary Standard	
Sulfur Dioxide (SO₂)⁹	1 Hour	0.25 ppm (655 µg/m ³)	Ultraviolet Fluorescence	75 ppb (196 µg/m ³)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)	
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ⁹	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas) ⁹	—	
Lead^{10,11}	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m ³ (for certain areas) ¹¹	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m ³		
Visibility Reducing Particles¹²	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride¹⁰	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

See footnotes on next page ...

TABLE 4.3-2 AMBIENT AIR QUALITY STANDARDS – FEBRUARY, 2012 (CONTINUED)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equalled 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.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone 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 PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above $150 \mu\text{g}/\text{m}^3$ is equal to or less than one. For PM2.5, 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. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.
9. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
 Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard ($1.5 \mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

^a California Air Resources Board (CARB), 2012. Available: <http://www.arb.ca.gov>. Accessed February 27, 2012.

elderly, the acutely ill and the chronically ill, are likely to be located. These land uses include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. Sensitive receptors in the project vicinity include residences located across Claus Road on the northern half of the site.

a. Existing Air Pollutant Levels

As previously discussed, the San Joaquin Valley experiences poor air quality conditions, due primarily to elevated levels of ozone and particulate matter. CARB, in cooperation with SJVAPCD, monitors air quality throughout the San Joaquin Valley Air Basin. The closest official monitoring station to Riverbank is located in Modesto on 14th Street.

Table 4.3-3 summarizes air quality monitoring data from the Modesto monitoring station. The values in the table reflect the highest air pollutant levels measured from 2008 to 2010. In addition, Table 4.3-4 provides the number of days in which measured concentrations exceeded the NAAQS or CAAQS. These findings are discussed in greater detail below.

i. *Criteria Air Pollutants in Riverbank*

As indicated in Table 4.3-4, the NAAQS and CAAQS for one- and eight-hour ozone, and PM_{2.5} were exceeded multiple times in Modesto over the last three years. The CAAQS 24-hour standard for PM₁₀ was exceeded 7 times in 2008, 6 times in 2009, and once in 2010. The highest carbon monoxide concentrations measured in Modesto have been well below the national and State ambient standards. However, since automobile emissions are the primary source of carbon monoxide, the highest concentrations would typically be found away from monitoring stations, near congested roadways that carry large volumes of traffic. These are referred to as “hot spots.” Other criteria pollutants, such as nitrogen dioxide, sulfur dioxide, and lead, are typically found at low levels at the Modesto monitoring station, and should not pose a major air pollution concern in Riverbank.

TABLE 4.3-3 HIGHEST MEASURED AIR POLLUTANT CONCENTRATIONS

Pollutant	Average Time Measured	Air Pollutant Levels		
		2008	2009	2010
O ₃	1-Hour	<i>0.127 ppm</i>	<i>0.112 ppm</i>	<i>0.105 ppm</i>
	8-Hour	<i>0.107 ppm</i>	<i>0.098 ppm</i>	<i>0.081 ppm</i>
CO	8-Hour	1.94 ppm	2.41 ppm	1.78 ppm
NO ₂ ^a	1-Hour	0.063 ppm	0.058 ppm	0.05 ppm
	Annual	0.012 ppm	0.012 ppm	0.01 ppm
Fine Particulate Matter (PM _{2.5})	24-Hour	<i>107.2 ug/m³</i>	<i>61.5 ug/m³</i>	<i>44.7 ug/m³</i>
	Annual	<i>16 ug/m³</i>	<i>13 ug/m³</i>	<i>12.2 ug/m³</i>
Respirable Particulate Matter (PM ₁₀)	24-Hour	<i>111.1 ug/m³</i>	<i>68.2 ug/m³</i>	<i>58.9 ug/m³</i>
	Annual	<i>31.3 ug/m³</i>	<i>26.6 ug/m³</i>	<i>22.1 ug/m³</i>

Notes: ppm = parts per million ug/m³ = micrograms per cubic meter. Values reported in *bold italic* exceed ambient air quality standard.

^a Data reported from Turlock – South Minaret Street monitoring location.

Source: CARB, 2012.

TABLE 4.3-4 SUMMARY OF MEASURED AIR QUALITY EXCEEDANCES

Pollutant	Standard	Days Exceeding Standard		
		2008	2009	2010
O ₃	NAAQS 1-hr	NA	NA	NA
	NAAQS 8-hr	18	7	3
	CAAQS 1-hr	10	1	1
	CAAQS 8-hr	24	14	9
PM _{2.5}	NAAQS 24-hr	13	8	10
PM ₁₀	NAAQS 24-hr	0	0	0
	CAAQS 24-hr	7	6	1
All Other (CO, NO ₂ , Lead, SO ₂)	All Other	0	0	0

Notes: NA = Not applicable.

Source: Illingworth & Rodkin, 2012.

b. Attainment Status

Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant. Areas that do not violate ambient air quality standards are considered to have attained the standard. The San Joaquin Valley as a whole does not meet State or federal ambient air quality standards for ground level ozone and PM_{2.5}. The Valley is classified as attainment under the federal standards for PM₁₀, however, it is classified as nonattainment under the more stringent State standard. The attainment status for the Valley with respect to various pollutants of concern is displayed in Table 4.3-5.

i. Air Quality Planning

In response to not meeting the NAAQS, the region is required to submit attainment plans to US EPA through the State, which are referred to as State Implementation Plans (SIP). The region submitted the 2004 Extreme Ozone Attainment Demonstration Plan to EPA in 2004, which addressed the old 1-hour national standard. The region's 2007 Ozone Plan, addressing the 8-hour ozone NAAQS, was submitted to US EPA and approved in March 2012. That plan predicts attainment of the standard throughout 90 percent of the district by 2020 and the entire district by 2024. To accomplish these goals, the plan would reduce NO_x emissions further by 75 percent and ROG emissions by 25 percent. Among a wide variety of control measures included in these plans, the ones relevant to the Specific Plan include: Indirect Source Mitigation Programs; Energy Conservation Programs; Employer-Based Trip Reduction Programs; and Green Contracting Programs. In particular, Green Contracting Programs encourage use of low-emission vehicles, equipment and clean fuels to reduce or offset emissions from construction and traffic associated with land use developments.

On October 30, 2006, EPA issued a Final Rule determining that the San Joaquin Valley had attained the NAAQS for PM₁₀ [71 FR 63642]. In response, SJVAPCD, CARB, and the Valley's local Metropolitan Planning Organizations (MPOs) have developed the 2007 PM₁₀ Maintenance Plan and

TABLE 4.3-5 PROJECT AREA ATTAINMENT STATUS

Pollutant	Federal Status	State Status
Ozone (O ₃) – 1-Hour Standard	No Federal Standard	Severe Nonattainment
Ozone (O ₃) – 8-Hour Standard	Extreme Nonattainment	Nonattainment
Respirable Particulate Matter (PM ₁₀)	Attainment-Maintenance	Nonattainment
Fine Particulate Matter (PM _{2.5}) ^a	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment-Maintenance	Attainment
Nitrogen Dioxide (NO ₂)	Attainment	Attainment
Sulfur Dioxide (SO ₂)	Attainment	Attainment
Sulfates and Lead	No Designation	Attainment
Hydrogen Sulfide	No Designation	Unclassified
Visibility Reducing Particles	No Designation	Unclassified

^a The Valley is designated nonattainment for the 1997 federal PM_{2.5} standards. EPA released final designations for the 2006 PM_{2.5} standards (effective in 2009), designating the Valley as nonattainment.

Source: Illingworth & Rodkin, 2012.

Request for Redesignation so that EPA can proceed with completing the re-designation process for PM₁₀ for the Valley. In 2008, US EPA proposed to approve the 2007 PM₁₀ Maintenance Plan and Request for Redesignation and the region now meets the NAAQS for PM₁₀.

The SJVAPCD adopted the 2008 PM_{2.5} Plan on April 30, 2008. The plan was approved by CARB on May 22, 2008 and US EPA on November 9, 2011. This plan will assure that the Valley will attain the 1997 PM_{2.5} standard and make progress toward attaining the new 2006 standards as well as the state standard. 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 the wood-burning rules. Recent and proposed action by CARB to reduce diesel particulate matter emissions from on- and off-road mobile sources is contained in the plan. Attainment plans for the 2006 PM_{2.5} NAAQS are not required until December 2012.

Both the ozone and PM_{2.5} plans include all measures (i.e. federal, state, and local) that would be implemented through rule making or program funding to reduce air pollutant emissions. Transportation Control Measures (TCMs) are part of these plans. TCMs are strategies meant to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions. The plans described above addressing ozone also meet the state planning requirements.

D. Standards of Significance

1. CEQA Appendix G Standards

The Plan would have a significant effect on the environment with respect to air quality if it would:

- a. Conflict with or obstruct implementation of the applicable air quality plan.
- b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- c. Result in a cumulatively considerable net increase of any nonattainment pollutant.
- d. Expose sensitive receptors to substantial pollutant concentrations.
- e. Create objectionable odors affecting a substantial number of people.

2. Thresholds of Significance

The SJVAPCD has developed the Guide for Assessing and Mitigating Air Quality Impacts, also known as the GAMAQI.⁶ The following thresholds of significance, obtained from the SJVAPCD's GAMAQI, are used to determine whether a proposed project would result in a significant air quality impact:

- “ **Construction Emissions of Particulate Matter (PM)**. SJVAPCD recommends a qualitative evaluation of construction PM₁₀ emissions that focuses on implementation of effective and comprehensive control measures. Construction impacts associated with a proposed project would be considered significant if the feasible control measures for construction are not included in the project. Construction projects are required to comply with Regulation VIII as listed in the SJVAPCD; however, the size of the project and the proximity to sensitive receptors may warrant additional measures.
- “ **Emissions of Ozone Precursors (ROG and NO_x)**. Direct and indirect emissions associated with a proposed project would be considered significant if a project generates emissions of ROG or NO_x that exceed 10 tons per year. SJVAPCD has not published thresholds for long-term emissions of Particulate Matter (PM). However, a PM₁₀ emission level of 15 tons per year was used for this assessment,⁷ since this is the level at which SJVAPCD requires “offsets” for new stationary sources. Since PM_{2.5} am-

⁶ SJVAPCD, 1998. *Guide for Assessing and Mitigating Air Quality Impacts*. Revised January 10, 2002.

⁷ While San Joaquin Valley Air Pollution Control District CEQA guidance recognizes that particulate matter (PM₁₀ and PM_{2.5}) is a major air quality issue in the basin, it has to date not established numerical thresholds for significance for these pollutants. For the purposes of this analysis, a PM₁₀ emission threshold of 15 tons per year was used as a measure of significance. This emission is the SJVAPCD threshold level at which new stationary sources requiring permits from the District must provide emissions “offsets.” This threshold of significance for PM₁₀ is consistent with the District’s ROG and NO_x thresholds, which are also the offset thresholds established in SJVAPCD Rule 2201 New and Modified Stationary Source Review Rule.

bient air quality standards are about 30 percent below the PM₁₀ standard, a threshold of 10 tons per year for PM_{2.5} was used.⁸

- “ **Local CO Concentrations.** Traffic emissions associated with the proposed project would be considered significant if the project contributes to CO concentrations at receptor locations in excess of the ambient air quality standards (i.e. CAAQS of 9.0 ppm for 8 hours or 20 ppm for 1 hour).
- “ **Toxic Air Contaminants or Hazardous Air Pollutants.** Exposure to hazardous air pollutants (HAPs) or toxic air contaminants (TACs) would be considered significant if the probability of contracting cancer for the Maximally Exposed Individual would exceed 10 in 1 million or would result in a Hazard Index greater than one for non-cancer health effects.
- “ **Odors.** Odor impacts associated with the proposed project would be considered significant if the project has the potential to frequently expose members of the public to objectionable odors through development of a new odor source or placement of receptors near an existing odor source.

SJVAPCD CEQA guidance does not require quantitative analysis of construction fugitive dust emissions. The Air District’s Guide for Assessing and Mitigating Air Quality Impacts states: “PM₁₀ emitted during construction can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors, making quantification difficult” (page 29). The SJVAPCD’s approach to CEQA analyses of construction PM₁₀ impacts is to require implementation of effective and comprehensive control measures rather than to require detailed quantification of emissions. The SJVAPCD significance threshold for construction dust impacts is based on the appropriateness of construction dust controls. The SJVAPCD guidelines provide feasible control measures for construction emission of PM₁₀ as specified in its Regulation VIII. The SJVAPCD has determined that implementation of the measures specified in Regulation VIII, along with additional or enhanced measures

⁸ The Federal 24-hour standard for PM_{2.5} (35 $\mu\text{g}/\text{m}^3$) is approximately 30 percent lower than the State 24-hour standard for PM₁₀ (35 $\mu\text{g}/\text{m}^3$).

which may be appropriate for particular projects, will constitute sufficient mitigation to reduce PM₁₀ impacts to a level considered less-than-significant.

With respect to cumulative air quality impacts, Section 4.3.2 of the GAMAQI provides that any proposed project that would individually have a significant air quality impact (i.e. exceed significance thresholds for ROG, NO_x, or PM₁₀) would also be considered to have a significant cumulative impact. Although the GAMAQI does not provide guidance for evaluating cumulative air quality impacts in instances where project-specific emissions of criteria pollutants do not exceed the Air District's significance thresholds, it does state: "[a]ll but the largest individual sources emit ROG and NO_x in amounts too small to have a measurable effect on ambient ozone concentrations by themselves." In addition, the CEQA guidance provided by the Bay Area Air Quality Management District (BAAQMD) does address this condition, in both the District's previous guidance document and in its recently updated guidance document. In the absence of guidance on this matter from the SJVAPCD, the current BAAQMD guidance document was therefore considered in establishing a threshold of significance for cumulative ozone emissions for purposes of this analysis, as follows. The recently updated BAAQMD CEQA Guidelines (updated May, 2011) states: "[n]o single project would be sufficient in size, by itself, to result in non-attainment of regional air quality standards. Consequently, the thresholds of significance discussed above (for individual project impacts) are the amount of pollution that is deemed cumulatively considerable and, therefore, a significant adverse impact." Based on the above, for purposes of this analysis, a project is considered to result in a cumulatively considerable air quality impact if the project emissions exceed the SJVAPCD significance thresholds for criteria pollutants/ozone precursors (ROG, NO_x, or PM₁₀), or the project is not consistent with the regional clean air plan.

E. Impacts Discussion

1. Plan Impacts

This section describes the impacts of the Specific Plan.

a. Conflict with or obstruct implementation of the applicable air quality plan.

i. Applicable Clean Air Plans

As described in Section C.b.i above, a wide variety of control measures are included in the 2004 extreme Ozone Attainment Demonstration and 2007 Ozone Plans, such as reducing or offsetting emissions from construction and traffic associated with land use developments.

As previously noted, both the ozone and PM_{2.5} plans include all measures (i.e. federal, state, and local) that would be implemented through rule making or program funding to reduce air pollutant emissions. Transportation Control Measures (TCMs) are part of these plans. The plans described above in Section C.b.i, addressing ozone also meet the state planning requirements.

The Draft Specific Plan includes goals and policies intended to reduce the rate of vehicle trips or VMT associated with implementation of the Plan land uses (see Table 4.3-6).

ii. Consistency with Applicable Air Quality Plans

The GAMAQI does not include methodologies for assessing the effect of a project on consistency with clean air plans developed by the SJVAPCD. Regional clean air plans developed by SJVAPCD rely on local land use designations to develop population and travel projections that are the basis of future emissions inventories. Air pollution control plans are aimed at reducing these projected future emissions. As discussed in Section 4.13, *Population and Housing*, it is anticipated that buildout of the Plan would result in the creation of between 827 and 1,654 new jobs over the course of 15 years. The increase in industrial and commercial/office square footage anticipated with buildout of the Plan is generally consistent with growth projections assumed in the Riverbank General Plan for the same time horizon. The General Plan projects the construction of approximately 1,999,540 square feet of space in industrial business parks, which would be concentrated largely along the railroad lines and in the southeastern portion of the city, including on the RAAP Main Site. The General Plan also projects construction of roughly 678,980 square feet of net new commercial/retail space on the northern portion of the

TABLE 4.3-6 RIVERBANK SPECIFIC PLAN POLICIES RELATED TO AIR QUALITY

Goal/Policy Number	Goal/Policy Content
Goal LUD-1	A land use mix that contributes to job creation for Riverbank residents.
Policy LUD-1	Encourage a mix of new employment-intensive development types on undeveloped portions of the RAAP, including traditional industrial uses, R&D space, flex space, office uses, and supporting retail space.
Goal TRAN-1	A new industrial park and retail area that facilitates the safe circulation of vehicles, bicycles, and pedestrians.
Policy TRAN-1	Provide pedestrian crossings as appropriate to ensure that employees can safely walk between buildings and to areas off-site.
Policy TRAN-2	On new public streets built in the Specific Plan Area, use a landscaped planting strip to buffer sidewalks from roadways.
Policy TRAN-3	Ensure bicycles are accommodated through the provision of on-site bicycle parking.
Policy TRAN-4	Design roadways to accommodate all modes of travel safely.
Goal TRAN-3	An industrial park that provides for safe queuing of delivery vehicles.
Policy TRAN-8	Ensure that truck deliveries and movement do not inhibit pedestrian, bicycle, and vehicular circulation.

RAAP Main Site and along Claribel Road on either side of Oakdale Road. Additionally, growth under the proposed Plan would come incrementally over a period of 20 years and would be dependent on market conditions. As such, the proposed Plan would not result in a substantial and unplanned level of growth and associated air quality impacts would therefore be consistent with population and vehicle related emissions projections contained in regional clean air planning efforts, and would not conflict with achievement of the control plans aimed at reducing these projected emissions. Therefore, the project would not conflict with or obstruct implementation of efforts outlined in the region's air pollution control plans to attain or maintain ambient air quality standards. This would be a *less-than-significant* impact.

b. Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation

i. *Construction Emissions*

Construction activities would temporarily affect local air quality, causing a temporary increase in particulate dust and other criteria pollutants. Dust emissions during periods of demolition and construction would increase particulate concentrations at neighboring properties, and emissions from construction equipment exhaust, and worker and vendor vehicle trips would increase pollutant concentrations locally and regionally. This impact is potentially significant, but normally mitigable.

Construction of the Plan Area would occur over the course of an approximate 20-year period. The North End and South End Cap areas have minimal planned demolition, while other existing areas would have varying degrees of demolition. Factors that will determine demolition or reuse include the quality of existing buildings, utilities, and security issues, economic feasibility in meeting seismic requirements, and flexibility for reuse.

The SJVAPCD Indirect Source Review Rule (Rule 9510) applies to construction of the proposed Projects and not specific plans. In accordance with Rule 9510, a detailed air impact assessment would have to be prepared for project components. It is likely that the plan would be constructed as separate projects, in terms of obtaining final grading plans and other discretionary approvals from local agencies. SJVAPCD would calculate the construction and operational emissions from each development phase submitted. Rule 9510 would require that the project reduce construction exhaust emissions by 20 percent for NO_x and 45 percent for PM₁₀ from the statewide average as estimated by the ARB. The basis for the reductions is use of URBEMIS2007 emissions for statewide construction fleets. Use of newer equipment could result in substantially lower emissions. SJVAPCD encourages reductions through on-site mitigation measures. Fees to purchase or sponsor off-site reductions through SJVAPCD apply when on-site mitigation measures do not achieve the requirements. Using less-polluting construction equipment, such as newer equipment or retrofitting older equipment reduces construction emissions on-site. A combination of on-site and off-site measures can be im-

plemented to meet the overall emission reduction requirements. Based on the findings of the air impact assessment, the project would pay to the SJVAPCD a fee necessary to offset the required construction emissions not reduced by on-site measures identified in the permit application submitted to the District. Offset fees would be calculated in accordance with the procedures identified in the Rule 9510 and approved by the SJVAPCD. This rule would not directly affect ROG emissions.

At this time, specific construction plans, schedules, and phasing related to the Specific Plan are not available and quantification of emissions from construction activities would be speculative. If one were to assume full reconstruction of the site over a 1- to 5-year period, then emissions of ozone precursor pollutants (i.e. ROG and NOx) would likely exceed the GAMAQI significance thresholds. Future projects within the Plan Area will be analyzed on an individual basis and mitigated (in accordance with Rule 9510), as necessary. Because it is not possible to quantify a construction emissions estimate for the Specific Plan, this impact is considered *significant*.

ii. Operational Emissions

Criteria air pollutant emissions associated with the development and operation of the Specific Plan were computed. This includes the computation of emissions from traffic (mobile sources), area sources (e.g. maintenance architectural coatings), and natural gas consumption. These emissions were computed using the California Emissions Estimator Model Version 2011.1.1 (CalEEMod), as recommended by SJVAPCD.

CalEEMod is a computer model developed by the South Coast Air Quality Management District (SCAQMD) to estimate air pollutant and GHG emissions from land use development projects. The model is an update to the URBEMIS2007 model and uses the latest statewide emission inventory models for mobile sources (i.e. EMFAC2007). The model is periodically updated to reflect most recent emissions estimates for source types and incorporate accuracies in estimating emission from land use activities. The latest version of this model (i.e. Version 2011.1.1) was used in this analysis.

Trip generation rates produced by Fehr & Peers were input to CalEEMod. The trip generation estimates include reductions for pass-by trips for retail uses, which trips are made by traffic already using the adjacent roadway that enter the site as an intermediate stop on the way from another destination. They do not involve an extra vehicle trip. The methodology for developing the trip estimates is described in the Fehr & Peers report.⁹ Trip generation represents the daily number of trips generated when the land uses are fully operational. Pass-by trips are subtracted from the proposed Retail land uses. The adjusted trip rates were entered into CalEEMod, such that CalEEMod computed the same total number of daily trips generated as the Fehr & Peers study.

It is assumed that development of the Plan Area would occur over the course of a 20-year period; however, the rate and timeframe are subject to variation based on market demands, the regional economy, and other socioeconomic factors. The fully built-out plan operational emissions estimates were computed for the year 2030. Existing (2010 baseline) operational emissions were also computed and subtracted from 2030 emissions to determine the relative net contribution of implementation of the Specific Plan. Specific Plan operational period emissions estimates are presented in Table 4.3-7 and CalEEMod output worksheets are included in Appendix B.

Currently, there are no specific development projects proposed within the Specific Plan Area. Future projects would be subject to SJVAPCD's Indirect Source Review or Rule 9510 (ISR) to reduce NO_x and PM₁₀ emissions. Under Rule 9510, future projects would be required to reduce operational NO_x emissions by 33 percent and operational PM₁₀ emissions by 50 percent of the project's operational baseline emissions over 10 years. The actual required reductions would be determined by SJVAPCD when an application is submitted prior to "the last discretionary approval" for the proposed project.

⁹ Fehr & Peers, 2011. *Administrative Draft Transportation Impact Analysis Riverbank Army Ammunition Plant*. December.

TABLE 4.3-7 SPECIFIC PLAN OPERATIONAL PERIOD EMISSIONS

Scenario	ROG (Tons/ Year)	NOx (Tons/ Year)	PM₁₀ (Tons/ Year)	PM_{2.5} (Tons/ Year)
Existing Annual Emissions	4.98	5.95	1.50	0.26
2030 Annual Emissions	14.31	21.19	14.39	0.94
2030 Net Annual Emissions	9.33	15.24	12.89	0.68
SJVAPCD Thresholds	10	10	15	10
Significant	No	Yes	No	No

Source: Illingworth & Rodkin, 2012.

However, the methods used by SJVAPCD to determine the required mitigations are consistent with the methods used in this analysis (e.g. use of latest URBEMIS model using project size and trip generation rates). The mitigation measures required by ISR for this project would be determined at the time that final development plans are developed.

The emission projections shown in Table 4.3-7 do not reflect the reduction that would be required under ISR. Emissions of NOx and to some extent ROG emissions would be reduced with the required ISR mitigation. Unmitigated operational NOx emissions would have to be reduced by almost 35 percent from the project's operational baseline emissions to meet the SJVAPCD thresholds. The project ROG emissions with application of Rule 9510 are predicted to remain below the SJVAPCD thresholds. ISR only requires offsets to be effective for 10 years. Project emissions predicted for 2030 show that NOx emissions would be above the SJVAPCD thresholds.

As shown in Table 4.3-7, PM₁₀ emissions would not exceed the emissions threshold of 15 tons per year. Like NOx emissions, these would also be subject to ISR. Unmitigated operational PM₁₀ emissions would have to be re-

duced by 50 percent of the project's operational baseline emissions by on-site, off-site, or some combination of on- and off-site mitigation. The actual reductions incorporated into the proposed project would not be determined until the proposed project finalizes an Air Impact Assessment application. However, as indicated in Table 4.3-7, the projects submitted under the Specific Plan would have PM₁₀ emissions below the SJVAPCD significance thresholds with or without the ISR emissions reduction of 50 percent.

Overall, as indicated in Table 4.3-7, operational period emissions are estimated to exceed project-level significance thresholds for NO_x under the 2030 future cases. Therefore, this impact is considered *significant*.

iii. Carbon Monoxide Hot Spots

Monitoring data from all ambient air quality monitoring stations in the San Joaquin Valley indicate that existing carbon monoxide levels are currently below national and California ambient air quality standards. The San Joaquin Valley has been designated as an attainment area for the CO standards. The highest measured level in Modesto (the closest monitoring stations to the Plan Area) during the past three years was 2.4 ppm for the eight-hour averaging periods.

Even though current CO levels in the San Joaquin Valley are well below ambient air quality standards, elevated levels of CO still warrant analysis. CO hotspots (occurrences of localized high CO concentrations) could still occur near busy congested intersections. Recognizing the relatively low CO concentrations experienced in the San Joaquin Valley, the GAMAQI states that a project would have a less-than-significant impact if the following criteria would not be met:

- “ A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or
- “ A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

According to the traffic report, no streets or intersections would operate at LOS E or F with traffic mitigation incorporated. Since no streets or intersections affected by the project would have LOS E or F, the impact of the project related to localized CO concentrations would therefore be *less than significant*.

c. Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant

As described above section D.1.b.i, Construction Emissions, and below in Impact AQ-2 in Section E, Impacts and Mitigation Measures, future projects in the Plan Area have the potential to result in a cumulatively considerable net increase of construction period and operational period criteria pollutants and these impacts are considered *significant*. Implementation of Mitigation Measures AQ-1 and AQ-2 above would reduce this impact, but not to a level of less than significant. Therefore, the impact is considered *significant and unavoidable*.

d. Expose Sensitive Receptors to Substantial Pollutant Concentrations (*LTS*)

The health risk evaluation for the Specific Plan involved the calculation of future diesel particulate matter (DPM) emissions and associated health risks for traffic on Claus Road, which is the main road adjacent to the project site. Emissions were calculated using the latest version of the CARB EM-FAC2011 emissions model. Potential cancer risks for residents along Claus Road were calculated using health risk assessment methods recommended by the California Office of Environmental Health Hazard Assessment¹⁰ (OEHHA) and the SJVAPCD¹¹. The health risk assessment method includes calculation of ambient DPM concentrations at residential receptor locations using an air quality dispersion model, and then calculating cancer risks using

¹⁰ OEHHA 2003. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment.

¹¹ San Joaquin Valley Air Pollution Control District, *Guidance for Air Dispersion Modeling*, Draft 01/07 Rev 2.0.

the modeled concentrations along with appropriate DPM-specific risk factors.

Roadway and receptor coordinates, meteorological data, traffic volumes, and the emission factors were used with the AERMOD air quality dispersion model to predict annual DPM concentrations from roadway traffic which were then used to calculate lifetime cancer risks at the residential receptor locations.

i. Traffic Emissions

DPM emissions for traffic on Claus Road were calculated using emission factors from the CARB EMFAC2011 emissions model with default information for Stanislaus County along with future traffic volumes and vehicle mixes on Claus Road. EMFAC2011 is the most recent version of the CARB motor vehicle emission factor model. Emission factors were developed for the year 2020 using the projected mix of cars and trucks traveling on Claus Road north and south of the project site. Based on traffic data for the project there would be more traffic on Claus Road north of the site than south of the site. The average daily traffic volumes were estimated as 4,957 passenger vehicles and 428 trucks, or 54 percent of the total traffic, traveling north of the project site on Claus Road, and 4,223 passenger vehicles and 428 trucks, or 46 percent of the total traffic, traveling on Claus Road south of the site. In calculating emissions it was assumed that all trucks would be heavy duty trucks and the passenger vehicles would be comprised of light duty autos and trucks. An average travel speed of 45 mph (the posted speed limit on Claus Road) was assumed for all vehicles and used with the EMFAC2011 model in calculating DPM emission factors. These emissions were then used in the air quality dispersion modeling of vehicles traveling on Claus Road to predict DPM concentrations at residences along the roadway. The DPM emission factor calculations are shown in Appendix B.

ii. Roadway Dispersion Modeling

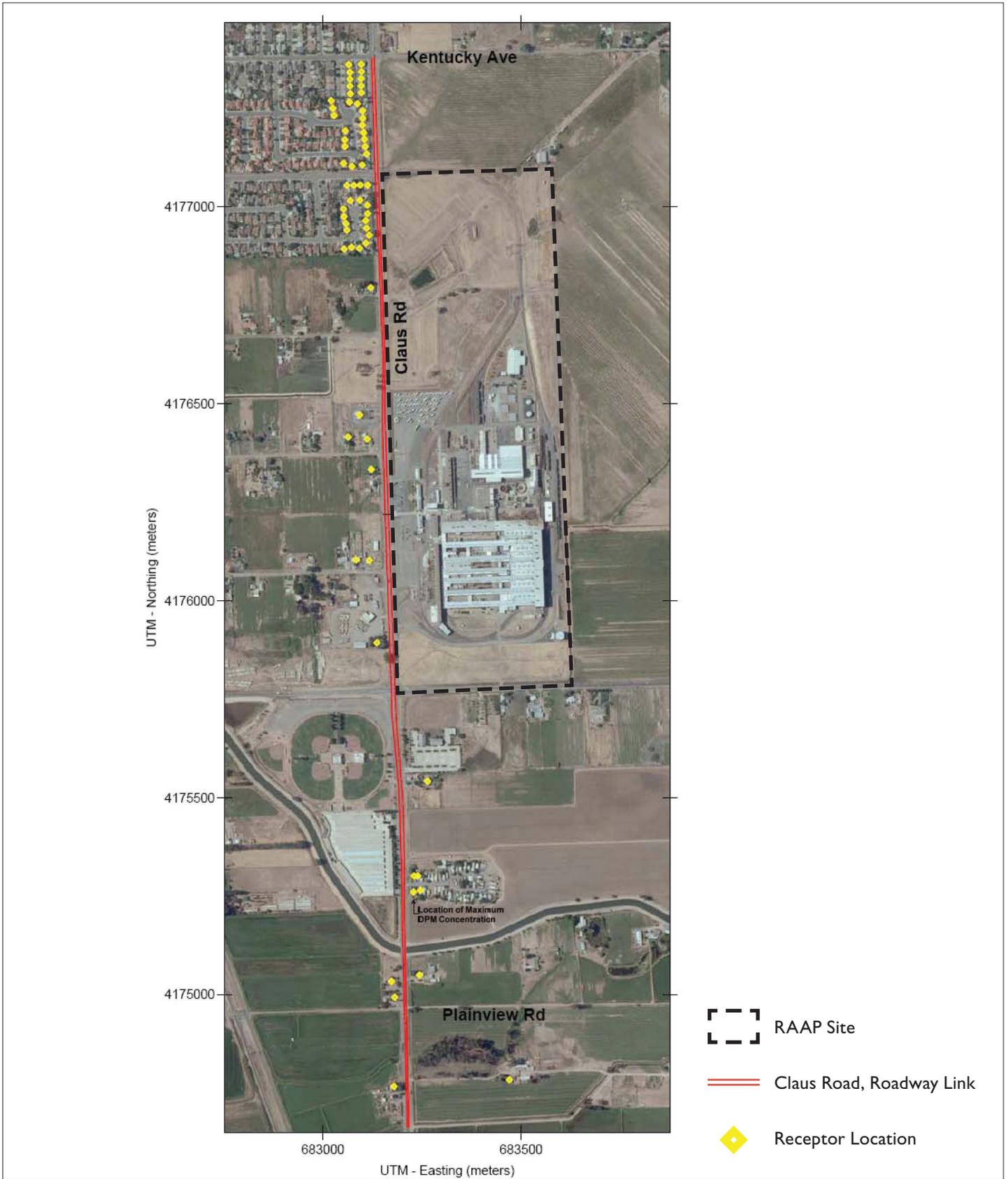
Dispersion modeling of roadway DPM emissions was conducted using the EPA's AERMOD dispersion model. This model is recommended by the

SJVAPCD for this type of analysis. The AERMOD model predicts pollutant concentrations at receptors located in areas of flat or complex terrain from a variety of emission source types including point, area, volume, and line sources. Emissions from these source types can be continuous or vary by hour, day of the week, month, or season. For this analysis the model was run using regulatory default dispersion options and rural dispersion coefficients due to the rural nature of the project area. Since there is little variation in terrain elevations in the project area, the model was run in flat terrain mode. A 5-year set of hourly meteorological data (2005 - 2009), prepared by the SJVAPCD,¹² from the Modesto Airport, located about 6.25 miles south-southwest of the project site, was used in the modeling. Other inputs to the model included road geometry, receptor locations, and hourly emission rates. Vehicle emissions were modeled as line sources (a series of volume sources along a path) along Claus Road. In the vicinity of the project site, Claus Road is a two-lane road and was modeled using one line source per travel direction. Since the traffic volumes and associated emissions on Claus Road are different north and south of the project site, two roadway segments were used in the modeling. One road segment represents traffic from the project site north on Claus Road to Kentucky Avenue and the other segment represents Claus Road from of the project site south to just beyond Plainview Road. Emission source parameters used in modeling these line sources were consistent with SJVAPCD Air Quality Modeling Guidance¹³.

Locations of residential receptors along Claus Road were identified from aerial images and included in the modeling as locations for the model to calculate annual average DPM concentrations. Sixty-five residential receptors were identified and included in the modeling. An aerial view showing the project site, roadway segments modeled, and the locations of the residential receptors is provided in Figure 4.3-1. The maximum-modeled DPM concentration occurred along the road segment south of the project site, north of Plainview

¹² http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm.

¹³ San Joaquin Valley Air Pollution Control District, *Guidance for Air Dispersion Modeling*, Draft 01/07 Rev 2.0.



Source: Illingworth_ & Rodkin, 2012.

FIGURE 4.3-1

PROJECT SITE, ROADWAY LINKS FOR DISPERSION MODELING, AND RECEPTOR LOCATIONS

Road, at UTM coordinates 683,228.5 meters east, 4,175260.6 meters north and is shown in Figure 4.3-1. Inputs used for the modeling are included in Appendix B.

iii. Cancer Risk Prediction

Cancer risk to residents near Claus Road from roadway DPM emissions were assessed following the SJVAPCD recommended methods and their significance evaluated based on the SJVAPCD threshold of an incremental cancer risk of ten excess cases per million at the Maximally Exposed Individual (MEI). Exceeding this threshold would result in a significant impact. The ten-in-one-million risk level is also used by the Air Toxics “Hot Spots” (AB 2588) program and California’s Proposition 65 as the public notification level for air toxic emissions from existing sources.

Potential cancer risks from inhalation of toxic air contaminants are calculated based on the annual average concentration, an inhalation dose, and the cancer potency of the toxic air contaminant. The inhalation dose depends on a person’s breathing rate, exposure time and frequency of exposure, and the exposure duration over a 70-year lifetime period. These parameters vary depending on whether the exposure is considered to occur for a residential location, at a workplace, or at a school. For this analysis, potential exposures to DPM concentrations from traffic on Claus Road to residents along the roadway were evaluated. For residential exposures, the SJVAPCD recommends using a breathing rate of 393 liters per day per kilogram of body weight (L/kg-day). Residential receptors are assumed to be exposed for 24 hours per day for 350 days per year over a 70-year lifetime.

Potential health risks to residents along Claus Road from roadway DPM emissions were evaluated assuming constant exposure to DPM concentrations based on emissions during 2020 for an entire 70-year lifetime exposure period (SJVAPCD recommended method). The maximum increased MEI cancer risk for a 70-year exposure was 6.5 in a million. Details on the cancer risk calculations are included in Appendix B.

Under the GAMAQI, an incremental risk of greater than ten cases per million at the MEI would be considered a significant impact. The increased cancer risk associated with traffic along Claus Road is less than 10 in a million, and therefore would be a *less-than-significant* impact.

e. Create Objectionable Odors (*LTS*)

Odors are assessed based on the potential of the Plan to result in odor complaints. This could result from the Plan creating development that produces objectionable odors or places people near sources of objectionable odors.

Significant odor sources are not currently located within the Plan Area; therefore, new uses are not likely to be affected by existing odor sources. The Plan Area could include new restaurants, which can be a source of odor complaints. However, the Specific Plan would not site new restaurants directly adjacent to existing residences, so odor complaints are unlikely. Therefore, this impact is considered *less than significant*.

2. Cumulative Impacts

The proposed Plan would not contribute to a regional impact by increasing the rate of vehicle use at a greater rate than population growth. However, build out of the Specific Plan with mitigation may have NOx emissions that could exceed the GAMAQI thresholds. That would mean the project could have a cumulatively considerable increase in air pollutant emissions that may contribute to future violations of ozone ambient air quality standards. As a result, this cumulative impact would be considered *significant*.

F. Impacts and Mitigation Measures

Impact AQ-1: Construction of the Specific Plan could emit significant levels of criteria pollutants, potentially contributing to an existing or projected air quality violation. Because of the project size and the uncertainty of the construction schedule, construction period emissions would be considered to remain significant with mitigation.

Mitigation Measure AQ-1a: Each individual project component of the Specific Plan shall be analyzed for significant construction period air quality impacts. For each project-level analysis, a construction emissions estimate will be made using the latest SJVAPCD accepted methodology and will be compared to accepted thresholds of significance. Means of mitigating construction period impacts to a less-than-significant level include, but are not limited to, Mitigation Measures AQ-1b through AQ-1e.

Mitigation Measure AQ-1b: SJVAPCD Regulation VIII Control Measures. The following controls shall be required to be implemented at all construction sites:

- “ All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover;
- “ All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant;
- “ All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking;
- “ With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition;
- “ When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained;
- “ All 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; and
- “ Any site with 150 or more vehicle trips per day shall prevent carryout and trackout.

Mitigation Measure AQ-1c: Enhanced Control Measures. The following measures should be implemented at construction sites when required to mitigate significant PM₁₀ impacts (note, these measures are to be implemented in addition to Regulation VIII requirements):

- “ Limit traffic speeds on unpaved roads to 15 mph; and
- “ Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.

Mitigation Measure AQ-1d: Additional Control Measures. The following control measures are strongly encouraged by the SJVAPCD at construction sites that are large in area, located near sensitive receptors, or which for any other reason warrant additional emissions reductions:

- “ Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site;
- “ Install wind breaks at windward side(s) of construction areas;
- “ Suspend excavation and grading activity when wind exceeds 20 mph (*Regardless of wind speed, and owner/operator must comply with Regulation VIII's 20 percent opacity limitation.*); and

- “ Limit area subject to excavation, grading, and other construction activity at any one time.

Mitigation Measure AQ-1e: The following measures may be implemented to mitigate emissions from construction equipment exhaust:

- “ Use of alternative-fueled or catalyst-equipped diesel construction equipment;
- “ Minimize idling time (e.g. 5-minute maximum);
- “ Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use;
- “ Replace fossil-fueled equipment with electrically-driven equivalents (provided they are not run via a portable generator set);
- “ Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak-hour of vehicular traffic on adjacent roadways; and
- “ Implement activity management (e.g. rescheduling activities to reduce short-term impacts).

Significance after Mitigation. Fugitive dust emissions would be less than significant with adherence to SJVAPCD Regulation VIII requirements and Mitigation Measures AQ-1a through AQ-1d. There is no certainty that mitigated exhaust emissions would be less than the GAMAQI significance threshold with SJVAPCD Rule 9510 and Mitigation Measures AQ-1a through 1d. The potential to exceed these thresholds with mitigation in place is mostly dependent on the type of construction and the amount of construction that occurs in one year. These are likely to be dependent on future market conditions. The impact, therefore, would be considered *significant and unavoidable*.

Impact AQ-2: Operation of the Specific Plan could emit significant levels of criteria pollutants, potentially contributing to existing or projected air quality violations.

Mitigation Measure AQ-2: Each individual project component of the Specific Plan shall be analyzed for significant construction period air quality impacts. For each project-level analysis, an operational emissions estimate will be made using the latest SJVAPCD accepted methodology and will be compared to accepted thresholds of significance. Means of mitigating operational period impacts to a less-than-significant level include, but are not limited to, improving transportation and transit design (e.g. improved bikeways, transit infrastructure, and pedestrian enhancements); contributing a project's fair share to the Air Quality Mitigation Fee Fund; and contributing a project's fair share towards Transportation Control Measures implementation programs.

Significance after Mitigation. Individual projects would have emissions that would be lower than the total emissions predicted for the Specific Plan. However, large projects that become operation in the early phases could have emissions that exceed the GAMQI thresholds. It is likely that application of SJVAPCD Rule 9510 would reduce these emissions to less than significant. However, it cannot be certain that those emissions would be reduced accordingly until project plans and schedules are identified and included as part of future project Air Impact Assessments performed in accordance with Rule 9510. The impact, therefore, would be considered *significant and unavoidable*.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SPECIFIC PLAN EIR
AIR QUALITY

4.4 BIOLOGICAL RESOURCES

This chapter discusses the existing biological resources in and around the Plan Area and evaluates the potential biological resource impacts associated with the Draft RAAP Specific Plan. The following evaluation assesses special-status species, sensitive biological communities, wetlands, migratory species, and policies and plans intended to protect biological resources.

A. Regulatory Framework

This section summarizes key federal, State, regional and city regulations, and plans and programs that provide protection and management of sensitive biological resources within and around the Plan Area.

1. Federal Regulations

The federal laws that regulate the treatment of biological resources include the Endangered Species Act, the Migratory Bird Treaty Act, and the Clean Water Act. The following sections outline the relevant principles of each.

a. 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 Act protects fish and wildlife species that are listed as threatened or endangered and their habitats. Endangered species, subspecies, or distinct population segments are those that are in danger of extinction through all or a significant portion of their range, and 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.

b. 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 meaning “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.

c. 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. 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 California 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.

d. 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. The NPDES is discussed in detail in Section A.1.c of Chapter 4.7, Hydrology and Water Quality, of this EIR.

2. State Regulations

The most relevant State laws regulating biological resources are the California Endangered Species Act, the California Fish and Game Code, and the California Native Plant Protection Act (CNPPA), each of which is described below.

a. 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 lists, compliance with the federal ESA satisfies CESA if the California Department of Fish and Game (CDFG) 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.

b. California Fish and Game Code

Under the California Fish and Game Code, the DFG provides protection from “take” for a variety of species. The DFG 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 DFG, incorporating necessary mitigation and obtaining a streambed alteration agreement. DFG’s jurisdiction extends to the top of banks and often includes the outer edge of riparian vegetation canopy cover.

c. California Native Plant Protection Act

The CNPPA of 1977 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 CEQA. In this case, plants listed as rare under the CNPPA are not protected under CESA but rather under CEQA.

3. Local and Regional Regulations

This section discusses regulations pertaining to the San Joaquin Valley region and the City of Riverbank.

a. Recovery Plan for Upland Species of San Joaquin Valley, California

The Recovery Plan for Upland Species of San Joaquin Valley was developed by the USFWS to restore sustainable populations of 34 plant and animal species native to the San Joaquin Valley. Of the 34 species, eleven are federally-listed species and 23 are State species of concern. The Plan envisions a network of interconnected conservation areas and reserves representing the range diversity of natural habitats in the San Joaquin Valley, including terrestrial and riparian habitats, with the main goals being to de-list the federally listed species and to ensure long-term conservation for State species of concern.

b. City of Riverbank General Plan

The Riverbank General Plan includes several goals and policies that relate to biological resources within the City of Riverbank. Table 4.4-1 lists these goals and policies.

c. Oak and Landmark Tree Preservation Ordinance

Chapter 156 of the Riverbank Municipal Code lays out provisions intended to conserve and protect Oak and landmark trees within the community. Under the Ordinance, a landmark tree is any tree 6 inches or greater in diameter at breast height, in good health, and which is of significant value to the surrounding area due to qualities such as age, size, location, habitat value, beauty, and historical or cultural significance. All Oak trees 2 inches or greater in diameter at breast height are considered landmark trees. The Ordinance recognizes these trees as an essential part of the city infrastructure, placing high value on the role they play in enhancing the air quality, water quality, and beauty of Riverbank. Building and land development permits are

TABLE 4.4-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO BIOLOGICAL RESOURCES

Goal/Policy Number	Goal/Policy Content
Goal CONS-4	Preserve habitat associated with the Stanislaus River while increasing public access.
Policy CONS- 4.1	Approved projects, plans, and subdivisions shall avoid conversion of habitat within the existing Stanislaus River riparian corridor, including Great Valley Mixed Riparian Forest, Great Valley Willow Scrub, and Riparian Scrub areas, and shall preserve an open space buffer along the Stanislaus River and associated riparian areas. The open space buffer shall be designed to avoid impacts to habitat and special status species in the riparian corridor, as specified in Policy CONS 5.1, Policy CONS 5.2, Policy CONS 5.3, and Policy CONS 5.6, based on project specific biological resource assessment. The precise size of buffer from the river and associated riparian corridor is to be determined by site specific analysis. The riparian corridor preservation and open space buffer shall be provided through a permanent covenant, such as a conservation easement and shall also include an ongoing maintenance agreement with a land trust or other qualified nonprofit organization. The preservation of the riparian corridor and ongoing maintenance agreement is required prior to City approval of any subdivision of property or development project located in areas outside City limits as of January 1, 2007 (see Figure CONS-1). Low impact recreation could be allowed in this buffer area to the extent that impacts to these sensitive habitats are avoided or fully mitigated by demonstrating no net loss of habitat functions or value. Urban development shall not be allowed in this buffer area.
Policy CONS- 4.3	The City will require compliance with the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan for projects to expand Jacob Myers Park, or other projects within San Joaquin County, as applicable.
Goal CONS-5	Preserve the natural diversity in the Riverbank planning area.
Policy CONS- 5.1	Approved projects, plans, and subdivisions shall avoid urban development of the existing Stanislaus River riparian corridor and other habitat that is rare, declining, unique, or supportive of special status species.

TABLE 4.4-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO BIOLOGICAL RESOURCES (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Policy CONS- 5.2	Development applications involving areas with important habitat shall submit site plans that specifically show how development will avoid impacts to habitat that is rare, declining, unique, or supportive of special-status species.
Policy CONS- 5.4	When the loss of important habitat is unavoidable, mitigation measures will be designed to reduce impacts to the maximum extent feasible. This mitigation may include, but is not limited to off-site mitigation banking with restoration and enhancement components. For projects that would affect the function and value of river, stream, lake, pond, or wetland features, each of these features shall be delineated. For wetlands, the delineation shall be conducted in accordance with the US Army Corps of Engineers (USACE) Wetland Delineation Manual and verified by USACE. The project applicant shall determine the exact acreage of important habitat (including those protected by federal, state, regional, and/or local regulations) that would be impacted by project implementation. A mitigation plan to replace or rehabilitate affected habitats in a manner that ensures no net loss of habitat functions and values shall be prepared and implemented in accordance with applicable regulations. The plan shall be reviewed and approved by the appropriate regulatory agencies and all relevant permits and authorizations shall be obtained. Mitigation monitoring shall be conducted to ensure performance criteria are met.
Policy CONS- 5.5	Approved projects, plans, and subdivisions shall comply with applicable federal and state laws and regulations (e.g., federal and State endangered species acts and California Fish and Game Code) that require the protection of special-status species.
Policy CONS- 5.6	For all development projects involving discretionary review that have the potential to affect special status species, the project applicant shall be required to perform a reconnaissance level assessment of the project site for special-status species and their habitat. For projects with the potential to have a substantial adverse effect on special status species, their habitats, or movement corridors, or result in the fragmentation of their habitats, a Biological Inventory Report shall be prepared by a qualified biologist, to determine if, and to what extent special-status species and their habitat may be affected by a proposed project. Projects shall be designed to avoid disturbance or fragmentation of important habitats and wildlife movement corridors. For

TABLE 4.4-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO
 BIOLOGICAL RESOURCES (CONTINUED)

Goal/Policy Number	Goal/Policy Content
	projects where avoidance is not possible, the project applicant shall be required to fully mitigate the effects the development on special-status species, and the loss and/or fragmentation of their habitat.
Policy CONS- 5.7	A mitigation plan shall be prepared and reviewed and approved by the appropriate regulatory agencies for projects where avoidance of adverse effects to special-status species is not feasible, and authorization for take of listed species shall be obtained, if necessary. The mitigation plan shall include measures to minimize potential for effects during project construction (e.g., pre-construction surveys and timing of construction) and measures to compensate for loss of special-status species habitat. Loss of Swainson’s hawk foraging habitat shall be compensated for by preservation and management of foraging habitat of at least a similar quality at an appropriate location. Mitigation plans shall identify an appropriate mitigation site, compensation acreage, performance criteria, and monitoring and management requirements to ensure the site provides suitable habitat for the applicable species. Long-term protection of mitigation lands shall be ensured through fee title acquisition, conservation easement, or other suitable mechanisms. Long-term management of mitigation lands shall be ensured by establishing a management endowment or other suitable funding source. Alternatively, it may be appropriate to contribute funds to existing mitigation programs. Use of such a program shall be approved by the appropriate regulatory agencies.

Source: City of Riverbank General Plan 2005 to 2025.

conditional on approval of a tree protection plan and issue of tree conservation permit by the City. Any permit may be voided if the terms of the Oak and Landmark Tree Ordinance are violated.

B. Existing Conditions

This section describes the existing biological resources on the RAAP site.

1. Biological Communities

This section provides a general description of the biological communities present on the RAAP site. The biological communities in this section are described using lists of common or typical species of flora and fauna that are known or expected to occur in the area.

The RAAP Site is 146 acres and is bounded by Townsend Avenue and railroad tracks in the north, Claribel Road to the south, and Claus Road to the west. Under operation of the US Military, the RAAP Site was the primary manufacturing plant for the RAAP facility. The biological communities present at the site are discussed below.

a. Ruderal Grassland

Ruderal grassland exists on the southern periphery of the RAAP site. This area was a former parking lot site that has become vegetated with non-native plant species. These include yellow starthistle (*Centaurea solstitialis*), wildoat (*Avena fatua*), soft chess (*Bromus hordeaceus*), and dove weed (*Eremocarpus setigerus*).

Wildlife species observed within the ruderal grassland during a previous field study¹ included the American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), western meadowlark (*Sturnella neglecta*), European starling (*Sturnus vulgaris*), lark sparrow (*Chondestes grammacus*), and killdeer (*Charadrius vociferus*). Ruderal grassland areas also provide foraging habitat for raptor species including the red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), and Swainson's hawk (*Buteo swainsoni*); and nesting habitat for the western burrowing owl (*Athene cunicularia*). Mammals observed include deer mouse (*Peromyscus maniculatus*), black-tailed jackrabbit (*Lepus californicus*), and California ground squirrel (*Spermophilus beecheyi*); and reptile species observed include the western fence lizard (*Sceloporus occi-*

¹ US Department of the Army, 2009. *Final Environmental Assessment for BRAC 05 Disposal and Reuse of the Riverbank Army Ammunition Plant, California*, page 4-56.

dentalis), side-blotched lizard (*Uta stansburiana*), and gopher snake (*Pituophis catenifer*).

b. Irrigated Pasture

The irrigated pasture on the RAAP site was formerly annual grassland, but is now irrigated to provide pasture as year-round forage for livestock. The irrigated pasture provides moderate habitat value for wildlife species; however, this area experiences a high level of disturbance from cattle and human traffic. Plant species found in irrigated pastures on the site include Dallis grass (*Paspalum dilatatum*), bird's-foot trefoil (*Lotus corniculatus*), curly dock (*Rumex crispus*), and a few sedge species (*Carex sp.*).

Wildlife species observed within the irrigated pasture include brewer's blackbird (*Euphagus cyanocephalus*), northern mockingbird (*Mimus polyglottos*), western meadowlark, and western kingbird (*Tyrannus verticalis*). The irrigated pasture may also provide foraging habitat for raptor species, and foraging and nesting habitat for western burrowing owls.

c. Emergent Marsh

Emergent marshes develop when areas of land are inundated with water, and are adapted by species such as Cattails (*Typha latifolia*) and arrowhead (*Sagittaria cuneata*), that thrive in water-saturated soils. Emergent marsh areas are important wildlife habitat areas for a variety of bird species, as well as other animals. There are two areas of emergent marsh that develop on the RAAP site; within the stormwater ditch on the southeastern portion of the site; and within the water detention basins in the northwestern portion of the site.

Animal species observed within the emergent marsh area include the red-winged blackbird (*Agelaius phoeniceus*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), bullfrog (*Rana catesbeiana*), and Pacific treefrog (*Hyla regilla*).

d. Wetland

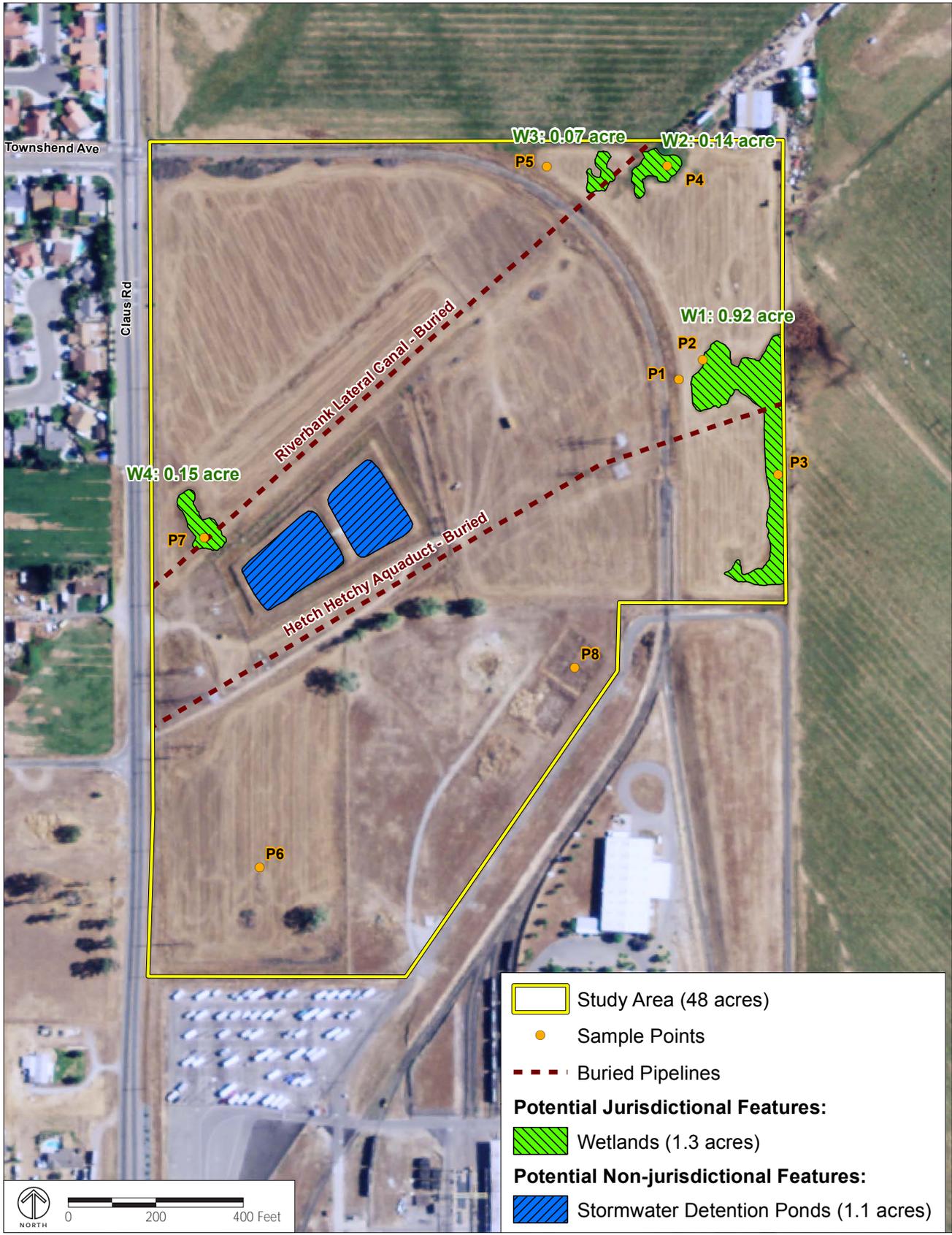
In 2012, WRA Environmental Consultants prepared a wetland delineation and determined that 1.3 acres of wetlands located within the RAAP site may be considered jurisdictional under Section 404 of the Clean Water Act. The wetland areas were seasonal wetlands dominated by facultative to facultative wet wetland species including wild rye, hyssop loosestrife, flat-leaf rush, rabbit's foot grass, and nut sedge. Wetter portions of the wetlands were dominated by spike rush and in one case cattails. Soils in areas identified as seasonal wetlands generally consisted of native soils, and contained redoximorphic features such as iron concentrations. The WRA report concluded that the wetland areas appear to be isolated depressions as they are not tributary to a "navigable waters of the US" Therefore they may be exempt from Section 404 jurisdiction as isolated wetlands. Figure 4.4-1 shows the areas within the RAAP site that may be considered wetlands.

e. Developed Land

Developed land on the RAAP site is sparsely vegetated with non-native species that provide little, if any, habitat value to wildlife species. These buildings, particularly abandoned buildings, may provide structural habitat for bat species. Bat roosts may include day roosts or maternity roosts; however, the presence or absence has not been determined as the buildings have not been surveyed.

f. Riparian Woodland

The periphery of the ponds supports a healthy and diverse structure of mature riparian woodland. Riparian woodland habitat consists of tall, dense, deciduous, broadleaf trees that prefer the alluvial soils of riverbanks. In the San Joaquin Valley, typical riparian woodland species include Fremont cottonwood (*Populus fremontii*), California box elder (*Acer negundo ssp. californicum*), black willow (*Salix gooddingii*), western sycamore (*Planatus racemosa*), and valley oak (*Quercus lobata*). Mature riparian woodland has a multilayered understory, which is comprised of species such as the arroyo willow (*Salix lasiolepis*) and blue elderberry (*Sambucus mexicana*). Common herbaceous



Source: WRA Environmental Consultants, 2011.

FIGURE 4.4-1
 POTENTIAL JURISDICTIONAL WETLANDS

species at the bottom understory level include Mugwort (*Artemisia douglasiana*), Mexican tea (*Chenopodium ambrosioides*), and California creek nettle (*Urtica dioica ssp. garcilis var. californica*).

Riparian woodland areas serve as foraging, nesting, and refuge habitat for a variety of bird species, including song birds, raptors, and water fowl. Mammals found in riparian woodland communities include the Western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and mule deer (*Odocoileus hemionus*). Bat species that roost in woodlands could establish day roosts and maternity roosts in established riparian forests.²

g. Ruderal Grassland

The ponds are regularly maintained and are devoid of wild vegetation, except for ruderal grassland that is present around pond edges, as described in Section B.1.a.i, above.

2. Special-Status Species

Special-status species are plants and animals that are legally protected under the ESA, CESA, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species are defined as:

- “ Species listed or proposed for listing as threatened or endangered under the ESA (50 CFR 17.11 [listed animals], 50 CFR 17.12 [listed plants], and various notices in the Federal Register [FR] [proposed species]).
- “ Species that are candidates for possible future listing as threatened or endangered under the ESA (72 FR 69034, December 6, 2007).

² US Department of the Army, 2009. *Final Environmental Assessment for BRAC 05 Disposal and Reuse of the Riverbank Army Ammunition Plant, California*, page 4-57.

- “ Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 California Code of Regulations [CCR] 670.5).
- “ Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).
- “ Plants listed as rare under the CNPPA (California Fish and Game Code 1900 et seq).
- “ Plants considered by the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (California Native Plant Society, 2008).
- “ Plants listed by CNPS as plants about which more information is needed to determine their status, and plants of limited distribution, which may be included as special-status species on the basis of local significance or recent biological information (California Native Plant Society, 2008).
- “ Animal species of special concern to the CDFG (2009).
- “ Animals fully protected in California (California Fish and Game Code 3,511 [birds], 4,700 [mammals], 5,050 [amphibians and reptiles], and 5,515 [fish]).

The following information on special-status species for the RAAP site is based on information from the US Army’s Environmental Assessment (EA).³ There were no species-specific surveys conducted and no special-status wildlife species observed for the purposes of this EIR. The occurrence of these species was determined during field studies for the *Biological Resource Study at the Riverbank Ammunition Plant and Wastewater Treatment Ponds, Stanislaus County, California*, produced by Jones & Stokes in 2007 as a technical report for the EA.

³ US Department of the Army, 2009. *Final Environmental Assessment for BRAC 05 Disposal and Reuse of the Riverbank Army Ammunition Plant, California*, page 4-58.

The special-status plant species known or expected to occur in the RAAP region are listed in Table 4.4-2. The EA notes that these species were also identified based on a review of California Natural Diversity Database (CNDDDB) and California Native Plant Society (CNPS) occurrences for special-status plant species reported in the Riverbank USGS quadrangle and for Stanislaus County. As described in the column titled, *Likelihood of Occurrence in the Study Area*, none of the ten plant species having potential to occur in the project area are likely to be found there. The explanation for this is that the majority of the special-status species are associated with seasonal wetlands, such as vernal pools, which do not occur in the project area. Also, of the three species known to occur in annual grassland habitat, big tarplant, beaked clarkia, and Hartweg's golden sunburst, two occur at elevations ranging between 95 and 1,640 feet, which are generally higher than the average elevation of the RAAP site of 135 feet. The Hartweg's golden sunburst does occur at the RAAP elevation; however, the grassland habitat that supports this species is so heavily degraded and disturbed in the study area that is unlikely that this species exists at the RAAP installation.

The special-status animal species known or expected to occur in the RAAP region are listed in Table 4.4-3. The EA notes that the review of special-status animal species for the RAAP installation was based on CNDDDB records, the San Joaquin County Multi-Species Habitat Conservation Plan, and the City of Riverbank General Plan. Of the 20 special-status wildlife species identified as having potential to occur within the project area, not all species have a strong likelihood of occurring. Six of these species – vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, giant garter snake, greater western mastiff bat, and San Joaquin kit fox, are highly unlikely to occur in the vicinity of the Plan Area. The reason these species are unlikely to occur is because the project area either has no suitable habitat, such as vernal pool habitat, or the project area is outside of the species' range.

In addition, a biological reconnaissance for special-status species was performed for the City of Riverbank General Plan EIR. The General Plan EIR

TABLE 4.4-2 SPECIAL-STATUS PLANT SPECIES KNOWN TO OCCUR IN THE REGION OF RAAP

Common & Scientific Names	Legal Status^a Federal/State/ CNPS	Geographic Distribution/ Floristic Province	Habitat Requirements	Blooming Period	Likelihood of Occurrence in the Study Area
Big tarplant <i>Blepharizonia plumose</i>	-/-/1B.1	Western San Joaquin Valley, San Francisco Bay area, South Coast Ranges	Valley and foothill grassland; 30–505 meters	Jul–Oct	Not present; study area is outside elevational range of this species.
Succulent owl’s-clover <i>Castilleja campestris</i> ssp. <i>Succulenta</i>	T/E/1B.2	Southern Sierra Nevada foothills, eastern San Joaquin Valley	Vernal pools (often acidic); 50–750 meters	Apr–May	Not present; no suitable habitat available, study area is outside elevational range of this species.
Hoover’s spurge <i>Chamaesyce hooveri</i>	T/-/1B.2	Central Valley from Tehama to Tulare Counties	Vernal pools; 25–250 meters	Jul–Aug	Not present; no suitable habitat available, study area is outside elevational range of this species.
Beaked clarkia <i>Clarkia rostrata</i>	-/-/1B.3	Central Sierra Nevada foothills, San Joaquin Valley	Cismontane woodland, valley and foothill grassland; 60–500 meters	Apr–May	Not present; study area is outside elevational range of this species.
Legenere <i>Legenere limosa</i>	-/-/1B.1	Sacramento Valley, North Coast Ranges, northern San Joaquin Valley, and Santa Cruz mountains.	Vernal pools; below 880 meters	May–Jun	Not present; no suitable habitat available
Colusa grass <i>Neostapfia colusana</i>	T/E/1B.1	Central Valley with scattered occurrences from Colusa to Merced Counties	Adobe soils of vernal pools; 5–200 meters	May–Aug	Not present; no suitable habitat available
San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	T/E/1B.1	San Joaquin Valley from Solano to Tulare Counties	Vernal pools; 10–755 meters	Apr–Sep	Not present; no suitable habitat available
Hairy Orcutt grass <i>Orcuttia pilosa</i>	E/E/1B.1	Central Valley from Tehama to Madera Counties	Vernal pools; 55–200 meters	May–Sep	Not present; no suitable habitat available; study area is outside elevational range of this species.
Hartweg’s golden sunburst <i>Pseudobahia bahiifolia</i>	E/E/1B.1	Central Sierra Nevada foothills, eastern San Joaquin Valley	Clay soils in valley and foothill grassland; 15–150 meters	Mar–Apr	Low; habitat conditions of poor quality (i.e. ruderal annual grassland) and suitable microhabitat (clay soils) may not be present. No known occurrences within 5 mi.

TABLE 4.4-2 SPECIAL-STATUS PLANT SPECIES KNOWN TO OCCUR IN THE REGION OF RAAP (CONTINUED)

Common & Scientific Names	Legal Status ^a Federal/State/ CNPS	Geographic Distribution/ Floristic Province	Habitat Requirements	Blooming Period	Likelihood of Occurrence in the Study Area
Greene's tuctoria <i>Tuctoria greenei</i>	E/-/1B.1	Scattered distribution along eastern Central Valley and foothills from Shasta County to Tulare County	Dry vernal pools; elevation 30-1070 meters	May-Sep	Not present; no suitable habitat available, study area is outside elevational range of this species.

^a Status explanations:

Federal

E = listed as endangered under the federal ESA.

T = listed as threatened under the federal ESA.

- = no listing.

State

E = listed as endangered under the California ESA.

- = no listing.

California Native Plant Society (CNPS)

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

.1 = seriously endangered in California

.2 = fairly endangered in California

.3 = not very endangered in California

TABLE 4.4-3 SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR AT RAAP AREAS

Common & Scientific Names	Status^a Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in the Study Area
Invertebrates				
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/--	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County.	Common in vernal pools; also found in sandstone rock outcrop pools.	None. No suitable habitat in study area.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E/--	Shasta County south to Merced County	Vernal pools and ephemeral stock Ponds	None. No suitable habitat in study area.
Amphibians				
California tiger salamander <i>Ambystoma californiense</i>	T/SSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County.	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy.	None. No suitable habitat in study area.
Reptiles				
Giant garter snake <i>Thamnophis couchii gigas</i>	T/T	Central Valley from the vicinity of Burrel in Fresno County north to near Chico in Butte County; has been extirpated from areas south of Fresno	Sloughs, canals, low-gradient streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	None. No suitable habitat in study area.
Birds				
Swainson's hawk <i>Buteo swainsoni</i>	--/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields.	High potential to nest in riparian forests along Stanislaus River and forage in ruderal grassland and irrigated pasture.

TABLE 4.4-3 SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR AT RAAP AREAS (CONTINUED)

Common & Scientific Names	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in the Study Area
Tricolored blackbird <i>Agelaius tricolor</i>	--/SSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony.	Low potential to nest in emergent marsh.
Western burrowing owl <i>Athene cunicularia hypugaea</i>	--/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows	High potential to nest and forage in ruderal grassland at ammunition plant.
White-tailed kite <i>Elanus leucurus</i>	--/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	High potential to nest in riparian forests along Stanislaus River and forage in ruderal grassland and irrigated pasture.
Mammals				
Greater western mastiff bat <i>Eumops perotis californicus</i>	--/SSC	Occurs along the western Sierra primarily at low to mid elevations and widely distributed throughout the southern coast ranges. Recent surveys have detected the species north to the Oregon border.	Found in a wide variety of habitats from desert scrub to montane conifer. Roosts and breeds in deep, narrow rock crevices, but may also use crevices in trees, buildings, and tunnels.	None. No suitable habitat in study area.
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	E/T	Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County.	Saltbush scrub, grassland, oak, savanna, and freshwater scrub	None. No suitable habitat in study area.

TABLE 4.4-3 SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR AT RAAP AREAS (CONTINUED)

Common & Scientific Names	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in the Study Area
Townsend's western big-eared bat <i>Corynorhinus townsendii townsendii</i>	--/SSC	Coastal regions from Del Norte County south to Santa Barbara County	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings. Very sensitive to disturbances and may abandon a roost after one on-site visit.	Low potential to roost in buildings at ammunition plant.

^a Status explanations:

Federal

E = listed as endangered under the federal ESA.
 T = listed as threatened under the federal ESA.
 - = no listing.

State

E = listed as endangered under the California ESA.
 T = listed as threatened under the California ESA.
 FP = fully protected under the California Fish and Game Code.
 SSC = species of special concern in California.
 - = no listing.

determined that the snowy egret and the black-shrouded kite are likely to occur at the RAAP site and within its immediate surroundings.

The RAAP site does, however, provide suitable habitat for special-status animals. The ruderal grassland and irrigated pasture communities provide nesting and foraging habitat for the western burrowing owl and foraging habitat for Swainson's hawk and white-tailed kite. The emergent marsh located in the detention pond provides marginal nesting habitat for the tricolored blackbird. No survey for bats has been conducted in the existing buildings, however, possible bat habitat does exist. The potential for the Western Townsend's big-eared bat, a state species of special concern, and Mexican free-tail bats (*Tadarida brasiliensis*) and Yuma myotis (*Myotis yumanensis*), other non-special-status bat species, to roost in the numerous large buildings on the site is dependent on the lack of human activity in some of the older buildings.

C. Standards of Significance

Implementation of the Draft RAAP Site Specific Plan would result in future development that would have a significant biological resource impact if they would:

- a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS, or as defined under CEQA Guidelines Section 15380a.
- b. 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 CDFG or USFWS.
- c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

- d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- e. Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinances.
- f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan..

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative biological resource impacts that could occur as a result of implementation of the Draft RAAP Site Specific Plan.

1. Project Impacts

- a. Have a substantial adverse effect, either directly or through habitat modifications, on a plant or animal population, or essential habitat, defined as a candidate, sensitive or special-status species.

There are ten special-status plant species and eleven special-status animal species known to be present in the general vicinity of the two non-contiguous sites which make up the Plan Area. Potential impacts to special-status plant and animal species on each of the two sites are discussed below.

i. Special-Status Plant Species

Although there are special-status plant species known to occur in the general vicinity of the RAAP site, as shown on Table 4.4-2, the site does not contain suitable habitat for the majority of these plants, which occur in seasonal wetland areas that do not exist inside the boundaries of the Plan Area. The big tarplant and beaked clarkia, for example, occur on grasslands at higher elevations than in the Plan Area. Habitat conditions for the tenth species, Hartweg's golden sunburst (*Pseudobahia bahiifolia*), are poor as the grassland area

located within the RAAP site is heavily degraded and disturbed. Consequently, the Plan Area is unlikely to support this species. Buildout of the Plan would therefore result in a *less-than-significant* impact to special-status plant species.

ii. Special-Status Animal Species

None of the 11 special-status animal species found in the surrounding area are known to occupy the Plan Area and the property is not known to provide nesting or important hunting areas for any special-status animal. Additionally, as shown in Table 4.4-2, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, giant garter snake, greater western mastiff bat, and San Joaquin kit fox are all highly unlikely to be present because the site does not contain suitable habitat or elevation to support them. However, several migratory or transient species could potentially pass through the RAAP site.

Sections of the RAAP site with ruderal grassland and irrigated pasture provide suitable habitat for western burrowing owl and suitable foraging habitat for Swainson's hawk and white tailed kite. Future development in the Plan Area would remove these sections of suitable habitat, although none of the potentially affected species are known to occupy the Plan Area. In compliance with General Plan Policy CONS-5.7, lost Swainson's hawk foraging habitat would be compensated by preservation and management of foraging habitat of similar quality at an appropriate location as approved by CDFG. Implementation of the Plan could also involve the preservation of the existing wetlands area adjacent to the northeast stormwater retention pond on the site, which would increase the amount of potential nesting habitat available to tricolored blackbirds and red-winged blackbirds. This would be a beneficial effect and, overall, buildout of the Specific Plan would not result in a significant adverse impact to any special-status birds.

The eaves of many buildings in the RAAP site, particularly those buildings that have been abandoned, could offer roosting habitat to Townsend's big-eared bats. Future development in the Specific Plan Area could involve dem-

olition and redevelopment of many buildings on the site, and as such, could destroy, disturb, or interfere with the maternity roosts of this special-status bat species. This is a *potentially significant* impact.

- b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community type.

The Plan Area does not contain riparian habitat. As discussed above, the Specific Plan would include the preservation of important open spaces containing biological habitat. As a result, implementation of the Specific Plan would have a *less-than-significant impact* on riparian habitat and sensitive natural community types.

- c. Have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the Clean Water Act, through direct removal, filling, hydrological interruption, or other means.

As shown in Figure 4.4-1, 1.3 acres of wetlands are located within the project site. However, these areas appear to be isolated depressions as they are not tributary to a “navigable waters of the US” Furthermore, vegetation within the Study Area consists primarily of cut hay, and uncultivated areas were dominated by ruderal, non-native grass and herbaceous species. Therefore the wetlands located within the RAAP site may be exempt from Section 404 jurisdiction because they are considered isolated wetlands. As a result, a *less-than-significant* impact would occur.

- d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species, their wildlife corridors or nursery sites.

Buildout of the Plan would involve development of RAAP site that is currently undeveloped ruderal grassland and emergent marsh. Although the RAAP site is already largely built out, additional development in this area would diminish foraging grounds for raptors and other migratory bird species. However, the northwest stormwater retention pond, shown in Figure 4.4-1, would be preserved and would provide habitat for tricolored blackbirds and red-winged blackbirds. Additionally, open space and agricultural land in the vicinity of the RAAP site would remain in its current condition, accessible to

migratory birds. Potential impacts to migratory bat species would be precluded to the maximum extent practicable by Mitigation Measure BIO-1, described below. Therefore, overall, impacts to migratory species and wildlife corridors from the Plan would be *less than significant*.

- e. Conflict with any local ordinances or policies protecting biological resources.

As described above, buildout of the Plan would comply with General Plan Policy CONS-5.4 with respect to the delineation and net protection of wetlands and with Policy CONS-5.7 regarding loss of Swainson's hawk foraging habitat. As required in General Plan Policy CONS-5.7, future project applicants in the Plan Area would prepare a mitigation plan for review and approval by the appropriate regulatory agencies, including the CDFG, to minimize the potential impacts during construction and to compensate for loss of Swainson's hawk foraging habitat by identifying an appropriate mitigation site, compensation acreage, performance criteria, and monitoring requirements. There would be no conflict with other General Plan policies protecting biological resources. There are no Oak or landmark trees on the RAAP site. Therefore, overall, there would be no conflicts with local ordinances or policies protecting biological resources and impacts would be *less than significant*.

- f. Conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or State habitat conservation plan.

The Plan would have a significant impact if it would conflict with the Recovery Plan for Upland Species of San Joaquin Valley (RPUSSJV). Three species protected under the RPUSSJV are potentially present in the Plan Area: the San Joaquin kit fox, Riparian (San Joaquin Valley) woodrat, and Riparian brush rabbit. As described above, San Joaquin kit fox is highly unlikely to be present inside the boundaries of the RAAP site because the site does not contain suitable habitat for this species. Additionally, Riparian (San Joaquin Valley) woodrat and Riparian brush rabbit are restricted to mature riparian forests on the Central Valley floor and are not known to be present inside the

boundaries of the Plan Area. Buildout of the Plan would not adversely affect these species and therefore no conflict with the RPUSSJV would result, therefore, *no impact* would occur.

2. Cumulative Impacts

This cumulative analysis considers the implementation of the Draft RAAP Specific Plan in the context of the City of Riverbank General Plan. The Specific Plan proposes development that includes an increase in industrial, office and retail space within a large parcel that currently contains industrial uses. Much of this development would occur in areas currently vacant and not containing sensitive habitat. Some filling of wetland areas within the RAAP site may result from development under the Specific Plan; however, these activities are expected to be limited.

Land uses surrounding the RAAP site include residential commercial, and agriculture. Development as proposed under the Specific Plan does not extend services in a way that would increase development pressure on natural or open space areas in the region because the site is currently being used as an industrial installation. Furthermore, primary biological resources of importance are located along the San Joaquin River, over a mile north of the project site. The Specific Plan would not result in a significant cumulative loss of biological resources due to direct loss of resources, increased use near the resources, or development pressure that would remove the resources. There would be a *less-than-significant* cumulative impact.

E. Impacts and Mitigation Measures

Impact BIO-1: Buildout of the Plan would involve the demolition or redevelopment of buildings on the RAAP site where the maternity roosts of Townsend's big-eared bats are potentially present. This could result in the destruction, disturbance, or interference with the maternity roosts of a special-species bat.

Mitigation Measure BIO-1: Implementation of the Plan shall avoid disturbance to the maternity roosts of special-status bats during the breeding season in accordance with the following procedures for Pre-Construction Special-Status Bat Surveys and Subsequent Actions. No more than two weeks in advance of any demolition or construction activity involving concrete breaking or similarly noisy or intrusive activities, that would commence during the pup-rearing season (April 15 through August 31), or winter hibernacula season (October 15 through March 1, depending on weather conditions) a qualified bat biologist, acceptable to the CDFG, shall conduct pre-demolition surveys of all potential special-status bat breeding habitat in the vicinity of the planned activity. Depending on the survey findings, the following actions shall be taken to avoid potential adverse effects on breeding special-status bats:

1. If active roosts are identified during pre-construction surveys, a no disturbance buffer will be created by the qualified bat biologist, in consultation with the CDFG, around active roosts during the breeding season. The size of the buffer will take into account factors such as the following:
 - “ Noise and human disturbance levels at the project site and the roost site at the time of the survey and the noise and disturbance expected during the construction activity;
 - “ Distance and amount of vegetation or other screening between the project site and the roost; and
 - “ Sensitivity of individual nesting species and the behaviors of the bats.
2. If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required.
3. Pre-construction surveys are not required for demolition or construction activities scheduled to occur during the non-breeding and winter hibernacula season (September 1 through October 15, and March 1 through April 15).

4. Noisy demolition or construction activities as described above (or activities producing similar substantial increases in noise and activity levels in the vicinity) commencing during the non-breeding season and continuing into the breeding season do not require surveys (as it is assumed that any bats taking up roosts would be acclimated to project-related activities already under way). However, if trees are to be removed during the breeding season, the trees would be surveyed for roosts prior to their removal, according to the survey and protective action guidelines 1a through 1c, above.
5. Bat roosts initiated during demolition or construction activities are presumed to be unaffected by the activity, and a buffer is not necessary.
6. Destruction of roosts of special-status bats and overt interference with roosting activities of special-status bats shall be prohibited.
7. The noise control procedures for maximum noise, equipment, and operations identified in Chapter 4.12, Noise, of this EIR shall be implemented.

Implementation of the above mitigation measure would reduce potential impacts to the maximum extent practicable.

Significance After Mitigation: *Less than Significant*

4.5 CULTURAL RESOURCES

This chapter discusses cultural resources in the Plan Area and evaluates the potential cultural resource impacts associated with the draft RAAP Site Specific Plan. The following evaluation assesses historical, archaeological, and paleontological resources, as well as potential impacts associated with the disturbance of human remains.

A. Regulatory Framework

This section summarizes key federal and State regulations and policies that apply to historical, archaeological, and paleontological resources and human remains.

1. National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) is the most influential federal law dealing with historic preservation. In addition, Congress has enacted numerous other statutes that affect historic properties. One of the most important provisions of the NHPA is the establishment of the National Register of Historic Places (NRHP), the official designation of historical resources. Districts, sites, buildings, structures and objects are eligible for listing in the Register. Nominations are listed if they are significant in American history, architecture, archeology, engineering, and/or culture. The NRHP is administered by the National Park Service. To be eligible for the NRHP, a property must be significant under Criterion A (history), Criterion B (persons), or Criterion C (design/construction); possess integrity; and ordinarily be 50 years of age or more.

Listing in the NRHP does not entail specific protection or assistance for a property, but it does guarantee recognition in planning for federal or federally-assisted projects (see Section 106), eligibility for federal tax benefits and qualification for federal historic preservation assistance.¹ The NRHP is influ-

¹ The National Parks Service. Website <http://www.nps.gov/history/local-law/nhpa1966.htm> accessed on September 3, 2009.

² 2009 CEQA Guidelines, Section 15064.5(c), page 126.

ential beyond its statutory role because it achieves uniform standards of documentation and evaluation. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

2. California Register of Historic Resources

The California Register of Historical Resources (CRHR) establishes a list of those properties that are to be protected from substantial adverse change (Public Resources Code Section 5024.1). A historical resource may be listed in the CRHR if it meets any of the following criteria:

- “ It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- “ It is associated with the lives of persons important in California's past.
- “ It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value.
- “ It has yielded or is likely to yield information important in prehistory or history.

The CRHR includes properties that are listed or have been formally determined to be eligible for listing in the NRHP, State Historical Landmarks and eligible Points of Historical Interest. Other resources require nomination for inclusion in the Register. These may include resources contributing to the significance of a local historic district, individual historical resources, historical resources identified in historic resource surveys conducted in accordance with State Historic Preservation Office (SHPO) procedures, historic resources or districts designated under a local ordinance consistent with State Historic Resources Commission procedures and local landmarks or historic properties designated under local ordinance.²

² The California Environmental Resources Evaluation System. Website <http://ceres.ca.gov/ceqa/more/tas/page2.html>, accessed on September 3, 2009.

The CRHR was been created to allow local agencies, private groups, and citizens to identify and register California's historic resources so that they may be recognized and protected. The CRHR is modeled closely on the National Register of Historic Places, the primary federal inventory of historic properties. A resource may be eligible to the CRHR at a local, state, or national level. The eligibility criteria state that a site must be considered significant under Criterion 1 (history), Criterion 2 (persons), Criterion 3 (design), or Criterion 4 (potential to yield information); possess integrity; and be classified as a building, structure, object, site, or district.

3. California Public Resources Code

Section 5097 of the Public Resources Code specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal land. The disposition of Native American burial falls within the jurisdiction of the California Native American Heritage Commission (NAHC). Section 5097.5 of the Code states the following:

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

As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the State or any city, county, district, authority or public corporation, or any agency thereof. Consequently, the City of Riverbank is required to comply with Public Resource Code Section 5097.5 for its activities on publicly-owned land.³

³ California Department of Transportation. Website <http://www.dot.ca.gov/ser/vol1/sec3/physical/Ch08Paleo/chap08paleo.htm#statelaws>, accessed December 3, 2009.

4. California State Health and Safety Code

Section 7052 of the California State Health and Safety Code states that the disturbance of Native American cemeteries is a felony. Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the NAHC.⁴

5. California State Senate Bill 18

Implementation of Senate Bill (SB) 18, which went into effect January 1, 2005, set forth new requirements for local governments (cities and counties) to consult with Native American tribes to aid in the protection of traditional tribal cultural places through local land use planning.⁵ The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early stage of planning for the purpose of protecting, or mitigating impacts to, cultural places. The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before individual site-specific, project-level land use designations are made by a local government.

6. City of Riverbank

The Riverbank General Plan includes several goals and policies that relate to preservation of cultural resources within the city. Table 4.5-1 provides a list of these goals and policies.

⁴ The California Environmental Resources Evaluation System. Website <http://ceres.ca.gov/nahc/has.html>, accessed on December 3, 2009.

⁵ SB 18 amends Government Sections (GC) 65040.2, 65092, 65351, and 65560, while adding GC Sections 65352.3, 65352.4 and 65562.5.

TABLE 4.5-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO CULTURAL RESOURCES

Goal/Policy Number	Goal/Policy Content
Goal CONS-1	Maintain Riverbank’s historic resources.
Policy CONS-1.1	Historically significant buildings shall not be demolished or changed in way that affects their historic value, except to protect public health and safety, or where saving the structure is infeasible.
Policy CONS-1.2	Buildings and other cultural resources that are not historically significant, but have historical or architectural value should be preserved or relocated, wherever feasible. Where this is not feasible, the resource shall be documented and the information retained in a secure, but publicly accessible location. An acknowledgment of the resource should be incorporated in historic signage and the reuse or display of historic materials and artifacts.
Policy CONS-1.3	The City will promote and encourage adaptive reuse of historic buildings. Consistent with health, safety, and other basic considerations, the City will be flexible in applying building and zoning standards to encourage continued use and adaptive reuse of historic buildings.
Policy CONS-1.4	The City shall coordinate with local, State, and federal agencies to ensure that historic preservation regulations are implemented.
Goal CONS-2	Minimize negative impacts to archaeological resources.
Policy CONS-2.1	Approved projects, plans, and subdivision requests shall incorporate all available measures, with a preference for avoidance, to reduce or eliminate impacts to known and unknown archaeological and paleontological resources.
Policy CONS-2.2	All Native American cultural and archaeological sites shall be protected permanently from urban development, wherever possible.
Policy CONS-2.3	The City shall restrict the circulation of cultural resource locational information to prevent potential site vandalism.
Policy CONS-2.4	The City shall not knowingly approve any public or private project that may adversely affect an archaeological site without first consulting with the Central California Information Center of the California Historical Resources Information System (CHRIS) and, if necessary, consulting with a qualified professional archaeologist regarding the significance of the site. Implementation of this policy shall be guided by Section 15064.5 of the State CEQA guidelines.

TABLE 4.5-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO
 CULTURAL RESOURCES (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Policy CONS-2.5	As guided by State law, in the event of the inadvertent discovery of previously unknown archaeological sites during excavation or construction, all construction affecting the site shall cease and the contractor shall contact the appropriate City agency. If Native American human remains are discovered, the City shall work with local Native American representatives to ensure that the remains and associated artifacts are treated in a respectful and dignified manner.

Source: City of Riverbank General Plan 2005-2025.

B. Existing Conditions

This section described the existing conditions pertaining to cultural resources in the RAAP Plan Area and its surroundings.

1. Historic Context

a. From Pre-historic Times to the 20th Century

When the first Spanish missionaries came east to the lower San Joaquin River in 1776, the valley floor was inhabited by groups who called themselves “Yokuts” and groups living along the Stanislaus River were known as Lakisamne Yokuts.⁶ Estimates of the number of valley Yokuts at this time range from 11,000 to 31,000, and more than 50 burial sites, some as large as 45 acres, have been found, indicating a substantial population. The Spanish reached the Stanislaus River in 1806, establishing missions. From 1828 to 1829, Estanislao, Chief of the Laquisismas Yokuts, lead a rebellion against the missions. Ultimately, the rebellion was suppressed, but Stanislaus County derives its name from the vanquished Chief.

⁶ City of Riverbank, 2005. City of Riverbank General Plan Draft Environmental Impact Report, page 4.6-1.

Mexico gained independence from Spain in 1821 and controlled the area around what is now Riverbank until 1846, when the US took control of what is now the State of California at the end of the Mexican War. The Mexicans referred to an area of some 35,000 acres of land between present-day Riverbank and Oakdale as the San Joaquin District. Early settlements in the central valley were established along the rivers, the primary transportation routes available at the time. With California's gold rush in 1849, a stampede of people flooded the state, seeking their fortunes. Following the gold rush many stayed to establish towns and cities in northern California.

Stanislaus County was established in 1854, and transportation into the area became easier with the advent of river steamers and better roads. Population grew rapidly after that, tripling between 1860 and 1870. Cattle and wheat became important exports for the County in the 1800s, driving the construction of railways. In 1896, the community of Riverbank was established, becoming the location of the railroad division terminal for the Atchison, Topeka, and Santa Fe Railroad companies in 1910. Riverbank incorporated as a California municipality in 1922.

b. Riverbank Army Ammunition Plant

With World War II came an increased need for aluminum, a necessity in the production of aircraft and a commodity the United States had limited ability to produce. Faced with aluminum shortages, construction of the Riverbank Army Ammunition Plant (RAAP) was authorized in August 1941.⁷ The RAAP was one of nine new aluminum production facilities on the West Coast funded by the Defense Plant Corporation, (DPC) under the Reconstruction Finance Corporation (RFC). Since aluminum production requires large amounts of energy, most of these plants were located near hydro-electric power sources. The RAAP drew power from the Hetch Hetchy transmission line, which passes through the Plan Area. The location was also selected for its proximity to the Atchison, Topeka & Santa Fe Railway, which allowed

⁷ Knapp Architects, 2009. *Historical Resources Assessment Riverbank Army Ammunition Plant Riverbank, California*, page 7.

for the transport of aluminum ore into, and aluminum ingots out of, the facility. The concentration of shipyards and aircraft production facilities in operation during World War II in the San Francisco Bay Area made Riverbank a convenient location for the aluminum plant.

Operated by the Aluminum Company of America, (later ALCOA) the RAAP originally consisted of 27 buildings. Configured with six single-story, steel-frame “Pot Rooms” (Buildings 1-6) laid out in parallel rows, annual output capacity of the RAAP was 96,000,000 pounds.⁸ Each Pot Room was 46 by 743 feet, and contained 64 smelting pots in which alumina was electrolytically reduced. Each building was fed by large silo-like structures which moved along an overhead rail system depositing ore in the pots. Perpendicular to these buildings was the two-story brick Rectifier Building (Building 13) which supplied power to the Pot Rooms. In case of burned-out transformers, a frequent occurrence, a set of railroad tracks led north from the Rectifier Building toward the Transformer Repair Building (Building 15). These tracks could be used to carry the massive transformers back and forth to the high-bay repair building where huge cranes lifted them to repair stations.

Flanking the Pot Rooms was the Carbon Rodding Building (Building 7), and opposite the Rectifier Building, on the east end of the Pot Rooms, was the Metal Service Building (Building 8). The Metal Shop (Building 9) and Carbon Unloading and Shipping Building (Building 10), Ore Unloading Building (Building 11), and Boiler House (Building 12) lay north of the cluster of smelting buildings. The Dispensary/Washroom (Building 14) greeted workers as they left building 7, and just further south lay a cluster of administrative brick buildings (Buildings 16-18). These structures, unlike the industrial buildings dominating the site, incorporated more architectural detail, with keystoned, splayed lintels at doors and windows, gabled roofs, and regular fenestration in a domestic-institutional pattern.

⁸ Knapp Architects, 2009. *Historical Resources Assessment Riverbank Army Ammunition Plant Riverbank, California*, page 7.

With the close of World War II, the need for aluminum dropped substantially, and the RAAP was declared surplus and closed in August of 1944 after only one year in production. The Kaiser Corporation purchased the aluminum production equipment, and the facility was used to store surplus grain while the local government struggled to come up with a more productive use for the plant.

The Korean War provided the next opportunity for the facility's reuse, and in 1951 the plant was converted to manufacture steel cartridge casings, operating under Norris Industries. Contracting with Bechtel Corporation, Norris Industries ordered the installation of six production lines in Buildings 1-6, which allowed for the production of 90-millimeter (mm) and 105-mm cartridge cases and US Navy 3"/50 and 5"/38 caliber cases. Building 3 was enlarged to accommodate presses, and Building 120 was erected to house heat-treating facilities. The production lines were supported by a rash of new buildings, and by the end of the Korean War, there were over one hundred buildings on the site. The plant operated from 1952 to 1958, when it was again declared surplus and deactivated. The facility was unsuccessfully put up for sale in 1963.

In 1966 the plant was again reactivated to produce cartridge casings and mortar projectiles for use in the Vietnam War. Bechtel Corporation helped retrofit the facilities, and Buildings 2, 3, and 4 were outfitted to produce 105-mm cartridge casings, while Building 1 produced mortar projectiles in addition to cartridge casings. Building 7 was also outfitted to produce 81-mm mortar projectiles. The plant stayed in full operation until 1975.

Although lines 2 through 7 were temporarily decommissioned, line 1 was retrofitted in 1975 to produce 81-mm projectiles, and in 1976, Building 6 was outfitted to produce grenade body assemblies. As production waned, Norris Industries was permitted to lease excess space on the site to private tenants involved in light and heavy industry through the US Army's Armament Re-tooling and Manufacturing Support (ARMS) program. In 2005, the Base Realignment and Closure Commission (BRAC), convened by the US Congress,

recommended that the RAAP be closed and manufacturing operations overseen by Norris Industries be relocated to the Rock Island Arsenal in Illinois. Production of ammunition at the RAAP ceased in 2010 although some private tenants continue to use space in the facility today.

2. Archaeological and Paleontological Resources

California's prehistoric population of Native Americans tribes was large and diverse. Tens of thousands of archaeological sites representing villages, hunting, gathering and fishing areas, religious and ceremonial locations, trails, and rock art sites, have been recovered throughout the state. Archaeologists identify such sites by the presence of groundstone; stone artifacts, such as arrow or spear points; circular depressions representing the remains of pit houses or ceremonial structures; and "midden," which is darker soil resulting from human occupation. These remains mark areas which have been, and often continue to be, of economic, social, and/or religious significance to peoples today.

In the Riverbank area in general, including the Plan Area, there is a lack of information pertaining to actual or potential paleontological and pre-historical resources. Consequently, it is difficult to predict how life may have been during prehistoric times. Heavy use has impacted the land so that actual and potential pre-historical resources have been made indistinguishable. However, the available information about the prehistory of the Plan Area has high significance. The Plan Area is in an area of non-riverine grassland and is likely to have smaller and less dense remains than the floodplain, and would represent short-term occupation only, because of limited food, shelter, fuel, and water in the area.

A records search of the files at the Central California Information Center (CCIC), located at the California State University, Stanislaus, indicated that no prehistoric cultural resources are recorded within the City of Riverbank General Plan Planning Area, which includes Plan Area. However, this does

not preclude the possibility that archaeological or paleontological resources may be present in surface and subsurface contexts.⁹

Although there are no paleontological or pre-historical resources recorded in the Plan Area, there are two resource sites in the vicinity. SJO-191, a large artifact scatter on a low terrace of the Stanislaus River, is the nearest recorded archeological site to the RAAP. SJO-191 is located 5.5 miles northwest of the RAAP, 1.5 miles downstream from SJO-191 is SJO-10. SJO-10 is a burial and habitation site on a mound in the Stanislaus floodplain. There are no other recorded sites within 10 miles of the RAAP.¹⁰

3. Historical Resources

There are four sites within the RAAP site that are potentially identifiable but not presently recorded with the National Register of Historic Places (NRHP). These sites have been distinguished through archival research and a brief tour of the RAAP installation.^{11,12}

- “ **RAAP-1 and RAAP-2** are two unidentified historic structures that likely functioned as part of the domestic or agricultural history of the site. The proximity of the structures suggest they may have been associated, perhaps a house and barn.
- “ **RAAP-3** is the homestead and ranch of George Squire, who owned and resided on property in the area. This resource includes a wood-frame farmhouse, a barn, and associated outbuildings.

⁹ City of Riverbank, 2008. *2005-2020 General Plan Update DEIR*.

¹⁰ US Department of the Interior, National Park Service, 1988. *An Archeological Overview and Management Plan for the Riverbank Army and Ammunition Plant, Riverbank, California*, pages 2-3 and 2-9.

¹¹ US Department of the Interior, National Park Service, 1988. *An Archeological Overview and Management Plan for the Riverbank Army and Ammunition Plant, Riverbank, California*, page 4-1.

¹² Please note that RAAP-4, as identified by the 1988 National Park Service Overview and Management Plan, is not located within the Specific Plan Area, and is not included in this list.

- “ **RAAP-5** is a trash dump near the Stanislaus River with early twentieth century artifacts.

Additionally, there are properties and structures that have been recorded, and are eligible or ineligible for listing in the NRHP. The Historic Property Data File Historic Resources Inventory (HRI), which is maintained by the State Office of Historic Preservation, identifies such properties. The listing for Stanislaus County, including the City of Riverbank, includes 39 buildings or structures in or adjacent to the City of Riverbank. Of the 39 listed properties, 22 are located on the RAAP Site at 5300 Claus Road. The building names and year of construction are listed in Table 4.5-2.

a. California Register of Historic Resources

This report surveyed documents and incorporated additional research and site observations in order to assess whether the RAAP is eligible to the CRHR. The following analysis provides a summary of eligibility for the RAAP site under each required CRHR criterion.

i. Criterion 1 (History)

The RAAP began its life as an aluminum plant in 1943. The initial purpose of the plant was to supply the United States with desperately needed aluminum for the production of airplanes. This came at a time when California and the Pacific coast were just beginning to obtain the manufacturing capabilities which had previously resided exclusively in the East. The RAAP site is thus associated, not only with World War II, but also with the rapid industrialization of California, a process responsible for the 130 percent increase in California's population that occurred between 1940 and 1946.

The RAAP, however, was only a small part of this industrial boom. While only one other aluminum plant, Vernon Works in southern California, was in operation at the time, there were many other military and industrial production facilities throughout the State which remain, in some form, today. Having been the largest shell casings plant at the time, the RAAP is also linked to the Korean War; however, as the site was not developed specifically

TABLE 4.5-2 RAAP SITE PROPERTIES ELIGIBLE FOR NRHP LISTING

Structure	Year Built
Blanking Plant 7 Furnace Building	1953
Boiler House	1942
Building 120	1951
Building 120 A	1953
Carbon Rodding Building	1942
Communications Building	1971
Firehouse	1942
Garage	1954
Gate House 7 Cafeteria	1942
Machine Shop 9	1942
Materials Service Building, Press Room	1942
Ore Unloading Building	1948
Paint Spray Building	1978
Pot Room For Aluminum Production	1942
Rectifier Station, Production Line	1942
Riverbank Army Ammunition Plant	1942
Terminal House	1942
Transformer Service Building	1942
Unloading 7 Shipping Building	1942
Washroom 7	1942
Water Well	1942

Source: Knapp Architects, 2009.

for use in the Korean War, the connection is not as strong as it would otherwise be. Although it is possible that the site is significant for this association, previous reports did not mention a strong connection.

The Vietnam War, while it occurred less than 50 years ago is arguably already a significant historic event worthy of recognition. However, while the RAAP supplied ammunition for the Vietnam War, it is in no other way linked to the war. In summary, the property may be eligible to the CRHR for its association with munitions manufacturing, but its association with three wars, change of use, and growth by accretion significantly complicate any such determination. California housed extensive arms manufacturing plants over the same period, making it likely that this plant would be significant only at the local level, if at all.

The eligibility criteria state that a site must be considered significant under Criterion 1 (history), Criterion 2 (persons), Criterion 3 (design), or Criterion 4 (potential to yield information); possess integrity; and be classified as a building, structure, object, site, or district.

ii. Criterion 2 (Persons)

Research into the site's history has uncovered no significant persons associated with the RAAP, and thus the property does not appear eligible under this criterion.

iii. Criterion 3 (Design)

The RAAP is significant in that it is an example of industrial architecture in an area where agriculture and residence dominate. Features such as high, open interior spaces, steel-frame and corrugated steel construction, and gravity vents in roofs set it apart from its surroundings. The density, extent, and visual prominence of utilities, systems, and service structures outside the buildings themselves bolster this characteristic. No single building or object on the site appears to be individually significant; Buildings 1-6 are striking in plan, but were not unusual enough even at their completion to be significant on their own.

The property qualifies as a district, significant as an industrial design for a large manufacturing facility, and notable for its setting in a primarily agricultural and residential area. The size, form, scale, materials, and design of the individual buildings illustrate important trends in 20th century heavy manufacturing, and the layout of the site, along with its highly visible utilities, exposed systems, and machinery convey important design and technological trends from the period of significance.

While the RAAP originally had a much larger site, the district's potential boundaries would be formed by the buildings and the roads, rail lines, and parking which served them. Some features associated with the plant from the period of significance, such as the non-contiguous site next to the Stanislaus River where the leaching ponds, and outlying portions of the Claus Road site, do not contribute to the significance of the district because they are not identifiable features of manufacturing plant design. While the Hetch Hetchy power lines in the northern, undeveloped portion of the RAAP Site are strongly associated with the RAAP manufacturing buildings, they are far enough away from the manufacturing buildings so that they do not contribute to its significance as an example of design of heavy manufacturing plants.

The boundaries of the district would be as follows:

- “ **West.** Claus Road;
- “ **South.** Parallel to Claribel Road, but about 300 feet north of it, enclosing the south perimeter roadway and the grouping of Buildings 137 and 139;
- “ **East.** The east property line of the site; and
- “ **North.** A line enclosing Buildings 76 and stepping north to take in 182 and 192, then running diagonally along the northwest side of the rail line to a point roughly aligned with the north end of Building 122, then east to Claus Road.

iv. Criterion 4 (Potential to Yield Information)

Although the RAAP has always been unique in its locality, it fits well into the historic context of the time period in which it was originally constructed. World War II brought a sudden demand for the products of large-scale industry, and, accordingly, factories began being built across the west coast to meet these new demands. RAAP was one of nine aluminum plants to be federally funded in 1942, and helped fuel the industrial revolution that took place as the United States struggled to keep up the war effort.

Thus, while the RAAP is part of a large-scale change in California that has numerous other notable remnants, it remains significant at a local level, where fewer examples of such industry exist.

v. Historical Integrity

As the RAAP has not moved, it retains integrity of location. Although Riverbank has grown over the years, it has remained a relatively small town still surrounded by agricultural land despite its recent trend toward suburban transformation.

Furthermore, the RAAP, being on the edge of town, has seen little of this change and retains integrity of setting. The facilities at RAAP are in good working order and most of the buildings' materials appear original and intact, meaning that the site retains integrity of materials. It should be noted, however, that a property can retain integrity of materials and workmanship even if costly repairs are needed for a new use.

As new facilities were added to the site, the layout of the plant changed from its original design. Buildings were reused for purposes different than their original intent, and open spaces were gradually filled in to create walkways connecting Buildings 1-6.

Despite these changes, the buildings remain decidedly industrial, and the site is still easily recognizable as an industrial facility. Thus, RAAP retains integrity of design with respect to its period of significance. Although the facility

has been retrofitted several times and facilities have been added, the original construction, consisting of brick and steel-frame buildings with high open roofs still remains. Changes that have been made over the years somewhat diminish the integrity of workmanship, but overall, it remains intact.

The fact that some of the original buildings and equipment are gone means that the site has difficulty communicating its original use (aluminum production), but it is still capable of communicating a sense of large-scale industry associated with its later use of munitions manufacturing. Thus, RAAP retains integrity of feeling.

The fact that much of the original machinery is missing somewhat diminishes the site's integrity of association, as it is much more difficult to perceive the facility's original use. The presence, however, of most of the original buildings in the original layout, as well as features such as the tracks used for transporting transformer to and from the transformer repair building, aid the integrity of association. Although it is diminished, the integrity of association is still intact.

Overall, this report concludes that the RAAP is eligible to the CRHR as a district, significant locally as an example of the design of heavy manufacturing plants. The size, form, materials, and design of the buildings exemplify design of manufacturing plants from the period of significance. The many pipes, service buildings, free-standing machines, roads, and rail lines which form a highly visible network of infrastructure for the buildings are also highly characteristics of a heavy production facility. The period of significance is from 1942 to 1958, encompassing the World War II and Korean War eras. The district encompasses the buildings, roads, and rail lines developed during the period of significance, but does not include the entire Claus Road site. The non-contiguous site adjacent to the Stanislaus River is not included in the district.

The RAAP appears eligible to the CRHR as a historic district; it is significant at the local level under Criterion 3 for its significance in design of manufacturing facilities within the context of industrial architecture. Although the

site has changed since the period of significance, it retains historical integrity. Figure 4.5-1 is a diagram of the buildings and areas that belong to the historic district.

b. Other Historic Resources

The Riverbank Branch Library is the only structure in Riverbank listed under the National Register of Historic Places as a Multiple Property Submission (MPS) under the California Carnegie Libraries. The Riverbank Branch Library, listed in 1996, is one of 142 Carnegie Libraries built in California.

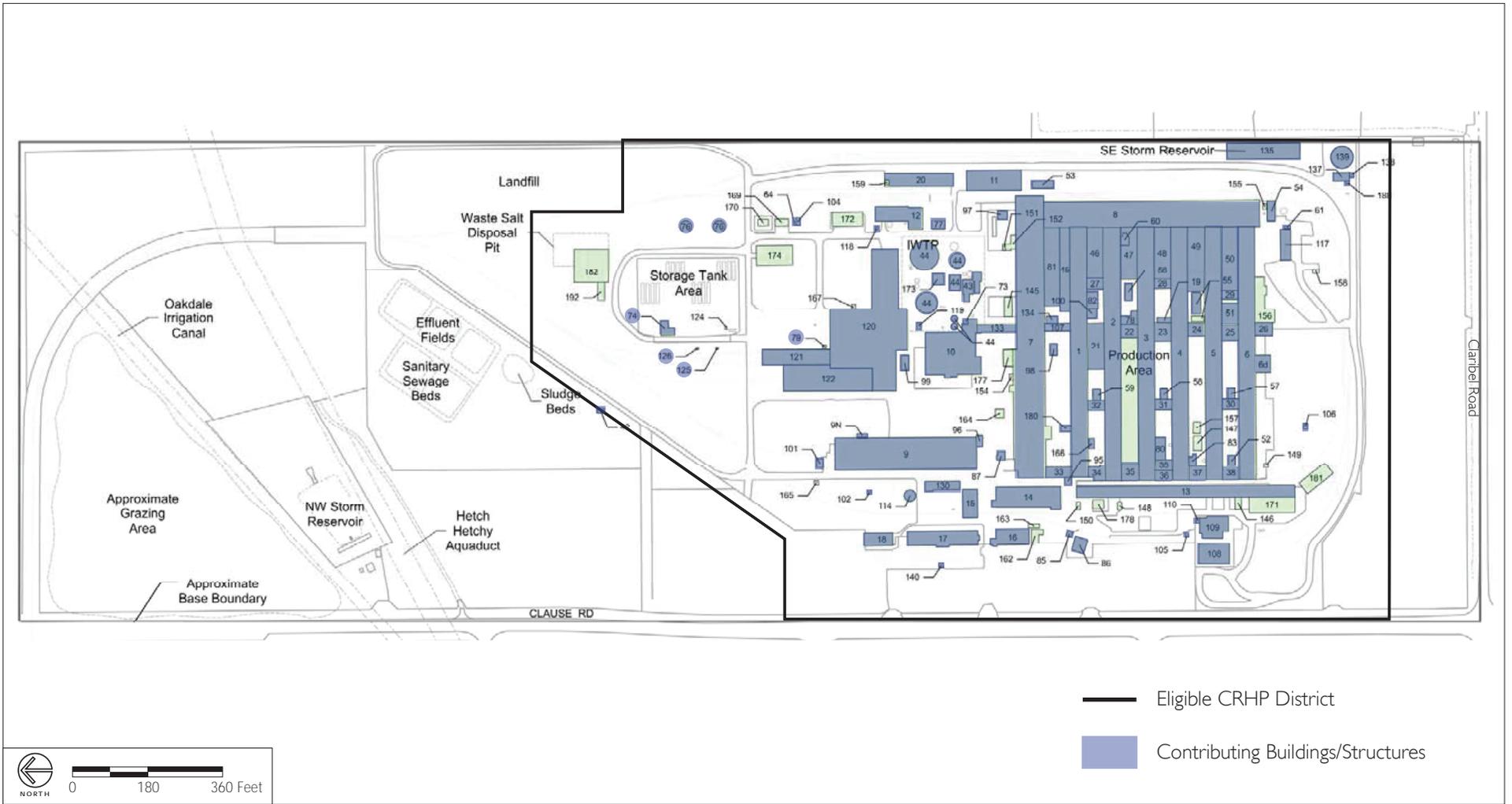
The E Clampus Vitas (Chapter No. 58), a fraternal organization dedicated to the study and preservation of Western Heritage, has erected three monuments in the City of Riverbank marking historic places, people, or structures:

- **Site No. 3.** Burnville, 1867 settlement by Major James Burney, corner of High and First Streets.
- **Site No. 13.** Statue of Justice, Justice Court, courthouse east wall.
- **Site No. 27.** Riverbank Historical Museum, Santa Fe Avenue.

C. Standards of Significance

The draft RAAP Site Specific Plan would have a significant cultural resource impact if it would:

- a. Cause a substantial adverse change in the significance of a historical resource.
- b. Cause a substantial adverse change in the significance of an archaeological resource.
- c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
- d. Disturb any human remains, including those interred outside of formal cemeteries.



Source: KNAPP Architects.

FIGURE 4.5-1
 ELIGIBLE CRHP HISTORIC DISTRICT

D. Impact Discussion

The following discussion provides an analysis of potential project and cumulative cultural resource impacts that could occur as a result of implementation of the draft RAAP Site Specific Plan.

1. Project Impacts

- a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

As described above, a series of evaluations commissioned by the US Army determined that the RAAP property is not eligible for inclusion on the National Register of Historic places. However, the Historic Resources Assessment conducted for the Plan determined that a portion of the Plan Area is eligible for inclusion on the CRHR as a district, as it is significant locally as an example of the design of heavy manufacturing plants. This eligible district, shown in Figure 4.5-1, encompasses the buildings, roads, and rail lines developed between 1942 and 1958.

The eligible district currently retains a high degree of historic integrity and the Plan recommends that the associated buildings and other elements be retained as they are now. The draft Specific Plan does allow additional buildings and modifications to existing buildings in this area, with restrictions in place to protect historical resources and preserve the viability of this area for future heavy industrial uses. Additional landscaping is also recommended for this area in the draft Specific Plan, both for improved aesthetics and to implement principles of low-impact development (LID). It is anticipated that new development in this area would be of a similar character to existing development and range from one to two stories. Additionally, the Riverbank General Plan includes the goals and policies listed in Table 4.5-1 which would protect buildings within the eligible the district from substantial adverse changes in historical significance. These policies include General Plan Policies CONS-1.1, which prohibits the modification of historically significant buildings in a way that affects their historic value, and CONS-1.3, which promotes and encourages reuse of historic buildings consistent with other basic considerations.

The draft Specific Plan includes policies to protect the historic character of the RAAP site, but the draft Specific Plan does not propose to designate a historic district within the RAAP site, nor does the City of Riverbank intend to pursue such a designation. As the draft Specific Plan is implemented, existing structures may be demolished or altered to allow for future uses within the RAAP site. Although the draft Specific Plan policies will seek to protect the historic character of the site, because the draft Specific Plan will allow for the demolition or alteration of buildings within an area that is eligible to be listed on the CRHR, a *significant impact* would occur.

- b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

There are no known archaeological resources in the RAAP Plan Area and a records search of files at the CCIC indicated there are no recorded prehistoric cultural resources in Riverbank. However, previous archeological investigations have been limited in scope and, given that prehistoric and historic settlements in the central valley were generally established along rivers, the banks of the Stanislaus River are considered archeologically sensitive. Therefore, it is possible that as yet undiscovered archeological resources are present in the RAAP Plan Area.

Because the Plan Area is already largely developed, it is unlikely that as yet undiscovered archaeological resources. If present in the Plan Area, undiscovered archaeological resources would be disturbed as a result of Plan implementation. Additionally, the Riverbank General Plan includes goals and policies listed in Table 4.5-1 above, which would serve to reduce any potential impacts to archaeological resources. These policies include Policies CONS-2.1, CONS-2.2, CONS-2.4, and CONS-2.5. Consequently, impacts to archaeological resources resulting from implementation of the Plan would be *less than significant*.

- c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

There are no known paleontological resources in the RAAP Plan Area and a records search of files at the CCIC indicated there are no recorded prehistoric cultural resources in Riverbank. Because the Plan Area already largely developed, it is unlikely that as yet undiscovered paleontological resources, if present in the Plan Area, would be disturbed as a result of Plan implementation. Additionally, Policy CONS-2.1 from the Riverbank General Plan requires that approved plans incorporate measures to reduce or eliminate impacts to known or unknown paleontological resources. Therefore, compliance with General Plan policies would ensure that impacts to paleontological resources and unique geologic features associated with Plan implementation would be *less than significant*.

- d. Would the project disturb any human remains, including those interred outside of formal cemeteries?

Human remains dating to the prehistoric period of California have been located at numerous locations along rivers and streams within the San Joaquin Valley, although there are no known prehistoric human remains in the vicinity of Riverbank. Nevertheless, given that prehistoric and historic settlement has generally occurred along rivers, the possibility that as yet undiscovered human remains are present in the RAAP Plan Area remains.

California Law and the Riverbank General Plan recognize the need to protect interred human remains, particularly Native American burials and related items of patrimony, and have established procedures for the treatment of discovered remains. The California Health and Safety Code and Riverbank General Plan Policy CONS-2.5 require that if human remains are inadvertently discovered during excavation or construction activities, all construction affecting the discovery site halt, the contractor contact the appropriate City agency, and the county coroner examine the remains within 48 hours of discovery. Additionally, if the remains are determined to be those of a Native American, the City agency will work with local Native American representatives to insure that the remains and associated artifacts are treated in a respect-

ful and dignified manner. Therefore, compliance with State law and local policy would ensure that impacts associated with disturbance of human remains from implementation of the Plan would be *less than significant*.

E. Cumulative Impacts

Cumulative impacts to cultural resources would occur when a series of actions leads to the loss of a substantial type of site, building, or resource. For example, while the loss of a single historic building may not be significant to the character of a neighborhood or streetscape, continued loss of such resources on a project-by-project basis could constitute a significant cumulative effect. This is most obvious in historic districts, where destruction or alteration of a percentage of the contributing elements may lead to a loss of integrity for the district overall. Changes to the setting or atmosphere of an area, for example, by adding modern structures on all sides of a historically significant building, thus altering the aesthetics of the streetscape, would create a significant impact. Destruction or relocation of historic buildings would also significantly impact the setting. The geographic scope of this analysis is the RAAP Plan Area and immediate surrounding area.

The Plan Area is separated from surrounding properties by a fence, such that it is self-contained. Alteration of structures or features would therefore not affect adjacent neighborhoods or the atmosphere and setting of the surrounding area. The district within the RAAP Plan Area identified as eligible for inclusion on the CRHP is not proposed to be altered by the Plan. Instead, the draft Specific Plan does allow additional buildings and modifications to existing buildings in this area, with restrictions in place to protect historical resources and preserve the viability of this area for future heavy industrial uses. Additionally, compliance with Riverbank General Plan Policies CONS-1.1 and CONS-1.3, described above, would protect the district. Therefore, in combination with past, present and reasonably foreseeable projects in surrounding area, implementation of the proposed Plan would not result in a cumulative impact to cultural resources. Impacts would be *less than significant*.

F. Impacts and Mitigation Measures

Impact CUL-1. Implementation of the RAAP Specific Plan would alter the significance of an historic resource. By removing individual structures that contribute to the eligibility of an historic district, the RAAP's ability to convey its importance to local and national history is significantly altered, the resource may not be eligible for inclusion on the CRHR.

Mitigation Measure CUL-1: Prior to the demolition of buildings and structures comprising the eligible district, an Historic American Building Survey/Historic American Engineering Record (HABS/HAER) recordation shall be conducted for the affected structures. HABS/HAER recordation could include archiving of original plans, undertaking archival research for preparation of a report, making measured drawings, and completing a photographic study of the structures.

Significance after Mitigation: *Significant and unavoidable.* HABS documentation and interpretive display would lessen the impact to the eligible district by preserving construction information, providing a photographic record of the district and its contributors, and providing archival access to the public. However, demolition of a historical resource cannot be mitigated to a less-than-significant level.

4.6 GEOLOGY AND SOILS

This chapter discusses existing geology, soils, and seismic conditions in the Plan Area and evaluates the potential impacts associated with buildout of the Plan.

A. Regulatory Framework

This section summarizes applicable State and local policies and regulations regarding geology, soils, and seismicity.

1. State Laws and Regulations

a. The Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act¹ was passed by the California Legislature in 1972 to mitigate the hazards of surface faulting to structures. The main purpose of the Act is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards, such as ground shaking or landslides.²

The law requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones or Alquist-Priolo Zones) around the surface traces of active faults and to issue maps to all affected cities, counties, and State agencies for use in planning and controlling development. Local agencies must regulate most development projects within the zones. Construction is generally prohibited within 50 feet of an active fault zone.³ Currently, the California Department of Conservation's Geological Survey (CGS) does not include Riverbank on its list of cities affected by Alquist-Priolo Earthquake

¹ Called the *Alquist-Priolo Special Studies Zones Act* until renamed in 1993.

² California Geological Survey, Alquist-Priolo Earthquake Fault Zones, <http://www.consrv.ca.gov/CGS/rghm/ap/>, accessed on December 23, 2009.

³ California Geological Survey, Alquist-Priolo Earthquake Fault Zones, <http://www.consrv.ca.gov/CGS/rghm/ap/pages>, accessed on December 23, 2009.

Fault Zones⁴ and the City is not located within an earthquake fault zone as designated by the Alquist-Priolo Act.⁵

b. Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (California Public Resources Code Sections 2690-2699.6) addresses seismic hazards other than surface fault rupture, including liquefaction and seismically induced landslides. Implementation of this Act by the Department of Conservation requires Seismic Hazard Zones be mapped by the State Geologist to assist local governments in land use planning. The Department of Conservation has determined that the City of Riverbank is not affected by a Seismic Hazard Zone.⁶

c. International Building Code, 2006 Edition

The International Building Code was developed by the International Conference of Building Officials to provide a set of consistent standards for building structures. The Code requires strict building standards for essential facilities and for sites on soft soil where shaking intensity from a potential earthquake is increased.

The Uniform Building Code (UBC), the predecessor of the International Building Code, was last adopted as Title XV of Chapter 150 of the Code of the City of Riverbank in 1992. The UBC, now known as the International Building Code (IBC), is the Building Code for Riverbank and regulates all building and construction projects within the city. All developments in Riverbank applying for a permit are subject to the IBC.

⁴ California Geological Survey, Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones, <http://www.consrv.ca.gov/cgs/rghm/ap/Pages/affected.aspx>, accessed January 25, 2010.

⁵ City of Riverbank, 2005. *General Plan DEIR 2005-2025*, page 4.8-7.

⁶ California Geological Survey, Northern California cities and counties affected by SHMP Zones, <http://www.conservation.ca.gov/cgs/shzp/Pages/affected.aspx>, accessed January 25, 2010.

d. California Building Code

Statewide, California has adopted mandatory codes based on the International Code Council's Uniform Codes. These are compiled the 2010 California Code of Regulations (CCR), Title 24, also known as the California Building Standards Code or California Building Code (CBC). The CBC is based on the 2006 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 national model code standards to meet California conditions.
- “ Building standards, authorized by the California legislature, that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns.

When no other standards apply, the CBC provides Riverbank with a minimum standard for building design and construction. The 2007 update to the CBC reflects significant changes in design and construction requirements relating to structural safety. The CBC contains specific requirements for seismic safety, excavation, foundations, retaining walls, and site demolition. It also regulates grading, drainage and erosion control activities.⁷

Through the CBC, the State provides a minimum standard for building design and construction. Seismic zone designations range from zone 0 to zone 4. The ascending numbers indicate the respective increase in the required factor of safety applied to structural design equations for resisting earthquake-induced ground accelerations. The City of Riverbank is in CBC Seismic Zone 3, and consequently, construction within the city is required to meet all applicable building code standards for CBC Zone 3.

⁷ California Building Standards Commission, 2002. *2001 California Building Standards Administrative Code California Code of regulations, Title 24, Part 1.*

The earthquake protection law, established in California Health and Safety Code Section 19100 et seq., requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum standards for seismic safety and structural design to meet earthquake protection requirements are set forth in Chapter 16 of the CBC.

2. Local Policies

a. City of Riverbank General Plan

Table 4.6-1 lists the goals and policies from the City of Riverbank General Plan 2005-2025 that relate to geology and soils.

b. Riverbank Municipal Code

Title XV, Chapter 155, of the City of Riverbank Municipal Code establishes procedures, permits, and other requirements for grading, excavation, and filling activities within the city. An important goal of these procedures and requirements is to protect public health and safety and aesthetics through regulating the development of potentially hazardous terrain; minimizing water quality, air quality, and stormwater impacts; reducing propagation of noxious weeds; and conserving the aesthetic value of the grading site and surrounding properties.

Sections 152.140 to 152.143 of the City of Riverbank Municipal Code require that subdividers submit a preliminary soil report, prepared by a state-registered civil engineer or soil engineer, prior to the submission of the final subdivision map. If the preliminary soil report indicates the presence of critically expansive soils or other soil problems on the site, a soil investigation must be prepared by a state-registered civil engineer. The soil investigation must include a recommendation of corrective action to prevent structural damage in the subdivision. The City Council may approve the subdivision and its building permit conditioned upon the incorporation of the approved recommended corrective action.

TABLE 4.6-1 RIVERBANK GENERAL PLAN GOAL AND POLICY RELATED TO GEOLOGY AND SOILS

Goal/Policy Number	Goal/Policy Content
Goal SAFE-1	Minimize the loss of life and damage to property natural and human-caused hazards.
Policy SAFE-1.2	The City will continue to enforce State of California Building Standards Commission uniform codes, such as the Uniform Building Code and Fire Code.
Policy SAFE-1.11	Proposed developments located within river bluff areas and other areas prone to geologic and soil limitations require a detailed geotechnical study prepared by an independent qualified geologist approved by the City. Approved plans, projects, and subdivision requests shall incorporate measures to reduce risks identified in the geotechnical study, to the City's satisfaction.
Policy SAFE-1.12	The City will not allow the location of water wells in areas where subsidence could occur as a result or where existing potential for subsidence could be increase as a result of operation of a domestic water well.

Source: City of Riverbank General Plan 2005-2025.

B. Existing Conditions

This section discusses the existing conditions pertaining to geology and soils in the Plan Area.

1. Geologic Setting

The City of Riverbank and the Plan Area are located in northern San Joaquin Valley, the southern of the two valleys that comprise California's Great Central Valley. The Great Central Valley is an alluvial plain, approximately 50 miles wide and 400 miles long, located in central California.⁸ For the past two million years in the Great Central Valley, eroded sediments from the Coast Range of mountains to the west, and the Sierra Nevada mountain range

⁸ United States Army, 2009. *Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California*, page 4-38.

to the east, have deposited in the Valley floor. The oldest and deepest sediments found in the Great Central Valley are of volcanic origin, and other sediments have been found to originate from granite rock, pale quartz, and feldspar sand.⁹

At the Plan Area, the subsurface geology is locally known as the Riverbank Formation and consists of unconsolidated Pleistocene non-marine sedimentary deposits. Also found in the subsurface are Aromas Red Sands, which are cross-bedded colored sands, ranging from gray to brown and yellow to red. These sands are locally pebbly with minor percentages of clay and silt. There are subsurface strata at the RAAP site comprised of hundreds of feet of inter-layered fluvial deposits, including sand, clays, and gravels. There are clay layers in the subsurface, and clay strata at the following intervals: 100 to 110, 70 to 80, and 10 to 40 feet below the surface.¹⁰

2. Geologic Hazards

a. Surface Fault Rupture

California is a seismically active region; seismic activity is concentrated in tectonically active regions, such as the Pacific Coast, the Sierra Nevada Range, and the Cascade Range. The active tectonism in these regions is due to plate tectonics and movements of the earth's tectonic plates, and resulting active volcanism.

In accordance with the Alquist-Priolo Earthquake Fault Zoning Act of 1972 (A-P EFZ), only faults with evidence of historic or Holocene surface fault rupture are considered "active" earthquake faults and zoned on the A-P EFZ maps. Faults with evidence of surface fault rupture within the past 1.6 million years are considered potentially or conditionally active.

The A-P EFZ maps show faults considered active by the California Geological Survey (CGS). The City of Riverbank and the Plan Area are not located

⁹ City of Riverbank. *General Plan 2005-2025 DEIR*, page 4.8-1.

within an Alquist-Priolo Earthquake Fault Zone and is not included on an A-P EFZ map (California Geological Survey 2005). Therefore, the Riverbank area is not susceptible to seismic hazards related to fault rupture.¹¹ However, a 7-mile portion of Ortigalita fault, which is located in the southwestern portion of Stanislaus County, has been identified as an A-P EFZ. It has been approximately five million years since the most recent rupture of the Ortigalita fault, and earthquake activity without surface fracturing or faulting is a common occurrence.¹²

It is possible that seismic activity in other parts of the state can affect the Riverbank area depending on strength and intensity of the seismic event. The strength of an earthquake may be expressed as its magnitude, commonly measured on the Richter scale, and its intensity, as ranked on the Modified Mercalli Intensity Scale. The Richter scale magnitude is a measure of the energy released at the focus of the earthquake and the Modified Mercalli Scale measures the intensity on a scale of I to XII of ground shaking as determined from observations of an earthquake's effect on people, structures and the earth's surface.

The discussion below presents prominent faults that could produce seismic activity in the Riverbank area.

- **San Andreas Fault.** The San Andreas Fault is the dominant influence on local geology and seismic potential. At its closest point, the fault lies about 70 miles west of the Plan Area. The San Andreas is a slip-strike fault, meaning that the Earth's crust on either side of the fault is slipping past the other in a horizontal motion. Historic earthquakes confirm that the San Andreas Fault, as well as well its eastern branches, the Calaveras and Hayward Faults, remains highly active today. The CGS and United

¹⁰ US Army, 2009. *Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California*, page 4-38.

¹¹ City of Riverbank. *General Plan 2005-2025 EIR*, page 4.8-7.

¹² City of Riverbank. *General Plan Background Report, Safety*, page SAFETY-2.

States Geological Survey (USGS) have defined segments of the San Andreas Fault based on the size and recurrence interval of earthquakes associated with each. At its closest point, the San Andreas Fault lies approximately 85 miles west of the Plan Area.

- “ **Hayward Fault.** The 53-mile Hayward Fault runs parallel to the eastern side of the San Francisco Bay, roughly from the San Pablo Bay in the north to the City of San Jose in the south. The Hayward Fault has generated one large historical earthquake, an event in 1868 of approximately 8.6 magnitude. The Fault is considered likely to produce a 6.9 to 7.1 magnitude earthquake in the future, with a recurrence interval of 210 years.

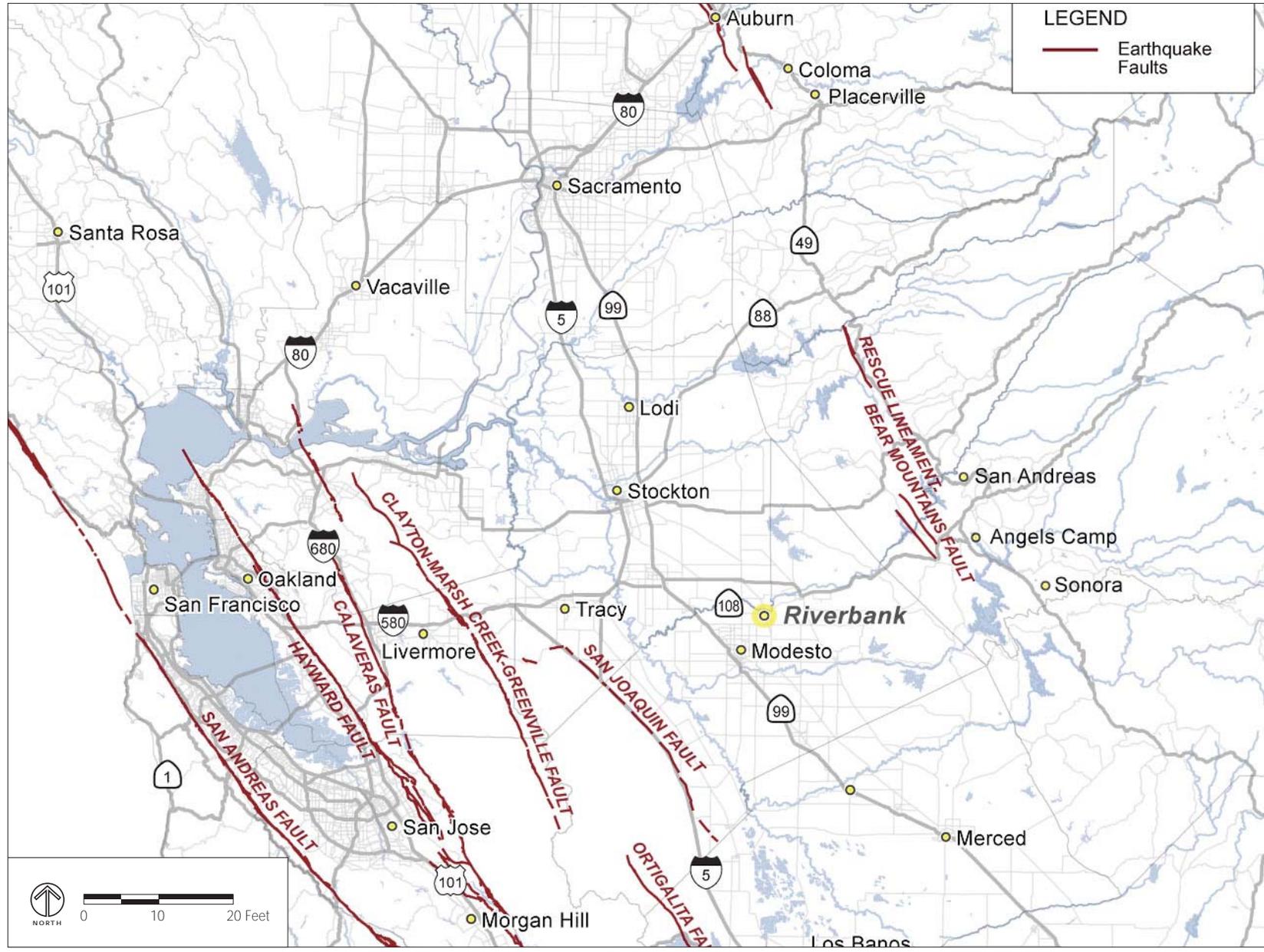
As shown in Figure 4.6-1, less prominent fault systems in proximity to the City of Riverbank and the Plan Area include the Ortigalita Fault, San Joaquin Fault, Rescue Lineament – Bear Mountains Fault, Clayton – Marsh Creek – Greenville Fault, and the Calaveras Fault.

b. Seismically Induced Ground Shaking

Fault activity has the potential to result in ground shaking. Any slip along all or part of a fault surface releases accumulated energy that radiates in all directions away from the source, in the form of earthquake waves. Associated ground shaking varies in intensity depending on the severity of earthquake activity, proximity to that activity and local soil and geological conditions.

The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including seismically induced ground shaking and other seismic hazards. Areas within Stanislaus County, including the City of Riverbank and the Plan Area, have not been mapped as part of the Seismic Hazards Mapping Act. However, prominent faults such as the San Andreas Fault and the Hayward Fault will likely produce earthquakes sometime in the future which may result in ground shaking in the Riverbank area.

According to the US Geological Survey (USGS) Probabilistic Seismic Hazard Assessment Program, the Plan Area is considered to be within an area



Source: City of Riverbank General Plan EIR.

FIGURE 4.6-1
FAULT LINES IN THE PROJECT AREA

that is predicted to have a 90 percent probability of an earthquake of magnitude greater than 5.0 in the next 100 years and a 70 percent probability of an earthquake of a magnitude greater than 5.0 in the next 50 years.¹³ The USGS has also furnished information to Stanislaus County that the eastern half of the County, including Riverbank and the Plan Area, is expected to experience seismically induced ground shaking at an intensity of VI or VII on the Modified Mercalli Intensity Scale.¹⁴

The USGS Earthquake Database lists earthquakes occurring within 30 miles of the Plan Area from the following years: 1866, 1932, 1943, 1944, 1945, 1946, 1948, 1949, 1950, 1951, 1952, 1954, 1955, 1957, 1958, 1959, 1960, 1961, 1963, 1966, 1971, 1973, 1974, 1976, 1977, 1987, 1990, 1991, 1994, 1996, and 2002. The greatest magnitude earthquake occurring within 30 miles of the Plan Area occurred in 1866 and had an epicenter approximately 25 miles from RAAP and a magnitude of 5.80. The greatest-magnitude earthquake occurring within 30 miles of RAAP since 1866 occurred in 1994 and had a magnitude of 4.1. This earthquake was also epicentered approximately 25 miles from RAAP.¹⁵

c. Soil Liquefaction

Liquefaction is a process in which uniform, clean, loose, fine sandy, and silty sediments below the water table temporarily lose strength during an earthquake and behave as a viscous liquid rather than a solid. Liquefaction is restricted to certain geologic and hydrologic environments, primarily recently deposited sand and silt in areas with high groundwater levels.

Liquefaction can cause the soil beneath a structure to lose strength, which may result in the loss of foundation-bearing capacity. This loss of strength commonly causes the structure to settle or tip. Loss of bearing strength can

¹³ US Army, 2009. *Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California*, page 4-40.

¹⁴ City of Riverbank. *General Plan Background Report, Safety*, page SAFETY-2.

¹⁵ US Army, 2009. *Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California*, page 4-40.

also cause light buildings with basements, buried tanks, and foundation piles to rise buoyantly through the liquefied soil.

Impacts from liquefaction have the potential to occur in and around Riverbank, including in the Plan Area. The alluvial soils in the Riverbank area, which are discussed in detail below, have the potential to become water-saturated when the groundwater table is high. Consequently, interstitial spaces between individual grains of sediment become logged with water, and potentially lose contact with each other. Without contact or friction, grains of sediment can lose strength and behave like a liquid, particularly in a seismic event.¹⁶

d. Landslides and Slope Instability

Landslides and slope instability are characterized by the movement of soils and surficial deposits, known as colluvium, and bedrock down steep slopes. This movement results from wet weather, adverse structures, seismic shaking, and/or improper grading and drainage. The Riverbank area, including the Plan Area, is generally level. Elevation in the Riverbank area ranges from 75 feet above mean sea level at the southern bank of the Stanislaus River to 150 feet above mean sea level at the eastern city limit. The average elevation in the Plan Area is 135 feet above mean sea level. Terrain at the RAAP site is basically level but slopes southwestward at a rate of 25 feet per mile.¹⁷

There is one significant ridge in Riverbank. Varying from 10 to 30 feet high, this ridge is located along the southern edge of the Stanislaus River and north of the existing developed portion of the City of Riverbank. Aside from this ridge, landslides and slope instability are not environmental concerns for the City of Riverbank or the Plan Area.

¹⁶ US Geological Survey (USGS), *About Liquefaction*, <http://geomaps.wr.usgs.gov/sfgeo/liquefaction/aboutliq.html>, accessed January 28, 2010.

¹⁷ US Army, 2009. *Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California*, page 4-38.

3. Soils and Soil Hazards

The soils in Riverbank have been significantly influenced by the Stanislaus River. Most soils in the Riverbank area are found in alluvial fans and within the floodplain of the Stanislaus River. The Soil Survey for Eastern Stanislaus County was published by the National Resource Conservation District (NRCS) in 1964.¹⁸ Within the Riverbank area, the Soil Survey reports 23 distinct soil series, or soils with similar characteristics such as color, texture, structure, reaction, consistency, mineral, chemical composition, and arrangement in the profile. Table 4.6-2 lists the soil series found in Riverbank, the general characteristics of each series, and the slope percentage at which a series is likely to occur.

There are two soil series found on the RAAP site, the San Joaquin Series (SaA) and the Madera Series (MdA). The San Joaquin Series is characterized by moderately coarse, reddish-brown to brown, well-draining, slightly to moderately acidic soils. This series is composed of silica and iron that forms hardpans. Between 41 and 76 cm deep, a red to reddish-brown clayey subsoil rests on the hardpan. The Madera series is characterized by medium to moderately coarse sediments that are well-draining. On the surface, soils in the Madera series are commonly neutral to brown colored loams, or sandy loams. The subsoil is reddish-brown to brown sand clay that rests on an iron and silica hardpan with seams of lime. Below the hardpan is a compact, stratified sandy loam that can be weakly cemented in certain areas.¹⁹

The potential for soil hazards, specifically erosion, subsidence, and expansive soils in Riverbank is discussed below.

¹⁸ Arkley, Rodney J., United States Department of Agriculture Soil Conservation Service, 1964. *Soil Survey, Eastern Stanislaus Area, California*.

¹⁹ US Army, 2009. *Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California*, page 4-39.

TABLE 4.6-2 SOIL SERIES FOUND IN RIVERBANK

Soil Series	Description	Slope Percentage
CaA	Chualar sandy loam	0 to 3
DeA	Dehli loamy sand	0 to 3
DeB	Delhi loamy sand	3 to 8
DhA	Delhi sand	0 to 3
DhB	Delhi sand	3 to 8
GfA	Grangeville fine sandy loam	0 to 1
GmA	Grangeville very fine sandy loam	0 to 1
GsA	Greenfield sandy loam	0 to 3
GvA	Greenfield sandy loam, deep over	0 to 3
HbA	Hanford fine sandy loam	0 to 3
had	Hanford sandy loam, moderately deep over silt	0 to 1
HdsA	Hanford sandy loam, deep over silt	0 to 1
HfA	Hilmar loamy sand	0 to 1
MdA	Madera sandy loam	0 to 2
MmA	Modesto clay loam	0 to 1
OaA	Oakdale sandy loam	0 to 3
SaA	San Joaquin sandy loams	0 to 3
SnA	Snelling sandy loam	0 to 3
TuA	Tujunga loamy sandy	0 to 3
Tx	Terrace escarpments	-
WmC	Whitney sandy loams	8 to 15
WrA	Whitney and Rocklin sandy loams	0 to 3

Source: City of Riverbank General Plan 2005-2025 DEIR, pages 4.8-1 to 4.8-2.

a. Erosion Potential

Erosion generally happens when natural forces, such as water and/or wind, loosen, dissolve, and wear away at the surface of the earth. Erosion may contribute to a significant loss of soil, or produce sedimentation that degrades water quality. In and around Riverbank, including within the Plan Area, water erosion is of moderate to low concern because the topography of the area is largely flat and the soils are mostly well-draining. The potential for wind erosion in Riverbank is moderate to high in the summer, fall, and springtime, when prevailing winds push marine air through the Carquinez Strait, a sea-level gap in the Coastal Range mountains located 70 miles west to northwest of the City of Riverbank. In wintertime, winds generated in the Carquinez Strait area are decreased and the potential for wind erosion in Riverbank is low.

b. Subsidence Potential

Subsidence occurs after a drainage event, when soil organic matter shrinks as a result of drying out or oxidation. The NRCS Soil Survey reports that subsidence is uncharacteristic of the soil series found in Riverbank, and therefore is not of concern. At this time, there is no evidence of subsidence within Riverbank or the Plan Area. Subsidence is discussed further in Chapter 4.9, Hydrology and Water Quality, of this EIR.

c. Expansive Soils

Expansive soils have a “shrink-swell potential,” meaning they are known to shrink when dry and swell when wet. If the expansiveness of a soil is rated by the NRCS as moderate to high, then buildings, roads, and other structures may incur significant damage as a result of a shrinking or swelling event. Specific building techniques have been developed, and are often required, for construction in areas with expansive soils.

Expansive soils are a significant concern for the City of Riverbank and in the Plan Area. The NRCS identifies the majority of the Riverbank area soils, and the Plan Area soils altogether, as expansive. Of the 23 soil series known to occur within the Riverbank city limit, four are identified as expansive. Table

4.6-3 lists the expansive soils within the city, the potential for their expansion, and the soil depth at which that expansion potential is known to occur. Two of the four expansive soils series found in the Riverbank area occur on the RAAP site, the Madera (MdA) and the San Joaquin (SaA) series. The soils on the northern portion of the RAAP Site belong to the SaA series, which is considered to have a high expansion potential at 13 to 24 inches below the surface. The soils on the southern portion of the RAAP Site belong to the MdA series, which is considered to have high expansion potential at a depth of 19 to 30 inches.

C. Standards of Significance

The proposed project would have a potentially significant geology and soils impact if it would:

- a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.
 - Strong seismic ground shaking.
 - Seismic-related ground failure, including liquefaction.
 - Landslides, mudslides or other similar hazards.
- b. Result in substantial soil erosion or the loss of topsoil.
- c. 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.
- d. Be located on expansive soil, creating substantial risks to life or property.
- e. 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 wastewater.

TABLE 4.6-3 EXPANSIVE SOILS FOUND IN RIVERBANK

Soil Series	Shrink-Swell Potential
Snelling (SnA)	Moderate potential at depth of 19-56 inches
San Joaquin (SaA)	High potential at depth of 13-24 inches
Modesto (MmA)	Moderate potential at depths of 0-12 and 35-55 inches
	High potential at depths of 12-35 inches and 55-62 inches
Madera (MdA)	High potential at depth of 19-30 inches

Source: City of Riverbank General Plan 2005-2025 EIR, page 4.8-5.

D. Impact Discussion

1. Plan Impacts

- a. 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.*

As described above, the Plan Area is not located within an Alquist-Priolo Earthquake Fault Zone and is not located on an active fault as designated by the California Geological Survey (CGS). The Plan Area is located more than 70 miles to the east of both the San Andreas and Hayward Faults, the two most prominent fault lines in the region, and approximately 37 miles north-east of the Ortigalita Fault, which is identified as active by the CGS. Therefore, the Plan Area is not considered susceptible to the risk of loss, damage, or death involving fault rupture. Associated impacts would be *less than significant*.

- ii. *Strong seismic ground shaking.*

Given the likelihood of earthquakes along the prominent faults in the region and the proximity of those faults to the Plan Area, seismic ground shaking is possible within the Plan Area in the event of a major earthquake. However,

pursuant to General Plan Policy SAFE-1.2 and Riverbank Municipal Code, the standards for seismic safety and structural design established in the California Building Code would apply to construction in the Plan Area, thereby ensuring adequate earthquake protection. Therefore, with continued implementation of General Plan policies, including Policy SAFE-1.2, buildout of the Plan would result in a *less-than-significant* impact related to the risk of loss, damage, or death involving seismic ground shaking.

iii. Seismic-related ground failure, including liquefaction.

Alluvial soils in the Plan Area can potentially become saturated when the groundwater table is high, which increases their susceptibility to liquefaction during a seismic event. However, the California Building Code, applicable in Riverbank pursuant to General Plan Policy SAFE-1.2, establishes standards for seismic design, foundations, and drainage. Continued implementation of this policy and compliance with State of California uniform codes would ensure that the risk of loss, damage, or death from seismic related ground failure is *less than significant*.

iv. Landslides, mudslides, or other similar hazards.

The terrain of the Plan Area slopes to the southwest at a rate of 25 feet per mile, and given this relatively flat topography, there would be *no impact* associated with landslides and slope instability.

b. Result in substantial soil erosion or the loss of topsoil.

The Plan would have a significant environmental impact if it would cause substantial soil erosion or loss of topsoil, consequently generating dust, resulting in the loss of arable soils, or hindering proper drainage and stormwater management. Erosion can result from either water or wind.

Buildout of the Plan would place additional structures on the RAAP site; however, construction activities in the Plan Area would be subject to the erosion control provisions in Chapter 155 of the Riverbank Municipal Code, which establish grading/clearing performance standards and permit thresholds. In addition, implementation of Mitigation Measure AQ-1a, which calls

for SJVAPCD Regulation VIII Control Measures, would reduce dust emissions from the construction activities. Compliance with these provisions and implementation of Mitigation Measure AQ-1a would limit and control wind erosion to the maximum extent practicable.

The construction of new buildings and structures on the RAAP site would also result in the creation of new areas of impervious surfaces such as rooftops and driveways, thereby increasing the amount and rate of urban storm runoff, which can increase erosion. However, the Plan includes Policy PUB-23 which requires developers to implement “green” infrastructure, where practical, such as on-site stormwater management, water reclamation, and permeable surfaces. Consequently, impacts associated with substantial soil erosion and loss of topsoil would be *less than significant*.

- c. 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.

As described above, land subsidence is not characteristic of soils in Riverbank and the Plan Area. The potential for seismic-related ground failure and landslides are discussed above, and risks associated with expansive soils are discussed below. Overall, buildout of the Plan would have a *less-than-significant* impact related to geologically unstable soils.

- d. Be located on expansive soil, creating substantial risks to life or property. The Plan would have a significant environmental impact if it would locate people or structures on expansive soils. Expansive soils undergo a significant volume change as a result of wetting or drying and this volume change can cause damage to improperly designed foundations and pavements. The San Joaquin soils found on the majority of the RAAP site have a high potential for expansion at 13 to 24 inches below surface, and the Madera soils found on the southern portion of the RAAP site have high expansion potential at 19 to 30 inches below surface. However, these risks can be ameliorated with proper analysis, design, and construction. Pursuant to Riverbank General Plan Policy SAFE-1.11, a geotechnical study would be required prior to construc-

tion on the expansive soils of the RAAP site, and the City would require that measures to reduce risks identified in the study be incorporated into project design prior to approval. In addition, as part of the routine implementation of the subdivision ordinance, Sections 152.140 to 152.143 of the Riverbank Municipal Code requires preliminary soil reports, soil investigation, and mitigation measures if the preliminary soil report found any critically expansive soils or other soil problems. Compliance with Policy SAFE-1.11 and continued implementation of the applicable provisions of the Riverbank Municipal Code and California Building Code would ensure that impacts related to expansive soils from buildout of the Plan would be *less than significant*.

- e. 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.

The Plan Area is served by the City of Riverbank Public Works Department Sewer Division and its wastewater facilities. Chapter 4.14-17 of this EIR contains a discussion of wastewater infrastructure and capacity. No septic tanks or alternative wastewater disposal systems would be required to serve new development. Therefore, there would be *no impact*.

2. Cumulative Impacts

This section analyzes potential impacts related to geology and soils that could occur from a combination of the Plan with other past, present, and reasonably foreseeable projects in the surrounding area. Cumulative impacts would occur if development associated with the Plan together with other projects would expose people or structures to substantial risk of injury, damage, or death related to seismic activity, soil erosion, or unstable soils. The geographic scope of this analysis is taken as the City of Riverbank sphere of influence, as defined in the General Plan.

As described above, the Plan Area is not located within a known, active earthquake fault zone, and as such, buildout of the Plan would not, either by itself or in combination with other projects in the City of Riverbank sphere of influence, place people or structures at risk in the event of fault rupture.

The same CBC standards for seismic safety and structural design applicable in the Plan Area would also apply throughout Riverbank, thereby reducing potential impacts from strong seismic ground shaking and seismic-related ground failure to a *less-than-significant* level.

Implementation of the Plan would not affect the characteristics of soils in the Plan Area of the City of Riverbank sphere of influence. Accordingly, Plan implementation would not contribute to a substantial increase in the risk of loss, damage, or death associated with expansive or unstable soils in the sphere of influence. Overall, cumulative impacts to geology, soils, and seismicity from buildout of the Plan in combination with other projects in the sphere of influence would be *less than significant*.

E. Impacts and Mitigation Measures

Since there are no significant impacts related to land use as a result of the Plan, no mitigation measures are required.

4.7 GREENHOUSE GAS EMISSIONS

This section assesses the greenhouse gas (GHG) emissions impacts associated with implementation of the Specific Plan. Included in this section is background information on GHGs and global climate change, a summary of the regulatory framework that pertains to the Specific Plan, and a summary of existing air quality conditions.

A. Background Information

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide and water vapor but there are also several others, most importantly: methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These are released into the earth's atmosphere through a variety of natural processes and human activities.

- “ Carbon dioxide and nitrous oxide are byproducts of fossil fuel combustion.
- “ Nitrous oxide is associated with agricultural operations such as fertilization of crops.
- “ Methane is commonly created by off-gassing from agricultural practices (e.g. keeping livestock) and landfill operation.
- “ Chlorofluorocarbons were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- “ Hydrofluorocarbons are now used as a substitute for chlorofluorocarbons in refrigeration and cooling.
- “ Perfluorocarbons and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with carbon dioxide being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger with a GWP of 23,900. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of carbon dioxide equivalents (CO₂e).

An expanding body of scientific research supports the theory that global warming is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally-occurring resources within California could be adversely affected by the global warming trend. Increased precipitation and sea level rise could increase coastal flooding, saltwater intrusion (a particular concern in the low-lying Sacramento–San Joaquin Delta, where potable water delivery pumps could be threatened), and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

B. Regulatory Framework

This section summarizes key federal, State and City statutes, regulations and policies that would apply to the Plan. Global climate change resulting from GHG emissions is an emerging environmental concern being raised and discussed at the international, national, and statewide level. At each level, agencies are considering strategies to control emissions of gases that contribute to global climate change.

1. Federal Regulations

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC). While the United States signed the Kyoto

Protocol, which would have required reductions in GHGs, Congress never ratified the protocol. The federal government chose voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science. In 2002, the United States announced a strategy to reduce the GHG intensity of the American economy by 18 percent over a 10-year period from 2002 to 2012. At this time, there are no federal regulations or policies pertaining to GHG emissions.

2. State Regulations

The State of California is concerned about GHG emissions and their effect on global climate change. The State recognizes that “there appears to be a close relationship between the concentration of GHGs in the atmosphere and global temperatures” and that “the “evidence for climate change is overwhelming.” The effects of climate change on California, in terms of how it would affect the ecosystem and economy, remain uncertain. The State has many areas of concern regarding climate change with respect to global warming. According to the 2006 Climate Action Team Report, the following climate change effects and conditions can be expected in California over the course of the next century:

- “ A diminishing Sierra snowpack declining by 70 percent to 90 percent, affecting the state’s water supply;
- “ Increasing temperatures from 8 to 10.4 degrees Fahrenheit (°F) under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution standards are exceeded in most urban areas;
- “ Coastal erosion along the length of California and seawater intrusion into the Sacramento River Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions;
- “ Increased vulnerability of forests due to pest infestation and increased temperatures;

- “ Increased challenges for the state’s important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta; and
- “ Increased electricity demand, particularly in the hot summer months.

a. Assembly Bill 1575 (1975)

In 1975, the Legislature created the California Energy Commission (CEC). The CEC regulates electricity production that is one of the major sources of GHGs.

b. Title 24, Part 6 of the California Code of Regulations (1978)

The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2005 Standards went into effect October 1, 2005. Projects that apply for a building permit on or after this date have had to comply with the 2005 Standards. The 2008 Standards are currently being developed and were anticipated to become effective in late 2009.

c. Assembly Bill 1493 (2002)

Assembly Bill (AB) 1493 required California Air Resources Board (CARB) to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks.

d. State of California Executive Order S-3-05 (2005)

The Governor’s Executive Order established aggressive emissions reductions goals: by 2010, GHG emissions must be reduced to 2000 levels; by 2020, GHG emissions must be reduced to 1990 levels; and by 2050, GHG emissions must be reduced to 80 percent below 1990 levels.

In June 2005, the Governor of California signed Executive Order S-3-05, which identified Cal/EPA as the lead coordinating State agency for establishing climate change emission reduction targets in California. A “Climate Ac-

tion Team,” a multi-agency group of State agencies, was set up to implement Executive Order S-3-05. Under this order, the State plans to reduce GHG emissions to 80 percent below 1990 levels by 2050. GHG emission reduction strategies and measures to reduce global warming were identified by the California Climate Action Team in 2006.

e. Assembly Bill 32, California Global Warming Solutions Act (2006)

AB 32, the Global Warming Solutions Act of 2006, codifies the State’s GHG emissions target by directing CARB to reduce the State’s global warming emissions to 1990 levels by 2020. CARB regulations are required to begin phasing in by 2012. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, CPUC, and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State’s main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. It requires CARB and other State agencies to develop and adopt regulations and other initiatives reducing GHGs by 2012.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons of carbon dioxide equivalent (MMTCO_{2e}) as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit.

CARB is also conducting rulemaking, culminating in rule adoption by January 1, 2011 for reducing GHG emissions to achieve the emissions cap by

2020. The rules must take effect no later than 2012. In designing emission reduction measures, CARB must aim to minimize costs, maximize benefits, improve and modernize California's energy infrastructure, maintain electric system reliability, maximize additional environmental and economic co-benefits for California, and complement the State's efforts to improve air quality.

In addition, landfill gas capture and control was identified as an early adoption measure for AB 32, and CARB has proposed a rule requiring gas capture and collection for landfills having at least 450,000 tons of waste in place and establishing performance standards for systems already installed.

f. Senate Bill 97, Modification to the Public Resources Code (2007)

Pursuant to Senate Bill 97 (SB 97), the Governor's Office of Planning and Research (OPR) is in the process of developing CEQA Guidelines addressing GHGs. OPR is required to "prepare, develop, and transmit" the guidelines to the Resources Agency on or before July 1, 2009. In June 2008, OPR issued interim guidance for addressing climate change through CEQA.

At the direction of the OPR, CARB is currently developing statewide interim thresholds of significance for GHG emissions. CARB is focusing on common project types that, collectively, are responsible for substantial GHG emissions – specifically industrial, residential, and commercial projects. The ongoing workshops have been planned to discuss further development of concepts introduced in its Preliminary Draft Staff Proposal on Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act (CEQA).

g. Senate Bill 375, California's Regional Transportation and Land Use Planning Efforts (2008)

Recently, California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 would develop emissions-reduction goals in which regions can apply in planning activities. SB 375 provides incentives for local governments and

developers to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows developers to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB would work with the metropolitan planning organizations (e.g. ABAG and MTC) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

h. Executive Order S-13-08 (2008)

This Executive Order directed California agencies to assess and reduce the vulnerability of future construction projects to impacts associated with sea-level rise.

i. California's Heavy Duty Vehicle Greenhouse Gas Emissions Reduction Measure

On December 12, 2008 (one day after adopting the AB 32 Climate Action Plan), CARB adopted the Heavy Duty Vehicle GHG Emission Reduction measure that requires long-haul truckers to install fuel-efficient tires and aerodynamic devices on their trailers. This measure will reduce GHG emissions through improved fuel economy.

3. Regional and Local Regulations

a. San Joaquin Valley Air Pollution Control District (SJVAPCD)

In August 2008, SJVAPCD's Governing Board adopted the Climate Change Action Plan (CCAP). The CCAP directed the District Air Pollution Control Officer to develop guidance to assist Lead Agencies and project proponents in

assessing and reducing the impacts of project-specific GHG emissions on global climate change. On December 17, 2009, SJVAPCD adopted its Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA.¹ The guidance and policy rely on the use of performance based standards, or Best Performance Standards (BPS), to mitigate and assess the significance of project-specific GHG emissions on global climate change.

b. City of Riverbank

To date, the City has not developed a climate action plan. The Riverbank General Plan² contains the following goals and policies that relate, either directly or indirectly, to GHG emissions and the Specific Plan (see Table 4.7-1):

C. Existing Conditions

1. Greenhouse Gas Inventories

a. U.S. Inventory

The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC). The U.S. EPA is developing rulemaking to regulate GHGs under the Clean Air Plan (note that a 2007 Supreme Court ruling held that the U.S. EPA can regulate GHG emissions).³

¹ SJVAPCD, 2009. *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*.

² City of Riverbank, 2009. City of Riverbank General Plan 2005-2025. Adopted April 22, 2009.

³ On April 2, 2007, the United States Supreme Court issued a 5-4 decision in *Massachusetts v. EPA*, which holds that the U.S. Environmental Protection Agency has authority, under the Clean Air Act, to regulate greenhouse gas emissions from new vehicles. The U.S. EPA had previously argued it lacked legal authority under the Clean Air Act to regulate greenhouse gases. The majority opinion of the Supreme Court decision noted that greenhouse gases meet the Clean Air Act's definition of an "air pollutant," and the EPA has the statutory authority to regulate the emission of such gases from new motor vehicles.

TABLE 4.7-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO GREENHOUSE GAS EMISSIONS

Goal/Policy Number	Goal/Policy Content
Goal AIR-1	Create and enhance development patterns that encourage people to walk, bicycle, or use public transit for a significant number of their daily trips.
Policy AIR-1.2	Approved plans, subdivisions, and projects shall provide highly-connected circulation networks that accommodate safe, direct, and convenient alternatives to vehicular travel.
Policy AIR-1.7	New major activity centers, office, and commercial development shall accommodate alternatives to automobile access, including provision of secure bicycle storage and parking facilities.
Policy AIR-1.10	Projects or portions of projects that implement a fine-grained mixing ^a of housing types and land uses, and that include other pedestrian, bicycle, and transit oriented design elements, which generate fewer vehicle trips, will have a correspondingly lower contribution towards any roadway or intersection improvement mitigation measures required in City environmental documents and conditions or approval.
Goal AIR-2	Construction practices and materials used in Riverbank minimize direct and indirect air pollutant emissions.
Policy AIR-2.5	The City of Riverbank will require new residential, commercial, and industrial development to reduce air quality impacts from area sources and from energy consumption.

^a The term “grain” can be used to describe the degree to which land uses are mixed and the size of development blocks. “Fine grain” development involves land uses located in proximity with one another on relatively smaller parcel or development blocks, allowing residents and employees to walk or bicycle among different destinations to meet their daily or occasional needs without use of a private automobile. By contrast, “coarse grain” development involves land uses that isolated from one another, with non-residential land uses typically occurring on larger parcels. This presents a situation in which residents and employees have a more difficult time traveling among destinations except by automobile. Public transit service is less feasible because transit routes would be located at a significant distance from potential transit users.

As part of the commitments to UNFCCC, the U.S. EPA has developed an inventory of anthropogenic emissions by sources and removals by sinks of all GHGs. This inventory is periodically updated with the latest update being

2009.⁴ EPA reports that total U.S. emissions have risen by 7.3 percent from 1990 to 2009 to 6,633 million metric tons of equivalent CO₂ per year, while emissions decreased by 6.1 percent from 2008 to 2009. The decrease was primarily due to a decrease in economic output (resulting in lower energy consumption) and a decrease in the carbon density of fuels used to generate electricity. The inventory notes that the electric power industry is the highest emitter by economic sector at 33 percent. The transportation sector emits about 27 percent of CO₂ equivalent emissions, with 60 percent of those emissions coming from personal automobile use. Residential uses, primarily from energy use, accounted for 20 percent of CO₂ emissions.

As a part of U.S. EPA's responsibility to develop and update an inventory of U.S. GHG emissions and sinks, EPA compared trends of other various U.S. data. Over the period between 1990 and 2009, GHG emissions grew at a rate of about 0.4 percent per year. Population growth was higher at 1.1 percent, while electricity consumption was at 1.5 percent and fossil fuel use grew at 0.5 percent. Gross domestic product grew at a much higher rate of 2.5 percent.

b. State of California Inventory

California emissions of GHGs or CO₂ equivalent emissions was estimated at 484 million metric tons of equivalent CO₂ emissions (MMTCO₂e), which is about 7 percent of the emissions from the entire United States. It is estimated that the United States contributes up to 35 percent of the world's CO₂ equivalent emissions. Transportation is the largest source of GHG emissions in California, contributing about 40 percent of the emissions. Electricity generation is second at over 20 percent, but California imports electricity during the summer bringing energy sources up to about 25 percent. Industrial activities account for about 20 percent of the State's emissions. Transportation is the largest source of GHG emissions in California, followed by industrial sources and electric power generation. On a per-person basis, GHG emissions are lower in California than most other states; however, California is a

⁴ U.S. EPA, 2011. *2011 U.S. Greenhouse Gas Inventory Report Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009*. USEPA #430-R-11-005.

populous state and the second largest emitter of GHGs in the United States and one of the largest emitters in the world.

Under a “business as usual” scenario, emissions of GHG in California are estimated to increase to approximately 600 MMTCO_{2e} by 2020. CARB staff has estimated the 1990 statewide emissions level to be 427 MMTCO_{2e}, therefore, requiring a reduction of almost 30 percent in emissions by 2020 to meet the AB 32 goal.

CARB updated the future 2020 forecast in light of the economic downturn and updated the 2020 projected annual emissions to 545 million metric tons of CO_{2e}. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 million metric tons of CO_{2e}. Thus, an estimated reduction of 80 million metric tons of CO_{2e} is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

c. Riverbank Greenhouse Gas Emissions

To date, no formal emissions inventory has been conducted for the City of Riverbank.

D. Standards of Significance

1. CEQA Appendix G Standards

The Natural Resources Agency conducted formal rulemaking in 2009, as required by SB 97 for issuing criteria to determine the significance of projects or plans. The Plan would have a significant impact related to GHGs if it would:

- a. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG.

The Office of Planning and Research (OPR) recommends that each agency develop an approach to addressing GHG emissions that is based on best available information. The approach includes three basic steps: (1) identify and quantify emissions; (2) assess the significance of the emissions; and (3) if emissions are significant, identify mitigation measures or alternatives that will reduce the impact to a less-than-significant level.

2. Thresholds of Significance

The SJVAPCD has published recommended methodology for determining the significance of a project's contribution to global climate change. According to the Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA,⁵ projects requiring preparation of an EIR would require quantification of project-specific GHG emissions. Projects implementing Best Performance Standards (BPS) or achieving at least a 29 percent GHG emission reduction compared to Business As Usual (BAU) would be determined to have a less than significant individual and cumulative impacts for GHG. There are no thresholds applicable to GHG emissions associated with of Specific Plans. However, potential GHG emissions associated with build-out of the Draft Specific Plan were modeled and presented in this analysis.

E. Impacts Discussion

The following provides a discussion of the potential GHG impacts that could occur as a result of implementation of the Plan and cumulatively.

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Operation-related GHG emissions derive primarily from five sources:

- “ Mobile source emissions due to additional trips generated by the Plan.

⁵ SJVAPCD, 2009. *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. December 17.

- “ Emissions from electricity generated by fossil-fuel power plants to the Plan Area.
- “ Emissions caused by consumption of natural gas for heating, cooking, and water heating within the Plan.
- “ Municipal emissions created by transport and treatment of water supply to the Plan and by electricity used to light streets.
- “ Municipal emissions created by the disposal and decomposition in landfills of solid waste generated from the Plan Area.

GHG emissions were modeled for existing or baseline conditions assumed to be 2010 and year 2020 to be consistent with AB 32 targets used by SJVAPCD to develop GHG significance thresholds. In addition, emissions were also modeled for 2030, which is the assumed build-out year of the Draft Specific Plan. The predicted 2020 emissions modeling assumes full build-out of the Draft Specific Plan, which is unlikely in that short timeframe. Therefore, this analysis likely overestimates the emissions. Area and mobile source emissions were computed using the California Emissions Estimator Model Version 2011.1.1 (CalEEMod), as recommended by SJVAPCD.

CalEEMod is a computer model developed by the South Coast Air Quality Management District (SCAQMD) to estimate air pollutant and GHG emissions from land use development projects. The model uses the latest statewide emission inventory models for mobile sources (i.e. EMFAC2007). The model is periodically updated to reflect most recent emissions estimates for source types and incorporate accuracies in estimating emission from land use activities. The latest version of this model (i.e. Version 2011.1.1) was used in this analysis.

CalEEMod used the Draft Specific Plan land use types and sizes to predict area source and operational (traffic-related) emissions. The total square footages for the various land uses (e.g. office, industrial, retail, etc.) were input to the model. Trip generation rates produced by Fehr & Peers were input to CalEEMod. Where appropriate, the trip generation estimates include reduc-

tions for pass-by trips, which are trips made by traffic already using the adjacent roadway that enter the site as an intermediate stop on the way from another destination. They do not involve an extra vehicle trip. The methodology for developing the trip estimates is described in the Fehr & Peers report.⁶ Trip generation represents the daily number of trips generated when the land uses are fully operational. Pass-by trips are subtracted only from the proposed retail land uses. The adjusted trip rates were entered into CalEEMod, such that CalEEMod computed the same total number of daily trips generated as the Fehr & Peers study. The default trip lengths in CalEEMod were assumed in the analysis.

Emissions rates associated with electricity consumption were adjusted to account for Pacific Gas & Electric utility's (PG&E) existing 2010 and future projected rate for 2020 and 2030 CO₂ intensity rate. These rates are based, in part, on the requirement of a renewable energy portfolio standard of 33 percent by the year 2020. CalEEMod uses a default rate of 641.3 pounds of CO₂ per megawatt of electricity produced. The derived 2020 and 2030 rate for PG&E was estimated at 286.6 pounds of CO₂ per megawatt of electricity delivered and is based on the California Public Utilities Commission (CPUC) GHG Calculator.⁷ 2020 is the last year for which CO₂ intensity rate data is available from the CPUC. The 2010 rate for PG&E was estimated at 529.1 pounds of CO₂ per megawatt of electricity delivered. Default model assumptions for GHG emissions associated with area sources, solid waste generation, and water/wastewater use were applied to the project. CalEEMod output worksheets are included in Appendix B.

The results shown in Table 4.7-2 reflect the primary features of the Specific Plan that produce emissions. As these results do not include the effects of the

⁶ Fehr & Peers, 2011. *Administrative Draft Transportation Impact Analysis Riverbank Army Ammunition Plant.*

⁷ California Public Utilities Commissions GHG Calculator Version 3c, October 7, 2010. Available on-line at: http://ethree.com/public_projects/cpuc2.php. Accessed: March, 14, 2012.

TABLE 4.7-2 ANNUAL OPERATIONAL GHG EMISSIONS (CO₂E)

Category	2010 (Baseline) (Metric Tons/Year)	2020 Specific Plan (Metric Tons/Year)	2030 Specific Plan (Metric Tons/Year)
Mobile (Vehicular Traffic)	1,479	12,742	12,190
Energy	2,146	3,485	3,485
Water and Wastewater	7,275	11,165	11,165
Solid Waste	3,774	8,012	8,012
Total	14,674	35,404	34,852

Source: Illingworth & Rodkin, 2012.

Draft Specific Plan policies that would reduce GHG emissions, emissions are overestimated.

The Specific Plan includes numerous goals and policies to reduce the rate of vehicle trips or VMT associated with implementation of the Plan land uses, and in turn GHG emissions (see Table 4.7-3).

A 2020 BAU model was also run using the average of the 2003 and 2004 rates for PG&E, estimated at 593 pounds of CO₂ per megawatt of electricity delivered⁸. The same proposed land uses and sizes, and vehicle trip rates were used as in the 2020 and 2030 model runs. Annual operational GHG emissions under BAU are estimated to be 45,990 metric tons of CO₂e per year. As shown in Table 4.7-2, the 2020 Specific Plan would emit approximately 35,404 metric tons of CO₂e per year. Therefore, the Specific Plan in 2020 would provide

⁸ PG&E. 2011. Greenhouse Gas Emission Factors Info Sheet

TABLE 4.7-3 RIVERBANK SPECIFIC PLAN POLICIES RELATED TO GREENHOUSE GAS EMISSIONS

Goal/Policy Number	Goal/Policy Content
Goal LUD-1	A land use mix that contributes to job creation for Riverbank residents.
Policy LUD-1	Encourage a mix of new employment-intensive development types on undeveloped portions of the RAAP, including traditional industrial uses, R&D space, flex space, office uses, and supporting retail space.
Goal TRAN-1	A new industrial park and retail area that facilitates the safe circulation of vehicles, bicycles, and pedestrians.
Policy TRAN-1	Provide pedestrian crossings as appropriate to ensure that employees can safely walk between buildings and to areas off-site.
Policy TRAN-2	On new public streets built in the Specific Plan Area, use a landscaped planting strip to buffer sidewalks from roadways.
Policy TRAN-3	Ensure bicycles are accommodated through the provision of on-site bicycle parking.
Policy TRAN-4	Design roadways to accommodate all modes of travel safely.
Goal TRAN-3	An industrial park that provides for safe queuing of delivery vehicles.
Policy TRAN-8	Ensure that truck deliveries and movement do not inhibit pedestrian, bicycle, and vehicular circulation.

approximately a 23 percent GHG emission reduction compared to BAU. Additional reductions in GHG emissions would be required through the implementation of BPS for both land uses and possibly stationary source reductions. At this time, however, there is not enough information regarding specific planned uses and proposed stationary sources (e.g., industrial equipment) to implement SJVAPCD BPS or demonstrate at least a 29 percent GHG emission reduction compared to BAU. Therefore, this impact is considered *significant*.

2. Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

All future projects in the Plan Area would be subject to any new requirements under rule making developed at the State and local level regarding GHG emissions and would be subject to local policies that may affect emissions of GHGs. Future projects in the Plan Area would be analyzed for consistency with applicable plans, policies, and regulations on a project-by-project basis as they are proposed.

F. Impacts and Mitigation Measures

Impact GHG-1: Development and operation of the Specific Plan could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Mitigation Measure GHG-1: Each individual project component of the Specific Plan shall be analyzed for significant GHG impacts. For each project-level analysis, appropriate BPS will be implemented or a 29 percent GHG emission reduction compared to BAU will be demonstrated. Means of mitigating GHG impacts to a less-than-significant level include, but are not limited to, technological controls for stationary sources (such as for boilers, generators, and process heaters) and the GHG emission reduction measures (such as energy efficiency, transportation, and site design measures) for development projects listed in the SJVAPCD CCAP.⁹

Significance After Mitigation. *Less than significant.*

⁹ SJVAPCD, 2009. *Final Staff Report – Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act.* December 17.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SPECIFIC PLAN EIR
GREENHOUSE GAS EMISSIONS

4.8 MINERAL RESOURCES

This chapter summarizes information on mineral resources in and around the City of Riverbank, including the Plan Area. This chapter provides an overview of the current regulatory framework, a description of existing conditions, and an analysis of the potential impacts of the proposed Plan.

A. Regulatory Framework

This section summarizes the key State and local regulations, policies, and programs applicable to mineral resources in and around the Plan Area.

1. State Regulations

The 1975 California Surface Mining and Reclamation Act (SMARA) requires that local governments address mineral recovery on two levels: through direct regulation of mining operations, and through planning policies that harmonize the mineral resource needs of the State and region with environmental quality.¹ SMARA also contains policies for the conservation of known mineral deposits, access to which might be affected by proposed land uses, so that these deposits will be available for extraction and use.

The State Board of Mining and Geology conducts a two-step mineral resource inventory process mandated by SMARA and intended to ensure that important mineral deposits are identified and protected for continued and further extraction. The first step is classification of important mineral commodities by the State Geologist, based solely on geological factors. SMARA establishes the following four Mineral Resource Zone (MRZ) Classifications:

- “ **MRZ-1.** Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

¹ City of Riverbank, 2005. Mineral Resources Background Report for the General Plan, page MR-1.

- “ **MRZ-2.** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- “ **MRZ-3.** Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- “ **MRZ-4.** Areas where available information is inadequate for assignment into any other MRZ.

Additionally, SMARA establishes a Scientific Zone (SZ) classification for areas containing unique or rare occurrences of rocks, minerals, or fossils that are of outstanding scientific significance.

The second step in the inventory process is designation, whereby deposits of prime importance to the future needs of the region are identified and their availability is assessed from an existing land use perspective. Following a public hearing and consultation with the affected cities and counties, the State Board designates all or part of areas classified as MRZ-2 or SZ as areas containing mineral resources of Statewide or regional significance. The State Board then transmits a report of its action to the affected city or county and within 12 months the jurisdiction must:

- “ Recognize and include in its General Plan the designated area of Statewide and regional significance transmitted by the State Board;
- “ Develop and adopt policies for the management of land use of areas classified MRZ-2 or SZ and designated by the State Board as areas of statewide and regional significance to protect those areas from premature development incompatible with mining;
- “ Emphasize the conservation and development of mineral deposits designated by the State Board to be of Statewide or regional significance.

2. Local Regulations

The Riverbank General Plan recognizes the Stanislaus River Corridor as an area associated with important mineral resources and includes the goals and

policies shown on Table 4.8-1 which seek to protect mineral resources and balance extraction with environmental, social, and economic considerations.

B. Existing Conditions

1. Mineral Resources

Mineral commodities in Stanislaus County are valued at several hundred million dollars, with gold and construction aggregate deposits representing the greatest value. Today, the most important area of the County for mining is the upstream portion of the Tuolumne River between Waterford and La Grange, which has substantial concrete-grade aggregate resources that could be used for future land development in the region. Several alluvial fans along the west side of the San Joaquin Valley are potential sources of concrete-grade aggregate, however, these deposits are of lesser quality than those found along the Tuolumne and Stanislaus Rivers.

The majority of the City of Riverbank, including the Plan Area, is in an area classified as MRZ-3a, indicating that there are known mineral occurrences of undetermined significance present. The area contains concrete aggregate (sand and gravel) and is a potential future source of construction aggregate, although much of the Riverbank area is developed or currently in agricultural use.

2. Mining Activities

The first full scale mining activities in Stanislaus County began during the Gold Rush in the mid-19th Century. Gold was initially the most sought-after commodity and the main extraction activity was concentrated in the eastern portion of the county; however, other metallic commodities including chromite, manganese, and mercury were also mined.² In the 20th Century, mining of industrial minerals including clay, diatomite, manganosite, mineral

² Higgins, Chris T., 1993. Mineral Land Classification of Stanislaus County, California. Special Report 173. California Department of Conservation, Division of Mines and Geology, Sacramento, California, pages 27-28.

TABLE 4.8-1 RIVERBANK GENERAL PLAN GOAL AND POLICY RELATED TO MINERAL RESOURCES

Goal/Policy Number	Goal/Policy Content
Goal CONS-9	Protect mineral resources in the Riverbank Planning Area consistent with other environmental, social, and economic goals.
Policy CONS-9.1	The City will coordinate with the California Geologic Survey to incorporate, as necessary, on policies for conservation and possible future extraction of mineral resources of regional or statewide significance.

Source: City of Riverbank General Plan 2005-2025.

pigment (yellow ochre), quartz (silica), and dimension stone began, with production in the more mountainous regions of the county.

Today, the only mineral commodity mined in Stanislaus County is construction aggregate in the form of sand and gravel. This material has been mined extensively in Stanislaus County since the 1860s, and while commonplace, is important for the construction of sidewalks, roads, and buildings required for development. In 1991, Stanislaus County produced 75 percent of the aggregate required for construction within the county; however, the California Division of Mines and Geology identified a potential shortfall in supply of construction aggregate from sources within Stanislaus County if the pace of development continued at the rate seen in the 1990s.³

There are no active mines inside the Riverbank city limits or in the Plan Area; however, there are five mines in the 12.49-square mile MRZ-2 zone along

³ Higgins, Chris T., 1993. Mineral Land Classification of Stanislaus County, California. Special Report 173. California Department of Conservation, Division of Mines and Geology, Sacramento, California, page 152.

the Stanislaus River.⁴ The Munn and Perkins Pit, where aggregate (sand and gravel) is mined, is the closest active mine to the Plan Area, located approximately 4 miles to the northeast of the Plan Area in Escalon, California. There are also major sources of construction aggregate located in areas adjacent to Stanislaus County, as well as from the Table Mountain Quarry east of Knights Ferry.

C. Standards of Significance

The draft RAAP Site Specific Plan would have a significant impact on mineral resources if it would:

- a. Result in the loss of availability of a known mineral resource that would be of value to the region or the state;
- b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a mineral resource plan, local general plan, specific plan or other land use plan.

D. Impacts Discussion

1. Project Level Impacts

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

Mineral resources are known to be present in the Plan Area. The Plan Area is classified as MRZ-3 and concrete aggregate (sand and gravel) are potentially present in this portion of the Plan Area, although it has not been determined whether significant quantities of this commodity are in fact present at this location. The site, however, is already largely developed and surrounded by land uses incompatible with mining activities, including residences and agri-

⁴ Higgins, Chris T., 1993. Mineral Land Classification of Stanislaus County, California. Special Report 173. California Department of Conservation, Division of Mines and Geology, Sacramento, California, pages xiv.

cultural land. As such, future use of this site for mineral extraction is unlikely and therefore implementation of the Plan would not result in a significant loss of available minerals at this location. Overall, impacts related to loss of mineral resource availability from implementation of the Plan would be *less than significant*.

- b. Result in the loss of availability of a locally-important mineral resource recovery site.

There are no mines located in the Plan Area. The closest active mine is the Munn and Perkins Pit, located approximately 3.8 miles to the northwest of the RAAP Site in Escalon, San Joaquin County. While the RAAP Site could potentially contain significant quantities of construction aggregate, it has not been determined that significant quantities of the commodity do in fact exist on the site. Additionally, the site is already largely developed and surrounding land uses would be incompatible with mining activities so that future use of the site for mineral extraction is unlikely. Therefore, overall, impacts related to loss of mineral resource recovery sites from implementation of the Plan would be *less than significant*.

2. Cumulative impacts

This section analyzes potential impacts to mineral resources that could occur from a combination of the proposed Plan with other reasonably foreseeable projects in the surrounding area. Cumulative impacts would occur if development associated with the Plan together with other projects in the City of Riverbank or adjacent portion of San Joaquin County along the Stanislaus River would result in the substantial loss of mineral resource sites or availability.

As described above, concrete-grade aggregate in the form of sand and gravel is potentially present in significant quantities in the Plan Area. This commodity is used to build sidewalks, roads, and buildings as the county grows; however, the California Division of Mines and Geology identified a potential shortfall in supply from sources within Stanislaus County if the pace of development continued at the rate seen in the 1990s. Implementation and

buildout of the Plan would result in the loss of a potential source of construction aggregate. This loss, however, would not be cumulatively considerable. Even without implementation of the Plan, mining activities at this location would be unlikely given that the site is already largely developed and that surrounding land uses are incompatible with mineral extraction activities. Further, substantial sources of construction aggregate located in areas adjacent to Stanislaus County as well as from the Table Mountain Quarry east of Knights Ferry. Therefore, implementation of the Plan would result in a *less-than-significant* impact related to loss of mineral resource sites or availability.

E. Impacts and Mitigation Measures

There are no significant impacts related to agricultural resources as a result of the proposed Plan. Therefore no mitigation measures are required.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SPECIFIC PLAN EIR
MINERAL RESOURCES

4.9 HAZARDS AND HAZARDOUS MATERIALS

This section provides an overview of the regulatory framework, describes existing conditions, analyzes the potential impacts and includes recommended mitigation measures, if necessary, to address the impacts related to hazards and hazardous materials.

A. Regulatory Framework

Various federal, State, regional, and local agencies oversee hazards and hazardous materials issues in Riverbank, and have established regulations designed to protect human health and the environment from the effects of hazardous materials.

1. Federal

Following are the federal agencies that oversee hazards and hazardous materials concerns.

a. US Environmental Protection Agency

The US Environmental Protection Agency (US EPA) is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. The legislation includes the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (commonly referred to as “Superfund”), the Superfund Amendments and Reauthorization Acts of 1986, and the Resource Conservation and Recovery Act of 1986 (RCRA). The US EPA provides oversight and supervision for site investigations and remediation projects, and has developed land disposal restrictions and treatment standards for the disposal of certain hazardous wastes.

b. United States Department of Transportation

Transportation of chemicals and hazardous materials are governed by the United States Department of Transportation (DOT), which stipulates the types of containers and labeling and other restrictions to be used in the movement of such material on interstate highways.

2. State

Following are the State agencies and regulations pertaining to hazards and hazardous materials.

a. California Environmental Protection Agency

Within the State of California, California Environmental Protection Agency (Cal/EPA) serves as the umbrella agency for six boards/departments: the California Air Resources Board (CARB) AND San Joaquin Valley Air District (SJVAD), the Department of Pesticide Regulation (DPR), the Department of Toxic Substance Control (DTSC), the California Integrated Waste Management Board, the Office of Environmental Health Hazard Assessment (OEHHA) and the State Water Resources Control Board (SWRCB) and its associated regional Water Boards.

- “ **California Air Resources Board and San Joaquin Valley Air Pollution Control District (Valley Air District).** CARB and the Valley Air District have responsibility for developing and enforcing regulations to achieve and maintain ambient air quality standards in the district. CARB is responsible for enforcing the Clean Air Act and California's State Ambient Air Quality Standards. The Valley Air District is responsible for regulating air emissions from stationary sources.
- “ **Department of Pesticide Regulation.** The DPR has the primary responsibility for regulating all aspects of pesticide sales and use to protect public health and the environment. The DPR's mission is to evaluate and mitigate impacts of pesticide use, maintain the safety of the pesticide workplace, ensure product effectiveness and encourage the development and use of reduced-risk pest control practices while recognizing the need for pest management in a healthy economy.
- “ **Department of Toxic Substance Control.** The DTSC works in conjunction with the US EPA to enforce and implement specific laws and regulations pertaining to hazardous wastes. California legislation, for which the DTSC has primary enforcement authority, includes the Hazardous Waste Control Act and the Hazardous Substance Account Act. Most State hazardous waste regulations are contained in the CCR, Title

27. The DTSC generally acts as the lead agency for soil and groundwater cleanup projects, and establishes cleanup and action levels for subsurface contamination that are equal to, or more restrictive than, federal levels.

- “ **Office of Environmental Health Hazard Assessment.** The mission of the OEHHA is to protect and enhance public health and the environment by objective scientific evaluation of risks posed by hazardous substances.
- “ **State Water Resource Control Board.** The SWRCB, through its regional boards, regulates discharge of potentially hazardous materials to waterways and aquifers and administers basin plans for groundwater resources in various regions of the State. The California Regional Quality Water Quality Control Board Central Valley Region is the regional board that has jurisdiction over the Plan Area. The SWRCB provides oversight for sites at which the quality of groundwater or surface waters is threatened, and has the authority to require investigations and remedial actions.

b. California Department of Transportation

California Department of Transportation (Caltrans) manages more than 50,000 miles of California's highway and freeway lanes, provides inter-city rail services, permits more than 400 public-use airports and special-use hospital heliports and works with local agencies. This agency is also the first-responder for hazardous material spills and releases that occur on those highway and freeway lanes and inter-city rail services.

3. Local and County Agencies

Following are the local and County agencies that oversee hazards and hazardous materials in Stanislaus County.

a. Stanislaus County Environmental Resources Department

The Environmental Resources Department of Stanislaus County oversees hazardous materials programs throughout the county. It maintains hazardous materials response teams and implements the county's plan for emergencies resulting from chemical spills. Additionally, the Department prepares and

implements the County's Hazardous Waste Management Plan, as well as inspects the facilities impacted by the Aboveground Storage and Underground Storage Tank Programs. Finally, the Department maintains hazardous materials response teams to assist public and fire agencies during chemical spills.

b. Stanislaus County Office of Emergency Services (OES)

The Stanislaus County OES is a division of the General Services Department and its mission is to minimize or reduce injury, loss of life, environmental and property damage from emergencies within Stanislaus County. The OES provides the following services:

- “ Prepare disaster response plans and procedures, and improve response capabilities
- “ Coordinate public safety agency response to large scale emergencies in Stanislaus County
- “ Respond to hazardous materials incidents in the unincorporated areas of
- “ Provide instructions and information to the public during disasters
- “ Assist businesses to comply with Chapter 6.95 of the Health and Safety Code, hazardous materials management plans and inventories
- “ Assist businesses to comply with the Federal Risk Management Plan Program
- “ Make hazardous materials "Community-Right-To-Know" Information available to the public
- “ Provide disaster preparedness presentations to community groups

c. Stanislaus County Consolidated Fire Prevention District

In cooperation with Stanislaus County the Stanislaus County Consolidated Fire Prevention District (SCFPD) has implemented a Multi-Jurisdictional Hazard Mitigation Plan (MJHMP), which identifies ways to minimize damage from those disasters. The plan is a comprehensive resource document that serves many purposes, including: enhancing public awareness and understanding, creating a decision tool for management, promoting compliance

with State and federal program requirements, enhancing local policies for hazard mitigation capability, and providing inter-jurisdictional coordination. Additionally, the MJHMP has identified and profiled the following hazards: Earthquake, Landslide, Dam Failure, Flood, and Wildfire. The MJHMP must be updated every five year, in accordance with FEMA guidelines.

d. City of Riverbank General Plan

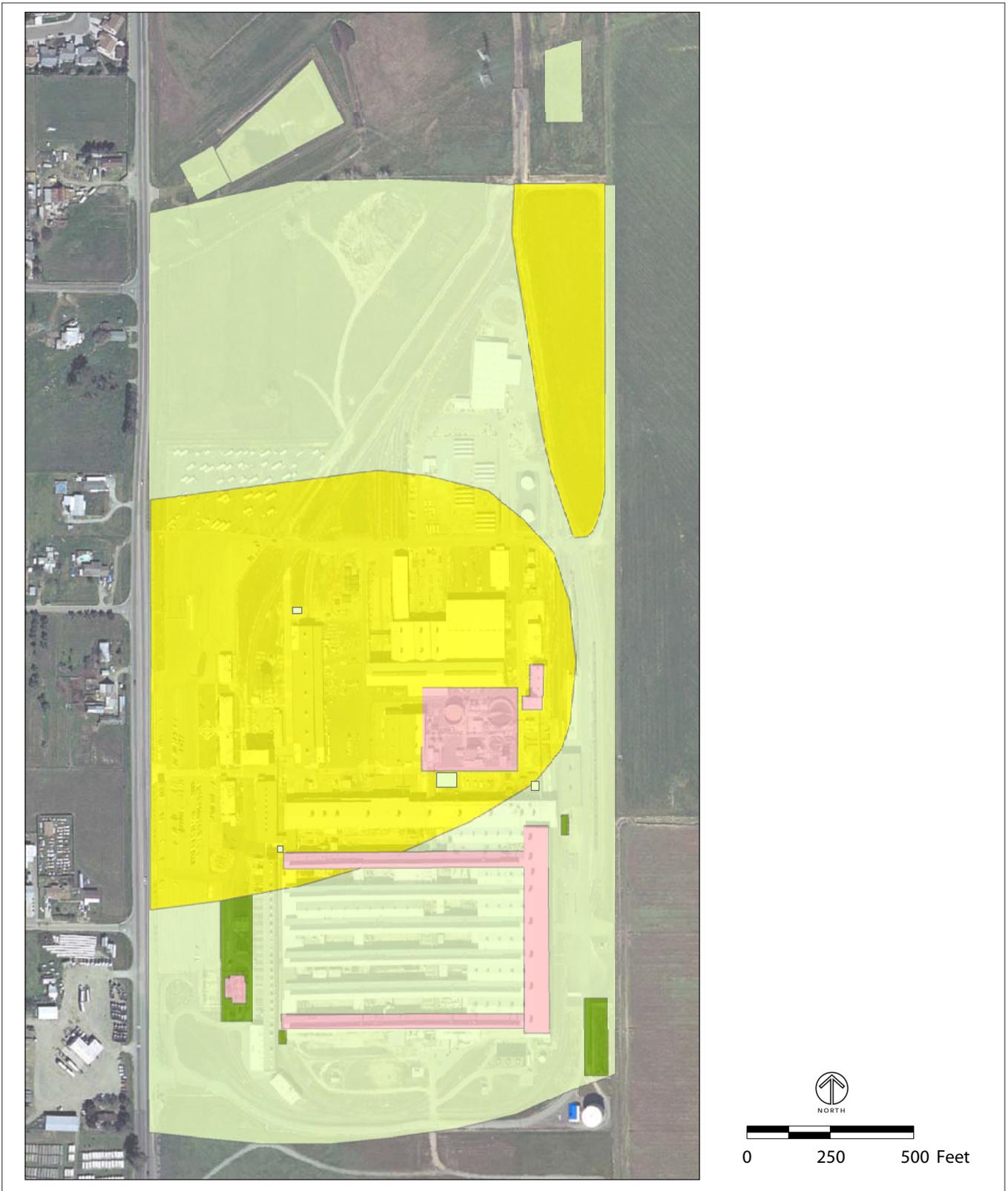
The Riverbank General Plan includes several goals and policies that address hazards and hazardous materials. Table 4.9-1 lists these goals and policies.

B. Existing Conditions

The RAAP site is currently listed as a federal Superfund site due to groundwater contamination and other pollutants at the site. Some remediation has already occurred and further remediation is planned for the future. Additionally, there are areas and buildings on the RAAP site that still require investigation and study to determine the extent of contamination.

As shown on Figure 4.9-1, and described below, there are several different levels of contamination on the site. The most significant contamination issue is a plume of subsurface groundwater that contains chromium and cyanide, which resulted from past spills at the Industrial Wastewater Treatment Plant (IWTP). While the defects that caused the spills have been corrected, further treatment is required to remediate the contamination to State and federal standards. There are also other areas with less significant contamination issues, some of which limit where future development can occur. Areas within the RAAP site were divided into the following seven categories:

- “ **Category 1.** Areas where no release or disposal of hazardous substances or petroleum products has occurred, including no migration of substances from adjacent areas. (Areas of the RAAP site shown with no color overlay on Figure 4.9-1 are within this category.)
- “ **Category 2.** Areas where only the release of petroleum has occurred.



- Category 2: Petroleum Release Only
- Category 3: No Remediation Required
- Category 4: Remediation Completed
- Category 5: Remediation/Monitoring Underway
- Category 7: Evaluation Needed

Source: Final CERFA Report, Riverbank Army Ammunition Plant, 2006.

FIGURE 4.9-1

ENVIRONMENTAL REMEDIATION REQUIREMENTS

TABLE 4.9-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO HAZARDOUS MATERIALS

Goal/Policy Number	Goal/Policy Content
Goal SAFE-1	Minimize the loss of life and damage to property natural and human-caused hazards.
Policy SAFE-1.1	The City will ensure that approved development projects and public investments are consistent with the information provided in the Stanislaus County Multi-Jurisdictional Hazard Mitigation Plan.
Policy SAFE-1.2	The City will continue to enforce State of California Building Standards Commission uniform codes, such as the Uniform Building Code and California Fire Code with adopted Fire District amendments.
Policy SAFE-1.4	The City will require setbacks, ignition resistant building materials, or other measures to reduce exposure to potential wildfires in areas designated for natural open space preservation, in coordination with California Department of Forestry and Fire Protection recommendations and Maintenance of Defensible Space Measures, as appropriate.
Policy SAFE-1.5	Approved plans, projects, and subdivision requests will ensure adequate fire flow per City and Fire District standards. The installation of automatic fire sprinklers may, at the discretion of the City and the Fire Chief, allow for a reduction in the required fire flow, while still complying with the California Fire Code requirements.
Policy SAFE-1.8	The City will require that hazardous materials are used, stored, transported, and disposed in a safe manner and in compliance with local, State, and federal safety standards.
Policy SAFE-1.9	Developments located on farmland or former farmland shall prepare reports that analyze residual agricultural chemicals that may be present on-site. Developments on such sites shall include measures to remove any risk due to hazardous materials for on-site proposed land uses, as well as existing and proposed land uses and users in the vicinity.
Policy SAFE-1.10	The City will review development requests and require that any airborne, waterborne, windborne, and other hazardous materials issues are fully disclosed, analyzed, and mitigated to ensure against any risk relative to any nearby planned or existing land uses and their users.
Goal SAFE-2	Provide adequate access for emergency response.

TABLE 4.9-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO
 HAZARDOUS MATERIALS (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Policy SAFE-2.2	The City will consult with fire protection service providers in reviewing development proposals. Development proposals will include City conditions that respond to concerns of fire protection service providers.
Policy SAFE-2.3	New developments will provide fire flow as required in the Public Facilities and Services Element of the General Plan and relevant City Master Plans.
Policy SAFE-2.4	The City will improve fire flow in existing developed areas of the City, as feasible, to meet standards presented in the Public Facilities and Services Element of the General Plan and relevant City Master Plans.
Goal CONS-6	Maintain or increase surface and groundwater quality and supply.
Policy CONS-6.2	The City will coordinate with appropriate regional, State, and federal agencies to address local sources of groundwater and soil contamination, including underground storage tanks, septic tanks, agriculture, and industrial uses.
<i>Goal CIRC-4</i>	<i>Move freight and passengers efficiently.</i>
Policy CIRC-4.1	The City will work with relevant public agencies and the railroad to appropriately regulate the movement of truck traffic and hazardous materials throughout the City.

- “ **Category 3.** Areas where contamination has occurred at a level that requires no further remediation.
- “ **Category 4.** Areas where sufficient remediation has already taken place and no further action is necessary.
- “ **Category 5.** Areas where contamination has occurred and remediation is underway, but further action or ongoing monitoring is required.
- “ **Category 6.** Areas where contamination has occurred, but for which no remediation effort has been implemented (no Category 6 sites were identified at RAAP).

“ **Category 7.** Areas requiring further assessment.

In July 2009, a site visit was conducted by Weston Solutions to review the visual environmental site conditions of the RAAP site. Although not all areas were accessible due to locked areas, and areas requiring tenant permission for access, the site visit included Buildings 1, 2, 5, 6, 7, and 8 of the former production line areas, Building 11, (the former spheroidizing facility), as well as the industrial water treatment facilities, and landfill.

1. Former Production Line Buildings

a. Building 1

Building 1 appears to be used for equipment storage. Most of what was apparently the original production line equipment has been left in place within the building. Visible staining on equipment, floors, and pits and adjacent to floor drains was observed. There was evidence of concrete floor repair, which appeared to be a location where equipment was removed and the floor repaired or re-installed.

b. Building 2

Building 2 is similar in condition to other buildings with deteriorating wall and roof panels. Paint booths are located adjacent to the rebar tenant who is using the paint booths. It is not known if paint booth is operating under previously-issued permits, or if the tenant is has obtained new permits. Most of Building 2 appears to be used as defunct equipment storage with some of the space cleared for use by tenants at the east end of the facility. Hydraulic lifts are in use by tenants.

c. Building 4

Building 4 contained an active tenant production line for plastic leaning and shredding.

d. Building 5

Building 5 included remnants of wall or pipe insulation, and equipment remained in the building from previous production activity. During the time of the site visit, Building 5 was used for material and equipment storage.

Most of what could be seen throughout was in good to fair condition.

Production area sumps now collect any spills or leaks and flow through an overhead piping system to the IWTP. The old sump consisting of an underground piping system has been closed.

e. Building 6

Building 6 contained sulfuric acid tanks, which were located in a bermed and trenched area that provides spill containment. During time of the site visit, Building 6 contained intact production equipment.

f. Building 7

Building 7 is adjacent to the loading dock and is a brick paved area. It is believed that this building was used as an interim storage area for materials that were still hot from ovens or the production line. At the time of the site visit, the former press area was used as a lunch and break area by employees.

Visible building infrastructure for production line support included overhead lines for compressed air, chilled water, production water, natural gas, and fire suppression. Several potentially asbestos containing transite panels and areas of missing panels were visible. Fire proofing material on building walls that potentially contains asbestos was also observed. Both very old and very new overhead lifts were located throughout the building. Potential PCBs in the hydraulic storage tanks for the lifts is a concern. Few pieces of equipment showed labeling indicating the status of PCB contents.

- Electrical feeds run from the transformer to the exterior of Building 7 on the south side. Wire coating showed signs of decay and potentially contains asbestos, lead, and PCBs. Visible evidence of wall and roofing material on the ground in the open areas between buildings, as well as chunks

of the electrical wiring coating were noted. Some staining was visible on the concrete near what appeared to be an outside metal lathe area.

- “ Heavy staining on concrete/asphalt adjacent to northeast side of Building 7 was noted. Dilapidated equipment and unused drums/containers were also deteriorating in this area.

g. Building 8

Building 8 is a newer building that was added to the east end of the production lines building and contained large metal presses, intact production equipment, and empty press pits, in the process of being removed. The empty press pits showed evidence of oil use/staining. Some equipment was labeled to show that polychlorinated biphenyl (PCB) testing had occurred. Sumps and pits surrounding the production equipment were lined with brick and concrete for thermal protection.

The north end of Building 8 included large presses and equipment storage. Several large overhead lights stored on the floor under plastic in this area. It is unknown if any of the lights were mercury vapor lights or have PCB ballasts. The depth of large press pits appeared to be 10 to 12 feet below ground surface. Obvious staining on equipment was observed.

h. Building 11

Building 11 has two subfloors below the rail operation area. Long bunker style rooms with rack storage were present. No evidence of what was previously stored in the area was observed, although the facility was likely used for drum storage. At the time of the site visit, Building 11 was used by a tenant for rail cars transporting waste oil. There was visible staining on the rail line within and adjacent to the building. The building interior and exterior were in similar level of deterioration as Buildings 1, 2, and 7.

i. Building 51

Building 51 was labeled as a chemical quality control laboratory. Access was limited during the site visit, but it appeared to contain standard laboratory equipment associated with chemical quality control. The floors in the labora-

tories were 9-inch by 9-inch vinyl floor tile, which is could potentially contain asbestos.

j. Building 180

At the time of the site visit, Building 180 was identified as the hazardous waste storage area, but materials inside were not labeled and the emergency eye wash station was disconnected or not in operation.

2. Industrial Wastewater Treatment Plant

Visual evidence at the IWTP indicated that one clarifier was not in operation, and the other was being used minimally. The majority of process tanks appear to be defunct and not maintained. Chemical placarding did not appear to match actual material being stored, and acids and bases appeared to be stored in the same containment area. A waste bin storage area was located adjacent to the IWTP and several containers were in use. Some staining was observed in the area south of the IWTP.

3. Landfill

The landfill area appears to be well maintained. No erosion from the top or sides was visible and no obvious signs of subsidence were apparent. The vegetation appeared consistent across the area and animal traps for burrowing animals were located at regular intervals around the base of the landfill. As noted above, the landfill area has been characterized as being underlain with groundwater contamination, but the area does not require removal or other remedial response.

C. Standards of Significance

The Plan would have a significant impact related to hazards and hazardous materials if it would:

- a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

- b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.
- f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.
- g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

D. Impacts Discussion

1. Project Impacts

- a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Implementation of the Specific Plan would allow for future development that could, depending on the specific proposed uses, increase the amount of hazardous materials used and wastes generated in the Specific Plan Area, as well as the number of people and structures exposed to these hazards.

Goal SAFE-1 of the City of Riverbank General Plan calls for the minimization of the risk of loss of life and damage to property from natural and human-cause hazards. Current hazardous substance regulations generally require safe handling and disposal of hazardous substances, which would reduce the risk for a chemical release to occur as a result of handling and/or disposal practices. In addition, Policy SAFE-1.8 of the General Plan requires that hazardous material are used, stored, transported, and disposed of in a safe manner that complies with local, State, and federal safety standards. Policy SAFE-1.10 requires the City to review development requests and require that any airborne, waterborne, windborne, and other hazardous materials issues are fully disclosed, analyzed, and mitigated to ensure against any risk relative to any nearby planned or existing land uses and their users. With the implementation of these General Plan policies, the impact of the Specific Plan from the transport, use, or disposal of hazardous materials would be *less than significant*.

- b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Increased development within the Specific Plan Area could increase the amount of accidents involving the release of hazardous materials into the environment. The transportation of hazardous materials on area roadways and railroad spurs is regulated by the California Highway Patrol, Department of Transportation, and the California Public Utilities Commission, respectively. The use and storage of these materials is regulated by the DTSC (22 CCR Sections 66001, et seq.). The use, storage, and transport of hazardous materials by developers, contractors, business owners, and others are required to be in compliance with federal, state, and local regulations during project construction and operation. Facilities that use hazardous materials are required to obtain permits and comply with appropriate regulatory agency standards designed to avoid hazardous waste releases. All existing and future projects on the RAAP site would be required to comply with federal, State, and local regulations regarding the handling, disposal, and clean-up of hazardous materials. Furthermore, City of Riverbank General Plan Policies CONS-6.2,

SAFE-1.8, SAFE-1.9, and SAFE-1.10 (listed above in section A.3.d., City of Riverbank General Plan), would serve to reduce the potential impact resulting from the accidental release of hazardous materials from new development into the environment. As a result, a *less-than-significant* impact would occur.

- c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

There are no existing or proposed schools within one-quarter mile of the RAAP site and the railroad spur, which might be used for the transportation of hazardous materials. As a result, *no impact* would occur.

- d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.

As discussed above in Section B., Existing Conditions, the RAAP site contains known hazardous materials sites. However, they are either monitored and/or under active remediation by government agencies, or remediation activities have been completed.

The two remaining active sites within the project site are the landfill and groundwater contamination. The landfill will be under long-term management until 2015 at which time the completed landfill cap will be maintained. Annual surveys to assure stability and annual management of a pesticide program to prevent damage to the completed landfill cap are planned.¹

Remediation plans for the groundwater contamination area has included a long term maintenance schedule of 5-year reviews, continuing until 2023, however, active evaluation of in-situ treatment is underway and additional in-situ treatment and extraction configuration modifications are anticipated to accelerate the cleanup process. A strategy for groundwater treatment sys-

¹ U.S. Army Corps of Engineers, 2009. Environmental Assessment for BRAC Disposal and Reuse of the Riverbank Army Ammunition Plant, page 4-117.

tems, long term management, and delisting from the Superfund site list will be developed as the site moves toward cleanup.²

As identified in Figure 4.9-1 and discussed above in Section B.1, the RAAP site contains several buildings that will require evaluation should they be incorporated into future development proposals. Policy SAFE-1.10 of the City of Riverbank General Plan, requires that the City review development requests and require that any airborne, waterborne, windborne, and other hazardous materials issues are fully disclosed, analyzed, and mitigated to ensure against any risk relative to any nearby planned or existing land uses and their users. Any future proposed action within the RAAP site that occurs within the areas identified as Category 7 areas of in Figure 4.9-1 will require evaluation in order to ensure that impacts are reduced. Through implementation of General Plan Policy SAFE-1.10, a *less-than-significant* impact would occur.

- e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.

The RAAP site is located approximately 1.2 miles from the Peterson Airport, a privately owned airport located at 5800 Langworth Road. The landing strip runs from east to west, and the landing approach is from the southwest. The Stanislaus County Comprehensive Airport Land Use Plan (CLUP) (amended in 2004) describes safety compatibility standards for privately owned airports in Stanislaus County. Airport operation hazards include: incompatible land uses, power transmission lines, wildlife hazards (e.g. bird strikes), and tall structures that penetrate the imaginary surfaces surrounding an airport. The term “imaginary surfaces,” established by Federal Aviation Administration (FAA) regulations (14 CFR 77), refers to heights above which any object or structure is considered by the FAA to constitute a hazard to aircraft navigation, and thus a hazard to both aircraft and people and structures on the

² U.S. Army Corps of Engineers, 2009. Environmental Assessment for BRAC Disposal and Reuse of the Riverbank Army Ammunition Plant, page 4-123.

ground. The RAAP site is not located within an established land use plan for the airport, nor is it located within close proximity to the runway that could result in conflicts between aircraft and people and structures on the ground. Therefore, safety hazards associated with the Peterson Airport would be *less than significant*.

- f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.

As discussed above, the RAAP site is located approximately 1.2 miles from the Peterson Airport, a privately owned airport located at 5800 Langworth Road. The RAAP site is not located within an established land use plan for the airport, nor is it located within close proximity to the runway. As result, the conflicts between aircraft and people and structures on the ground would not result in safety hazards. This would be considered a *less-than-significant* impact.

- g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

As described in Chapter 4.16, Transportation and Traffic, development under the Specific Plan would make only minor changes to the existing road network although it would bring more employees to the area and more congestion on existing streets. The Stanislaus County MJHMP includes Office of Emergency Services inundation maps for the New Melones and other dams that would affect the county, in the event of earthquake or other causes of failure. If failure of the New Melones Dam were to occur, the City of Riverbank evacuation routes would be to the southeast toward higher ground, with the primary evacuation routes along Terminal/Santa Fe and Claus Road towards Empire and Waterford. Although the RAAP Specific Plan proposes to modify the visual character of Claus Road, vehicle travel would not be hindered or obstructed, and would not impair implementation of or physically interfere with the Stanislaus County MJHMP. As a result, a *less-than-significant* impact would occur.

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

As discussed in the City of Riverbank General Plan, no areas or zones in the Planning Area are defined as Very High Fire Hazard Severity, and the Planning Area is not in a State responsibility area, which is defined as part of the state where CALFIRE is the primary service responsible for providing basic wildland fire protection assistance (CDF 1998). The SCFPD would respond to fires in the Planning Area. New development would be required by law to incorporate California Building Code, California Fire Code with adopted Fire District amendments, and other applicable state and local fire safety requirements. In addition, General Plan policies SAFE-1.1, SAFE-1.2, SAFE-1.4, SAFE-1.5, and SAFE-2.2, SAFE-2.3, SAFE-2.4, listed above in Section A.3.d., would ensure people and structures would not be exposed to significant risk of loss of injury involving wildland fires. As a result, a *less-than-significant* impact would occur.

2. Cumulative Impacts

This cumulative analysis considers the Specific Plan in the context of the General Plan. Although through the implementation of the RAAP Specific Plan, there will likely be an increase in the use of hazardous materials, all new use, storage, transport, and activities associated with remediation of contaminated sites are subject to local, State, and federal regulation, and risks are evaluated on a parcel-specific basis. There would therefore be a *less-than-significant cumulative impact* due to hazardous materials and contaminated sites.

E. Impacts and Mitigation Measures

Since there are no significant impacts related to hazardous materials as a result of the Plan, no mitigation measures are required.

4.10 HYDROLOGY AND WATER QUALITY

This section summarizes information on hydrology, including flooding, and water quality in the RAAP Site Specific Plan Area (Plan Area), and provides an evaluation of the effects the draft Specific Plan would have on these features of the natural environment.

A. Regulatory Framework

There are several laws and policy documents that affect the requirements and infrastructure needs for water quality and stormwater discharge in the Specific Plan Area, as well as flood protection. The most important of these are described below.

1. Federal Water Pollution Control Act

The Federal Water Pollution Control Act, more commonly known as the Clean Water Act (CWA) of 1972, regulates the discharge of pollutants into watersheds throughout the nation. Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point-source dischargers (municipalities and industries). Section 303(d) requires the State to develop a total maximum daily load (TMDL) for each of the pollutants impacting the listed water bodies. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. The TMDL can also act as a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given water body on the Section 303(d) list would be remediated.

Section 402(p) of the CWA establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) Program.¹ Section 402(p) requires that storm-

¹ Authorized by the CWA, the permit program controls water pollution by regulating point sources (discrete conveyances such as pipes or man-made ditches) that

water associated with industrial activity that discharges either directly to surface waters or indirectly through municipal separate storm sewers must be regulated by a NPDES permit. On December 8, 1999, the US Environmental Protection Agency (EPA) circulated Phase II regulations for non-point sources requiring permits for stormwater. Permits will be required for discharges from Small Municipal Separate Storm Sewer System (MS4s) operators.² In California, the NPDES program is administered by the State (see below).

2. Federal Emergency Management Agency

Floodplain zones are determined by the Federal Emergency Management Agency (FEMA) and used to create Flood Insurance Rate Maps (FIRMs) designating these areas. These tools assist cities in mitigating flooding hazards through land use planning and building permit requirements. To address the need for insurance to cover flooding issues, FEMA administers the National Flood Insurance Administration (NFIA) program. The NFIA program provides federal flood insurance and federally financed loans for property owners in flood prone areas. To qualify for federal flood insurance, the City must identify flood hazard areas and implement a system of protective controls. The City of Riverbank does participate in the NFIA program.

discharge pollutants into waters of the United States. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. In most cases, the NPDES permit program is administered by authorized states with oversight from the EPA. Summarized from the EPA website, <http://cfpub.epa.gov/npdes/>, accessed on July 21, 2009.

² Small MS4s are publicly owned conveyances or conveyance systems of ditches, curbs, or underground pipes that divert stormwater into the surface waters of the State. Summarized from the EPA website, <http://cfpub.epa.gov/npdes/stormwater/munic.cfm>, accessed on July 21, 2009.

3. State Water Resources Control Board

The State Water Resources Control Board (SWRCB) is responsible for implementing the CWA and does so through issuing NPDES permits to cities and counties through regional water quality control boards. Federal regulations allow two permitting options for stormwater discharges – individual permits and general permits. The SWRCB elected to adopt a statewide general permit (Water Quality Order No. 2003-0004-DWQ) for MS4s covered under the CWA to efficiently regulate numerous stormwater discharges under a single permit. Permittees must meet the requirements in Provision D of the General Permit, which require development and implementation of a Storm Water Management Plan (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable.

4. Regional Water Quality Control Board

The State's Porter-Cologne Water Quality Control Act outlines the specific responsibilities of the Regional Water Quality Control Boards (RWQCB), and the procedures for coordinating with the SWQCB to meet federal CWA standards. Stanislaus County falls within the Central Valley Region, which is the largest in the State, stretching from the Oregon border south to Los Angeles County. It encompasses 60,000 square miles, or about 40 percent of the State's total area, and includes 38 of the state's 58 counties. The Central Valley Regional Water Quality Control Board (CVRWQCB) headquarters are in Sacramento with branch offices in Redding and Fresno.

The CVRWQCB's mission is to "preserve and enhance the quality of California's water resources for the benefit of present and future generations." This duty is carried out by formulating and adopting water quality control plans for specific ground and surface water basins and by prescribing and enforcing requirements on waste discharges. As mentioned above, jurisdictions submit various water quality and stormwater plans to the regional and State boards for approvals.³

³ http://www.waterboards.ca.gov/centralvalley/board_information/index.html, accessed on August 10, 2006.

5. City of Riverbank General Plan

The City of Riverbank General Plan (2005 – 2025) states that approved projects, plans, and subdivisions shall provide for collection, conveyance, treatment, detention, and other stormwater management measures in a way that does not decrease water quality or alter hydrology in the Stanislaus River or associated groundwater recharge areas.

B. Existing Conditions

In general, the area around the Plant Production Area is mostly paved. The area consists of seven production lines, process water/groundwater treatment facilities and various buildings used for maintenance, administration, and storage. Approximately 155 buildings are located in the Plan Area. Some of the large buildings, such as the Main Production Area, have been subdivided into smaller internal buildings. The approximate total square footage of roofed areas at RAAP is 924,514 square feet.

The plant site is bounded on the east by pasture land and on the west by Claus Road and some residences. Rural residential areas are located to the north and south of the Plan Area.

1. Hydrogeology

The RAAP is not located in a 100-year floodplain. Five aquifer zones—A, A', B, C, and D—were identified based on depth and stratigraphy during a previously conducted Remedial Investigation (RI) at the site.⁴ Subsequent pump testing indicated strong interaction between the A', B, and C zones. These aquifer zones are summarized as follows:

- A – Unsaturated upper sand zone; average depth from 29 to 60 feet below ground surface (bgs).

⁴ Weston, Roy F. Inc. (Weston), 1991, *Riverbank Army Ammunition Plant Remedial Investigation Report*. Prepared for Commander, U.S. Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, Maryland 21010-5401.

- “ **A'** – Partially to fully saturated, well-graded silty sand; average depth from 60 to 90 feet bgs; approximately 30 feet thick.
- “ **B** – Saturated, semi-continuous sand units interbedded with thin silt and clay layers; average depth from 90 to 120 feet bgs; approximately 30 feet thick.
- “ **C** – Saturated sand zone; average depth from 120 to 150 feet bgs; approximately 30 feet thick.
- “ **D** – Saturated coarse sand and gravel with volcanic material; between 150 and 220 feet bgs; approximately 70 feet thick.

The aquifer zones defined above are connected hydraulically. The presence of discontinuous fine-grained sediment layers creates the potential for a complex flow pattern in the subsurface.

Aquifer testing indicates hydraulic connection between the A', B, and C aquifer zones.⁵ The general groundwater direction is to the west of the plant.

The topography of the RAAP and the surrounding area can be described as flat valley land, and the gradient of the land surface slopes southwestward at a rate of 25 feet per mile. The average elevation of the plant is 135 feet above mean sea level.⁶

2. Surface Water Hydrology

The City of Riverbank is located within the Middle San Joaquin-Lower Merced-Lower Stanislaus watershed, a sub-watershed of the San Joaquin River watershed, which includes the San Joaquin Valley north of Fresno, along with the adjacent mountainous areas to the east and west. The average rain-

⁵ U.S. Army, 2006a, U.S. Army BRAC 2005 Environmental Condition of Property Phase I Report, Riverbank Army Ammunition Plant. Prepared by CH2M Hill, November 17.

⁶ U.S. Army, 2006a, U.S. Army BRAC 2005 Environmental Condition of Property Phase I Report, Riverbank Army Ammunition Plant. Prepared by CH2M Hill, November 17.

fall in the Middle San Joaquin-Lower Merced-Lower Stanislaus watershed is approximately 12.1 inches.⁷

Runoff from the generally flat area is relatively slow. Much of the incident precipitation is absorbed by the soil, and very little runoff occurs from the agricultural lands except during unusually heavy rains. Runoff from paved areas is collected in numerous inlets located around the RAAP site that connect to a main storm drain line. The main storm drain line carries flows towards the north, opposite the surface grade, and the lift station conveys flow into the north reservoir. This reservoir is designed as a detention basin that allows for temporary stormwater runoff to facilitate settling of suspended sediment. Two outlets, with approximately 1 foot of elevation difference, are provided in the reservoir to discharge water into the Oakdale Irrigation District (OID) 30-inch diameter line that runs parallel to the north side of the reservoir. Between rain events, some water remains in the reservoir, below the outlets, and either evaporates, infiltrates into the ground, or is used by the vegetation that grows in the basin. The lift station located near the reservoir has a third smaller pump that conveys stormwater from the lift station directly to the OID pipe during periods of excessive rain.

A small portion of the site drains to the south stormwater reservoir, located near the southeast corner of the site. A lift station adjacent to the south stormwater reservoir pumps runoff from the reservoir to the south end, or high side, of the above-mentioned main storm drain.

3. Flooding

Areas of the city subject to historic flooding include areas along the Lower Stanislaus River, which traverses along the northern boundary of the City of Riverbank. However, as noted above, the Plan Area is not located in a FEMA-designated flood zone.

⁷ City of Riverbank, *General Plan Recirculated DEIR*, page 4.10-1.

There are no significant large bodies of water in the immediate vicinity of the Plan Area. New Melones Lake, a reservoir formed by New Melones Dam, is located approximately 27 miles northeast of the Plan Area. Tulloch Reservoir is located downstream from New Melones and Tulloch, approximately 22 miles northeast of the Plan Area. Woodward Reservoir, located in the northeastern portion of Stanislaus County, is approximately eight miles from Riverbank. Modesto Reservoir and Turlock Lake are located southwest of Riverbank, approximately 18 miles away.⁸

The Plan Area is located within the dam failure inundation zones of the New Melones Dam.⁹ In the event of dam failure, the City and its surrounding area, including the Plan Area, could be inundated.¹⁰ The elevation of the Plan Area and distance from bays preclude potential inundation by coastal hazards such as tsunamis, extreme high tides, or future sea level rise.

C. Standards of Significance

The Plan would have a significant impact on hydrology and water quality if it would:

- a. Violate any water quality standards or waste discharge requirements.
- b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which

⁸ City of Riverbank, *General Plan Recirculated DEIR*, page 4.10-1.

⁹ Map displays Stanislaus County with Dam Inundation Areas of regional dams, <http://www.stanoes.com/pdf/mjhmp/2010-inundation-full-county-tabloid.pdf>, accessed on June 6, 2012.

¹⁰ City of Riverbank, 2010, Local Hazard Mitigation Plan, Hazard Identification, http://hazardmitigation.calema.ca.gov/docs/approved_lhmps_under_2008_fema_guidance/Riverbank_City%20of_Hazard%20Mitigation%20Plan%20June%202010.pdf, accessed on June 6, 2012.

would not support existing land uses or planned uses for which permits have been granted).

- c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.
- d. 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.
- e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- f. Otherwise substantially degrade water quality.
- g. 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.
- h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
- i. 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.
- j. Inundation by seiche, tsunami, or mudflow.

D. Impacts Discussion

1. Project Impacts

- a. Violate any water quality standards or waste discharge requirements.

The Specific Plan proposes to implement the use of low-impact development (LID) to be employed on a project-by-project basis. The draft Specific Plan recommends several LID techniques including rain catchments, cisterns, rain

gardens, and permeable paving that would reduce erosion on- and off-site. Additionally, for all future projects in the Plan Area before the approval of grading permits, the project applicant would be required to consult with the City, the SWRCB, and the Central Valley RWQCB to acquire the appropriate regulatory approvals that may be necessary to obtain Section 401 water quality certification, an SWRCB statewide NPDES stormwater permit for general construction activity, and any other necessary site-specific WDRs or waivers under the Porter-Cologne Act. As discussed in Chapter 4.17, Utilities and Service Systems, of this Draft EIR, the draft Specific Plan would not violate waste discharge requirements. Through the use of LID and adherence to State and local regulations regarding water quality, implementation of the draft RAAP Specific Plan would result in a *less-than-significant* impact to water quality standards and water discharge requirements.

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

The Water Supply Assessment (WSA) (included in Appendix D) assumes that the existing on-site wells and associated water distribution system will be transferred to the Riverbank Local Redevelopment Authority (RLRA) and will continue to supply water to the existing and future uses in the Plan Area. At some point in the future the RAAP water system could be connected to the City of Riverbank water system, so that City water would be available as an auxiliary or backup supply; however, the WSA did not assume the use of any City water after the Specific Plan has been implemented.¹¹

Use of the on-site wells was not evaluated in the UWMP, as discussed in Chapter 4.17, Utilities and Service Systems, of this Draft EIR, but growth in the Plan Area was assumed in the evaluation of projected water demand with-

¹¹ Weston Solutions, 2013, *SB 610 Water Supply Assessment Final*.

in the City. The UWMP determined that sufficient groundwater supply is available to supply future growth within the City, including the Plan Area. Since the on-site wells draw from the same aquifers as the City of Riverbank wells, it is assumed that the on-site wells will be able to adequately supply the RAAP development with water in normal years, single dry years, and multiple dry years.¹² Because development within the RAAP site will be able to utilize on-site wells, it can be determined that implementation of the Specific Plan would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge.¹³ A *less-than-significant* impact would occur.

- c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

The draft RAAP Specific Plan proposes significant changes to land uses that would substantially alter the existing drainage pattern of the RAAP site. However, as previously noted, the draft Specific Plan would require implementation of low-impact development (LID) management practices to be employed on a project-by-project basis. The Specific Plan recommends several LID techniques including rain catchments, cisterns, rain gardens, and permeable paving that would reduce runoff volumes and erosion on- and off-site. Additionally, for all future projects under the draft Specific Plan before the approval of grading permits the project applicant would be required to consult with the City, the SWRCB, and the Central Valley RWQCB to acquire the appropriate regulatory approvals that may be necessary to obtain Section 401 water quality certification, an SWRCB statewide NPDES stormwater permit for general construction activity, and any other necessary site-specific WDRs or waivers under the Porter-Cologne Act. Through this process, the implementation of the RAAP Specific Plan on- and off-site erosion and siltation would be considered a *less-than-significant* impact.

¹² Weston Solutions, 2013, *SB 610 Water Supply Assessment Final*.

¹³ Weston Solutions, 2013, *SB 610 Water Supply Assessment Final*.

- d. 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.

As discussed above in response to criteria c., the proposed RAAP Specific Plan proposes significant changes to land use that would substantially alter the existing drainage pattern of the RAAP site. Although there are no streams or rivers within or adjacent to the RAAP site, alteration of the existing drainage pattern could increase the rate or amount of surface runoff in a manner that could result in flooding on- or off-site. However, because future development would be required to comply with NPDES regulations regulating stormwater runoff volumes and implement the use of low-impact development (LID), surface runoff volumes would be contained on site in detention basins. As a result, a *less-than-significant* impact would occur.

- e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

A discussion of potential impacts to the existing and proposed stormwater drainage system is included in Chapter 4.17, Utilities and Services Systems. The impact discussion states that upgrades are required in order to improve the existing facilities. However, the stormwater runoff generated within the Specific Plan area will be treated through the use of LID features, as described above in response criteria d. Additionally, as discussed above in response to criteria a., all future projects to be proposed under the RAAP Specific Plan would be subject to grading permits and required to consult with the City, SWRCB and the Central Valley RWQCB. As a result, implementation of the Specific Plan would not result in substantial sources of polluted runoff, and a *less-than-significant* impact would occur.

- f. Otherwise substantially degrade water quality.

Impacts to water quality have been described under a. and b. above. The draft Specific Plan proposes industrial, research and development, and retail uses on the site. As discussed above, future development under the draft Spe-

cific Plan would comply with applicable State and local regulations, and therefore would not substantially degrade water quality. Additionally, projects related to industrial activity would be subject to the permit requirements described in Section A.1 of this chapter. No other proposed features of the draft Specific Plan would substantially degrade water quality. As a result, a *less-than-significant impact* would occur.

- g. 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.

No housing is proposed for the Plan Area nor is the RAAP site located within a 100-year flood hazard area. As a result, *no impact* would occur.

- h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

The RAAP site is not located within a 100-year flood hazard area. Thus, *no impact* would occur.

- i. 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.

As discussed above, the RAAP site is not located within the 100-year floodplain. A dam failure can occur as the result of an earthquake, as an isolated incident due to structural instability, or during heavy rains that exceeds design capacity. The failure of the New Melones Dam would result in the inundation of the City of Riverbank and the RAAP site. The Riverbank General Plan includes several policies that reduce impacts from dam failure. These policies include Policy SAFE-1.1, SAFE-1.6, SAFE-1.7, SAFE-2.1, and SAFE-2.5. Although these policies provide for human health and safety, property damage could still result during a flood event caused by a catastrophic dam or levee failure. However, this risk is small because the risk of dam failure is small.¹⁴ Furthermore, the United States Bureau of Reclama-

¹⁴ City of Riverbank, *General Plan Recirculated DEIR*, page 4.10-20.

tion continues to maintain the dam to withstand probable seismic activity.¹⁵ As a result, development under the proposed RAAP Specific Plan is considered *less than significant*.

j. Inundation by seiche, tsunami, or mudflow.

The RAAP site is not located adjacent to a large body of water that would result in a risk of tsunamis or seiche. Furthermore given the RAAP site's flat topography, mudflows could not occur. As a result, a *less-than-significant* impact would occur.

2. Cumulative Impacts

This cumulative analysis considers the draft RAAP Specific Plan in the context of development in the City of Riverbank. Development of vacant lands in close proximity to the RAAP site would not be located within the 100-year flood hazard zone. Furthermore, compliance with local stormwater requirements would further address potential impacts resulting from other projects in the vicinity of the RAAP site. In the event of dam failure, the City and its surrounding area, including the Plan Area, could be inundated, but the draft Specific Plan would not exacerbate this condition. Projects under the Specific Plan and other nearby project would be addressed on a project-specific level, the cumulative impact to hydrology and water quality would be considered *less than significant*.

E. Impacts and Mitigation Measures

There are no significant impacts related to hydrology and water quality as a result of the proposed RAAP Specific Plan. Therefore no mitigation measures are required.

¹⁵ City of Riverbank, *General Plan Recirculated DEIR*, page 4.10-20.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SPECIFIC PLAN EIR
HYDROLOGY AND WATER QUALITY

4.11 LAND USE

This chapter discusses existing land uses in the Plan Area and describes plans applicable to the Plan Area. It also provides an evaluation of potential land use and planning impacts associated with buildout of the Plan.

A. Regulatory Framework

This section summarizes federal, State, and local policies and regulations that apply to land use on the RAAP site.

1. Defense Base Closure and Realignment Act

The Defense Base Closure and Realignment Act of 1990 established the Base Realignment and Closure Commission (BRAC), which made recommendations for closing a number of United States military bases in 2005, including the Riverbank Army Ammunitions Plant (RAAP). As part of the BRAC process, the federal government and the Department of Defense recognize a local redevelopment authority (LRA) as the entity responsible for creating a base reuse plan to determine future use, mitigate any constraints on the property, and transfer ownership to a local jurisdiction. Recognized as the LRA for the RAAP, the City of Riverbank adopted a base reuse plan in 2008.

2. RAAP Base Reuse Plan

The RAAP Base Reuse Plan establishes a strategy that involves redeveloping the RAAP Site as an industrial park focused on green industries and augmenting existing research and development activities and office uses on-site. The Plan also calls for new convenience retail development in the western portion of the RAAP site.

Another primary goal of the Base Reuse Plan is to create a framework for addressing pollution at the site, which is listed as a federal Superfund site due to groundwater contamination and other remnant pollutants from past industrial uses on-site.

3. City of Riverbank General Plan

The Riverbank General Plan guides development in the city through 2025. The General Plan Land Use Element addresses land use within the city limit, including the Plan Area, establishing specific land uses in order to express the desired development pattern in the city. General Plan policies seek to encourage a diverse balance of land uses, manage urban growth in a way that benefits the whole community, and revitalize and develop commercial and industrial uses that contribute to the health, welfare, and vitality of the community. Riverbank General Plan policies related to Land Use are shown in Table 4.11-1, and land uses as proposed by the General Plan are Industrial/Business Park and Medium-Density Residential, as shown in Figure 4.11-1.

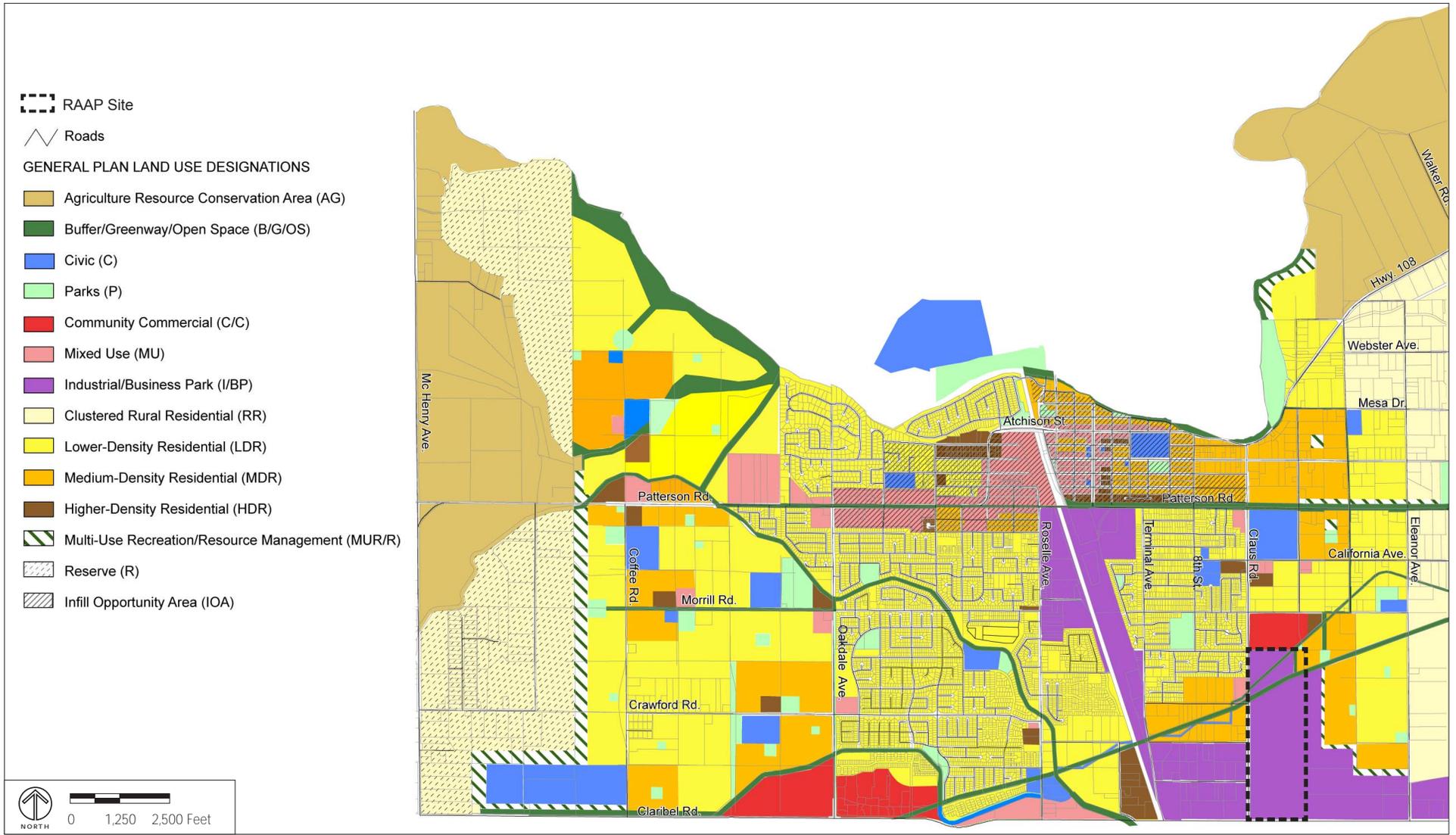
4. City of Riverbank Municipal Code

Title XV of the Riverbank Municipal Code regulates land use in the city. It describes zones and contains the Zoning Map as well as development standards for the zones. Title XV is the mechanism used to implement the goals, objectives, and policies of the existing General Plan and to regulate all land use within the city. The RAAP site is currently zoned Light Industrial (M-1).

B. Existing Conditions

The RAAP site contains a variety of uses, ranging from vacant, undeveloped land to intensively developed industrial uses. The RAAP site contains over 150 buildings and structures and about 920,000 square feet of roofed areas, and contains a rail spur providing freight access to the site. Table 4.11-2 provides a list of the site characteristics regarding the main physical characteristics of the built square footage, open space, and roads within the site, and the following provides an overview of uses within the site.

- **Existing Industrial Area.** The developed portion of the RAAP is located in the central area of the site. Buildings in this developed area generally have large setbacks from public rights-of-way. The area's primary entries and parking lots are located adjacent to Claus Road, along the southern half of the site. The existing industrial area contains a wide



Source: City of Riverbank General Plan.

FIGURE 4.11-1
 RIVERBANK GENERAL PLAN LAND USES

TABLE 4.11-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO LAND USE

Goal/Policy Number	Goal/Policy Content
Policy LAND-1.2	The City supports LAFCO policy to develop vacant and underutilized land within the City prior to entertaining any annexation if such land can meet the same need as the land proposed for annexation.
Policy LAND-2.1	Approved specific plans shall include a variety of land uses, including a variety of housing types, mixed in geographic proximity, in proportions and locations illustrated by the General Plan Land Use Diagram.
Policy LAND-3.3	The City will encourage “compact development,” which places origination and destination points closer together (residence, stores, schools, places of work, etc.), allowing for alternatives to vehicular travel.
Policy LAND-3.4	Gated projects are permissible only if connectivity with surrounding areas will not be significantly impaired. The City maintains the sole authority to approve a project that includes gates exclusively in cases where a property is located where through connections would not be possible to other existing developed or planned future developed areas. The City will not allow gates in unless fire access can be guaranteed according to Stanislaus Consolidated Fire Protection District. This exception to the general preference for connectivity and access can be made where a project consists solely of unique and locally desired land uses, such senior housing. See also policies DESIGN-3-3 and DESIGN-3.6.
Goal LAND- 4	Commercial and industrial development contributes to the health, welfare, and vitality of the community.
Policy LAND- 4.1	The City and Redevelopment Agency will encourage, through incentives, streamlining, flexible standards, and other means, development of employment-generating uses.
Policy LAND- 4.2	The City will encourage the revitalization of existing commercial areas through flexible development standards, public investment, property assemblage, incentives, streamlined entitlement processes, catalyst projects, public-private partnerships, and other means.
Policy LAND- 4.3	The City will encourage and assist small, locally-owned businesses that wish to locate, expand, or simply continue to do business in Riverbank through flexible development standards, public investment, property assemblage, incentives, streamlined entitlement processes, public private partnerships, and other means.

TABLE 4.11-1 **RIVERBANK GENERAL PLAN POLICIES RELATED TO LAND USE (CONTINUED)**

Goal/Policy Number	Goal/Policy Content
Policy LAND- 4.4	Industrial uses that create noise, air emissions, traffic, or other substantial incompatibilities with residential uses shall be buffered or otherwise designed to avoid such impacts to new and existing residential areas.
Policy LAND- 4.5	The City will review industrial development applications and apply appropriate conditions to ensure compatibility with nearby existing and planned land uses.
Policy LAND-5.5	Approved projects, plans, and subdivisions in new growth areas will set aside adequate land for, and shall otherwise accommodate public infrastructure and service needs consistent with General Plan policy.
Policy LAND-6.1	The City will review the Land Use Element at least every five years to ensure that it remains responsive to the community's vision with respect to changing conditions.
Policy LAND-6.2	Development applications shall be reviewed and approved only if consistent with the Riverbank General Plan.
Goal ED-1	Continue to make economic development a priority in Riverbank.
Policy ED- 2.5	The City of Riverbank will take a targeted approach to business attraction that focuses on industry sectors that help the City address the following priorities: <ul style="list-style-type: none"> “ Attract businesses that tie into regional growth opportunities “ Attract businesses that address local-serving and regional retail market opportunities “ Attract uses that contribute towards a vibrant and revitalized downtown district.
Goal ED-6	Diversify Riverbank's core industries by promoting the development of an industrial base that ties into regional opportunities.
Policy ED-6.1	Acknowledging the significant agricultural economy in Stanislaus County, the City will continue to accommodate industries that serve the agricultural trade and have supplier relationships with primary farming activity in Stanislaus and San Joaquin counties.
Policy ED-6.4	The City will explore business development opportunities with durable manufacturing industries. Even though this sector is projected to continue growing within Stanislaus County, the City should continue to be open to other sources of business growth such as global trade.

TABLE 4.11-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO LAND USE (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Policy ED-6.8	The City will maximize business development opportunities resulting from Riverbank’s proximity to active railroad spurs and short-line railroad operations, and opportunities from other activities tied to container shipping and regional port activities.
Policy ED-6.9	Business attraction activities by the City will continue to explore opportunities for developing transloading facilities and comparable activities along the existing railroad spurs, and identify any needs to relocate these spurs.
Policy ED-6.10	As part of its ongoing economic development programs, the City will actively pursue business development opportunities related to transportation and distribution activities as these activities continue to grow throughout Stanislaus and San Joaquin counties.
Policy ED-6.11	The City will explore opportunities for new medical offices to locate in Riverbank to serve the growing and aging population.

Source: City of Riverbank General Plan 2005-2025.

TABLE 4.11-2 EXISTING SITE CHARACTERISTICS

Site Components	Area (Acres)
RAAP Production Area	99
Open Land	37
Roads, Rights-of-Way, and Easements	10
Total Acreage	146

Source: Riverbank Local Redevelopment Authority, Base Reuse Plan, 2008.

variety of industrial uses and structures, including large buildings that were used to produce ammunition, storage structures, smaller manufacturing buildings, and outdoor storage. In addition to industrial facilities and storage areas, the existing industrial area contains parking areas, in-

ternal roads, limited undeveloped areas, and a former landfill that is now capped.

- “ **Vehicle Storage.** A small vehicle storage lot is located along Claus Road, between its intersections with Minniear Avenue and Van Dusen Avenue. Spaces in this area are currently being leased for storage of vehicles, primarily recreational vehicles. The lot operates independently of the existing industrial uses and is located outside the fences that contain most of these buildings.
- “ **Undeveloped Land.** A large portion of the RAAP site remains undeveloped. Undeveloped areas south of the existing industrial areas, along Claribel Road, are fenced off from the remainder of the RAAP site. The undeveloped areas in the northern portions of the site were historically used as pastures for livestock grazing.
- “ **Stormwater Pond.** As indicated in green on Figure 2-1, a stormwater pond is currently located between two easements in the northern portion of the site. This area serves as detention for stormwater runoff from the existing industrial areas.
- “ **Hetch Hetchy Aqueduct.** The Hetch Hetchy Aqueduct conveys water underground and also serves as a right-of-way for the conveyance of electricity through large overhead power lines. The Hetch Hetchy Aqueduct right-of-way runs roughly east-west across the site and is approximately 100 feet wide. It is owned by the San Francisco Public Utilities Commission (SFPUC).
- “ **Oakdale Irrigation District.** The Oakdale Irrigation District (OID) canal is located near the northern portion of the site and runs from the northeast to the southwest. The canal’s right-of-way easement is approximately 60 feet wide, and the actual infrastructure for the canal is located underground.
- “ **Rail Easement.** An active rail line surrounded by a 50-foot easement enters the RAAP site at its northwest corner, near Townsend Avenue. The rail, which connects to the Burlington Northern Sante Fe rail line, runs across the undeveloped areas in the north and crosses both the Hetch

Hetchy Aqueduct and the Oakdale Irrigation District canal. Ultimately, the rail enters the existing industrial areas, splits and serves many of the existing buildings.

C. Standards of Significance

The Plan would have a significant land use-related impact if it would:

- a. Physically divide an established community.
- b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
- c. Create or exacerbate a conflict between land uses on the project site and in the surrounding area.

D. Impact Discussion

1. Project Impacts

- a. Physically divide an established community.

The Plan would have a significant environmental impact if it would divide the physical arrangement of an established community. As described above, the Plan Area is surrounded largely by low density residential development and semi-agricultural lands. The proposed Plan would involve the redevelopment of the Plan Area entirely within its current boundaries. Therefore, buildout of the Plan would not divide an established community and impacts would be *less than significant*.

- b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance).

nance) adopted for the purpose of avoiding or mitigating an environmental effect.

As discussed in Chapter 3, the RAAP Specific Plan includes adoption of amendments to the Riverbank General Plan and Zoning Ordinance, changing the current land use designations in the Plan Area, and establishing new development standards to replace some of the current zoning provisions applicable to the Plan Area. These amendments must be completed to ensure consistency between the Specific Plan, General Plan, and Zoning Ordinance. The City would adopt these amendments as required by State law.

i. General Plan Consistency

Currently, the General Plan designates the majority of the RAAP site as Industrial/Business Park, and a small area in the northeast corner as Medium-Density Residential. As shown in Figure 3-8, the RAAP Specific Plan would re-designate the RAAP site using existing designations already identified in the General Plan. While the Specific Plan would require General Plan Amendments to bring it into full compliance, the Specific Plan is consistent with the intent of the City's General Plan. For example, the Economic Development Element of the Riverbank General Plan contains a specific set of goals and policies that have the goal of planning for a community where businesses can thrive and attract wealth, create jobs and income growth for local residents, generate revenue for local government, serve local market needs, and help revitalize older neighborhoods. Goal ED-3 is to strengthen existing industry concentrations in Riverbank and retain jobs in viable economic sectors. To achieve this goal, Policy ED-3.1 states that the City will continue to place a priority on local business retention, with a focus on retaining those businesses that are significant sources for jobs and/or tax revenue for the City. Policy ED-3.3 states that existing industries in Riverbank and Stanislaus County will be strengthened by exploring business attraction opportunities for comparable businesses that can create supplier relationships and clustered industry activity where businesses benefit from operating in close proximity to their clients.

Furthermore, Goal ED-6 is to diversify Riverbank's core industries by promoting the development of an industrial base that ties into regional opportunities. Because the RAAP site no longer serves as a production facility for the US military, existing infrastructure within the site can be utilized to promote the development of an industrial base that ties into regional opportunities.

As mentioned above, the General Plan designates a portion of the RAAP site as medium-density residential. The RAAP Specific Plan and Base Reuse Plan do not provide any residential uses for the RAAP site. As discussed in Chapter 4.9, Hazards and Hazardous Materials, the site is currently a contaminated site and remediation is ongoing. Although site cleanup will be completed, in order for the site to be suitable for residential uses, intensive remediation would be required. Additionally, the placement of residential units on the same parcel as industrial uses could contribute to a conflict within the RAAP site.

Therefore, while the Specific Plan would require a General Plan Amendments to bring the General Plan and Specific Plan into complete conformance, the Specific Plan has been developed to implement the intent of the General Plan. Therefore, the Specific Plan would result in a *less-than-significant* impact.

ii. Zoning Consistency Analysis

The RAAP site is currently zoned Light Industrial. A zoning amendment will be required to ensure that the current uses at the RAAP are conforming. Additionally, a zoning amendment will also be required to allow

The Specific Plan contains a chapter identifying development standards for new projects within the Plan Area. The development standards will modify the allowable uses and development standards in the existing Zoning Ordinance. The proposed project includes a zoning overlay district that will be added to the existing Zoning Ordinance. The zoning overlay district boundaries will be consistent with the Specific Plan Area. For those provisions not modified by the Specific Plan, the similar zoning classifications in the City's existing Zoning Ordinance will apply. Should conflicts exist between the

Specific Plan and Zoning Ordinance, the provisions in the Specific Plan will apply. Following modification, the RAAP Specific Plan will be consistent with the Zoning Ordinance. As a result, the RAAP Specific Plan will not conflict with the Zoning Ordinance, and a *less-than-significant* impact would occur.

iii. Base Reuse Plan compatibility

The Base Reuse Plan proposes that the RAAP site will continue to function primarily as an industrial park, along with some limited convenience retail uses. As stated above, this approach is generally consistent with the land use designations proposed in Riverbank's General Plan with job creation and current tenant expansion being the top priorities for the community, no other significant land uses were considered viable in reaching the community goals. Although the Specific Plan differs in specific land use locations, the RAAP Specific Plan does not conflict with the intent of the Base Reuse Plan, and a *less-than-significant* impact would occur.

- c. Create or exacerbate a conflict between land uses on the project site and in the surrounding area.

The Plan would result in a significant impact if it would create new conflicts or exacerbate existing conflicts between land uses in the Plan Area, and on surrounding properties.

The industrial uses currently on the RAAP site contrast markedly with the surrounding residential and semi-agricultural uses. While buildout of the Plan would generally represent a continuation of existing uses, the contrast of industrial activity with surrounding uses would remain. However, through the implementation of design features such as 20-foot planter strip at the outside edge that provides a landscape buffer and a 10-foot minimum wide sidewalk/bike path. Policy TRAN-2 requires that, on new public streets built in the Specific Plan Area, landscaped planting strip to buffer sidewalks from roadways to be implemented. Moreover, the addition of regional and local commercial and retail uses to the RAAP site would serve to better integrate the Plan Area into the surrounding community. Specifically, the areas of the

RAAP site designated as Community Commercial are anticipated to be developed for retail, employment, and/or commercial services, and are located along major roadways on the periphery of existing and planned neighborhoods. Overall, impacts related to land use conflicts would be *less than significant*.

2. Cumulative Impacts

Cumulative effects occur from development under the proposed Plan combined with effects of development on adjacent lands in Riverbank and Stanislaus County. The geographic scope of analysis is taken as the City of Riverbank sphere of influence (SOI). A cumulative effect would be significant if it would divide an established community, conflict with established plans, policies and regulations, or either create or exacerbate land use conflicts in the Plan Area or lands adjacent.

Upon adoption of the Specific Plan, development of the Plan Area would be consistent with applicable plans, goals, policies, and regulations of the Riverbank General Plan and Municipal Code. Buildout of the Plan Area under the Specific Plan would also be within the envelope for buildout of the City per the General Plan. Because the Specific Plan provides development concepts to enhance an existing industrial site, the Specific Plan would not create a conflict in land uses. Furthermore, any conflicts would be reduced through the implementation of Specific Plan policies.

Implementation of cumulative development in accordance with the City's General Plan and the Specific Plan would not result in cumulatively considerable land use impacts, and as a result, there would therefore be *no cumulative impact*.

E. Impacts and Mitigation Measures

Since there are no significant impacts related to land use as a result of the Plan, no mitigation measures are required.

4.12 NOISE

This section describes the potential effects of the reuse of Riverbank Army Ammunition Plant (RAAP) on noise. Included in this chapter is background information on noise and vibration, a brief summary of the regulatory framework that pertains to the analysis of noise impacts attributable to the Specific Plan, and a summary of the noise monitoring survey made in the site vicinity.

A. Background Information on Noise and Vibration

This section provides background on noise and vibration in order to provide a clearer understanding of this chapter.

1. Noise and Vibration Concepts

a. Terminology

There are several noise measurement scales that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. Each 10-decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities.

There are several methods of characterizing sound. The most common in California is the A-weighted sound level (dBA). All sound levels in described in this EIR are A-weighted, unless reported otherwise. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive.

Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called L_{eq} . The most common averaging period is hourly, but it can be of any duration.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Day/Night Average Sound Level, L_{dn} , is a measure of the cumulative noise exposure in a community, with a 10 dB addition to nocturnal (10:00 p.m. – 7:00 a.m.) noise levels. Technical terms are defined in Table 4.12-1. Representative outdoor and indoor noise levels are shown in Table 4.12-2.

b. Effects of Noise

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and about 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noise above 35 dBA and fluctuating noise levels above about 45 dBA has been shown to affect sleep.

Causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. The threshold for annoyance from vehicle noise is about 55 dBA L_{dn} . At an L_{dn} of about 60 dBA, approximately 8 percent of the population is highly annoyed. When the L_{dn} increases to 70 dBA, the percentage of the population highly annoyed increases to about 20-25 percent of the population. There is, therefore, an increase of about two percent per dBA between an L_{dn} of 60 to 70 dBA.

c. Ground-Borne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several methods are typically used to quantify the amplitude of vibration including Peak Particle Velocity (PPV) and Root Mean Square (RMS) velocity. PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. RMS velocity is defined as the average of the squared amplitude of the signal. PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

TABLE 4.12-1 DEFINITION OF ACOUSTICAL TERMS

Term	Definitions
Decibel, dB	A unit describing the amplitude of sound.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	Decibel level as measured using the A-weighting filter network which de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlating well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L ₀₁ , L ₁₀ , L ₅₀ , L ₉₀	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Equivalent Noise Level, L _{eq}	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels to sound levels measured from 7:00 pm to 10:00 pm and 10 decibels to sound levels measured between 10:00 pm and 7:00 am.
Day/Night Noise Level, L _{dn}	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
L _{max} , L _{min}	The maximum and minimum A-weighted noise level during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	Noise which intrudes over and above the existing ambient noise at a given location. Relative intrusiveness depends on amplitude, duration, frequency, time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

TABLE 4.12-2 TYPICAL SOUND LEVELS

Outdoor Sound	dBA	Indoor Sound	Threshold
	140		
Civil Defense Siren (100')	130		
Jet Takeoff (200')	120		Pain Threshold
	110		
Diesel Pile Driver (100')	100	Rock Music Concert	Very Loud
	90	Boiler Room Printing Press Plant	
Freight Cars (50')	80		
	70	In Kitchen With Garbage Disposal Running	Moderately Loud
Freeway (100') Vacuum Cleaner (10')	60	Data Processing Center	
Light Traffic (100') Large Transformer (200')	50	Department Store	
	40	Private Business Office	
Soft Whisper (5')	30	Quiet Bedroom	Quiet
	20	Recording Studio	
	10		
	0		Threshold of Hearing

Table 4.12-3 displays continuous vibration impacts on human annoyance and on buildings. As discussed previously, annoyance is a subjective measure and vibrations may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying.

TABLE 4.12-3 REACTION OF PEOPLE AND DAMAGE TO BUILDINGS FOR CONTINUOUS VIBRATION LEVELS^a

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006 to 0.019	Threshold of perception: Possibility of intrusion	Vibration unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of “architectural” damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk of “architectural” damage to normal dwellings such as plastered walls or ceilings.
0.4 to 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations	Vibration at this level would cause “architectural” damage and possibly minor structural damage.

^a Caltrans, Technical Advisory, 2002. Transportation Related Earth-borne Vibrations, TAV-02-01-R9601.

Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where ground-borne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related ground-borne vibration levels. Because of the impulsive nature of such activities, the use of the peak particle velocity descriptor (PPV) has been routinely used to measure

and assess ground-borne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.2 to 0.3 mm/sec (0.008 to 0.012 inches/sec), PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels such as people in an urban environment may tolerate a higher vibration level.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to the building. Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

Railroad operations are potential sources of substantial ground vibration depending on distance, the type and the speed of trains, and the type of railroad track. People's response to ground vibration has been correlated best with the velocity of the ground. The velocity of the ground is expressed on the decibel scale. The reference velocity is 1×10^{-6} in./sec. RMS, which equals 0 VdB, and 1 in./sec. equals 120 VdB. Although not a universally accepted notation, the abbreviation "VdB" is used in this document for vibration decibels to reduce the potential for confusion with sound decibels.

One of the problems with developing suitable criteria for ground-borne vibration is the limited research into human response to vibration and more

importantly human annoyance inside buildings. The U.S. Department of Transportation, Federal Transit Administration has developed rational vibration limits that can be used to evaluate human annoyance to ground-borne vibration. These criteria are primarily based on experience with passenger train operations, such as rapid transit and commuter rail systems. The main difference between passenger and freight operations is the time duration of individual events; a passenger train lasts few seconds whereas a long freight train may last several minutes, depending on speed and length.

B. Regulatory Framework

Regulatory criteria have been developed to minimize noise and vibration exposure at sensitive land uses. This section describes the regulatory framework related to noise and vibration in the Specific Plan area.

1. Federal

a. Federal Transit Administration

The Federal Transit Administration (FTA) has identified vibration impact criteria for sensitive buildings, residences, and institutional land uses near rail transit and railroads. The thresholds for residences and buildings where people normally sleep (e.g. nearby residences) are 72 VdB for frequent events (more than 70 events of the same source per day), 75 VdB for occasional events (30 to 70 vibration events of the same source per day), and 80 VdB for infrequent events (less than 30 vibration events of the same source per day). Table 4.12-4 summarizes the FTA's vibration impact criteria for sensitive buildings, residences, and institutional land uses near rail transit and railroads.

2. Local Regulations

a. City of Riverbank General Plan 2005-2025.

The City of Riverbank has established policies in the Noise Element of the General Plan to guide the development of new land uses. The following goals and policies are applicable in the assessment of impacts resulting from the proposed development:

TABLE 4.12-4 GROUND-BORNE VIBRATION IMPACT CRITERIA

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 μinch/sec, RMS)		
	Frequent Events ^a	Occasional Events ^b	Infrequent Events ^c
Category 1 Buildings where vibration would interfere with interior operations.	65 VdB	65 VdB	65 VdB
Category 2 Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3 Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

^a “Frequent Events” is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.

^b “Occasional Events” is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.

^c “Infrequent Events” is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.

Source: U.S. Department of Transportation, Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006, FTA-VA-90-1003-06.

Goal NOISE-1: Create Land Use Patterns and Transportation Networks that Minimize Noise Problems

Policy NOISE-1.1 Large-scale commercial land uses requiring frequent large truck deliveries shall not be developed within new or existing neighborhoods.

Policy NOISE-1.3 Industrial and other noise-generating land uses shall be located away from noise-sensitive land uses or shall enclose any substantial noise sources completely within buildings or structures.

Policy NOISE-1.5 Soundwalls are prohibited as a method for reducing noise exposure that could be addressed through other means.

Goal NOISE-2: Minimize Noise Impacts Associated with Development Projects and other Land Use Change

Policy NOISE-2.1 Development projects and roadway improvement projects that increase traffic noise levels shall be mitigated to achieve acceptable levels specified in Table N-1 (Table 4.12-5) as measured at outdoor activity areas and interior spaces of existing and planned noise sensitive land uses. If existing noise levels exceed allowable levels in Table N-1 (Table 4.12-5) at noise sensitive land uses, then:

- “ Where existing exterior noise levels are between 60 and 65 dB L_{dn} at outdoor activity areas of noise-sensitive uses, an increase of 3 dB L_{dn} or greater is considered significant and requires mitigation to achieve allowable levels.
- “ Where existing exterior noise levels are greater than 65 dB L_{dn} at outdoor activity areas of noise-sensitive uses, an increase of 1.5 dB L_{dn} or greater is considered significant and requires mitigation to achieve allowable levels.
- “ Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn} or less using practical application of the best available noise reduction measures, an exterior noise level of up to 65 dB L_{dn} may be allowed, provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with Table N-1 (Table 4.12-5).

Policy NOISE-2.2 Development projects that produce, or are affected by, non-transportation related noise shall be mitigated to achieve acceptable levels specified in Table N-2 (Table 4.12-6), as measured at outdoor activity areas of existing and planned noise-sensitive land uses. If existing noise levels exceed acceptable levels in Table N-2 (Table 4.12-6) as measured at outdoor activity areas of noise sensitive land uses:

TABLE 4.12-5 NOISE AND LAND USE COMPATIBILITY CRITERIA

Land Use	Outdoor Activity Areas (dB L _{dn})	Interior Spaces	
		dB L _{dn}	dB L _{eq}
Residential	60	45	--
Transient Lodging	60	45	--
Hospitals, Nursing Homes	60	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	60	--	45
Playgrounds, Neighborhood Plans	70	--	--

Notes: Noise-sensitive land uses include schools, hospitals, rest homes, long-term care, mental care facilities, residences, and other similar land uses. Outdoor activity areas are considered to be the portion of a noise-sensitive property where outdoor activities would normally be expected (i.e. patios of residences and outdoor instructional areas of schools). Outdoor activity areas for the purposes of this element do not include gathering spaces alongside transportation corridors or associated public rights-of-way. Where development projects or roadway improvement projects could potentially create noise impacts, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. Such analysis shall be the financial responsibility of the applicant and be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics. Mitigation strategies shall include site planning and design over other types of mitigation.

Source: City of Riverbank, Riverbank General Plan 2005-2025, Page NOISE-5.

- “ Where existing exterior noise levels are between 60 and 65 dB at outdoor activity areas of noise-sensitive uses, an increase of 3 dB or greater is considered significant and requires mitigation to achieve acceptable levels.
- “ Where existing exterior noise levels are greater than 65 dB at outdoor activity areas of noise-sensitive uses, an increase of 1.5 dB or greater is considered significant and requires mitigation to achieve acceptable levels.

TABLE 4.12-6 **NON-TRANSPORTATION NOISE SOURCE CRITERIA**

Noise Level Descriptor	Daytime (7 a.m. – 10 p.m.)	Nighttime (10 p.m. – 7 a.m.)
Hourly L_{eq}	60 dB	45 dB
L_{max}	75 dB	65 dB

Notes: Each of the noise levels specified shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech, or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g. caretaker dwellings).

- “ Where it is not possible to reduce noise in outdoor activity areas to 60 dB or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB may be allowed, provided that available exterior noise level reduction measures have been implemented.

Policy NOISE-2.3 The City shall require all feasible noise mitigation to reduce construction and other short-term noise and vibration impacts as a condition of approval for development projects by applying the performance standards outlined in TABLE N-3 (Table 4.12-7). The total noise level resulting from new sources and ambient noise shall not exceed the standards in Table N-3 (Table 4.12-7), as measured at outdoor activity areas of any affected noise sensitive land use except:

- “ If the ambient noise level exceeds the standard in Table N-3 (Table 4.12-7), the standard becomes the ambient level plus 5 dB(A).
- “ Reduce the applicable standards in Table N-3 (Table 4.12-7) by 5 decibels if they exceed the ambient level by 10 or more decibels.

b. Riverbank Code of Ordinances

The City of Riverbank sets goals and polices in the Noise Chapter (93) of Title IX: General Regulations to protect noise-sensitive uses (residential areas,

TABLE 4.12-7 NON-TRANSPORTATION NOISE SOURCE CRITERIA

Cumulative Duration of a Noise Event ^a (Minutes)	Maximum Exterior Noise Level Standards ^b	
	Daytime ^{c,e}	Nighttime ^{d,e}
30-60	50	45
15-30	55	50
5-15	60	55
1-5	65	60
0-1	70	65

^a Cumulative duration refers to time within any one-hour period.

^b Noise level standards measured in dB.

^c Daytime = hours between 7:00 a.m. and 10:00 p.m.

^d Nighttime = hours between 10:00 p.m. and 7:00 a.m.

^e Each of the noise level standards shall be reduced by 5 dBA for tonal noise (i.e., a signal which has a particular and unusual pitch) or for noises consisting primarily of speech or for recurring impulsive noises (i.e. sounds of short duration, usually less than one second, with an abrupt onset and rapid decay such as the discharge of firearms).

motels, hospitals, nursing homes, theatres, auditoriums, schools, playgrounds, offices, etc.) from excessive noise.

Exterior Noise Standards

- (A) It is unlawful for any person at any location within the incorporated area of the city to create any noise, or to allow the creation of any noise, on property owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level when measured at any affected single- or multiple-family residence, school, church, hospital or public library situated in either the incorporated or unincorporated area to exceed the noise level standards as set forth in (Table 4.12-8).

TABLE 4.12-8 EXTERIOR NOISE LEVEL STANDARDS

Time Period	Allowable Equivalent Hourly Sound Level (L_{eq})	Allowable Maximum Sound Level (L_{max})
7 a.m. - 10 p.m.	50 dBA	70 dBA
10 p.m. - 7 a.m.	45 dBA	65 dBA

- (B) In the event the measured ambient noise level exceeds the applicable noise level standard, the applicable standard shall be adjusted so as to equal the ambient noise level.
- (C) Each of the noise level standards specified above shall be reduced by five dB(A) for simple tone noises, noises consisting primarily of speech or music or for recurring impulsive noises.
- D) If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period so that the ambient noise level can be measured, the noise level measured while the source is in operation shall be compared to the noise level standards specified above.

C. Existing Conditions

The RAAP site is bordered by farmland to the north and east, Claribel Road the south, and Claus Road to the west. The primary sources of noise affecting the area are vehicular traffic along major roadways. A noise monitoring survey was conducted from July 16, 2009 to July 17, 2009 to quantify ambient noise levels in the Plan Area vicinity. The noise monitoring survey consisted of four long-term (24-hour) noise measurements (LT1, LT2, LT3, and LT4) and two short-term (10 to 20 minutes) noise measurements (ST1 and ST2) of the predominant noise sources affecting the Specific Plan area. Noise meas-

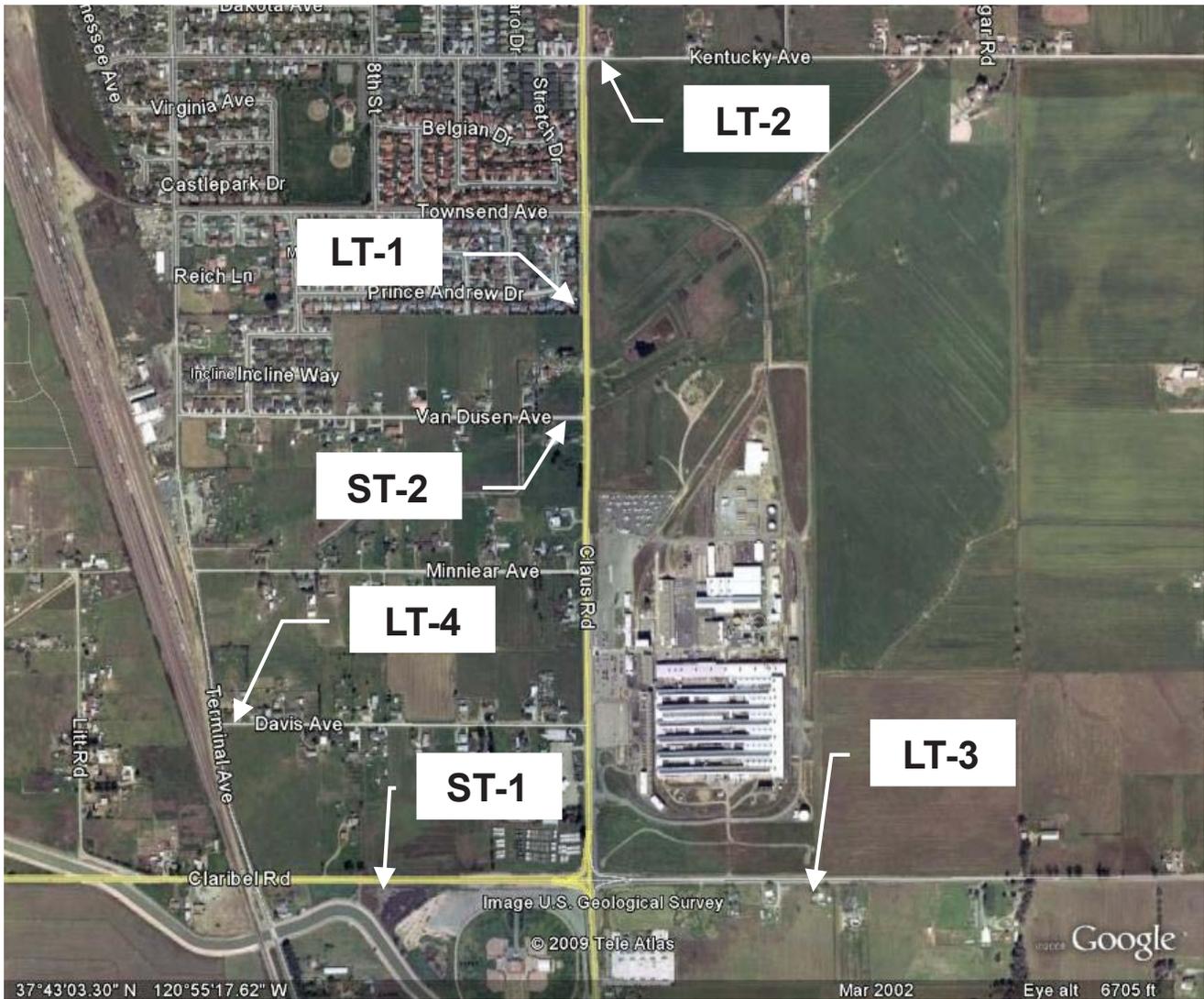
urement locations were chosen after visiting and observing the Plan Area. These locations were selected to include the locations representative of noise sensitive uses. Figure 4.12-1 shows the locations of noise measurements made during the noise monitoring survey.

Sites LT1 and LT2 were chosen to monitor noise levels along Claus Road north of Van Dusen Avenue. Sites LT3 and LT4 were chosen to monitor noise levels along Claribel Road east of Claus Road, and Terminal Avenue and the Railroad spur, respectively. Sites ST1 and ST2 were selected to measure noise levels along Claus Road south of Van Dusen Avenue and Claribel Road west of Claus Road, respectively.

Long-term noise measurement LT1 was 45 feet from the center of the nearest lane of Claus Road between Van Dusen Avenue and Townsend Avenue. The primary noise source at location LT1 was traffic along Claus Road. Hourly average noise levels ranged from about 69 dBA L_{eq} to 73 dBA L_{eq} during the daytime and from about 65 dBA L_{eq} to 69 dBA L_{eq} at night. The calculated day-night average noise level at this location was 75 dBA L_{dn} . Figure 4.12-2 shows the daily trend in noise levels at LT1.

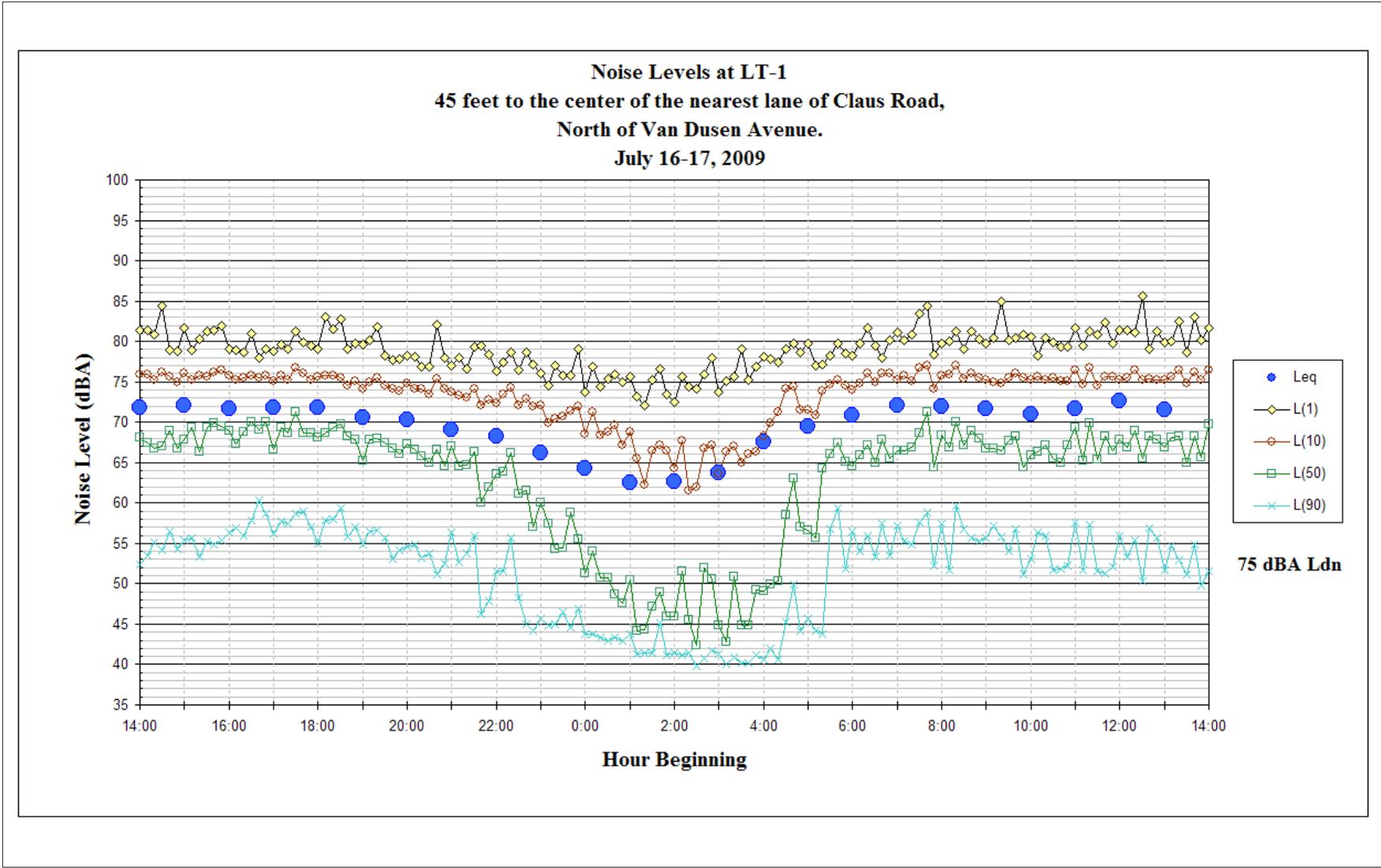
Measurement location LT2 was 92 feet from the center of the nearest lane of Claus Road, at the intersection with Kentucky Avenue. Ambient noise levels measured at this site were primarily the result of automobile traffic along Claus Road. Hourly average noise levels ranged from about 63 dBA L_{eq} to 69 dBA L_{eq} during the day and from about 56 dBA L_{eq} to 62 dBA L_{eq} at night. The calculated day-night average noise level at this location was 68 dBA L_{dn} . Figure 4.12-3 shows the daily trend in noise levels at LT2.

Long-term noise measurement LT3 was 46 feet from the center of the nearest lane of Claribel Road. The primary noise source at this location was traffic along Claribel Road. Hourly average noise levels ranged from about 60 dBA L_{eq} to 66 dBA L_{eq} during the day and from about 55 dBA L_{eq} to 62 dBA L_{eq} at night. The calculated day-night average noise level at this location was 67 dBA L_{dn} . Figure 4.12-4 shows the daily trend in noise levels at LT3.



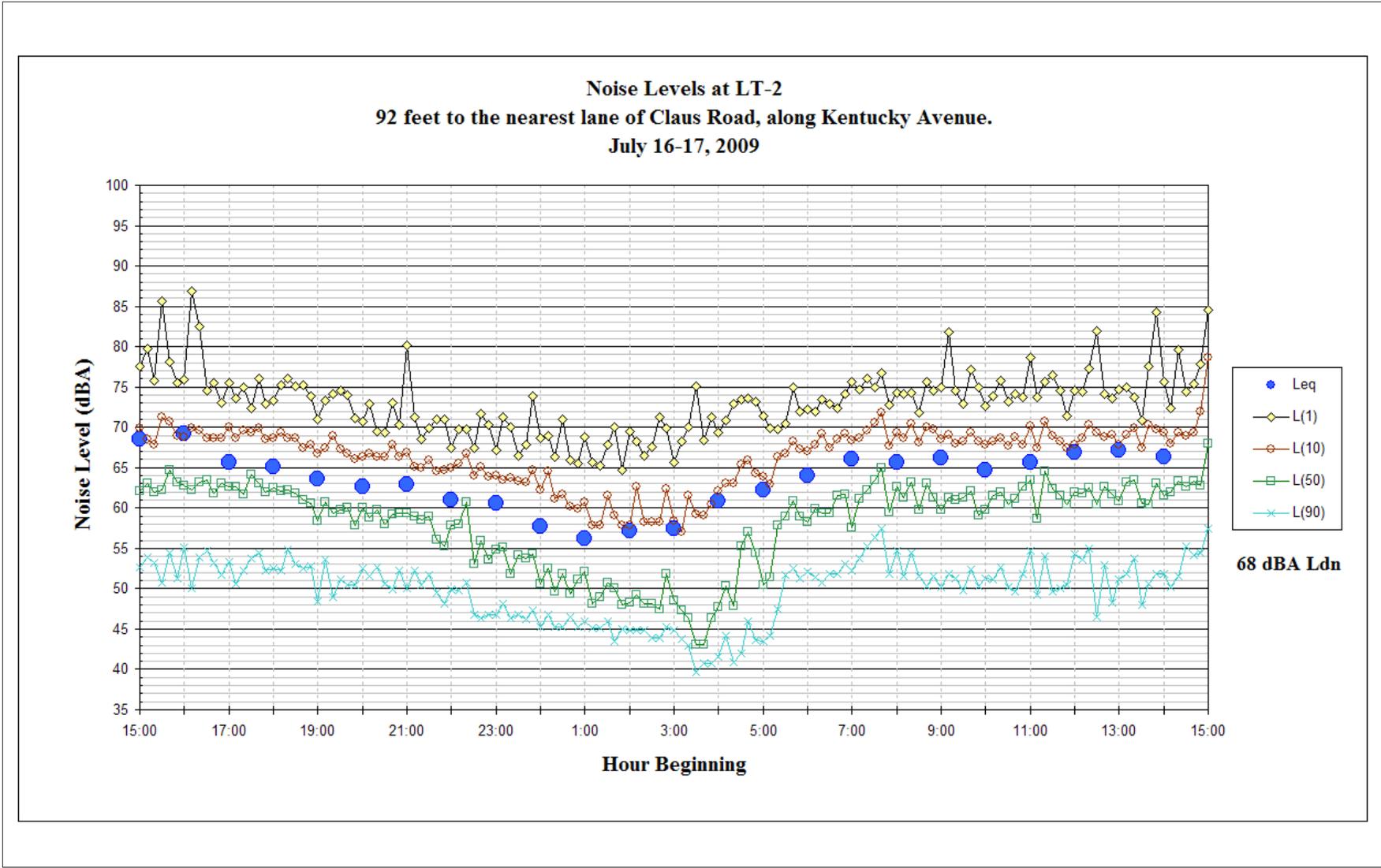
Source: Illingworth & Rodkin, 2012.

FIGURE 4.12-1
NOISE MEASUREMENT LOCATIONS



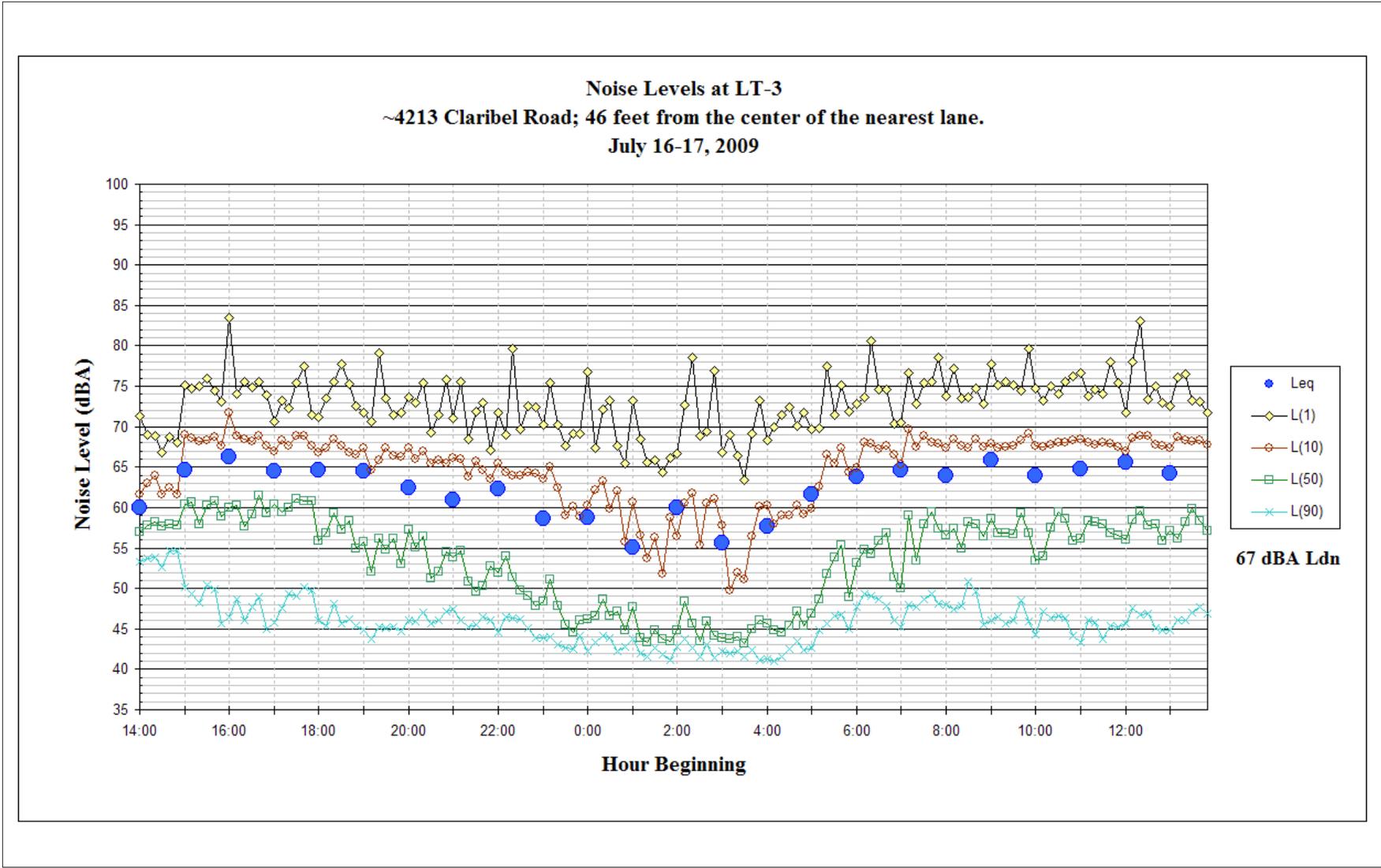
Source: Illingworth & Rodkin, 2012.

FIGURE 4.12-2
NOISE LEVELS AT LT1



Source: Illingworth & Rodkin, 2012.

FIGURE 4.12-3
NOISE LEVELS AT LT2



Source: Illingworth & Rodkin, 2012.

FIGURE 4.12-4
NOISE LEVELS AT LT3

Measurement location LT4 was 75 feet from the center of the nearest lane of Terminal Avenue and 167 feet from the nearest train tracks. Primary noise sources at location LT4 included automobile traffic along Terminal Avenue and train noise along the railroad. Hourly average noise levels ranged from about 63 dBA L_{eq} to 78 dBA L_{eq} during the day and from about 54 dBA L_{eq} to 76 dBA L_{eq} at night. The calculated day-night average noise level at this location was 75 dBA L_{dn} . Figure 4.12-5 shows the daily trend in noise levels at LT4.

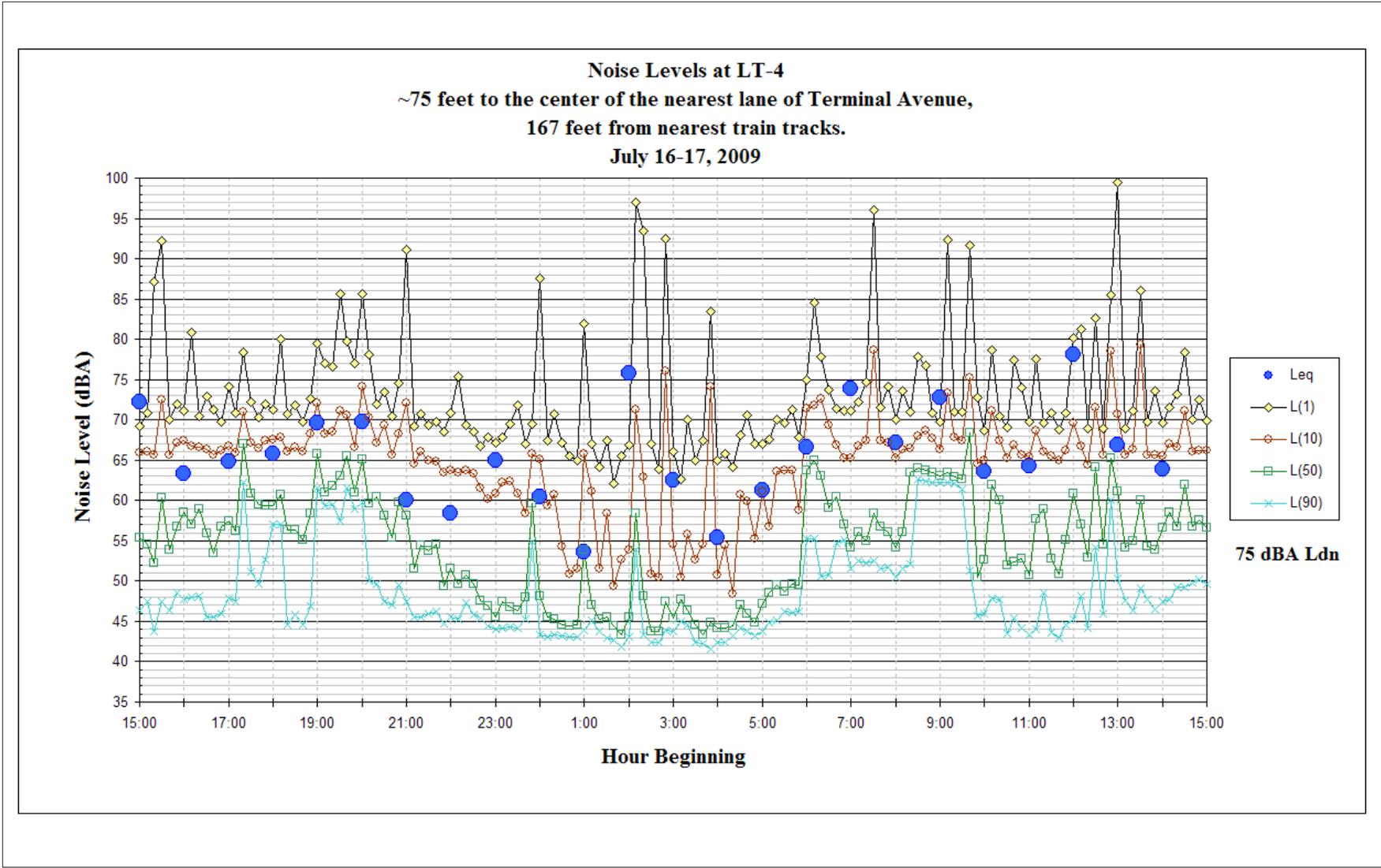
Short-term noise measurements were made on the afternoon of July 17, 2007. The short-term noise measurements were made at two locations as shown in Figure 4.12-1. Table 4.12-9 summarizes the short-term noise level data. Noise measurement ST1 was 52 feet from the centerline of Claribel Road. Noise levels measured at this location were primarily the result of traffic along Claribel Road. The average noise level was 65 dBA L_{eq} . Maximum noise levels resulting from local traffic reached 81 dBA L_{max} . Traffic that passed during a 10-minute portion of the measurement included 72 automobiles, four heavy trucks, and one medium sized truck. In addition, a freight train passed approximately 785 feet away.

TABLE 4.12-9 SHORT-TERM NOISE LEVEL DATA

Noise Measurement Location	Noise Level (dBA)					
	L_{max}	$L_{(10)}$	$L_{(50)}$	$L_{(90)}$	L_{eq}	L_{dn}^*
ST-1 – 52 feet from the centerline of Claribel Road	81	68	58	47	65	68
ST-2 – 15 feet from the near lane center of 6 th Street	77	66	55	46	63	69

* L_{dn} approximated based on concurrent long-term measurement data.

Noise measurement ST2 was west of the Specific Plan site near the intersection of Van Dusen Avenue and Claus Road. The primary noise source at this location was local traffic. Average noise levels were 63 dBA L_{eq} at a position 5 feet above the ground. Maximum noise levels resulting from trucks were 77



Source: Illingworth & Rodkin, 2012.

FIGURE 4.12-5
NOISE LEVELS AT LT4

dBA L_{max} . During the measurement 79 automobiles, five medium trucks, and one heavy truck passed. A relatively distant freight train passed during the measurement and generated audible noise levels.

D. Standards of Significance

The Plan would have a significant impact related to noise if it would result in:

- a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- e. For a project located 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, exposure of people residing or working in the project area to excessive noise levels.
- f. For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels.

E. Impacts Discussion

1. Plan Impacts

- a. Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

The City of Riverbank Noise and Land Use Compatibility Standards contained in the Noise Element of the General Plan are used to evaluate the compatibility of future land uses with the existing and future noise environments.

The Specific Plan would develop business park, retail, and industrial/office/research & development (R&D) uses. Based on traffic noise sources in the vicinity, noise levels within Specific Plan buildings would not exceed maximum allowable noise exposures in General Plan Table NOISE-1 (Table 4.12-5), as described below.

In accordance with the City of Riverbank's noise and land use compatibility guidelines, the maximum allowable interior noise exposure is 45 dBA L_{eq} for office buildings. Outdoor activity areas proposed at land uses within the Specific Plan area would not be expected to be sensitive to environmental noise; however, interior noise levels could exceed acceptable levels if noise control is not considered during building design.

Retail and office buildings are proposed as near as approximately 60 feet from the center of Claus Road, where future noise levels at the western exteriors of buildings are estimated to be up to 72 dBA L_{eq} . Standard office construction methods (assumes closed windows and forced-air mechanical ventilation systems) normally provides about 30 dBA of noise reduction when going from outside to inside. Interior hourly average noise levels would be about 42 dBA L_{eq} and would not exceed the maximum allowable noise exposure standard of 45 dBA L_{eq} . This is a *less-than-significant* impact.

The conceptual land use plan shows retail, office, and industrial uses throughout the project site. These land uses would be located adjacent to existing single-family uses to the south, west, and north. Noise sources at industrial sites could include truck movement, loading docks, outdoor mechanical equipment, use of public address systems, and operations (depending on the user). Noise sources such as loading docks would be expected to generate noise levels of about 50 to 60 dBA L_{eq} at 150 feet depending on the number of

trucks accessing the loading dock and frequency of other extraneous noise sources associated with receiving areas (e.g. forklifts, etc.). Noise sources at commercial uses could include loading docks, outdoor mechanical equipment (e.g. heating and cooling equipment, etc.), and parking lots.

Noise associated with the use of parking lots would include vehicular circulation, loud engines, car alarms, squealing tires, door slams, and human voices. The maximum sound (L_{max}) of a passing car at 15 mph typically ranges from 43 dBA to 53 dBA at 150 feet. The noise generated during an engine start is similar. Door slams create lower noise levels. Hourly average noise level resulting from all of these noise-generating activities in a busy parking lot could range from 35 dBA to 45 dBA L_{eq} at a distance of 150 feet from the parking area.

Heating, ventilation, and cooling equipment could generate noise levels in the range of 50 dBA to 70 dBA L_{eq} at 150 feet depending on the number, type, and size of the proposed equipment. Trash compactors typically generate maximum noise levels of 40 to 50 dBA at 150 feet, depending on the power rating and enclosure characteristics.

The nearest residential land uses are 110 feet west of the plan area, across Claus Road. Noise levels resulting from on-site activities may exceed City standards for stationary noise sources, as described in General Plan Tables NOISE-2 and NOISE-3 (Tables 4.12-6 and 4.12-7), at nearby residential receivers if the noise generated by such uses are not regulated or adequately mitigated. This represents a *significant* impact.

- b. Expose people to or generate excessive groundborne vibration or groundborne noise levels.

The construction of the project may generate perceptible vibration when heavy equipment or impact tools (e.g. jackhammers, hoe rams) are used. Construction activities would include demolition of existing structures, excavation, site preparation work, foundation work, and new building framing

and finishing. The proposed project is not expected to require pile driving, which can cause excessive vibration.

For structural damage, the California Department of Transportation uses a vibration limit of 0.5 inches/second, peak particle velocity (in/sec, PPV) for buildings structurally sound and designed to modern engineering standards, 0.3 in/sec, PPV for buildings that are found to be structurally sound but where structural damage is a major concern, and a conservative limit of 0.08 in/sec, PPV for ancient buildings or buildings that are documented to be structurally weakened.

Table 4.12-10 presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet. Project construction activities such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.) may generate substantial vibration in the immediate vicinity. Construction activities may extend over several construction seasons, but construction vibration would not be substantial for most of this time except during vibration generating activities (as discussed above). Jackhammers typically generate vibration levels of 0.035 in/sec PPV and drilling typically generates vibration levels of 0.09 in/sec PPV at a distance of 25 feet. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. Vibration levels would be expected to be 0.2 in/sec PPV or less, below the 0.3 in/sec PPV significance threshold. Vibration generated by construction activities near the common property line would at times be perceptible, however, would not be expected to result in “architectural” damage to these buildings.

In areas where vibration would not be expected to cause structural damage, vibration levels may still be perceptible. However, as with any type of construction, this would be anticipated and it would not be considered significant given the intermittent and short duration of the phases that have the highest potential of producing vibration (demolition and use of jackhammers and other high power tools). By use of administrative controls such as notifying

TABLE 4.12-10 VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT^a

Equipment		PPV at 25 Feet (in/sec)	Approximate Lv at 25 Feet (VdB)
Pile Driver (Impact)	upper range	1.158	112
	typical	0.644	104
Pile Driver (Sonic)	upper range	0.734	105
	typical	0.170	93
Clam Shovel Drop		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Loaded Trucks		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58

^a Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment, Federal Transit Administration, May 2006.

adjacent commercial shops of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with the least potential to affect these uses, perceptible vibration can be kept to a minimum and as such would not result in a significant impact with respect to perception. This is a *less-than-significant* impact.

Vibration levels associated with the on-site railroad tracks would not exceed vibration criteria thresholds set by the Federal Transit Authority (FTA). Up to four non-passenger freight trains per day serve the RAAP via the Sierra Northern Railway (SERA) railroad branch. Typical train speeds are between 20 and 25 miles per hour at the Claus Road at Patterson Road crossing, and would likely be slower on-site. Travel speeds are anticipated to be relatively low and producing correspondingly low levels of vibration at nearby buildings proposed as part of the Specific Plan. Table 4.12-4 lists the FTA vibration impact criteria for institutional land uses (representative of land uses proposed as part of the Specific Plan) as 83 VdB for infrequent events. Assuming a maximum travel speed of 20 mph on site, groundborne vibration levels from freight trains would not be expected to exceed 83 VdB at distances greater than 20 feet from the tracks. Commercial and industrial land uses proposed as part of the Specific Plan that are located more than 20 feet from the on-site railroad tracks would not be impacted by groundborne vibration levels resulting from low-speed railroad train passbys. Therefore, this is a *less-than-significant* impact.

- c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. Traffic volumes in the project vicinity will increase with the development of the project area, and will generate an increase in traffic noise along the local roadway network. In some locations, there would be a substantial permanent increase in environmental noise at noise sensitive receptors. This is a *significant* impact.

The project vicinity contains a variety of land uses with varying sensitivities to noise. Residential land uses would be most affected by traffic noise level increases. Office and commercial uses are not typically affected by traffic noise increases along the local roadway network. Industrial land uses would not generally be affected by an increase in traffic noise. A noise impact would be identified at noise-sensitive land uses where the project would result in a noise level increase of 3 dBA L_{dn} or more in noise environments of 60 dBA L_{dn} .

to 65 dBA L_{dn} ; or, 1.5 dBA L_{dn} or more at outdoor activity areas of noise-sensitive uses where existing noise environments are greater than 65 dBA L_{dn} .

Traffic data provided by Fehr & Peers Transportation Consultants was reviewed to calculate potential project-related traffic noise level increases along roadways representative of those serving the Specific Plan site that would be affected by the Specific Plan. These data included turning movement counts at 15 intersections for existing conditions and projections for existing plus-project, cumulative without lane configurations, and cumulative with lane configurations conditions at build-out of the Specific Plan estimated to occur in 2030. Peak hour traffic volumes on these roadway segments were calculated based on the turning movement data and compared to existing conditions to calculate the anticipated noise level increase and the Specific Plan's relative contribution. Increases in traffic noise levels along the local streets are shown in Table 4.12-11. The traffic data indicates that the increase in traffic noise levels attributable to the Specific Plan would range from 0 to 2 dBA L_{dn} , with the largest noise increase expected along Claus Road between Townsend Avenue and Claribel Road. Existing noise environments at outdoor activity areas of residences along this segment of Claus Road are greater than 65 dBA L_{dn} , and would increase by more than 1.5 dBA as a result of transportation noise from the Specific Plan. This would represent a *significant impact* because the noise level increases would be greater than the City's significance thresholds set in Policy NOISE-2.1, stated above.

- d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise generating activities, and the distance between construction noise sources and noise sensitive receptors. Where noise from construction activities exceeds 60 dBA L_{eq} and exceeds the ambient noise environment by at least 5 dBA at noise-sensitive uses in the project vicinity for a period of more than one construction season, the impact would be considered significant.

TABLE 4.12-11 TRAFFIC NOISE LEVEL INCREASES

Roadway	Existing Noise Level (L_{dn}) at 50 feet from Center of Road	Existing Plus Project Noise Level (L_{dn}) at 50 feet from Center of Road	Noise Level Increase (L_{dn})
Claribel Road between Coffee Road and Oakdale Road	69	69	0
Claribel Road between Oakdale Road and Roselle Avenue	70	70	0
Claribel Road between Roselle Avenue and Claus Road	68	69	1
Claribel Road between Claus Road and Eleanor Road	67	67	0
Claus Road between Patterson Road and Townsend Avenue	67	67	0
Claus Road between Townsend Avenue and Claribel Road	67	69	2
Claus Road between Claribel Road and Terminal Avenue	68	69	1
Patterson Road between Terminal Avenue and Claus Road	66	66	0
Patterson Road between Claus Road and Eleanor Road	67	67	0
Townsend Avenue between Terminal Avenue and Claus Road	53	53	0

Construction activities generate considerable amounts of noise, especially when heavy equipment is used. The highest maximum noise levels generated by construction activities would typically range from about 90 to 98 dBA at a distance of 50 feet from the noise source. Typical hourly average construction-generated noise levels are about 79 dBA to 88 dBA measured at a distance of 50 feet from the center of a site during busy construction periods. Construction-generated noise levels drop off at a rate of about 6 dBA per doubling

of distance between the source and receptor. Shielding provided by buildings or terrain result in lower construction noise levels at distant receptors.

Construction projects of this type are typically built out over more than one construction season, and some construction methods generate higher noise levels and noise that would be considered impulsive. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction durations last over extended periods of time. Limiting the hours when construction can occur to daytime hours is often a simple method to reduce the potential for noise impacts. In areas immediately adjacent to construction, controls such as constructing temporary noise barriers and utilizing “quiet” construction equipment can also reduce the potential for noise impacts.

It is likely that future development under the Specific Plan would occur in discrete phases over the 20-year build-out period of the Plan. However, the rate of development will be dependent on market conditions, which are unknown at this time. Future projects would be required to undergo environmental review to determine project-specific construction period noise impacts. It is reasonable to assume that a particular receiver or group of receivers would be subject to construction noise levels in excess of 60 dBA L_{eq} and the ambient by 5 dBA, as a result, a *significant impact* would occur.

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

Retail, office, and industrial uses developed at the site would be intermittently exposed to noise levels from aircraft associated with the Peterson private airport located approximately 1.5 miles east of the Specific Plan area. Because of relative infrequent use of the airstrip and aircraft overflights, on-site noise levels would not substantially increased above those resulting from traffic along the local roadway network or on-site operations. The resulting noise

environment from aircraft would be considered compatible with the proposed land uses. This is a *less-than-significant* impact.

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

As discussed above in response to criteria e.) noise from aircraft at the RAAP site would be considered compatible with the proposed land uses, and would be considered a *less-than-significant* impact.

2. Cumulative Impacts

Traffic volume increases in the Specific Plan vicinity will result with the development of the plan area and other planned developments in the southeast portion of the City of Riverbank. In some locations, these increases would be substantial, and the project would contribute to the overall cumulative impact. This is a *significant* impact.

Traffic noise levels along Claribel Road and Claus Road will be substantially increased over existing conditions assuming cumulative traffic projections. Substantial cumulative noise level increases along affected roadway segments would be approximately 3 dBA L_{dn} above existing conditions. If the Specific Plan contributes at least 1 dBA L_{dn} to the significant cumulative noise level increase of 3 dBA L_{dn} or more, the noise increase would be “cumulatively considerable.” Table 4.12-12 presents noise level information under different traffic scenarios at 50 feet from the center of area roadways.

Table 4.12-13 summarizes the substantial cumulative noise level increases attributable to the project and cumulative noise level increases anticipated in the project vicinity. Cumulative traffic noise impacts would occur at sensitive receptors along Claribel Road, between Roselle Avenue and Claus Road, and Claus Road, between Van Dusen Avenue and Claribel Road.

TABLE 4.12-12 **NOISE LEVELS FOR MULTIPLE SCENARIOS AT 50 FEET FROM ROADWAYS**

Affected Roadway Segment	Noise Level (L_{dn}) at 50 feet from Center of Road		
	Existing	Existing Plus Project	Cumulative
Claribel Road between Coffee Road and Oakdale Road	69	69	73
Claribel Road between Oakdale Road and Roselle Avenue	70	70	72
Claribel Road between Roselle Avenue and Claus Road	68	69	71
Claribel Road between Claus Road and Eleanor Road	67	67	71
Claus Road between Patterson Road and Townsend Avenue	67	67	69
Claus Road between Van Dusen Avenue and Claribel Road	67	68	70
Claus Road between Claribel Road and Terminal Avenue	68	69	70
Patterson Road between Terminal Avenue and Claus Road	66	66	67
Patterson Road between Claus Road and Eleanor Road	67	67	68
Townsend Avenue between Terminal Avenue and Claus Road	53	53	54

TABLE 4.12-13 SUBSTANTIAL INCREASES TO TRAFFIC NOISE LEVELS IN THE PLAN AREA AND ITS VICINITY

Roadway	Segment	Noise Level Increase (dBA, Ldn)	
		Project	Cumulative
Claribel Road	Coffee Road to Oakdale Road	> 1	3
	Roselle Avenue to Claus Road	1	3
	Claus Road to Eleanor Road	> 1	3
Claus Road	Van Dusen Ave. to Claribel Road	1	3

F. Impacts and Mitigation Measures

Impact NOISE-1: The nearest residential land uses are 110 feet west of the plan area, across Claus Road. Noise levels resulting from on-site activities may exceed City standards for stationary noise sources, as described in General Plan Tables NOISE-2 and NOISE-3 (Tables 4.12-6 and 4.12-7 in this EIR), at nearby residential receivers if the noise generated by such uses are not regulated or adequately mitigated.

Mitigation Measure NOISE-1: In order to reduce noise generated by activities occurring within the RAAP site, the following mitigation measures shall be implemented:

- “ Project level acoustical analyses shall be constructed for noise-generating land uses proposed as part of the Specific Plan. Exterior noise levels at residential land uses interfacing active parks, commercial land uses, or industrial land uses shall be maintained in accordance with the standards presented in the General Plan and Municipal Code.

- “ Parking lot cleaning activities in commercial and industrial areas shall be limited to daytime and evening hours (7 a.m. to 10 p.m.).
- “ Trash compactors in commercial and industrial areas shall be located away from adjacent residential receivers or shielded with noise barriers.
- “ Loading dock hours of operation shall be limited to daytime and evening hours (7 a.m. to 10 p.m.).

Significance After Mitigation: *Less than Significant.* Traffic data provided by Fehr & Peers Transportation Consultants was reviewed to calculate potential project-related traffic noise level increases along roadways representative of those serving the Specific Plan site that would be affected by the Specific Plan. These data included turning movement counts at 15 intersections for existing conditions and projections for existing plus-project, cumulative without lane configurations, and cumulative with lane configurations conditions at build-out of the Specific Plan estimated to occur in 2030. Peak hour traffic volumes on these roadway segments were calculated based on the turning movement data and compared to existing conditions to calculate the anticipated noise level increase and the Specific Plan’s relative contribution. Increases in traffic noise levels along the local streets are shown in Table 4.12-11. The traffic data indicates that the increase in traffic noise levels attributable to the Specific Plan would range from 0 to 2 dBA L_{dn} , with the largest noise increase expected along Claus Road between Townsend Avenue and Claribel Road. Existing noise environments at outdoor activity areas of residences along this segment of Claus Road are greater than 65 dBA L_{dn} , and would increase by more than 1.5 dBA as a result of transportation noise from the Specific Plan. This would represent a significant impact because the noise level increases would be greater than the City’s significance thresholds set in Policy NOISE-2.1, stated above.

Impact NOISE-2: Existing noise environments at outdoor activity areas of residences along Claus Road are greater than 65 dBA L_{dn} , and would increase

by more than 1.5 dBA as a result of transportation noise following implementation of the Specific Plan.

Mitigation Measure NOISE-2: Noise reduction methods shall be implemented to reduce generated by activities resulting from the Specific Plan. These measures shall include, but are not limited to the following:

- “ Paving streets with "quieter" pavement types such as Open-Grade Rubberized Asphaltic Concrete would reduce noise levels by 2 to 3 dBA depending on the existing pavement type, traffic speed, traffic volumes, and other factors.
- “ New or larger noise barriers could reduce noise levels by 5 dBA Ldn. Final design of such barriers, including an assessment of their feasibility and reasonableness, should be completed during project level review.
- “ Sound insulation treatments to affected buildings, such as sound rated windows and doors, could reduce noise levels in interior spaces.
- “ Installing traffic calming measures to slow traffic along Claus Road could provide qualitative improvement by smoothing out the rise and fall in noise levels caused by speeding vehicles.

Significance After Mitigation: Case studies have shown that the replacement of dense grade asphalt (standard type) with open-grade or rubberized asphalt can reduce traffic noise levels along residential-type streets by 2 to 3 dBA.¹ A possible noise reduction of 2 dBA would be expected using conservative engineering assumptions. To be a permanent mitigation, subsequent repaving would also have to be “quieter” pavements.

Alternatively, new or larger noise barriers could be constructed to provide acoustical shielding at affected outdoor use areas, and sound insula-

¹ Douglas D. Carlson, Han Zhu Ph.D., Can Xiao. Analysis of Traffic Noise Before and After Paving With Asphalt-Rubber, http://www.asphaltrubber.org/ari/Noise/Analysis_of_Traffic_Noise_Before_and_after_Paving_with_Asphalt_Rubber_on_US60.pdf.

tion could be installed to control noise levels in interior spaces to acceptable levels. Typically, increasing the height of an existing barrier results in about 1 dBA of attenuation per 1 foot of additional barrier height. The design of such noise barriers would require additional analysis. Treatments to the home may include the replacement of existing windows and doors with sound-rated windows and doors and the provision of a suitable form of forced-air mechanical ventilation to allow the occupants the option of controlling noise to by closing the windows. The specific treatments for each affected residential unit would be identified on a case-by-case basis.

Finally, traffic calming could be implemented to reduce the noise of vehicles. Each 5 mph reduction in average speed provides approximately 1 dBA of noise reduction on an average basis (L_{eq}/L_{dn}). Traffic calming measures that regulate speed improve the noise environment by smoothing out noise levels.

Each of these mitigation measures involves other non-acoustical considerations. Other engineering issues may dictate continued use of dense grade asphalt. Noise barriers and sound insulation treatments must be done on private property necessitating agreements with each property owner. Therefore, it may not be reasonable or feasible to reduce project-generated traffic noise at all affected receivers. The impact would be considered *significant and unavoidable*.

Impact NOISE-3: While the duration and phasing of construction activities for the Specific Plan is unknown at this time, it is conceivable that a particular receiver or group of receivers would be subject to construction noise levels in excess of 60 dBA L_{eq} and the ambient by 5 dBA for durations exceeding one construction season.

Mitigation Measure NOISE-3: To reduce noise levels generated by construction, the following standard construction noise control measures shall be included in all construction projects within the plan area:

- “ Limit construction to the hours of 7:00 a.m. to 6:30 p.m. on weekdays, and 9:00 a.m. to 5:00 p.m. on Saturdays, with no noise-generating construction on Sundays or holidays.
- “ Equip all internal combustion engine-driven equipment with mufflers which are in good condition and appropriate for the equipment.
- “ Unnecessary idling of internal combustion engines should be strictly prohibited.
- “ Locate stationary noise generating equipment such as air compressors or portable power generators as far as possible from sensitive receptors. Construct temporary noise barriers to screen stationary noise generating equipment when located near adjoining sensitive land uses. Temporary noise barriers could reduce construction noise levels by 5 dBA.
- “ Utilize "quiet" air compressors and other stationary noise sources where technology exists.
- “ Route all construction traffic to and from the project site via designated truck routes where possible. Prohibit construction related heavy truck traffic in residential areas where feasible.
- “ Control noise from construction workers’ radios to a point that they are not audible at existing residences bordering the project site.
- “ The contractor shall prepare and submit to the City for approval a detailed construction plan identifying the schedule for major noise-generating construction activities.
- “ Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g. starting too early, bad muffler, etc.) and will require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule.

Significance After Mitigation: With implementation of these measures, the impact would be *less-than-significant*.

Impact NOISE-4: Traffic volume increases in the vicinity of the Specific Plan vicinity will result with the development of the plan area and other planned developments in the southeast portion of the City of Riverbank.

Mitigation Measure NOISE-4: Implement Mitigation Measure NOISE-2.

Significance After Mitigation: Similar to Impact NOISE-2, it may not be reasonable or feasible to reduce cumulative traffic noise levels at all affected receivers. The increase in development density would increase noise levels noticeably at receivers. Measures available to reduce the cumulative noise level increases would not likely be reasonable or feasible in all areas, therefore, the impact would be considered *significant and unavoidable*.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SPECIFIC PLAN EIR
NOISE

4.13 POPULATION AND HOUSING

This chapter discusses population, housing, and employment trends and conditions in Riverbank and Stanislaus County, and evaluates the potential impacts to population and housing associated with implementation of the draft RAAP Specific Plan. The following evaluation assesses the potential for growth inducement as well as for the displacement of current residents and existing housing units.

A. Regulatory Framework

This section summarizes key State and local regulations, policies and programs pertaining to population and housing in the RAAP Plan Area.

1. Regional Planning

The Stanislaus Council of Governments (StanCOG) is the federally recognized Metropolitan Planning Organization for Stanislaus County and the cities of Ceres, Hughson, Modesto, Newman, Oakdale, Patterson, Riverbank, Turlock, and Waterford. The StanCOG Policy Board is comprised of county supervisors, mayors, and city council members who work together to enhance communication, cooperation, and comprehensive planning in dealing with regional issues. StanCOG is charged with overseeing the Regional Housing Needs Allocation (RHNA) process for member jurisdictions and with developing a RHNA Plan to allocate the fair share housing need for each jurisdiction within Stanislaus County in accordance with the requirements of Section 65584 of the California Government Code. StanCOG assigns jurisdictions an allocation of housing units to be built in that area during a specific planning period, usually five to seven years. The allocation is specific to the number of housing units to be built for very low-, low income, moderate, and above moderate income levels.

2. Local Planning

Under California Government Code Section 65580, local governments are responsible for facilitating improvements and development of housing to meet the housing needs of all economic segments of the community, while considering other fiscal, environmental, and community goals set forth in the

General Plan. The Housing Element, one of seven mandated elements of the General Plan, is the vehicle through which local governments carry out this responsibility. The Housing Element summarizes information on population and housing required for the evaluation of current and future housing needs, and the Element also contains policies and programs designed to address the identified needs.

The City of Riverbank 2009-2014 Housing Element represents a five-year program to conserve, improve, and develop housing in the community. Goals, policies, and programs from the Riverbank Housing Element relevant to population and housing are summarized below in Table 4.13-1.

B. Existing Conditions

This section describes population, housing, and employment trends and conditions in Riverbank and Stanislaus County.

1. Population Trends and Growth Rate

According to US Census data, the population of Riverbank was 22678 in 2010.¹ Throughout the 1990s Riverbank was one of the fastest growing communities in California, experiencing an 84 percent rise in the number of residents and an average annual population growth rate of 7.6 percent. Neighboring communities also experienced population growth in the same timeframe, although the rate of growth was not as dramatic as seen in Riverbank. Population grew by 14.6 percent in Modesto, 29.4 percent in Oakdale, 34.3 percent in Escalon, and 20.6 percent for Stanislaus County as a whole.² It is estimated that while population growth throughout the County slowed between 2000 and 2005, growth in Riverbank continued at approximately 4.8 percent, twice the rate seen in Stanislaus County as a whole.

¹ US Census, City of Riverbank.

² City of Riverbank, 2005. *General Plan Background Report: Economic Development*, page 2.

TABLE 4.13-1 RIVERBANK GENERAL PLAN GOALS, POLICIES, AND PROGRAMS RELATED TO POPULATION AND HOUSING

Goal/Policy/ Program Number	Goal, Policy, or Program Content
Goal 1	Identify adequate sites to provide for a sufficient number of dwelling units to meet the City's regional housing needs.
Policy 1.1	<p>Ensure land use and zoning procedures accommodating to affordable housing.</p> <p>Rezoning sites listed in Table V-2 (65.2 acres) and adopt a general plan amendment (if necessary) to complete annexation and zoning of at least 15 acres of potential sites identified in Table V-3 to higher density residential (R-3 or equivalent zoning of at least 20 dwelling units per acre). The first areas to be targeted for rezoning by December 2011 will be Table V-2 sites within existing City limits. Owner and rental multifamily uses will be permitted by-right in these areas, without a conditional use permit, planned unit development or other discretionary review or approval. In addition, a minimum of 20 units per acre will be required. By December 2012, the City will complete annexation and zoning (in consultation with property owners) of at least 15 acres of sites shown in Figure Table V-3.</p>
Program 1.1a	<p>The Stanislaus County Local Agency Formation Commission (LAFCo) has indicated to the City that it would look favorably on annexation requests for land adjacent to current City limits within Riverbank's Sphere of Influence (SOI). The City will: 1) identify areas with few environmental constraints that can be provided with public facilities and services meeting City standards; 2) meet with property owners to seek their agreement to initiate annexation; and 3) initiate specific planning and/or rezoning as part of the annexation process to expedite residential development opportunities. The City's objective will be to increase the availability of adequate sites—properties without significant environmental or public facility constraints to ensure the properties can accommodate development by June 2013. The City will continue to provide a process whereby multi-family housing can be approved without a conditional use permit process (by right, as currently allowed in the R-3 zone).</p> <p>To ensure that the City meets its obligation to identify additional sites, the City will commit to the actions and timeframes listed below. The City believes these timeframes are workable based on the history of annexations in Riverbank over the past several</p>

TABLE 4.13-1 RIVERBANK GENERAL PLAN GOALS, POLICIES, AND PROGRAMS RELATED TO POPULATION AND HOUSING (CONTINUED)

Goal/Policy/ Program Number	Goal, Policy, or Program Content
	<p>years.</p> <p>The City will use the following criteria to identify the most appropriate sites for rezoning to permit 20 or more units per acre:</p> <ul style="list-style-type: none"> “ Identify sites for residential development, suitable for high-density residential development on or near major roads and transportation corridors; “ Identify sites that are least two acres or greater in size for efficient use as multi-family housing; “ Provide a financing plan and phasing schedule for the provision of public facilities and services (including water, sewer, and storm drainage) that ensure the sites can be developed between 2011 and 2014; and “ Concurrent with the annexations, adopt development standards similar to the City’s R-3 zone for high-density housing that will permit multi-family housing by right, without a conditional use permit (see Table D-1), and require that properties designated for high-density residential use are developed, on average, at 70 percent or greater of the maximum permitted density of 20 or more units per acre.
Policy 1.2	Maintain an inventory of vacant and underutilized residential lands.
Program 1.2a	Track changes in land availability and accomplishments in multi-family development in order to determine if further rezoning is necessary to better facilitate high-density developments.
Program 1.2b	Update Geographical Information Systems (GIS) as changes to the land inventory occur. Provide this information to those interested in infill projects through updated layers viewable from the internet.
Goal 2	Encourage and assist in the development of adequate housing to meet the needs of extremely low-, low-, and very low-income households.
Policy 2.1	Implement a proactive approach to encourage and gain support for multi-family developments.
Program 2.1a	Seek assistance from non-profit developers, including Self-Help Enterprises and Habitat for Humanity to develop homes for lower-income families. The City will meet with non-profit developers to discuss available sites for affordable housing projects, potential funding sources, and actions the City can take to assist

TABLE 4.13-1 RIVERBANK GENERAL PLAN GOALS, POLICIES, AND PROGRAMS RELATED TO POPULATION AND HOUSING (CONTINUED)

Goal/Policy/ Program Number	Goal, Policy, or Program Content
	housing providers in obtaining funding.
Program 2.1b	Continue to assist developers of extremely low-, low- and very-low income housing in the grant preparation process to help fund their developments. Funding will be prioritized for the development of housing affordable to extremely low-income households. The City assists developers by expediting review and approval of development applications to meet funding deadlines and providing information needed to support funding requests.
Program 2.1c	Encourage developers to include second dwelling units in new subdivisions as well as a variety of higher density options. The City encourages developers to include second units by permitting such units without requiring additional lot area and allowing up to 50 percent lot coverage. The City permits such units by right in single-family subdivisions according to the requirements of State law.
Program 2.1d	Continue to distribute information on second units at the permit counter and post information on the City's website.
Program 2.1e	Adopt a density bonus ordinance in compliance with statutory amendments (Chapter 1928, Statutes 2004) to State density bonus law (Government Code Section 65915).
Program 2.1f	Assist in the development of housing for farmworkers. Actions will include assistance with site identification and support of applications for funding. The City will identify a partner and development opportunity by June 1010 and apply for grant funding through HCD.
Program 2.1g	The City will update the uses permitted in the R-3 zone (Section 153.061 (A)) to include emergency shelters. Emergency shelters will only be subject to those development and management standards that apply to other residential development within the same zone.
Policy 2.2	Adopt an Inclusionary Zoning Ordinance
Program 2.2a	An Inclusionary Zoning Ordinance will propose to have the City of Riverbank establish a regulatory and incentive framework which provides opportunities for the development of a supply and mix of new housing to meet the future housing needs of all residents. Through this framework it is expected that new residential development will provide housing opportunities to households of all incomes and achieve a diverse and balanced

TABLE 4.13-1 RIVERBANK GENERAL PLAN GOALS, POLICIES, AND PROGRAMS RELATED TO POPULATION AND HOUSING (CONTINUED)

Goal/Policy/ Program Number	Goal, Policy, or Program Content
	community with housing available for households of all income levels.
	Inclusionary unit regulations will apply to projects that propose (1) the creation of five or more dwelling units through new construction, or (2) the creation of ten or more dwelling units through adaptive reuse or conversion of a nonresidential use to residential use. The Inclusionary Zoning Ordinance will govern the percentage of inclusionary units, general requirements for inclusionary units, calculation of rents and selling prices, marketing of inclusionary units, requirements for continued affordability, and density bonuses. Projects that have entered into a development agreement with the City of Riverbank may be exempted from the provisions of this ordinance only if alternative methods of ensuring the construction of affordable dwelling units are included as part of said agreement.
Goal 3	Reduce or remove government constraints.
Policy 3.1	Promote efficient and creative alternatives to help reduce government constraints.
Program 3.1a	Continue to promote the use of Planned Development zones for developers who wish to deviate from setback, parking, or other standards which may limit their ability to develop at a desired density.
Program 3.1b	The City will waive fees for General Plan amendments intended solely to increase residential designations from low-to-medium density to medium-to-high density residential. The City will apply the fee waiver at the time of submittal of a complete application. The City will also defer fees for developments with units affordable to lower-income households until the time of first inspection or as established in a development agreement between the City and the project applicant. The City will promote its fee waiver program through distribution of a brochure at the permit counter, posting of information on the City's website, and distribution of information to the local building industry association.
Program 3.1c	Continue to utilize computer software to help fast-track building permits, saving both developer and staff time.
Program 3.1d	Amend the Zoning Ordinance to facilitate the development of housing for special needs groups. Amendments will address the following:

TABLE 4.13-1 RIVERBANK GENERAL PLAN GOALS, POLICIES, AND PROGRAMS RELATED TO POPULATION AND HOUSING (CONTINUED)

Goal/Policy/ Program Number	Goal, Policy, or Program Content
	<ul style="list-style-type: none"> “ Parking requirements: The City will approve reduced parking requirements for developments containing senior, handi-capped, single-adult, and/or small-family housing for which two parking spaces per unit are not needed to meet resident and guest parking demands.
Goal 4	Conserve and improve the condition of existing affordable housing stock.
Policy 4.1	Increase rehabilitation efforts.
Program 4.1a	Continue to actively seek State and federal funding for the rehabilitation of homes. The City will consider annual applications for State CDBG, HOME, and Multi-family Housing Program funds depending on the need for additional funds and the City’s ability to expend funds in a timely manner.
Program 4.1b	Maintain database of housing conditions and rehabilitation projects to track accomplishments and assist in future goals.
Policy 4.2	Preserve current multi-family sites.
Program 4.2a	Discourage land division of sites currently zoned high-density residential.
Program 4.2b	Monitor any units which may be deemed at-risk for conversion into market-rate housing. Ensure that any loss to the housing stock for lower income households is properly mitigated.
Goal 5	Promote housing opportunities for all persons regardless of race, religion, sex, marital status, ancestry, national origin, color, familial status, or disability.
Policy 5.1	Make programs and information available to all persons.
Program 5.1a	<p>The City will continue to promote equal housing opportunity for all persons regardless of race, religion, sex, marital status, ancestry, nation origin, or color by supporting efforts of community groups that provide counseling, investigatory, legal, or referral services to victims of discrimination. Specifically, the City will:</p> <ul style="list-style-type: none"> “ Disseminate information in a variety of ways (including brochures, mailings, websites, newspaper ads, etc. in both English and Spanish) regarding rehabilitation and first-time homebuyer programs. “ Maintain information on State and federal fair housing laws at

TABLE 4.13-1 RIVERBANK GENERAL PLAN GOALS, POLICIES, AND PROGRAMS RELATED TO POPULATION AND HOUSING (CONTINUED)

Goal/Policy/ Program Number	Goal, Policy, or Program Content
	<p>the Community Development Department and other public places for public distribution (such as the Riverbank branch of the Stanislaus County Public Library, the Riverbank Community Center, and City Hall);</p> <ul style="list-style-type: none"> “ Train City staff at the public counter to refer victims of housing discrimination to the appropriate agency (local legal services organization, the Stanislaus County District Attorney’s Office, the State Fair Employment and Housing Commission, or the US Department of Housing and Urban Development); “ Seek the cooperation of the local homebuilders association, Realtor association and lenders in disseminating fair housing information; and “ Identify an annual community event such as a fair housing day or as part of another community event at which fair housing information can be distributed.
Program 5.1b	<p>The City will update the definition of “family” and “single-family residence” to comply with all federal and State fair housing laws. The definition should not distinguish between related and unrelated persons and should not impose limitations on the number of persons that may constitute a family.</p>

Source: City of Riverbank, 2005.

Riverbank has traditionally served as a bedroom community to Modesto; however, with the construction of new subdivisions between 1990 and 2000, Riverbank became home to an increasing number of white collar professionals who commute to jobs in the San Francisco Bay Area and other parts of the state.³ Over the course of the 1990s there was an 8 percent rise in the number of Riverbank residents with college degrees, a notable rise in educational attainment which was not matched in the neighboring communities of Escalon, Modesto, and Oakdale. In general, Stanislaus County has a high out-

³ City of Riverbank, 2005. *General Plan Background Report: Economic Development*, page 5.

commute rate; however, Riverbank's out-commute rate is more pronounced than other communities in the county.

2. Employment Trends and Growth Rate

Residents who live and work in Riverbank are most likely to work in manufacturing, service, and retail occupations. The three largest employers in Riverbank are the Riverbank Unified School District with 340 employees, Silgan Containers with 219 employees, and Target Corporation with 200 employees. The closing of the MCI Call Center and Gangi Brothers has contributed to a high rate of unemployment in recent years. In 2008, the unemployment rate in Riverbank averaged 18.1 percent for the year, well above the 12 percent rate experience for Stanislaus County and 8.4 percent for the State as a whole.

The single most significant employment trend in Riverbank and Stanislaus County over the last decade has been the shift from manufacturing and agricultural occupations into retail and service jobs. Between 1990 and 2000, the percentage of Riverbank residents employed in retail jobs grew by 4 percent to 48 percent, while the proportion of residents working in manufacturing fell from 22 percent to 18 percent. According to the California Retail Survey, Riverbank is currently the third fastest retail growth area in the State. The newly completed Riverbank Crossroads Regional Center, anchored by Target, Koh's, Home Depot, and SaveMart, has positioned Riverbank as a competitive player in the regional retail market. Numerous small businesses have relocated tot the mall to capitalize on traffic brought in by the anchor clients.

3. Existing Housing Stock

According to the 2010 US Census, there were a total of 6,579 housing units in Riverbank. The overwhelming majority of housing units in Riverbank are single-family homes.⁴ Approximately 75 percent of the occupied homes in the city are owner-occupied, with the remainder renter-occupied. Nearly 58 percent of the housing units in Riverbank were built in the last 20 years;

⁴ City of Riverbank, 2009. *2009-2014 Riverbank Housing Element*, page iii-1.

however, a significant portion of the housing stock is older, as roughly 12 percent of units in the city were built before 1960. A housing conditions survey conducted in 2003 found approximately 55 percent of the housing units in the city to be in sound condition, 12 percent to be in need of minor repairs, 24 percent to be in need of moderate repairs, 4.6 percent in need of substantial repairs, and 1.2 percent to be dilapidated.

The population boom in Riverbank since 1990 has spurred housing construction. The number of housing units in the city grew at a faster pace than for Stanislaus County and for the State between 2000 and 2005. During that period, Riverbank housing growth was 4.5 percent, while the growth rate was 2.2 percent for the County and 1.2 percent for the State.⁵ Between 2000 and 2008, there was a 37 percent increase in the number of detached single-family units in the city, whereas during the same period the increase in multi-family units was only 1 percent.

In 2009, the StanCOG Draft RHNA estimated that Riverbank's fair share of the total additional housing units required in the county by 2014 was 3 percent, or 894 units.⁶

4. Jobs-Housing Balance

A relatively even ratio of jobs to housing in a community allows people to get to work without having to commute long distances. By reducing commute times, and by extension vehicle miles travelled, a healthy balance of jobs to housing can also bring environmental and social benefits such as improved air quality and increased leisure time.

The jobs-housing balance in a community is an indication of how adequately the local housing supply houses workers. Communities with a job to housing ratio higher than 1.5 are considered “jobs rich,” while communities with a

⁵ Riverbank Redevelopment Authority, 2009. *Final Environmental Impact Report for the Riverbank Reinvestment Project, Amendment No. 1*, page 37.

⁶ Riverbank Redevelopment Authority, 2009. *Final Environmental Impact Report for the Riverbank Reinvestment Project, Amendment No. 1*, page 37.

ratio lower than 1.5 are considered “housing rich.” Between 1994 and 2002, the job-to-housing ratio in Riverbank improved from 0.45 to 0.6. Nevertheless, the city remains housing-rich and jobs-poor, and as a result, a very large portion of residents that commute to jobs outside of the community.

5. Projections

Projections for Riverbank population in 2030 are widely divergent, depending on the methodology used. US Census projections, based on the assumption of a constant annual population growth rate of 3.7 percent, the city's 2030 population would be 47,113. California Department of Finance projections assume an average annual growth in population of 4.1 percent and project a 2030 population of 52,664 for Riverbank. By contrast, StanCOG projections assume an 84 percent growth in the number of household in Riverbank between 2000 and 2030, which would result in 28,352 residents of the city in 2030.⁷

C. Standards of Significance

The draft RAAP Specific Plan would have a significant population or housing impact if it would:

- a. Induce substantial unexpected population growth or growth for which inadequate planning has occurred, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
- b. Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere.
- c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

⁷ Riverbank Redevelopment Authority, 2009. *Final Environmental Impact Report for the Riverbank Reinvestment Project, Amendment No. 1*, page 35.

D. Impact Discussion

1. Project Impacts

- a. Induce substantial unexpected population growth or growth for which inadequate planning has occurred, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

For the purposes of this EIR, the Plan would be considered to result in a substantial and unplanned level of growth if estimated buildout under the Plan would exceed 2005-2025 Riverbank General Plan growth projections. The Plan does not propose the construction of housing units, and therefore implementation would not directly induce population growth. Redevelopment of the RAAP site, however, would cause indirect population growth through the creation of jobs both during construction and operational phases of the Plan.

Job generation projections done for the Riverbank Army Ammunitions Plan Base Reuse Plan indicated that infrastructure upgrades and facilities construction associated with base redevelopment could generate as much as 158 person-years of construction employment on the site over a period of approximately 15 years. In general, these jobs would be filled with workers from the local labor pool in Riverbank and the surrounding communities. As such, implementation of the Plan would not result in a substantial and unplanned level of growth.

Buildout of the Plan would entail the reuse of a variety of specialized facilities (such as the rail line and the propane storage facilities) as well as existing manufacturing and warehouse facilities in the Plan Area. Additionally, as shown on Table 3-1, the development of approximately 120,000 square feet of net new commercial/retail space, 735,000 square feet of net new industrial space, and 115,000 square feet of office research and development (R&D) space are forecast under the Plan. Overall, it is anticipated that buildout of the Plan would result in the creation of between 827 and 1,654 new jobs over the course of 15 years.

The increase in industrial and commercial/office square footage anticipated with buildout of the Plan is generally consistent with growth projections assumed in the Riverbank General Plan for the same time horizon. The General Plan projects the construction of approximately 1,999,540 square feet of space in industrial business parks, which would be concentrated largely along the railroad lines and in the southeastern portion of the city, including in the Plan Area, as shown in Figure 4.11-1 in the Land Use chapter of this EIR. The General Plan also projects construction of roughly 678,980 square feet of net new commercial/retail space on the northern portion of the Plan Area and along Claribel Road on either side of Oakdale Road, as shown in Figure 4.11-1. Additionally, growth under the proposed Plan would come incrementally over a period of 15 years and would be dependent on market conditions. As such, the proposed Plan would not result in a substantial and unplanned level of growth and associated impacts would be *less than significant*.

- b. Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere.

The RAAP site does not contain any housing units and the Plan does not propose the demolition or redevelopment of any housing units. As such, implementation of the Plan would not result in the displacement of housing units or require the construction of replacement housing elsewhere. Consequently, there would be *no impact* with respect to displacement of housing units.

- c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

As described above, the RAAP site does not contain any housing units. As such, there are no residents of the site who could be displaced with implementation of the Plan, and therefore the construction of replacement housing elsewhere would not be required. Consequently, there would be *no impact* with respect to population displacement.

2. Cumulative Impacts

This section analyzes potential impacts to population and housing that could occur from a combination of the Plan with other reasonably foreseeable projects in the surrounding area. The geographic scope of this analysis is taken as Stanislaus County. A cumulative impact would be considered significant if, taken together with past, present and reasonably foreseeable projects in Stanislaus County, it would result in substantial unplanned growth or the displacement of either people or housing units.

While the Plan does not involve the construction of housing and would therefore not result in direct population growth, the construction of new and redeveloped industrial, commercial, and office space in the Plan Area would result in new jobs, potentially leading to an indirect increase in population. However, the type of job generated under the proposed Plan would cater to the existing labor pool of unemployed workers, as discussed above in Section B.2, Employment Trends and Growth Rate. Additionally, StanCOG growth projections forecast strong population growth for the County through 2030, with approximately 6,000 new residents forecast for Riverbank by 2030. Therefore, the incremental addition of between 827 and 1,654 new jobs in the Plan Area from 2010 to 2030, many of which would cater to the skills of current residents of the surrounding area is consistent with regional growth projections and would not represent a substantial increase in population. As such, cumulative impacts related to induced growth, unplanned growth in Stanislaus County and cumulative impacts would be *less than significant*.

Projections for Riverbank population in 2030 are widely divergent, depending on the methodology used. US Census projections, based on the assumption of a constant annual population growth rate of 3.7 percent, the city's 2030 population would be 47,113. California Department of Finance projections assume an average annual growth in population of 4.1 percent and project a 2030 population of 52,664 for Riverbank. By contrast, StanCOG projections assume an 84 percent growth in the number of household in Riverbank be-

tween 2000 and 2030, which would result in 28,352 residents of the city in 2030.⁸

Additionally, the Plan Area does not currently contain any housing and the Plan does not propose the demolition or redevelopment of any housing units. Therefore, buildout of the Plan would not result in an associated cumulative impact. Overall, buildout of the Plan would result in a *less-than-significant* cumulative impact.

E. Impacts and Mitigation Measures

Since there are no significant impacts related to cultural resources as a result of the Plan, no mitigation measures are required.

⁸ Riverbank Redevelopment Authority, 2009. *Final Environmental Impact Report for the Riverbank Reinvestment Project, Amendment No. 1*, page 35.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SPECIFIC PLAN EIR
POPULATION AND HOUSING

4.14 PUBLIC SERVICES

This chapter describes the existing public service conditions in Riverbank, including the Plan Area, and evaluates the potential impacts of the Plan on public services. Law enforcement, fire protection, and emergency medical response, and schools are each addressed in a separate section of this chapter. In each section, a summary of the relevant regulatory setting and existing conditions is followed by a discussion of Plan-specific and cumulative impacts.

A. Law Enforcement

This section describes the regulatory framework, existing conditions, and potential environmental impacts from buildout of the Plan with regard to local law enforcement. The section considers the provision of law enforcement service to the Plan Area.

1. Regulatory Framework

There are no federal or State regulations related to law enforcement services in Riverbank; however, the City of Riverbank addresses law enforcement services in the General Plan. Applicable goals and policies from the General Plan are listed below in Table 4.14-1.

2. Existing Conditions

The City of Riverbank receives law enforcement services through the Riverbank Police Services (RPS), which is provided under contract to the Stanislaus County Sheriff (SCS), headquartered in Modesto.

Other cities served under contract with the SCS include Patterson, Waterford, and Hughson.¹ Personnel assigned to Riverbank Police Services perform Patrol, General Investigations, Traffic Enforcement, Crime Prevention and Business Office functions. A wide array of ancillary services, such as the SWAT team, Dive team, Bomb team, and other administrative functions

¹ City of Riverbank, 2009. *Draft Environmental Impact Report for the 2005-2025 General Plan Update*, page 4.14-5.

TABLE 4.14-1 RIVERBANK GENERAL PLAN POLICIES PERTAINING TO LAW ENFORCEMENT SERVICES

Goal/Policy Number	Goal/Policy Content
Goal PUBLIC-1	Public service and infrastructure provision to meet or exceed level of service standards consistent with other community goals.
Policy PUBLIC-1.1	The City will coordinate the planning and construction of capital improvements with the timing of urban development within the Planning Area.
Policy PUBLIC-1.2	New development must pay for the public facilities, services, and infrastructure required to serve the needs of such development based on service standards applied by the City. The mechanisms for such funding will be part of the development approval, or as set forth in any applicable development agreement or specific plan, which, with the approval of the City Council, may provide for alternative financing mechanisms in-lieu of City development fee programs and ordinances. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities that serve areas beyond the proposed project or plan. Construction and dedication of facilities will be the method for providing facilities that serve the proposed project or plan area. The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.
Policy PUBLIC-1.3	The City will require that new developments, depending on their size, either: 1) designate lands in appropriate locations, sizes, and free of constraints to accommodate public facilities and infrastructure needed to serve such development, or 2) pay a fee proportional to the development's cost of acquiring such land at the time acquisition will be required.
Policy PUBLIC-1.4	The City shall give priority to serving areas within the existing City limits as of the adoption of this General Plan based on current infrastructure and service capacity. New growth proposed outside existing City limits is responsible for providing, or paying a proportionate share of the cost of, public facilities and infrastructure adequate to serve the needs of such development according to the General Plan, a specific plan (if prepared for such development), and/or any infrastructure Master Plan that covers such development through the use of a City-approved development agreement. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities

TABLE 4.14-1 RIVERBANK GENERAL PLAN POLICIES PERTAINING TO LAW ENFORCEMENT SERVICES (CONTINUED)

Goal/Policy Number	Goal/Policy Content
	that serve areas beyond the proposed project or plan. Construction and dedication of facilities will be the method for providing facilities that serve the proposed project or plan area. The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.
Policy PUBLIC-1.5	The City will upgrade facilities and services that experience deterioration or obsolescence in existing developed areas of the City, as funding permits, to maintain levels of public service established by the City.
Policy PUBLIC-1.6	The City will require that the methods, materials, and design of infrastructure and utilities achieve the City's environmental, public health and safety, and community character goals and policies, in addition to the City's level of service standards for public services, facilities, and infrastructure.
Goal PUBLIC-8	Police enforcement services, staffing and deployment adequate to serve the needs of existing and planned development.
Policy PUBLIC-8.1	New developments shall fund and/or construct adequate law enforcement facilities to serve new growth areas, as required, in coordination with law enforcement service providers.
Policy PUBLIC-8.2	The City's goal is to provide 1.25 sworn officers per 1,000 residents. The City will plan and budget and coordinate with service providers with this service standard as a goal
Policy PUBLIC-8.3	The City will coordinate with law enforcement service providers to ensure a four-minute average response time for emergency calls within the City.
Policy PUBLIC-8.4	The City will require design of structures, streetscapes, pathways, project sites, and other elements of the urban environment to allow for surveillance of publicly accessible areas.
Policy PUBLIC-8.5	The City will coordinate with applicable law enforcement service providers to ensure adequate funding, staffing, training, and direction to provide City residents with responsive and effective law enforcement services of all types, including investigative, patrol, and other non-emergency services.

Source: City of Riverbank General Plan 2005-2025.

are also provided by the Sheriff's Operations Center, located on Hackett Road, in the City of Modesto.

Riverbank Police Services is comprised of 20 Sworn Deputies, including one chief, two sergeants, ten patrol officers, four investigators, and three traffic officers, who provide law enforcement services to the 22,201 plus residents of the city. This averages 0.90 deputies per thousand residents, which is below the goal of 1.25 deputies per thousand established in the General Plan. The time line for achieving this goal is 5 years, but RPS staff indicated that given the current economic climate, this time line should be extended. The Sworn Deputies are assisted by several reserve deputies, six civilian employees, and numerous civilian volunteers. Currently RPS does not have any plans for expansion or relocation of its facilities.²

RPS prioritizes calls for police services as follows: Priority 1 calls involve life-threatening situations; Priority 2 calls are not life-threatening but necessitate immediate response; and Priority 3 includes all other calls. General Plan Policy PUBLIC-8.3 calls for a 4-minute average response time for emergency calls within the City. In 2011, RPS received a total of 17,600 calls for service, and response time for Priority 1 calls was 2:43 minutes on average, which meet the City's 4-minute goal.³

3. Standards of Significance

The Plan would have a significant impact on law enforcement services if it would result in the provision of, or need for, new or physically altered facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives.

² Chief Bill Pooley, Police Service Commander, City of Riverbank Police Department. Email correspondence with The Planning Center | DC&E, June 4, 2012.

³ Chief Bill Pooley, Police Service Commander, City of Riverbank Police Department. Email correspondence with The Planning Center | DC&E, June 4, 2012.

4. Impact Discussion

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

The Plan would have a significant environmental impact if buildout would exceed the ability of police responders to adequately serve the Plan Area, thereby requiring construction of new facilities or modification of existing facilities.

RPS is currently well above the response time goal established in the General Plan. General Plan Policies PUBLIC-8.1, 8.4, and 8.5 will ensure adequate police services, staffing, and funding to serve the needs of planned development. Although RPS is currently under the General Plan goal of providing 1.25 sworn officers per 1,000 residents, buildout of the Plan would not result in a substantial increase in population either directly or indirectly, as explained in Chapter 4.13 of this EIR, and therefore it would not substantially affect the target officer to resident ratio established in the General Plan. Moreover, the increase in population and the growth of businesses in the Plan Area would occur incrementally over approximately 20 years. At this time, RPS has determined that buildout of the Specific Plan would not exceed the ability of police responders to adequately serve the Plan Area, thereby would not need additional equipment or staff or require construction of new facilities or modification of existing facilities.⁴ Consequently, the impact on law enforcement services would be *less than significant*.

5. Cumulative Impacts

This section analyzes potential cumulative impacts to RPS that could occur from buildout of the Plan in combination with other past, present, and reasonably foreseeable projects in Riverbank and the surrounding area. The geographic scope of this analysis is taken as the City of Riverbank sphere of

influence (SOI), as defined in the Riverbank General Plan. Cumulative impacts would be significant if development associated with the Plan together with other projects in the Riverbank SOI would result in substantial adverse physical impacts associated with the provision of new or physically altered RPS facilities, or result in the need for new or physically altered RPS facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

By itself, buildout of the Plan would not result in substantial population growth in Riverbank or the surrounding area, and therefore would not substantially increase the service population in the RPS service area or necessitate the construction of new or expanded RPS facilities. Therefore, buildout of the Plan would not contribute to a cumulative impact to police services. Additionally, as noted above, the General Plan includes Policies PUBLIC-8.1 through PUBLIC-8.5, which seek to ensure that police service is adequate to serve existing and future growth in Riverbank. Policies PUBLIC-1.1 through PUBLIC-1.7 seek to ensure that funding will be available to support the construction and expansion of police facilities as required to support future growth in the Riverbank SOI.

Overall, cumulative impacts to police services from buildout of the Plan would be *less than significant*.

6. Impacts and Mitigation Measures

Since there are no significant impacts related to police services as a result of the Plan, no mitigation measures are required.

⁴ Chief Bill Pooley, Police Service Commander, City of Riverbank Police Department. Email correspondence with The Planning Center | DC&E, June 4, 2012.

B. Fire Protection and Emergency Rescue Service

This section describes the regulatory framework, existing conditions, and potential environmental impacts from buildout of the Plan with regard to local emergency fire and rescue protection services. The section considers the provision of fire protection and emergency rescue service to the Plan Area.

1. Regulatory Framework

a. Riverbank General Plan

There are no federal or State regulations related to fire protection and emergency rescue services in Riverbank; however, the City of Riverbank addresses these services in the General Plan. Applicable goals and policies from the General Plan are listed below in Table 4.14-2.

2. Existing Conditions

Stanislaus Consolidated Fire Protection District (SCFPD) provides emergency fire and rescue protection service to the City of Riverbank. One of SCFPD's six stations, Station 36, is centrally located in downtown Riverbank at 3318 Topeka Street and is staffed 24-hours a day. SCFPD's administrative headquarters is also located in Riverbank at 3324 Topeka Street, next to Station 36.

Full-time staff at Station 36 include: a Captain, an Engineer, and a Firefighter on-duty daily. Intern firefighters, who number between 5 and 10 at any given time throughout the SCFPD service area, also serve at Station 36, and a typical fire response in Riverbank may include 1 or 2 intern(s). Current equipment at Station 36 includes two Type-1 engines with 24-foot ladders (one is a reserve unit), one water tender (a truck that hauls water to unincorporated areas that are not served by fire hydrants), one Type-3 brush engine (a small engine better suited for off-road use, primarily used for vegetation fires), a small rescue boat, and tow vehicle.⁵

⁵ Mayotte, Stephen. Fire Chief, Stanislaus Consolidated Fire Protection District. Email communication with The Planning Center | DC&E, May 7, 2012.

TABLE 4.14-2 RIVERBANK GENERAL PLAN POLICIES PERTAINING TO FIRE PROTECTION AND EMERGENCY RESCUE SERVICES

Goal/Policy Number	Goal/Policy Content
Goal PUBLIC-1	Public service and infrastructure provision to meet or exceed level of service standards consistent with other community goals.
Policy PUBLIC-1.1	The City will coordinate the planning and construction of capital improvements with the timing of urban development within the Planning Area.
Policy PUBLIC-1.2	New development must pay for the public facilities, services, and infrastructure required to serve the needs of such development based on service standards applied by the City. The mechanisms for such funding will be part of the development approval, or as set forth in any applicable development agreement or specific plan, which, with the approval of the City Council, may provide for alternative financing mechanisms in-lieu of City development fee programs and ordinances. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities that serve areas beyond the proposed project or plan. Construction and dedication of facilities will be the method for providing facilities that serve the proposed project or plan area. The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.
Policy PUBLIC-1.3	The City will require that new developments, depending on their size, either: 1) designate lands in appropriate locations, sizes, and free of constraints to accommodate public facilities and infrastructure needed to serve such development, or 2) pay a fee proportional to the development's cost of acquiring such land at the time acquisition will be required.
Policy PUBLIC-1.4	The City shall give priority to serving areas within the existing City limits as of the adoption of this General Plan based on current infrastructure and service capacity. New growth proposed outside existing City limits is responsible for providing, or paying a proportionate share of the cost of, public facilities and infrastructure adequate to serve the needs of such development according to the General Plan, a specific plan (if prepared for such development), and/or any infrastructure Master Plan that covers such development through the use of a City-approved development agreement. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities

TABLE 4.14-2 **RIVERBANK GENERAL PLAN POLICIES PERTAINING TO FIRE PROTECTION AND EMERGENCY RESCUE SERVICES**
 (CONTINUED)

Goal/Policy Number	Goal/Policy Content
	that serve areas beyond the proposed project or plan. Construction and dedication of facilities will be the method for providing facilities that serve the proposed project or plan area. The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.
Policy PUBLIC-1.5	The City will upgrade facilities and services that experience deterioration or obsolescence in existing developed areas of the City, as funding permits, to maintain levels of public service established by the City.
Policy PUBLIC-1.6	The City will require that the methods, materials, and design of infrastructure and utilities achieve the City's environmental, public health and safety, and community character goals and policies, in addition to the City's level of service standards for public services, facilities, and infrastructure.
Policy PUBLIC-1.7	New development projects shall provide compatible utility services in common trenching to minimize the land required and ongoing costs for underground services.
Goal PUBLIC-7	Fire protection services, staffing, and deployment adequate to serve the needs of existing and planned development.
Policy PUBLIC-7.1	The City will ensure that adequate fire flow pressure is available in relation to structure size, design, requirements for construction, and/or built-in fire protection systems. Maintenance of adequate fire flows includes factors such as adequate storage, system gridding, hydrant spacing, and spacing and sizing of water mains, as specified in the City's Water Master Plan.
Policy PUBLIC-7.2	For new development, the City will require a minimum fire flow pressure of 1,500 GPM (sustainable for at least two hours) for residential use. For new development, the City will require a minimum fire flow pressure of approximately 3,600 GPM (sustainable for longer periods) for larger residences and for other building types, depending on the particular use and structure characteristics, and in coordination with the fire service provider.
Policy PUBLIC-7.3	The City will require that fire stations be located to ensure the appropriate level of service (including adequate response time per Policy Public 7.5), community compatibility, and efficiency, including the location of such facilities relative existing and planned public parks, libraries, and other activity centers.

TABLE 4.14-2 RIVERBANK GENERAL PLAN POLICIES PERTAINING TO FIRE PROTECTION AND EMERGENCY RESCUE SERVICES (CONTINUED)

Goal/Policy Number	Goal/Policy Content
Policy PUBLIC-7.4	The City will coordinate with fire protection providers, including through reciprocity arrangements, to ensure equipment, staffing, and facilities for emergency medical services, urban search and rescue, hazardous materials emergency response, and other relevant needs, as appropriate. The City will ensure consistency with National Fire Protection Association and Stanislaus Consolidated Fire Protection District response requirements.
Policy PUBLIC-7.5	The City will coordinate with fire protection providers to an emergency response system capable of achieving the following standards in 95% of all cases: first fire emergency response unit within six minutes of dispatch; full alarm assignment within 10 minutes of dispatch; second alarm assignment within 15 minutes of dispatch; and an Insurance Service Office (ISO) rating of Class 2 for areas within the City.
Policy PUBLIC-7.6	The City will work with property owners in existing developed portions of the City to achieve a minimum fire flow pressure of 1,500 GPM (sustainable for at least two hours) for residential use and approximately 3,600 GPM (sustainable for longer periods) for larger residences and for other building types, depending on the particular use and structure characteristics, and in coordination with the fire service provider.

Source: Riverbank General Plan, 2005-2025.

Fire and rescue emergency response in Riverbank is delivered by Station 36 for single engine responses. Larger incidents requiring more personnel and/or apparatus are handled by the addition of units from SCFPD Stations 31, 32, and 33, as well as automatic aid agreements with Oakdale City Fire

Department and Oakdale Rural Fire Protection District.⁶ Mutual-aid agreements are also in place with all Stanislaus County fire protection agencies (17 total agencies), and with Escalon Fire Protection District is across the Stani-

⁶ The SCFPD has initiated a Merged Headquarters Contract with both Oakdale City Fire and Oakdale Fire Protection District. As a result, the second due unit is always coming from the City of Oakdale.

slaus River from Riverbank in San Joaquin County. Additional units are dispatched according to incident type and location in the city.

The Riverbank General Plan establishes the following emergency response standards for fire protection in Riverbank:

- “ First fire emergency response unit within 6 minutes of dispatch (in 95 percent of all cases).
- “ Full alarm assignment within 10 minutes of dispatch (in 95 percent of all cases).
- “ Second alarm assignment within 15 minutes of dispatch (in 95 percent of all cases).
- “ An Insurance Service Office (ISO) rating of Class 2 for areas within the City.

Fire flow requirements established in the General Plan are discussed in Chapter 4.17 of this EIR.

In 2011, approximately 62 percent of SCFPD’s service calls were emergency medical response and rescues, 8 percent were fires and 30 percent were other types of calls (false alarms, good intent, service calls, hazardous condition, etc.). SCFPD responded to 3,732 incidents between January 1, 2011 and December 31, 2011. Fire Station 36 received 1,523 calls during the same period.⁷

The current Insurance Services Office (ISO) rating in the City is Class 4. SCFPD staff indicated that to meet a Class 2 response SCFPD would need to triple SCFPD’s current daily staffing. The funding is severely lacking and the District needs some type of assistance from SCFPD’s constituents and/or the

⁷ Mayotte, Stephen, Fire Chief, Stanislaus Consolidated Fire Protection District. Email communication with The Planning Center | DC&E, May 7, 2012.

Cities SCFPD serves to achieve the revenue needed. ISO will be out to start a review of the Oakdale City Fire Department in September 2012.⁸

SCFPD's long range goal is to increase the number of paid staff at each station from two to three and also to place another fire station in Riverbank within the Crossroads Specific Plan Area, located approximated one mile west of the RAAP site. SCFPD anticipates the eventual need for a third fire station in the Bruinville planning area on the east side of Riverbank as growth occurs. The formation of Community Services Districts and an improvement to SCFPD Development Fees will need to occur to be able to fund the anticipated staffing and capital assets for the two additional stations. With the current economic decline, construction of new fire stations is on indefinite hold until the economy turns around and there is significant improvement and growth in the SCFPD service area.⁹

3. Standards of Significance

The Plan would have a significant impact with regard to fire protection services if it would result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or result in the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

4. Impact Discussion

- a. Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or result in the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to

⁸ Mayotte, Stephen, Fire Chief, Stanislaus Consolidated Fire Protection District. Email communication with The Planning Center | DC&E, May 7, 2012.

⁹ Mayotte, Stephen, Fire Chief, Stanislaus Consolidated Fire Protection District. Email communication with The Planning Center | DC&E, May 7, 2012.

maintain acceptable service ratios, response times, or other performance objectives.

The Plan would have a significant environmental impact if buildout would exceed the ability of fire and emergency responders to adequately serve the Plan Area, thereby requiring construction of new facilities or modification of existing facilities.

SCFPD staff indicated that the current ISO ratings in the city and the current fire station are inadequate to maintain acceptable service ratios and response times. As noted above, SCFPD currently does not meet the ISO ratings and buildout of the Plan would require an increase in SCFPD's daily staffing. The targeted response time would need a station more closely located to the Plan Area. The addition of a new fire station on the east side of the City near the RAAP would be necessary as the proposed Plan builds out.¹⁰ The new station would need at least nine personnel hired for staffing purposes (three per shift), and the station would need a new Type 1 Engine, Type 3 Engine, and a Water Tender for apparatus. The planned Bruinville station would alleviate the need, but as mentioned above, without sufficient funding it is not known when the planned Bruinville station would be built. Implementation of Policy PUB-3 of the Specific Plan would require the City to ensure that financing of the new station would occur commensurate with development within the RAAP site. As result, a *less-than-significant* impact would occur.

5. Cumulative Impacts

This section analyzes potential cumulative impacts to SCFPD that could occur from buildout of the Plan in combination with other past, present, and reasonably foreseeable projects in Riverbank and the surrounding area. The geographic scope of this analysis is taken as the City of Riverbank SOI, as defined in the Riverbank General Plan. Cumulative impacts would be significant if development associated with the Plan together with other projects in the Riverbank SOI would result in substantial adverse physical impacts asso-

¹⁰ Mayotte, Stephen, Fire Chief, Stanislaus Consolidated Fire Protection District. Email communication with The Planning Center | DC&E, May 7, 2012.

ciated with the provision of new or physically altered fire protection facilities, or result in the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

As discussed above, SCFPD has a long range goal of constructing fire stations within the Crossroads Specific Plan Area and Bruinville planning area as growth occurs. Future development under the proposed Plan would require a Fire Station near the Plan Area at buildout. With Mitigation Measure PUB-1 in place, SCFPD would be able to fund the anticipated staffing and capitol assets for the additional station near the Plan Area. Consequently, buildout of the Plan would not contribute to a cumulative impact to fire protection facilities. Therefore, a *less-than-significant* cumulative impact would occur.

6. Impacts and Mitigation Measures

The following impacts and mitigation measures have been identified with regard to fire protection services.

Impact PUB-1: In order to improve response times and ISO ratings, a new fire station is required either in the Bruinville planning area or in the RAAP Plan Area. The addition of a new Fire Station on the east side of the City near the RAAP would be necessary as the proposed Plan builds out. The new station would need at least nine personnel hired for staffing purposes (3 per shift), and the station would need a new Type 1 Engine, Type 3 Engine, and a Water Tender for apparatus. This would be a *significant* impact.

Mitigation Measure PUB-1: The additional personnel, station, and apparatus shall be incorporated into the RAAP Specific Plan and have benchmarks for when the staffing and facilities are added.

Significance after Mitigation: This impact would be *less than significant* after implementation of this mitigation measure.

C. Schools

This section describes the regulatory framework, existing conditions, and potential environmental impacts from buildout of the Plan with regard to local public schools. The section considers the provision of school service to the Plan Area.

1. Regulatory Setting

a. State Law

Senate Bill 50 (SB50) [1998], which is funded by Proposition 1A, limits the power of Cities and Counties to require fiscal mitigation on home developers as a condition of approving new development and provides for a standardized developer fee. SB50 generally provides for a 50/50 State and local school facilities funding match, with a \$9.2 billion bond authorized to fund the State portion. SB50 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 Sections 65995-65998 sets forth provisions to implement SB 50. Specifically, according to Section 65995(h), the payment of statutory fees is “deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization...on the provision of adequate school facilities.” The school district is responsible for implementing the specific methods for mitigating school impacts under the Government Code.

b. Local Policies and Regulations

The City of Riverbank addresses the level of service in public schools in the General Plan. Applicable goals and policies from the General Plan are listed below in Table 4.14-3.

TABLE 4.14-3 RIVERBANK GENERAL PLAN GOALS AND POLICIES
 PERTAINING TO SCHOOLS

Goal/Policy Number	Goal/Policy Content
Goal PUBLIC-1	Public service and infrastructure provision to meet or exceed level of service standards consistent with other community goals.
Policy PUBLIC-1.1	The City will coordinate the planning and construction of capital improvements with the timing of urban development within the Planning Area.
Policy PUBLIC-1.2	New development must pay for the public facilities, services, and infrastructure required to serve the needs of such development based on service standards applied by the City. The mechanisms for such funding will be part of the development approval, or as set forth in any applicable development agreement or specific plan, which, with the approval of the City Council, may provide for alternative financing mechanisms in-lieu of City development fee programs and ordinances. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities that serve areas beyond the proposed project or plan. Construction and dedication of facilities will be the method for providing facilities that serve the proposed project or plan area. The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.
Policy PUBLIC-1.3	The City will require that new developments, depending on their size, either: 1) designate lands in appropriate locations, sizes, and free of constraints to accommodate public facilities and infrastructure needed to serve such development, or 2) pay a fee proportional to the development's cost of acquiring such land at the time acquisition will be required.
Policy PUBLIC-1.4	The City shall give priority to serving areas within the existing City limits as of the adoption of this General Plan based on current infrastructure and service capacity. New growth proposed outside existing City limits is responsible for providing, or paying a proportionate share of the cost of, public facilities and infrastructure adequate to serve the needs of such development according to the General Plan, a specific plan (if prepared for such development), and/or any infrastructure Master Plan that covers such development through the use of a City-approved development agreement. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities that serve areas beyond the proposed project or plan. Construction and dedication of facilities

Goal/Policy Number	Goal/Policy Content
	will be the method for providing facilities that serve the proposed project or plan area. The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.
Policy PUBLIC-1.5	The City will upgrade facilities and services that experience deterioration or obsolescence in existing developed areas of the City, as funding permits, to maintain levels of public service established by the City.
Policy PUBLIC-1.6	The City will require that the methods, materials, and design of infrastructure and utilities achieve the City's environmental, public health and safety, and community character goals and policies, in addition to the City's level of service standards for public services, facilities, and infrastructure.
Policy PUBLIC-1.7	New development projects shall provide compatible utility services in common trenching to minimize the land required and ongoing costs for underground services.
Goal PUBLIC-9	School facilities that serve existing and future needs and complement our neighborhoods.
Policy PUBLIC-9.1	New development projects shall provide impact fees, land dedication, school construction, special taxes, and/or other means to the satisfaction of affected school districts to ensure levels of service, in accordance with State law.
Policy PUBLIC-9.2	The City will circulate development application materials to the appropriate school district representatives in association with CEQA and project review and incorporate school district comments into City actions on such development projects.
Policy PUBLIC-9.3	The City will work with local school districts in long-range land use planning to allow planning for school facilities for servicing new growth.
Policy PUBLIC-9.4	The City will work with local school districts to take advantage of joint-use opportunities that could benefit the City, especially for park and recreation facilities that could be used by schoolchildren during the school day and the community in the evening, on weekends, and during school breaks.
Policy PUBLIC-9.5	The City will ensure that areas around school sites are designed to allow easy pedestrian and bicycle access from surrounding neighborhoods. New development project applicants shall demonstrate to the satisfaction of the City that there are safe routes to and from school sites from surrounding planned neighborhoods prior to approval.

Source: Riverbank General Plan, 2005-2025.

2. Existing Conditions

The City of Riverbank is served by three school districts: Riverbank Unified, Sylvan Union, and Modesto City Schools.

a. Riverbank Unified School District

Riverbank Unified School District (RUSD) is the main school district serving the City of Riverbank. RUSD offers kindergarten through twelfth grade education. The District is comprised of three elementary schools, one middle school, one school offering kindergarten through eighth grade, one high school, and one alternative high school.¹¹ The following are schools in the RUSD:

- Adelante High School, Alternative High School, *6200 Claus Road, Riverbank.*
- California Avenue Elementary, *3800 California Avenue, Riverbank.*
- Cardozo Middle School, *3625 Santa Fe Avenue, Riverbank.*
- Mesa Verde Elementary, *4850 Mesa Drive, Oakdale.*
- Rio Altura Elementary, *2400 Stanislaus Street, Riverbank.*
- Riverbank High School, *6200 Claus Road, Riverbank.*
- Riverbank Language Academy, *2400 Stanislaus Street, Riverbank.*

b. Sylvan Union School District

Sylvan Union School District (SUSD) is comprised of ten elementary schools and three middle schools, and provides kindergarten through eighth grade instruction. SUSD's Crossroads Elementary School is located in southwest Riverbank and serves the Crossroads Specific Plan area. However, the District primarily serves the north portion of the City of Modesto. Of the elementary school students from Riverbank who attend SUSD, most attend Crossroads Elementary located at 5800 Saxon Way in Riverbank, Stockard Coffee Elementary School located at 3400 Northview Drive in Modesto, and Sylvan Elementary School located at 2908 Coffee Road in Modesto. SUSD middle school students from Riverbank attend Elizabeth Ustach Middle School, located at 2701 Kodiak Drive in Modesto.

¹¹ City of Riverbank, 2009. *Draft Environmental Impact Report for the 2005-2025 General Plan Update*, page 4.14-5.

c. Modesto City Schools

Modesto City Schools (MCS) provides kindergarten through twelfth grade instruction, primarily serving students from the City of Modesto. Students from Riverbank who graduate from schools in the Sylvan Union School District attend Modesto City Schools for high school. James Enochs High School, at 3201 Sylvan Avenue in Modesto, serves the entire section of Riverbank within MCS boundaries.

3. Standards of Significance

The Plan would have a significant impact with regard to schools if it would result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities, or result in the need for new or physically altered school facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

4. Impact Discussion

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

The Plan would have a significant environmental impact if buildout would substantially increase the population of Riverbank, thereby requiring construction of new school facilities or modification of existing facilities in order to accommodate growth in the student body.

The Riverbank General Plan includes Goal PUBLIC-9, which seeks to ensure school facilities that serve existing and future needs and complement neighborhoods. The General Plan does not establish a service ratio, which when exceeded, would require the construction of new facilities. However, buildout of the Plan would not result in a substantial population increase, either directly, through the construction of new housing, or indirectly, through the creation of new jobs that would attract new residents to the

Riverbank area. Consequently, the incremental buildout of the Plan through 2035 would not substantially affect the size of the student body at schools in Riverbank area schools. As such, the Plan would not require the construction or expansion of school facilities and associated impacts would be *less than significant*.

5. Cumulative Impacts

This section analyzes potential cumulative impacts to public schools that could occur from buildout of the Plan in combination with other past, present, and reasonably foreseeable projects in Riverbank and the surrounding area. The geographic scope of this analysis is taken as the City of Riverbank SOI, as defined in the Riverbank General Plan. Cumulative impacts would be significant if development associated with the Plan together with other projects in the Riverbank SOI would result in a substantial increase in the size of the student population at Riverbank area schools, necessitating the construction or new or expanded school facilities.

By itself, buildout of the Plan would not result in substantial population growth in Riverbank or the surrounding area, and therefore would not substantially increase the student population at Riverbank area schools or necessitate the construction of new or expanded school facilities. Therefore, buildout of the Plan would not contribute to a cumulative impact to public schools. Additionally, as noted above, the General Plan includes Policies PUBLIC-9.1 through PUBLIC-9.5, which seek to ensure that public school service is coordinated with future growth in Riverbank. Policies PUBLIC-1.1 through PUBLIC-1.7 seek to ensure that funding will be available to support the construction and expansion of school facilities as required to support future growth in the Riverbank SOI.

Overall, cumulative impacts to public schools from buildout of the Plan would be *less than significant*.

6. Impacts and Mitigation Measures

Since there are no significant impacts related to public schools as a result of the Plan, no mitigation measures are required.

D. Library Service and Facilities

This section describes the regulatory framework, existing conditions, and potential environmental impacts from buildout of the Plan with regard to local libraries. The section considers the provision of library service to the Plan Area.

1. Regulatory Framework

There are no federal or State regulations related to library services in Riverbank; however, the City of Riverbank addresses library services in the General Plan. Applicable goals and policies from the General Plan are listed below in Table 4.14-4.

2. Existing Conditions

The Stanislaus County Library (SCL) system consists of a main library in Modesto and 12 other branches, one branch of which is located in Riverbank, at 3442 Santa Fe Street. The 3,594 square-foot Riverbank branch employs two full-time and two part-time staff.¹² The branch is open 38 hours per week (closed Fridays and Sundays), and its catalogue contains approximately 26,000 books, videos, tapes, and other audio-visual items. There are eight public internet computers (one of which is reserved exclusively for use by children) and three computers that are used for accessing the library catalog. The Riverbank General Plan establishes a service ratio of 0.5 square feet of public library facilities per resident in the city. With a branch library of 3,594 square feet, Riverbank's service level is now approximately 0.18 square feet per capita.

¹² Charles Teval, Riverbank Library. Personal communication with Lisa Katz, The Planning Center | DC&E, February 25, 2010.

TABLE 4.14-4 RIVERBANK GENERAL PLAN POLICIES PERTAINING TO LIBRARY SERVICES AND FACILITIES

Goal/Policy Number	Goal/Policy Content
Goal PUBLIC-1	Public service and infrastructure provision to meet or exceed level of service standards consistent with other community goals.
Policy PUBLIC-1.1	The City will coordinate the planning and construction of capital improvements with the timing of urban development within the Planning Area.
Policy PUBLIC-1.2	New development must pay for the public facilities, services, and infrastructure required to serve the needs of such development based on service standards applied by the City. The mechanisms for such funding will be part of the development approval, or as set forth in any applicable development agreement or specific plan, which, with the approval of the City Council, may provide for alternative financing mechanisms in-lieu of City development fee programs and ordinances. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities that serve areas beyond the proposed project or plan. Construction and dedication of facilities will be the method for providing facilities that serve the proposed project or plan area. The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.
Policy PUBLIC-1.3	The City will require that new developments, depending on their size, either: 1) designate lands in appropriate locations, sizes, and free of constraints to accommodate public facilities and infrastructure needed to serve such development, or 2) pay a fee proportional to the development's cost of acquiring such land at the time acquisition will be required.
Policy PUBLIC-1.4	The City shall give priority to serving areas within the existing City limits as of the adoption of this General Plan based on current infrastructure and service capacity. New growth proposed outside existing City limits is responsible for providing, or paying a proportionate share of the cost of, public facilities and infrastructure adequate to serve the needs of such development according to the General Plan, a specific plan (if prepared for such development), and/or any infrastructure Master Plan that covers such development through the use of a City-approved development agreement. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities that

Goal/Policy Number	Goal/Policy Content
	serve areas beyond the proposed project or plan. Construction and dedication of facilities will be the method for providing facilities that serve the proposed project or plan area. The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.
Policy PUBLIC-1.5	The City will upgrade facilities and services that experience deterioration or obsolescence in existing developed areas of the City, as funding permits, to maintain levels of public service established by the City.
Policy PUBLIC-1.6	The City will require that the methods, materials, and design of infrastructure and utilities achieve the City's environmental, public health and safety, and community character goals and policies, in addition to the City's level of service standards for public services, facilities, and infrastructure.
Goal PUBLIC-10	Public library facilities adequate to accommodate existing and future needs.
Policy PUBLIC-10.1	The City will develop additional library facilities, whether through expansion of existing facilities or new facilities, as feasible, and assist the library administration to secure State and federal funds for facilities and services.
Policy PUBLIC-10.2	The City will coordinate with applicable library service providers to accommodate the development of new library facilities in conjunction with new development areas.
Policy PUBLIC-10.3	The City's goal is to have 0.5 square feet of public library facilities per capita within the City. The City will plan and budget and coordinate with service providers with this service standard as a goal.

Source: Riverbank General Plan, 2005-2025.

3. Standards of Significance

The Plan would have a significant impact with regard to library services if it would result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, or result in the need for new or physically altered library facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives.

4. Impact Discussion

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

The Plan would have a significant environmental impact if buildout would exceed service ratios established in the Riverbank General Plan, thereby requiring construction of new facilities or modification of existing facilities. As described above, Policy PUBLIC-10.3 of the General Plan establishes a target of 0.5 square feet of library facilities per resident, and there are currently about 0.18 square feet per capita available to residents. Buildout of the Plan would not result in a substantial population increase, either directly, through the construction of new housing, or indirectly, through the creation of new jobs that would attract new residents to the Riverbank area. Consequently, the incremental buildout of the Plan through 2035 would not substantially affect the ratio of library facilities to residents in Riverbank, and associated impacts would be *less than significant*.

5. Cumulative Impacts

This section analyzes potential cumulative impacts to library facilities that could occur from buildout of the Plan in combination with other past, present, and reasonably foreseeable projects in Riverbank and the surrounding area. The geographic scope of this analysis is taken as the City of Riverbank SOI, as defined in the Riverbank General Plan. Cumulative impacts would be significant if development associated with the Plan together with other projects in the Riverbank SOI would result in a substantial increase in the use of existing library facilities necessitating the construction of new or expanded facilities.

By itself, buildout of the Plan would not result in substantial population growth in Riverbank or the surrounding area, and therefore would not substantially increase the use of library facilities or cause the square foot to resi-

dent ratio established in the General Plan to be exceeded. Therefore, buildout of the Plan would not contribute to a cumulative impact to library facilities. Additionally, as noted above, the General Plan includes policies, including Policy PUBLIC-10.2, which ensures that the adequate provision of library services will be considered as development occurs. Consequently, cumulative impacts to library facilities from buildout of the Plan would be *less than significant*.

6. Impacts and Mitigation Measures

Since there are no significant impacts related to library facilities as a result of the Plan, no mitigation measures are required.

4.15 RECREATION

This chapter describes existing parks and recreational facilities conditions in Riverbank and the potential impacts of the Plan on these facilities.

A. Regulatory Setting

This section describes State and local regulations pertaining to recreational facilities in Riverbank.

1. The Quimby Act

Since the passage of the 1975 Quimby Act (California Government Code Section 66477), cities and counties have been authorized to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements. Revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities.¹ A 1982 amendment (AB 1600) requires agencies to clearly show a reasonable relationship between the public need for the recreation facility or park land and the type of development project upon which the fee is imposed. Jurisdictions with a high ratio of park space to inhabitants can set a standard of up to 5 acres per 1,000 persons for new development. Jurisdictions with a lower ratio can only require the provision of up to 3 acres of park space per 1,000 residents. The calculation of a jurisdiction's park space to population ratio is based on a comparison of the population count of the last US Census to the amount of publicly owned parkland. In the City of Riverbank, the Recreation Department uses level of service ratio of 5 acres of usable park land per 1,000 residents.²

¹ Westrup, Laura, 2002. *Quimby Act 101: An Abbreviated Overview*, Sacramento: California Department of Parks and Recreation, available at <http://www.parks.ca.gov/pages/795/files/quimby101.pdf>.

² Fitzpatrick, Sue, Director, City of Riverbank Recreation Department. Personal communication with Lisa Katz, The Planning Center | DC&E, March 3, 2010.

2. City of Riverbank General Plan

The Riverbank General Plan includes several goals and policies that relate to recreation. Table 4.15-1 lists these goals and policies.

B. Existing Conditions

The City of Riverbank owns and maintains over 114 acres of developed and undeveloped parkland for the use and enjoyment of residents and visitors. Approximately 62 of the total 114 acres in the City are developed parklands. Jacob Meyers Park, the largest city-owned park, has 8 acres of developed parkland, and includes playground equipment, a barbecue area, picnic tables, restrooms, a boat ramp, fishing, and a picnic gazebo. Table 4.15-2 lists the 16 parks in the City of Riverbank, and provides details about each park including park size, address, and facilities located at the park site.

In addition to parks, the City owns and maintains other community facilities. These facilities include a community center, a Teen Center, a scout lodge, and a swimming pool. The City and the Riverbank Unified School District have a joint-use agreement that permits public use of the school gymnasium. The City's Parks and Recreation Department coordinates a variety of programs and events, and hosts clubs and other community organizations that utilize these facilities.

The City also has plans for future recreational facilities. The development of Silva Park was initiated in two phases, Phase I is complete and Phase II will incorporate a shade structure, picnic area, restrooms, and water play equipment.³ The City's Sports Complex was also developed in two phases; Phase II will include the development of 5 acres into a bicycle motocross (BMX)

³ City of Riverbank Parks and Recreation Department, Fall/Winter 2009-2010 Activity Guide, http://www.riverbank.org/Depts/Recreation/Shared%20Documents/Riverbank_Activity_Guide_2009-2010.pdf, accessed on April 5, 2010.

TABLE 4.15-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO RECREATION

Goal/Policy Number	Goal/Policy Content
Goal PUBLIC-1	<p>Public service and infrastructure provision to meet or exceed level of service standards consistent with other community goals.</p>
Policy PUBLIC- 1.3	<p>The City will require that new developments, depending on their size, either: 1) designate lands in appropriate locations, sizes, and free of constraints to accommodate public facilities and infrastructure needed to serve such development, or 2) pay a fee proportional to the development’s cost of acquiring such land at the time acquisition will be required.</p>
Goal PUBLIC-11	<p>Develop a diversified park system in a variety of scales and environments to meet existing and future needs.</p> <p>New developments shall set aside land and dedicate improved parkland according to City standards at a minimum rate of five acres per 1,000 residents. Landscaped areas along streets or other rights-of-way without trails, or other park and recreational facilities do not count toward this standard. Other open spaces without park facilities do not count toward the five-acre parkland minimum, although this land may be required to meet open space or landscaping requirements of the City’s applicable development codes. For small projects, in cases of financial hardship, or where the required facility would serve areas outside the proposed project or plan, the City may allow participation in an in-lieu fee program to provide improved parkland. The distribution of parkland shall be as follows:</p> <ul style="list-style-type: none"> “ Community Parks: Minimum of 1.5 acres per 1,000 residents. Minimum of 15 acres in size. Specific design and facilities are as directed by the City based on population density, demographic structure, community preferences, use levels, and other criteria. “ Neighborhood Parks: Minimum of 1.5 acres per thousand residents. Minimum of 5 acres in size. Maximum of ½ mile from all proposed residences. Specific design and facilities are as directed by the City based on population density, demographic structure, community preferences, use levels, and other criteria. “ Playgrounds, plazas, tot lots, linear parks, recreation trails,

TABLE 4.15-1 RIVERBANK GENERAL PLAN POLICIES RELATED TO RECREATION (CONTINUED)

Goal/Policy Number	Goal/Policy Content
	and other similar parklands may count for up to 1.5 acre per thousand of the 5-acre standard. Maximum of ¼ mile from all proposed residences. There is no minimum size. Specific design and facilities are as directed by the City based on population density, demographic structure, community preferences, use levels, and other criteria.
Policy PUBLIC-11.2	The City of Riverbank will maintain park in-lieu fees at a level adequate to provide parks in a ratio of acres to population, as established by this element.
Policy PUBLIC-11.3	The City will maintain and improve existing parks and develop new parks to serve existing developed portions of the City, as feasible.
Policy PUBLIC-11.4	The City will encourage the use of greenways and natural open space areas for certain compatible recreational opportunities, such as pedestrian pathways, while preserving important ecological habitats.

Source: City of Riverbank General Plan 2005-2025.

park.⁴ Phase III of Jacob Meyers Park will include an outdoor amphitheater, a gazebo, bird watching areas, and a parking lot.⁵

New parks in the City are funded through grants or park development funds. Park development funds are replenished from development fees, such as fees from the Quimby Act, allow the City to acquire more parkland, pay for park amenities, and thereby maintain its park service standards. The City’s stated policy is to provide a service ratio of 5 acres of park land per 1,000 people.⁶

⁴ Fitzpatrick, Sue, Director, City of Riverbank Recreation Department. Personal communication with Lisa Katz, The Planning Center | DC&E, March 3, 2010.

⁵ Fitzpatrick, Sue, Director, City of Riverbank Recreation Department. Personal communication with Lisa Katz, The Planning Center | DC&E, March 3, 2010.

⁶ Fitzpatrick, Sue, Director, City of Riverbank Recreation Department. Personal communication with Lisa Katz, The Planning Center | DC&E, March 3, 2010.

TABLE 4.15-2 **PARK AND RECREATIONAL FACILITIES IN RIVERBANK**

Park Name	Acres	Address	Facilities
Castleberg Park	12	5854 8 th Street	Playground equipment, barbecue area, picnic tables, restrooms, picnic gazebo, baseball/softball fields, walking trail, basketball court
Community Center (Veteran's Park)	5	3600 Santa Fe	Playground equipment, picnic tables, picnic gazebo, swimming pool, meeting hall to rent
Harless Park	2.8	5600 Litt Road	Playground equipment, basketball court
Hutcheson Park	1	3411 High Street	Picnic tables
Jacob Myers Park	55	23653 S. Santa Fe	Playground equipment, barbecue area, picnic tables, restrooms, walking trail, camping, picnic gazebo, horseshoe pits, boat ramp, fishing
Pioneer Park	3	3017 High Street	Playground equipment, barbecue area, picnic tables, restrooms, baseball/softball fields, basketball court
Plaza Del Rio Park	0.5	Third and Santa Fe Streets	Stage area, water feature
Rotary Centennial Park	3	5656 Prospectors Parkway	Playground equipment
Sanfreno Park	5	2308 McAllister Lane	Playground equipment, soccer field
Silva Park	8	5800 Antique Rose Way	Playground equipment, basketball court
Sorenson Park	2.3	2522 Donner Trail	Playground equipment, barbecue area, picnic tables
Sports Complex	6 dev. 5 undev.	2119 Morrill Road	Football, soccer field, snack bar
Staley Park-Skate Park	0.5	3036 Santa Fe Street	Picnic tables, restrooms, skate park

TABLE 4.15-2 **PARK AND RECREATIONAL FACILITIES IN RIVERBANK**
 (CONTINUED)

Park Name	Acres	Address	Facilities
Whorton Park	1	6100 Memphis Street	Playground equipment, barbecue area, basketball court
Zerillo Park	5	2800 Briarcliff Drive	Playground equipment, barbecue area, picnic tables, restrooms, volleyball court, tennis courts, basketball court
Unnamed open space land	5	Eleanor Street	N/A

Source: City of Riverbank General Plan 2005-2025; Sue Fitzpatrick, City of Riverbank Recreation Department, Director, personal email communication with Lisa Katz, DC&E, March 3, 2010.

With a population of approximately 16,000 people and a total of 114 acres of parkland, the City is currently meeting this standard.

The closest regional recreational open space facilities to the Plan Area are Woodward Reservoir Regional Park and Stanislaus County Park, located approximately 8.5 miles to the northeast.

C. Standards of Significance

The Draft RAAP Site Specific Plan would have a significant recreation impact if it would:

- a. Increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated?
- b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

D. Impact Discussion

1. Project Impacts

- a. 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?

The Plan would have a significant environmental impact if it would accelerate physical deterioration of neighborhood and regional parks. Such impacts could result from a substantial increase in resident or employment population.

As described in Chapter 4.14 of this EIR, the Plan would not directly increase the population of Riverbank because it does not propose the construction of housing, and substantial indirect population growth is not anticipated because new jobs created with implementation of the Plan would largely be filled by residents of Riverbank and neighboring communities. Therefore, buildout of the Plan would not result in increased use of park and recreational facilities due to a substantial increase in the number of users. Additionally, proposed design guidelines included in the Plan stipulate that plazas, green spaces, and pedestrian areas should be incorporated into site design, and that employees should be provided with break areas and gathering spaces. As such, with implementation of these guidelines, buildout of the Plan would result in the construction of new recreational space for the use of future employees and patrons of businesses on the redeveloped in the Plan Area. Consequently, overall, impacts associated with the increased use of existing parks resulting from buildout of the Plan would be *less than significant*.

- b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The Plan would have a significant environmental impact if it would require the provision of new or altered parks and recreational facilities. Pursuant to the Quimby Act, construction or expansion of facilities would be required if buildout of the Plan would cause the parks to resident ratio in Riverbank to exceed the established standard of 5 acres per thousand residents.

As explained above, however, buildout of the Plan would not result in a substantial population increase, either directly, through the construction of new housing, or indirectly, through the creation of new jobs that would attract new residents to the Riverbank area. Consequently, the incremental buildout of the Plan through 2035 would not substantially affect the parks to resident ratio in Riverbank. Therefore, overall, impacts associated with the construction or expansion of recreational facilities from buildout of the Plan would be *less than significant*.

2. Cumulative Impacts

This section analyzes potential cumulative impacts to parks and recreational facilities that could occur from buildout of the Plan in combination with other past, present, and reasonably foreseeable projects in Riverbank and the surrounding area. The geographic scope of this analysis is taken as the City of Riverbank sphere of influence (SOI), as defined in the Riverbank General Plan. Cumulative impacts would be significant if development associated with the Plan together with other projects in the Riverbank SOI would result in a substantial increase in the use of existing parks and facilities, or require the construction or expansion of recreational facilities.

By itself, buildout of the Plan would not result in substantial population growth in Riverbank or the surrounding area, and therefore would not substantially increase the use of parks and facilities or cause the established Quimby Act parks to resident ratio to be exceeded. Therefore, buildout of the Plan would not contribute to a cumulative impact to parks and recreational facilities. Additionally, as noted above, the Plan includes design standards which would require the provision of plazas, green spaces, and gathering places as buildout occurs. Consequently, cumulative impacts to parks and recreational facilities from buildout of the Plan would be *less than significant*.

E. Impacts and Mitigation Measures

Since there are no significant impacts related to parks and recreational facilities as a result of the Plan, no mitigation measures are required.

4.16 TRANSPORTATION AND TRAFFIC

This chapter discusses transportation and traffic in the Plan Area and evaluates the potential impacts associated with the draft RAAP Site Specific Plan. This chapter is based primarily on a Transportation Impact Analysis (TIA) prepared for the project by Fehr & Peers Transportation Consultants in September, 2012. The TIA estimates the increase in traffic in the Plan Area that would result from implementation of the RAAP Specific Plan, in both the near and long term, and describes the resulting impacts on the roadway system. Further, transportation and traffic impacts which may result during the construction of the RAAP Specific Plan are identified and analyzed. The TIA, including all technical appendices, is included as Appendix E of this Draft EIR.

A. Regulatory Framework

This section describes federal, State, and local environmental laws and policies that are relevant to the CEQA review process for transportation and circulation.

1. State and Regional Regulations

a. California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for the maintenance and operation of state routes and highways. In Riverbank, Caltrans' facilities include State Route 108. Caltrans maintains a volume monitoring program and reviews local agencies' planning documents (such as this EIR) to assist in its forecasting of future volumes and congestion points. Guide for the Preparation of Traffic Impacts Studies (December 2002) published by Caltrans is intended to provide a consistent basis for evaluating traffic impacts to State facilities. The City recognizes that "Caltrans endeavors to maintain a target level of service (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 level of service.¹ In addition, Caltrans states that for existing State highway facilities operating at less than the target level of service, the existing level of service should be maintained.

b. Stanislaus Council of Governments

The Stanislaus Council of Governments (StanCOG) is the Metropolitan Planning Organization (MPO) for the Stanislaus Region as designated by the Federal government, and the Regional Transportation Planning Agency (RTPA) as designated by the State of California.

StanCOG is a council of city and county governments comprised of the cities of Ceres, Hughson, Modesto, Newman, Oakdale, Patterson, Riverbank, Turlock and Waterford, and the County of Stanislaus, that was established in 1971 by a Joint Powers Agreement (JPA) to address regional transportation issues. The organization is responsible for developing and updating a variety of transportation plans and for allocating the federal and state funds to implement them.

StanCOG is responsible for the preparation the Regional Transportation Plan (RTP), which identifies transportation network improvements and investments that are needed to accommodate existing populations and planned growth. Other adopted documents include the regional Expressway Study, Sustainable Communities Strategies, and the Non-Motorized Transportation Plan.

2. City of Riverbank General Plan

The City of Riverbank General Plan identifies policies related to transportation standards. Project consistency with the General Plan is analyzed below in Table 4.16-1. While this Draft EIR analyzes the consistency of the proposed RAAP Specific Plan with the City of Riverbank General Plan pursuant to California Environmental Quality Act (CEQA) Guidelines Section

¹ California Department of Transportation, *Guide for the Preparation of Traffic Impact Studies*, December 2002.

15125(d), the City of Riverbank would ultimately make the determination of the project's consistency with the General Plan. Environmental impacts associated with inconsistency with General Plan goals and policies are addressed under the appropriate impact discussion sections of this Draft EIR.

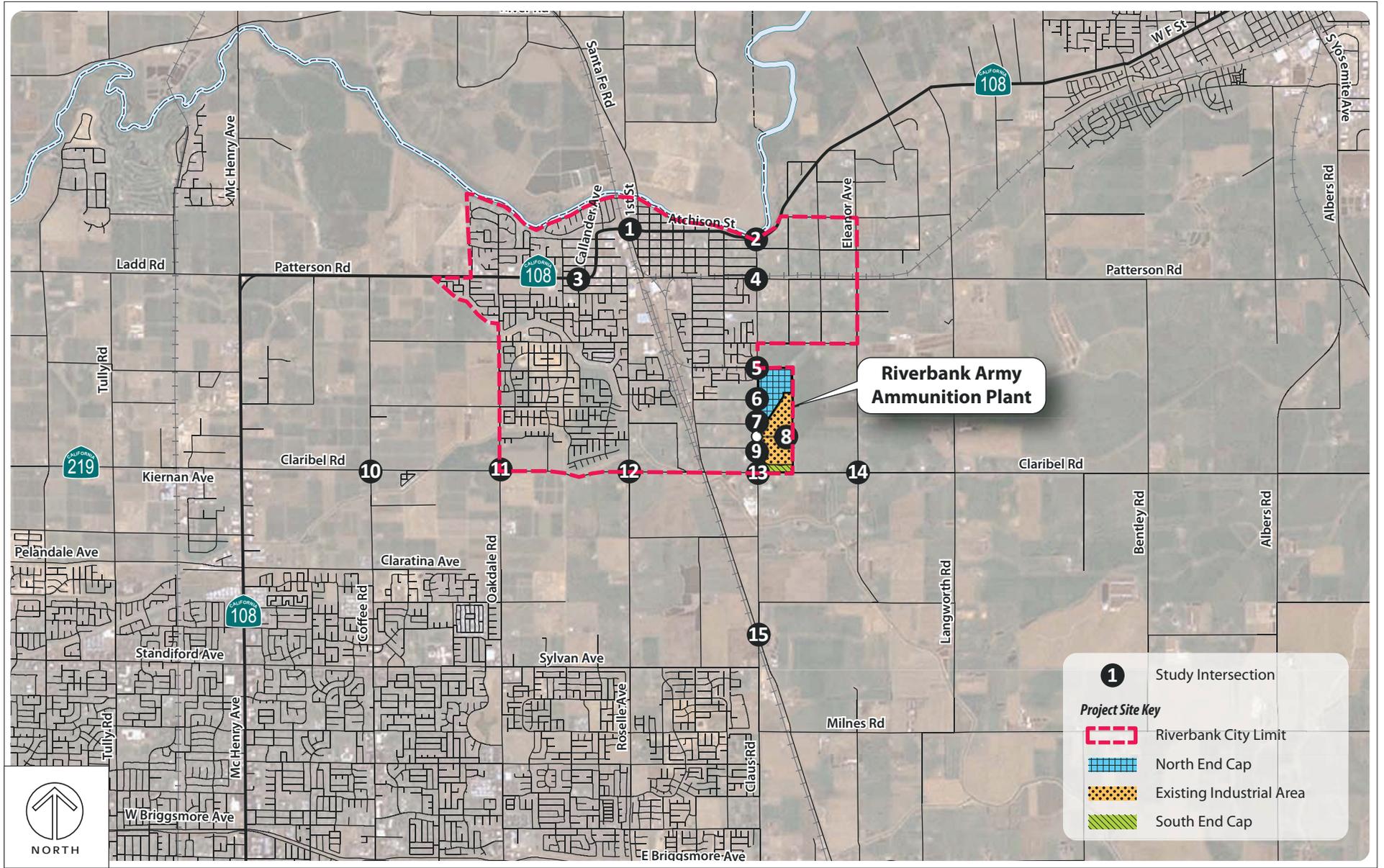
B. Existing Conditions

This section describes transportation facilities in the project study area, including the surrounding roadway network, transit, pedestrian, and bicycle facilities in the project site vicinity. Rail facilities are also discussed as well as existing traffic operations.

1. Roadway Network

The project site is located at the northeast corner of the Claus Road/Claribel Road intersection in Riverbank, a city in Northern Stanislaus County. Adjacent land uses are primarily agricultural and industrial, with some residential uses. The roadways in the study area are described below and their locations in relation to the site are shown on Figure 4.16-1.

- a. **Claribel Road** is an east-west arterial roadway that forms the southern boundary of the project site. One travel lane per direction is provided on Claribel Road in the study area. West of McHenry Avenue (State Route 108), the roadway continues as Kiernan Avenue (State Route 219), to State Route 99. No bicycle or pedestrian facilities are provided on Claribel Road and no on-street parking is permitted in the study area. The posted speed limit on Claribel Road is 45 miles per hour (mph) in the study area.
- b. **Claus Road** is a north-south two-lane arterial that forms the western boundary of the project site. It connects State Route 108 in the north to State Route 132 (Yosemite Avenue) in the south in Modesto. No on-street parking is permitted along the project frontage. Bike lanes and sidewalks are provided on Claus Road between California Street and Patterson Road. A two-way left-turn lane is provided along a portion of the project frontage in addition to approximately 6-foot shoulders on both



Source: Fehr & Peers, 2012.

FIGURE 4.16-1
 STUDY INTERSECTION LOCATIONS

TABLE 4.16-1 PROJECT CONSISTENCY WITH CITY OF RIVERBANK GENERAL PLAN POLICIES: TRANSPORTATION AND TRAFFIC

General Plan Policy	Consistency with General Plan	Analysis
Policy CIRC-1.1 Approved plans, projects, and subdivision requests in new growth areas shall include the construction or pro-rata funding of transportation infrastructure that includes a connected and integrated system of bicycle facilities and pedestrian facilities, designed to comply with the Americans with Disabilities Act.	Yes	Roadways along the project site and primary internal roadways will be improved to provide bicycle, pedestrian and transit accommodations. All new facilities will be designed to meet ADA standards in place at the time of construction.
Policy CIRC-1.2 Approved plans, projects, and subdivision requests in new growth areas shall provide a fully connected network of smaller roadways that provide many alternative routes between each point of origin and destination.	No	No internal connections are provided between the three areas of the site due to the existing development conditions on the site and security concerns for existing site users.
Policy CIRC-1.3 Approved projects, plans, and subdivision requests in new growth areas shall arrange streets in an interconnected block pattern, so that pedestrians, bicyclists, and drivers are not forced onto arterial streets for inter- or intra-neighborhood travel. This approach will also ensure safe and efficient movement of emergency responders.	No	No internal connections are provided between the three areas of the site due to the existing development conditions on the site and security concerns for existing site users. Emergency vehicle connections will be provided.
Policy CIRC-1.4 Approved projects, plans, and subdivision requests with an internal street network shall provide an internal connectivity index of 1.4 or higher. The connectivity index is calculated by dividing the total number of road segments the number of nodes. Nodes are intersections plus cul-de-sacs. Roadway segments are between intersections. Cul-de-sacs are prohibited except where physical constraints make any other roadway solution impossible. The City may require higher levels of connectivity, beyond this standard, and will review plans and projects to take advantage of opportunities to provide more connectivity.	No	Limited ability to provide internal connections between the three areas of the site due to the existing development conditions on the site and security concerns of existing site users.
Policy CIRC-1.5 Approved projects, plans, and subdivision requests shall connect with adjacent roadways and stubbed roads and shall provide frequent stubbed roadways in coordination with future planned development areas. Plans and projects shall connect to adjacent planned development areas and adjacent roadways at a minimum of 600-foot intervals. This minimum interval does not apply to development areas that are adjacent to existing or planned future limited-access highways, freeways, or expressways.	Yes	Roadway connections to Claus and Claribel Roads are proposed at approximately 600-foot intervals. A new east-west roadway is planned to connect with parcels to the east of the site.

TABLE 4.16-1 PROJECT CONSISTENCY WITH CITY OF RIVERBANK GENERAL PLAN POLICIES: TRANSPORTATION AND TRAFFIC
 (CONTINUED)

General Plan Policy	Consistency with General Plan	Analysis
Policy CIRC-1.9 In new and existing developed areas, the City will invest in a convenient, well-maintained, and safe system of pedestrian and bicycle paths that connect residences with shopping centers, public buildings, parks, places of employment, and schools.	Yes	Project will provide pedestrian and bicycle system, connecting to planned transit stops.
Policy CIRC-1.12 The City will use Level of Service D as the goal for roadway segments, as measured on a daily basis. The City's goal for peak hour intersection level of service is LOS D. The City may elect to exceed of these standards in favor of other community planning and environmental goals and policies.	Short-term, yes, with Mitigation; long-term potentially significant and unavoidable	LOS D or better can be provided at study intersections in the Exiting Plus Project condition with the implementation of Mitigation; in the Cumulative Condition, intersections may degrade beyond the planned level of service standard as the implementation of regional improvements to mitigate traffic conditions cannot be assured.
Policy CIRC-1.14 The City will ensure provision of signage and secure storage facilities in appropriate locations for bicycles.	Yes, with Mitigation	Bicycle parking shall be incorporated into the development.
Policy CIRC-1.15 The City will ensure that the pedestrian network is safe, accessible, attractive and efficient, running largely along public spaces (including streets and open spaces) fronted by houses, and avoids uses that generate major breaks in surveillance on routes to and from public transport and other routes used at night.	Yes	Pedestrian facilities will be constructed along the project frontage and on internal roadways. Pedestrian pathways will be constructed connecting parking areas to main building entrances. Buildings will be oriented towards pedestrian connections.
Policy CIRC-2.2 The City will not allow large, unbroken surface parking lots, which unnecessarily inhibit travel on foot and by bicycle. Please refer also to Community Character and Design Element policies that address the location and nature of surface parking.	Yes	Small parking areas are proposed to serve each building area.
Policy CIRC-2.3 Approved projects, plans, and subdivisions shall provide shade trees in parking areas at a ratio of at least one tree for every four parking spaces. These trees shall be dispersed throughout the parking area.	Yes	Trees will be incorporated into parking areas.
Policy CIRC-2.4 The City will ensure that redevelopment and revitalization efforts in the existing City are designed to accommodate and encourage pedestrian and bicycle travel, as well as public transit options, as such options become more widely available.	Yes	The existing developed area of the site will be connected to new bicycle and pedestrian facilities, which will connect to new transit stops to facilitate transit use once that option become available in the site vicinity.

TABLE 4.16-1 PROJECT CONSISTENCY WITH CITY OF RIVERBANK GENERAL PLAN POLICIES: TRANSPORTATION AND TRAFFIC
 (CONTINUED)

General Plan Policy	Consistency with General Plan	Analysis
<p>Policy CIRC-2.5 The City will be flexible in parking requirements or eliminate off-street parking requirements for redevelopment, infill, and multifamily projects by allowing cooperative shared use of parking between properties with different parking demand peaking periods, utilization of on-street parking spaces to meet parking requirements, allowing parking reductions for projects located in walkable areas with improvements that accommodate alternative forms of travel, and allowing parking reductions for multi-family development to reflect the trip generation characteristics of this type of development.</p>	Yes	<p>Flexible parking standards have been identified in the Specific Plan that allow for parking demand studies to be complete to determine the parking supply needed to accommodate future development.</p>
<p>Policy CIRC-2.6 The City will pursue in the existing developed area, and require in new growth areas pedestrian amenities, such as street furniture, shade trees, pedestrian lighting, water fountains, and pedestrian oriented signage.</p>	Yes	<p>Pedestrian facilities will be constructed along the project frontage and on internal roadways. Pedestrian pathways will be constructed connecting parking areas to main building entrances. Buildings will be oriented towards pedestrian connections. Appropriate pedestrian scale lighting shall be incorporated in to the overall design, in addition to landscaping.</p>
<p>Policy CIRC-3.1 The City will coordinate planning efforts and project entitlements with the Riverbank Oakdale Transit Agency, the Stanislaus Area Regional Transit District (START), and any future providers serving Riverbank to enhance and expand transit services throughout the City and surrounding region.</p>	Yes	<p>Transit agencies will be consulted in the final placement of transit amenities on the site.</p>
<p>Policy CIRC-3.3 Approved plans, projects, and subdivision requests will accommodate transit facilities consistent with transit agency planning.</p>	Yes	<p>Potential transit stops have been identified along the project frontage; the final placement and supporting facility needs will be determined in consultation with the transit agencies.</p>
<p>Policy CIRC-4.1 The City will work with relevant public agencies and the railroad to appropriately regulate the movement of truck traffic and hazardous materials throughout the City.</p>	Yes	<p>A truck routing plan will be developed for the site identifying truck connections to the regional roadway network.</p>

sides of the street. The posted speed limit on Claus Road varies from 35 to 45 mph. Full access is provided to the site from two driveways on Claus Road. Two other driveway connections are provided, but are currently not in use.

- c. **Coffee Road** is a north-south arterial roadway located approximately 3 miles west of the site. This facility connects State Route 108 (Patterson Road) in the north to Modesto in the south. In the study area, Coffee Road is a two-lane facility with a posted speed limit of 55 mph. No pedestrian or bicycle facilities are provided on the roadway, which primarily serves agricultural uses.
- d. Oakdale Road is a north-south arterial roadway located approximately 2 miles west of the site. This facility connects State Route 108 (Patterson Road) in the north to Modesto in the south. In the study area, Oakdale Road is a four-lane facility north of Claribel Road and a two-lane facility are provided north of Claribel Road, where residential and retail uses have been developed. No pedestrian or bicycle facilities are provided to the south of Claribel Road, where agricultural uses are primarily served.
- e. **Roselle Avenue** is a north-south arterial roadway located approximately 1 mile west of the site. This facility connects State Route 108 (Patterson Road) in the north to Modesto in the south. In the study area, Roselle Avenue is a two-lane facility with a posted speed limit of 45 mph. This roadway is being widened as land is developed along the corridor to provide additional capacity at intersections and pedestrian facilities. No pedestrian or bicycle facilities are provided to the south of Claribel Road.
- f. **Patterson Road (State Route 108)** is an east-west arterial roadway. Between McHenry Avenue and Callander Avenue, Patterson Road is designated as State Route 108. West of the City of Riverbank, Patterson Road generally provides two travel lanes with no pedestrian or bicycle facilities. Within Riverbank, the roadway expands to provide two travel lanes in each direction in addition to turn pockets and sidewalks. East of Callander Avenue, Patterson Road provides one travel lane per direction, with some pedestrian and bicycle facilities. The speed limit on Patterson varies from 50 mph in the undeveloped areas to 25 to 35 mph through

Riverbank. The City of Riverbank has requested Surface Transportation Assistance Act (STAA) Terminal Access designation from Caltrans for State Route 108. However, several intersections along the route do not meet turn radius requirements and improvements may be needed.

- g. **Atchison Street (State Route 108)** is an east-west arterial that connects Riverbank to Oakdale. It is designated as State Route 108 and generally forms the northern boundary of Riverbank. Bicycle lanes and sidewalks are generally provided with one travel lane per direction. On-street parking is also permitted.
- h. **Townsend Avenue** is a two-lane east-west local street that connects Claus Road to Terminal Avenue. Residential uses front the south side of the street and a railroad runs parallel to the northern side of the street. The rail facility enters the RAAP site where it terminates. On-street parking is permitted along the roadway and sidewalks are provided on the south side of the street.
- i. **Van Dusen Avenue** is a two-lane east-west local street that connects Claus Road to Terminal Avenue. Residential uses front both sides of the side of the street, with some large lot residential homes. The eastern portion of the roadway is generally unimproved with no on-street parking permitted. On-street parking is permitted on the western portion of the roadway where small-lot residential homes have been developed. A new entrance to the RAAP is proposed to form the fourth leg of the intersection of Van Dusen Avenue with Claus Road.
- j. **Minnear and Davis Avenues** are two-lane east-west local streets that connect Claus Road to Terminal Avenue. Large lot residential uses front both sides of the side of the street, which is generally unimproved with no on-street parking or pedestrian facilities. These streets intersect with Claus Road in the vicinity of the RAAP main entrance.

2. Plan Area Study Intersections

Project impacts on the study area roadway facilities were determined by measuring the effect project traffic would have on intersections in the vicinity of the site during the morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00

p.m.) peak periods. The following intersections, as shown previously on Figure 4.16-1, were selected in consultation with City of Riverbank staff, based on the amount of traffic the project could add to each intersection, and in response to comments received on the notice of preparation (NOP) for the project.

1. Atchison Street (State Route 108)/1st Street
2. State Route 108/Claus Road
3. State Route 108/Patterson Road
4. Patterson Road/Claus Road
5. Townsend Avenue/Claus Road
6. Van Dusen Avenue/Claus Road
7. Minniear Avenue/Claus Road
8. RAAP Main Entrance/Claus Road
9. Davis Avenue/Claus Road
10. Claribel Road/Coffee Road
11. Claribel Road/Oakdale Road
12. Claribel Road/Roselle Avenue
13. Claribel Road/Claus Road
14. Claribel Road/McGee Avenue/Eleanor Avenue
15. Terminal Avenue/Santa Fe Avenue/Claus Road

3. Existing Rail Service

Amtrak and freight service is provided on rail facilities in the study area, with many at-grade railroad crossings in Riverbank. The intersections listed below and shown in Figure 4.16-2 are in the immediate study area.

1. Claus Road, north of Patterson Road
2. Claus Road, north of Townsend Avenue
3. Claus Road, south of Terminal Avenue
4. Claribel Road, west of Terminal Avenue

Accident data at the above crossings was obtained from the Department of Transportation, Federal Railroad Administration. The accident experience at each crossing is discussed below, with a general description of the crossing,

including the number of vehicular travel lanes, the range of train speeds over the crossing, and the typical number of trains per day.

- “ **Claus Road, north of Patterson Road** – The Claus Road at Patterson Road crossing of the Sierra Northern Railway (SERA) railroad spur is a three-lane at-grade crossing, less than 75 feet north of the signalized Claus Road/Patterson Road intersection, as shown in Figure 4.16-2a. There are up to two trains per day with a typical train speed between 8 and 10 mph over the crossing. No passenger service is provided on this line. Gate arms, pavement markings, and warning bells are provided in addition to a median to prevent gate-arm run around. No incidents have been reported at this crossing. The stop bar for southbound vehicles at the intersection is located 35 feet north of the gate arms.
- “ **Claus Road, north of Townsend Avenue** – The Claus Road at Townsend Avenue crossing of the SERA railroad branch is a three-lane at-grade crossing, less than 75 feet north of the unsignalized Claus Road/Townsend Avenue intersection, as shown in Figure 4.16-2b. There are up to four trains per day with a typical train speed between 20 and 25 mph over the crossing. No passenger service is provided on this line; the rail facility serves the RAAP. Gate arms, pavement markings, and warning bells are provided in addition to a partial median to discourage gate-arm run around. No incidents have been reported at this crossing.
- “ **Claus Road, south of Terminal Avenue** – The Claus Road crossing of the Burlington Northern Santa Fe (BNSF) railroad track is a two-lane at-grade crossing, as shown in Figure 4.16-2c. There are up to 46 trains per day with speeds from 1 to 79 mph. Gate arms, pavement markings, and warning bells are provided at the crossing. Amtrak service is provided on this rail track in addition to freight service. Two incidents have been reported at this crossing, one in 2002, and one in 2004. In the 2002 incident, a train collided with a vehicle stalled on the tracks. No injuries were reported. In the 2004 incident, a train collided with a vehicle traveling across the tracks. Three people were injured in this incident.



A



B



C



D

Source: Fehr & Peers, 2012.

FIGURE 4.16-2
RAILROAD CROSSINGS

- “ **Claribel Road, west of Terminal Avenue** – The Claribel Road crossing of the BNSF railroad track is a two-lane at-grade crossing, as shown in Figure 4.16-2d. There are up to 46 trains per day with speeds ranging from 1 to 79 mph. Gate arms, pavement markings, and warning bells are provided. Amtrak service is provided in addition to freight service. Six incidents have been reported at this crossing between 1989 and 2007. Most incidents involved a train striking a vehicle stalled on the track with limited injuries reported. The 2007 incident involved a passenger train striking a vehicle attempting to cross the tracks ahead of the train, killing 6 people inside the vehicle. Safety improvements were recently installed at this crossing including a pre-manufactured raised median with tubular delineators, new traffic signs, and pavement markings.

4. Existing Pedestrian and Bicycle Facilities

a. Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, and pedestrian signals. Sidewalks are provided in the developed areas of Riverbank, although none are currently provided along the project frontage. At signalized intersections in the developed area, pedestrian signals are also provided.

b. Bicycle Facilities

Typical bicycle facilities include the following:

- “ Bike paths (Class I) – Paved trails that are separated from roadways.
- “ Bike lanes (Class II) – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs.
- “ Bike routes (Class III) – Designated roadways for bicycle use by signs only; may or may not include additional pavement width for cyclists.

No bicycle facilities are currently provided in the vicinity of the RAAP site.

5. Existing Transit Service

Transit service in the area is provided by Riverbank Oakdale Transit Authority (ROTA) that arranges dial-a-ride service in Riverbank. Connections are provided to the regional transit system via Stanislaus Regional Transit

(StaRT) that connects Riverbank with Downtown Modesto and Oakdale. No scheduled service is currently provided to the site.

6. Existing Traffic Counts

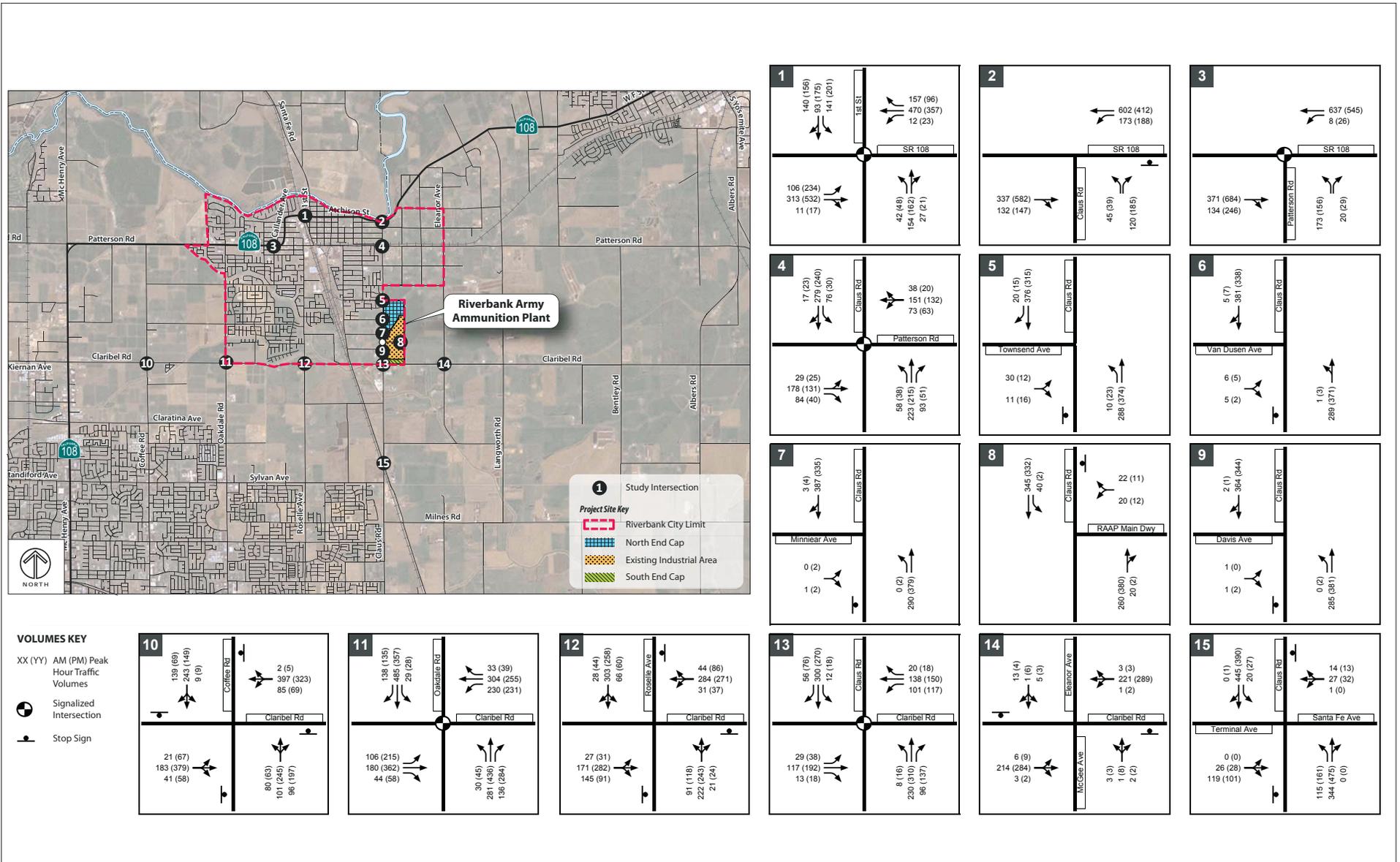
Weekday morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.) peak period intersection turning movement counts were conducted at the study intersections and primary driveways that serve the site, including counts of pedestrians, bicyclists and trucks. 48-hour vehicle classification counts were also conducted on Claus Road adjacent to the site. For the study intersections and driveways, the single hour with the highest traffic volumes during the count periods was identified. The peak hour volumes are presented on Figure 4.16-3 along with the existing lane configuration and traffic control.

7. Intersection Levels of Service

The operations of roadway facilities are described with the term “level of service.” Level of service is a qualitative description of traffic flow from a vehicle driver’s perspective based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (best operating conditions) to LOS F (worst operating conditions). LOS E corresponds to operations “at capacity.” When volumes exceed capacity, stop-and-go conditions result and operations are designated as LOS F.

a. Signalized Intersections

Traffic conditions at signalized intersections were evaluated using the method developed by the Transportation Research Board (TRB), as documented in the 2000 Highway Capacity Manual (HCM). The HCM method calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. These delay estimates are considered meaningful indicators of driver discomfort and frustration, fuel consumption and lost travel time. The relationship between average control delay and level of service for signalized intersections is summarized in Table 4.16-2.



Source: Fehr & Peers, 2012.

FIGURE 4.16-3

EXISTING (2011) LANE CONFIGURATIONS, TRAFFIC CONTROL AND PEAK HOUR VOLUMES

TABLE 4.16-2 SIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA

Level of Service	Description	Average Control Delay (Seconds)
A	Operations with very low delay occurring with favorable traffic signal progression and/or short cycle lengths.	< 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55.0 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0

Source: Highway Capacity Manual, Transportation Research Board, 2000.

b. Unsignalized Intersections

For unsignalized (all-way stop-controlled and side-street stop-controlled) intersections, the Transportation Research Board's 2000 Highway Capacity Manual (HCM) method for unsignalized intersections was used. With this method, operations are defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in queue. Table 4.16-3 summarizes the relationship between delay and level of service for unsignalized intersections. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement and for the left-turn movement

TABLE 4.16-3 **UNSIGNALIZED INTERSECTION LEVEL OF SERVICE CRITERIA**

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no delays	< 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: Highway Capacity Manual (Transportation Research Board, 2000).

from the major street. The intersection average delay and highest movement/approach delay are reported for side-street stop-controlled intersections.

8. Intersection Level of Service Standards

In Riverbank, acceptable operations at signalized intersections are defined as LOS D. Some intersections are located within unincorporated Stanislaus County, where LOS C is the threshold, unless that intersection is within the Sphere of Influence of a City. In these instances, the level of service standard of that jurisdiction may be considered. All study intersections except for Claribel Road/Coffee Road and Terminal Avenue/Santa Fe Avenue/Claus Road are either located within the City of Riverbank or its sphere of influence.

9. Existing Intersection Levels of Service

Existing intersection operations were evaluated for the weekday AM and PM peak hours at the study intersections and driveways, as summarized in Table 4.16-4. The analysis is based on the volumes, lane configurations, and traffic

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SITE SPECIFIC PLAN EIR
TRANSPORTATION AND TRAFFIC

TABLE 4.16-4 EXISTING (2011) PEAK HOUR LEVEL OF SERVICE

Location	Control ^a	Peak Hour	Delay (Seconds) ^b	LOS ^c
1. Atchison St. (SR 108)/1st St.	Signal	AM	39	D
		PM	46	D
2. SR 108/Claus Rd.	SSSC	AM	3 (15)	A (B)
		PM	4 (18)	A (C)
3. SR 108/Patterson Rd.	Signal	AM	15	B
		PM	16	B
4. Patterson Rd./Claus Rd. ⁴	Signal	AM	38	D
		PM	28	C
5. Townsend Ave./Claus Rd. ⁴	SSSC	AM	1 (15)	A (B)
		PM	1 (13)	A (B)
6. Van Dusen Ave./Claus Rd.	SSSC	AM	0 (13)	A (B)
		PM	0 (14)	A (B)
7. Minniear Ave./Claus Rd.	SSSC	AM	0 (11)	A (B)
		PM	0 (11)	A (B)
8. RAAP Main Entrance/ Claus Rd.	SSSC	AM	1 (11)	A (B)
		PM	1 (12)	A (B)
9. Davis Ave./Claus Rd.	SSSC	AM	0 (11)	A (B)
		PM	0 (11)	A (B)
10. Claribel Rd./Coffee Rd.	AWSC	AM	94	F
		PM	118	F
11. Claribel Rd./Oakdale Rd.	Signal	AM	39	D
		PM	41	D
12. Claribel Rd./Roselle Ave.	AWSC	AM	97	F
		PM	108	F
13. Claribel Rd./Claus Rd.	Signal	AM	24	C
		PM	28	C
14. Claribel Rd./ McGee Ave./Eleanor Ave.	SSSC	AM	1 (12)	A (B)
		PM	1 (14)	A (B)
15. Terminal Ave./ Santa Fe Ave./Claus Rd. ⁴	SSSC	AM	5 (28)	A (D)
		PM	6 (44)	A (E)

^a Signal = signalized intersection, SSSC = side street stop controlled intersection.

^b Delay presented in seconds per vehicle; for side-street stop-controlled intersections, Delay presented in Intersection average (worst approach).

^c LOS = Level of Service.

^d Level of service is worse than shown here when a train is at the adjacent crossing.

Source: Fehr & Peers, 2012.

control shown on Figure 4.16-3. Observed peak hour factors² were used at all intersections for the existing analysis, in addition to the heavy vehicle percentages described below.

As shown, study intersections generally operate at acceptable service levels, except for the unsignalized intersections of Claribel Road/Coffee Road and Claribel Road/Roselle Avenue. Field observations confirmed the calculated levels of service. It should also be noted that the levels of service at intersections adjacent to rail crossings may be worse than shown during rail crossing activities.

10. Signal Warrants

To assess the need for signalization of stop-controlled intersections, the Manual of Uniform Traffic Control (MUTCD) (Federal Highway Administration 2009) presents eight signal warrants. The Peak Hour Volume Warrant and the Peak Hour Delay Warrant is used in this study as a supplemental analysis tool to assess operations at unsignalized intersections.³ Based on this analysis,

² The relationship between the peak 15-minute flow rate and the full hourly volume is given by the peak-hour factor (PHF) as shown in the following equation: $PHF = \text{Hourly volume} / (4 * \text{volume during the peak 15 minutes of flow})$. The analysis of level of service is based on peak rates of flow occurring within the peak hour because substantial short-term fluctuations typically occur during an hour. Where the existing PHF is below 0.88, 0.88 was used.

³ Unsignalized intersection warrant analysis is intended to examine the general correlation between existing conditions and the need to install new traffic signals. Existing peak-hour volumes are compared against a subset of the standard traffic signal warrants recommended in the MUTCD and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely on the warrants because the installation of signals can lead to certain types of collisions. The responsible State or local agency should undertake regular monitoring of actual traffic conditions and accident data and conduct a timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

the unsignalized intersections of Claribel Road/Coffee Road and Claribel Road/Roselle Avenue currently meet signal warrants in both the morning and afternoon peak hours. Traffic signals are planned to be constructed at the Claribel Road/Coffee Road intersection in 2012 and at the Claribel Road/Roselle Avenue intersection in 2015/2016.

11. Rail Crossing Operations

Observations of the Claus Road rail crossings at Townsend Avenue and Terminal Avenue indicate minimal activity of the Townsend crossing and regular use of the Terminal Avenue crossing. Observations conducted on May 24th and May 26th between 6:00 a.m. and 6:00 p.m., show that usage of the Townsend crossing is sporadic, with no rail activity observed on May 24th and two crossings on May 26th. Both crossings were of freight trains and the crossing devices (i.e. gate arms) were activated between 2 and 3 minutes. One crossing occurred during the AM peak hour, resulting in vehicle queues to form at the Claus Road/Townsend Avenue intersection, with 14 vehicles queued in the southbound direction, three vehicles queued in the northbound direction, and one vehicle in the eastbound direction.

Significantly more activity was noted at the Terminal Avenue crossing, with approximately 20 crossings each day between 6:00 a.m. and 6:00 p.m. on both days of observation. Scheduled passenger service occurs with 7 to 8 passenger trains per day during the observation period. The remaining crossings are from freight trains. Passenger trains resulted in the gate arms being activated between 30 seconds and 1 minute. Freight trains took longer to traverse the crossing, with the gate arms being activated between 44 seconds and almost 4 minutes. Observations of vehicle queues during the morning and evening peak hours are summarized in Table 4.16-5.

Longer vehicle queues form during the crossing of a freight train given that the train may be 100 cars long and travel at lower speeds than passenger trains. It is uncertain whether these operations would continue into the future, as rail freight operators do not release information regarding current or

TABLE 4.16-5 **CLAUS ROAD AT TERMINAL AVENUE PEAK PERIOD RAILROAD CROSSING VEHICLE QUEUES**

Day	Time of Arrival	Train Type	Length of Gate Operation	Maximum Observed Vehicle Queue
May 24, 2011	7:18 AM	Freight	2 minutes, 10 Seconds	13 Northbound 32 Southbound
May 24, 2011	8:29 AM	Passenger	52 Seconds	8 Northbound 5 Southbound
May 24, 2011	4:01 PM	Freight	1 minute, 48 Seconds	26 Northbound 25 Southbound
May 24, 2011	4:59 PM	Passenger	45 Seconds	19 Northbound 10 Southbound
May 26, 2011	7:59 AM	Passenger	35 Seconds	6 Northbound 3 Southbound
May 26, 2011	8:12 AM	Freight	1 minute, 35 Seconds	17 Northbound 14 Southbound
May 26, 2011	8:30 AM	Passenger	46 Seconds	5 Northbound 13 Southbound
May 26, 2011	5:10 PM	Passenger	49 Seconds	12 Northbound 23 Southbound
May 26, 2011	5:36 PM	Freight	3 minutes, 40 Seconds	25 Northbound 50 Southbound

Source: Quality Counts, May 2011.

future track usage, and the Amtrak schedule/service could be changed in the future.

C. Impact Analysis Methodology

The Project Description and Land Use Chapters of the DEIR present a detailed description of the Specific Plan as a whole, including land uses. This

section describes key transportation elements relevant to the transportation and traffic impact analysis.

1. Scenarios

For this study, the following scenarios were evaluated:

- “ *Existing* – Existing (2011) conditions based on recent traffic counts.
- “ *Existing Plus Project* – Existing (2011) conditions plus project-related traffic
- “ *Cumulative Without Project* – Future forecast conditions, which considers local and regional traffic growth. Roadway improvements consistent with the Tier 1 funded projects from the Stanislaus Council of Governments StanCOG RTP were assumed.
- “ *Cumulative With Project* – Future forecast conditions plus project-related traffic.

2. Trip Generation

Project trip generation estimates were developed using trip generation rates contained in the Institute of Transportation Engineers (ITE), Trip Generation, 8th Edition for the research and development, and retail portions of the project. Based on guidance from the ITE which recommends the use of locally collected trip generation, when available, the maximum trip generation rates from a survey of the existing RAAP uses and over 4.5 million square feet of industrial uses in the San Joaquin Valley were used to estimate the trip generating potential of RAAP development, as they are specific to the area and represent the trip generating potential from the variety of uses that could occupy the site. These rates have also been used in other environmental documents prepared for similar uses in the San Joaquin Valley. Additional details are provided in the TIA.

Peak hour and daily trip generation was calculated based on the method described above for the industrial land uses and based on ITE rates for the research/development, and retail portions of the project, as presented in Table 4.16-6. It is expected that the RAAP project would generate approximately

TABLE 4.16-6 PROJECT TRIP GENERATION ESTIMATES

Land Use	ITE Code	Units (SqFt)	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Industrial	Passenger Vehicle Trips ^a	1,411,542	127	57	184	70	170	240	3,900
Industrial	Truck Trips ^a	1,411,542	28	42	70	42	28	70	930
Total Industrial			155	99	254	112	198	310	4,830
R&D	760 ^b	116,366	118	24	142	19	106	125	940
Retail	820 ^c	119,058	73	46	119	218	226	444	5,110
Pass-By Trips ^d			0	0	0	-34	-34	-68	-770
Total Trips			346	169	515	315	496	811	10,110
Less Existing Uses^e			-27	-8	-35	-8	-36	-44	-720
Potential Net New Trip Generation			319	161	480	307	460	767	9,390

^a Trip generation based on documented trip generation rates for similar industrial facilities :

AM: T = 0.18 (X); Enter = 61%, Exit= 39% (25% Trucks)

PM: T = 0.22(X); Enter = 36%, Exit = 64% (22% Trucks)

Daily: 3.42 (X) (19 % Trucks)

Where: T = trips generated, X = 1,000 square feet

^b Trip generation based on Institute of Transportation Engineers (ITE), Trip Generation, (8th Edition) average rate for Research and Development Center (Land Use Code 760) :

AM: 1.22 (X); Enter = 83%, Exit= 17%

PM: 1.07 (X); Enter = 15%, Exit = 85%

Daily: 8.11 (X)

Where: T = trips generated, X = 1,000 square feet

^c Trip generation based on Institute of Transportation Engineers (ITE), Trip Generation, (8th Edition) average rate for Shopping Center (Land Use Code 820) :

AM: 1.0 (X); Enter = 61%, Exit= 39%

PM: 3.73 (X); Enter = 49%, Exit = 51%

Daily: 42.92 (X)

Where: T = trips generated, X = 1,000 square feet

^d Trip pass-by rate based on Institute of Transportation Engineers (ITE), Trip Generation Handbook average pass-by for Shopping Center (Land Use Code 820). Average Weekday pass-by rate: 15% during the PM peak hour. No pass-by rate assumed during the AM peak hour, a 15% pass-by rate assumed for daily trip total.

^e Based on driveway counts conducted at the existing RAAP driveways.

Source: *Trip Generation* (8th Edition), ITE, 2008; *Trip Generation Manual*, ITE, 2004, and Fehr & Peers, 2012.

515 AM peak hour trips, 810 PM peak hour trips, and 10,110 daily trips. Not all of these trips would be new to the roadway system, as there are existing active uses on the site. Accounting for the actual trip generation of the existing uses on-site, approximately 480 new AM peak hour, 767 new PM peak hour and 9,390 new daily trips are expected to be generated by the site.

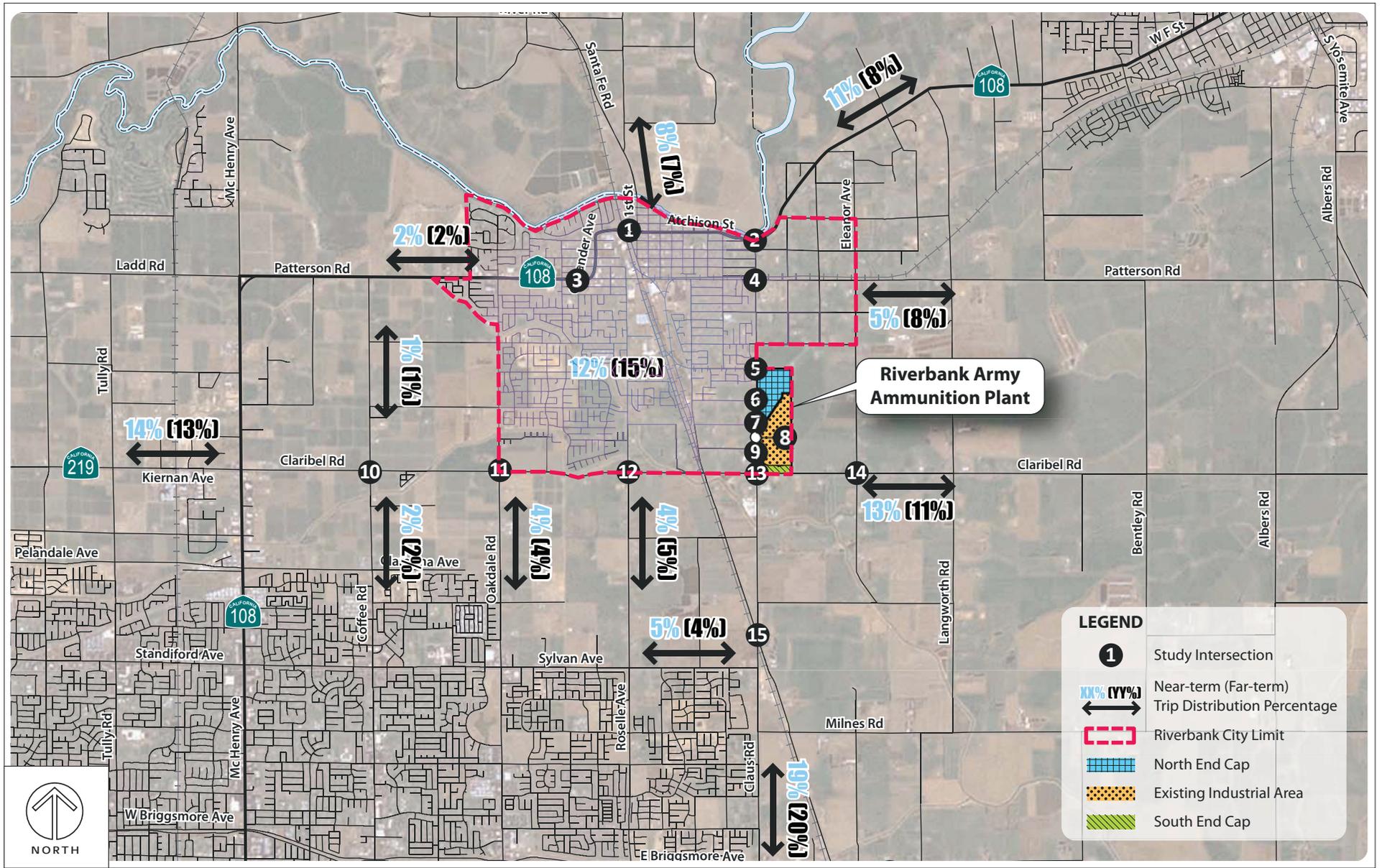
Separate trip generation estimates were calculated for vehicles and trucks, as trucks operate differently on the roadway system and need to be accounted for in the analysis. Based on the existing driveway counts at the RAAP and the Stockton data, peak hour driveway volumes are expected to consist of about 75 percent passenger vehicles and 25 percent trucks during the AM peak hour and 78 percent passenger vehicles and 22 percent trucks during the PM peak hour. To reflect the operational characteristics of large trucks, the appropriate heavy vehicle percentages were used in the intersection operations analysis.

3. Trip Distribution and Assignment

Based on the location of the site and surrounding land uses, existing and future levels of service, roadway volumes and intersection volumes (as documented in the General Plan EIR), and a select zone analysis using the StanCOG travel demand model (as modified for the North County Corridor [NCC] analysis), trip distribution percentages were developed as depicted on Figure 4.16-4. Due to the significant amount of growth and roadway network changes expected, separate trip distribution percentages were developed for the existing and far-term condition. The resulting Project Trip Assignment is shown on Figure 4.16-5 for the near-term and Figure 4.16-6 for the Cumulative condition.

D. Standards of Significance

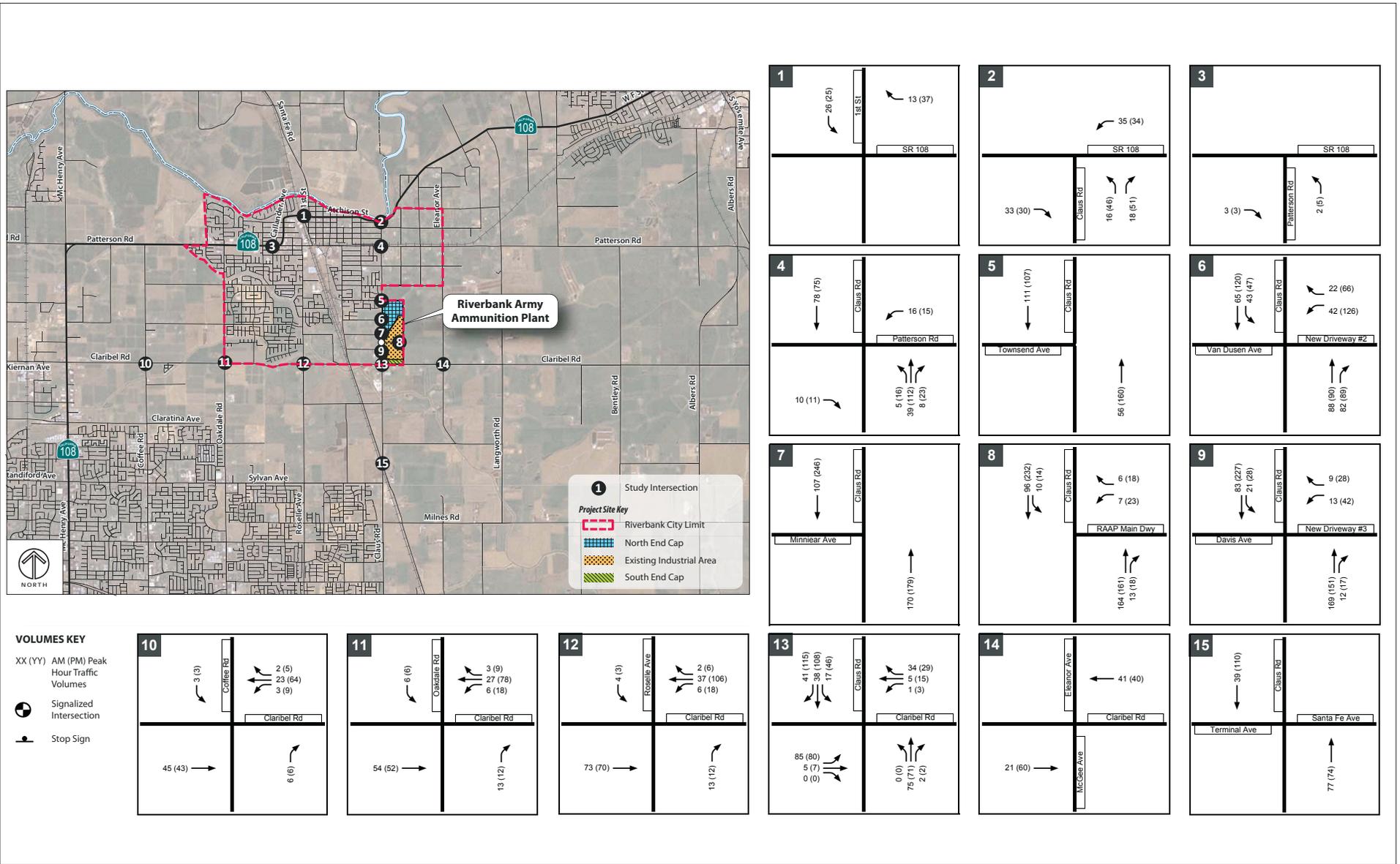
Based on standards of significance used in recently prepared environmental documents within Riverbank and CEQA guidelines, a significant traffic-related project impact would occur if:



Source: Fehr & Peers, 2012.

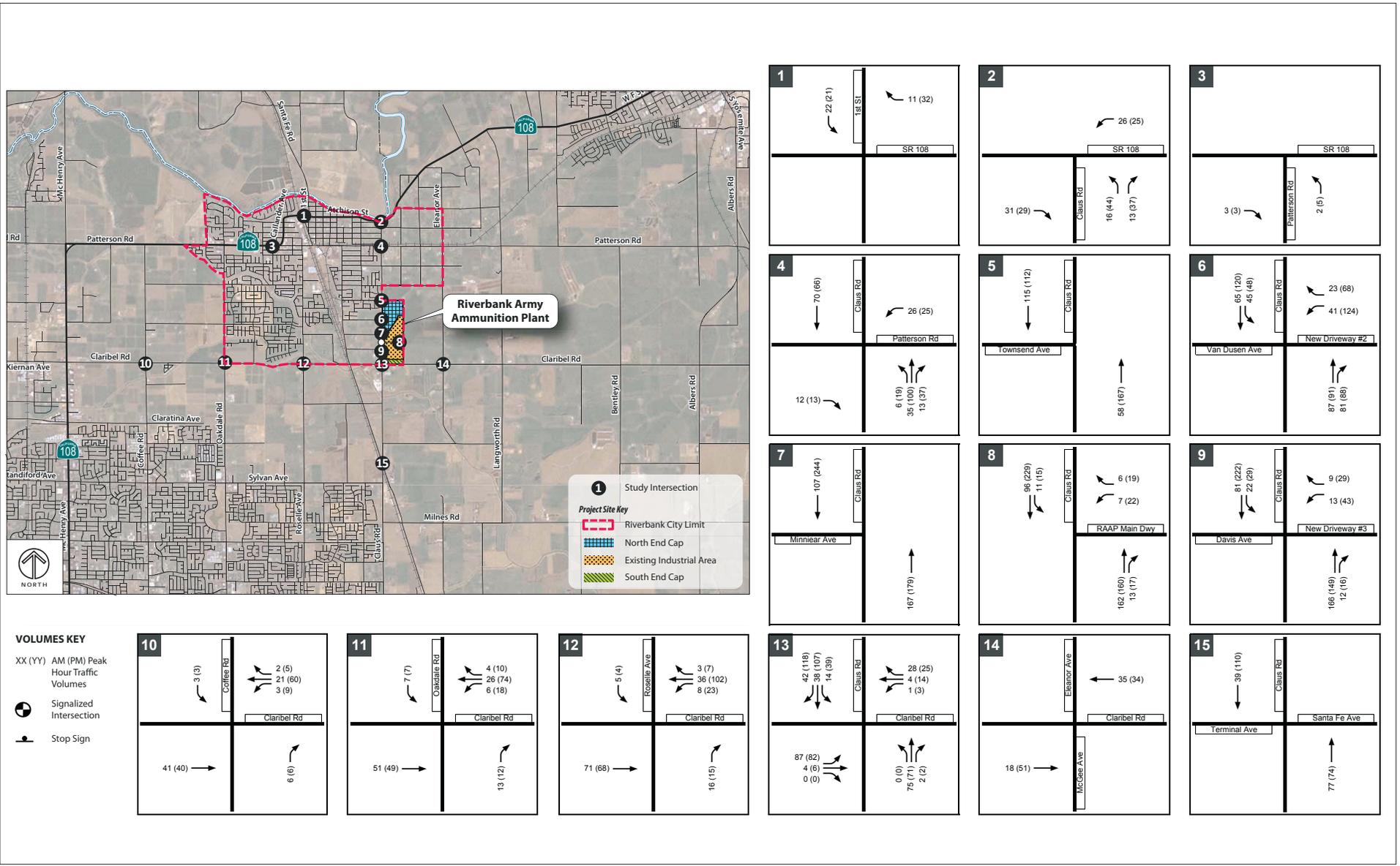
FIGURE 4.16-4

PROJECT TRIP DISTRIBUTION PERCENTAGES



Source: Fehr & Peers, 2012.

FIGURE 4.16-5
 NEAR-TERM PROJECT TRIP ASSIGNMENT



Source: Fehr & Peers, 2012.

FIGURE 4.16-6
 CUMULATIVE PROJECT TRIP ASSIGNMENT

- “ The addition of project traffic causes a signalized intersection to deteriorate from an acceptable level to an unacceptable level
- “ The addition of project traffic causes the level of service at an unsignalized intersection to degrade from an acceptable to an unacceptable service level or causes an unsignalized intersection to meet peak hour traffic signal warrants
- “ The project would increase traffic volumes at an intersection operating at an unacceptable level without the project
- “ The project substantially increases hazards or congestion due to a design feature (e.g. sharp curves) or incompatible uses (e.g., farm equipment)
- “ The project results in inadequate emergency access.
- “ The project conflicts with adopted transportation policies, plans, or programs.

E. Impacts Discussion

1. Project Impacts

This section evaluates potential off-site traffic impacts under Existing Plus Project conditions.

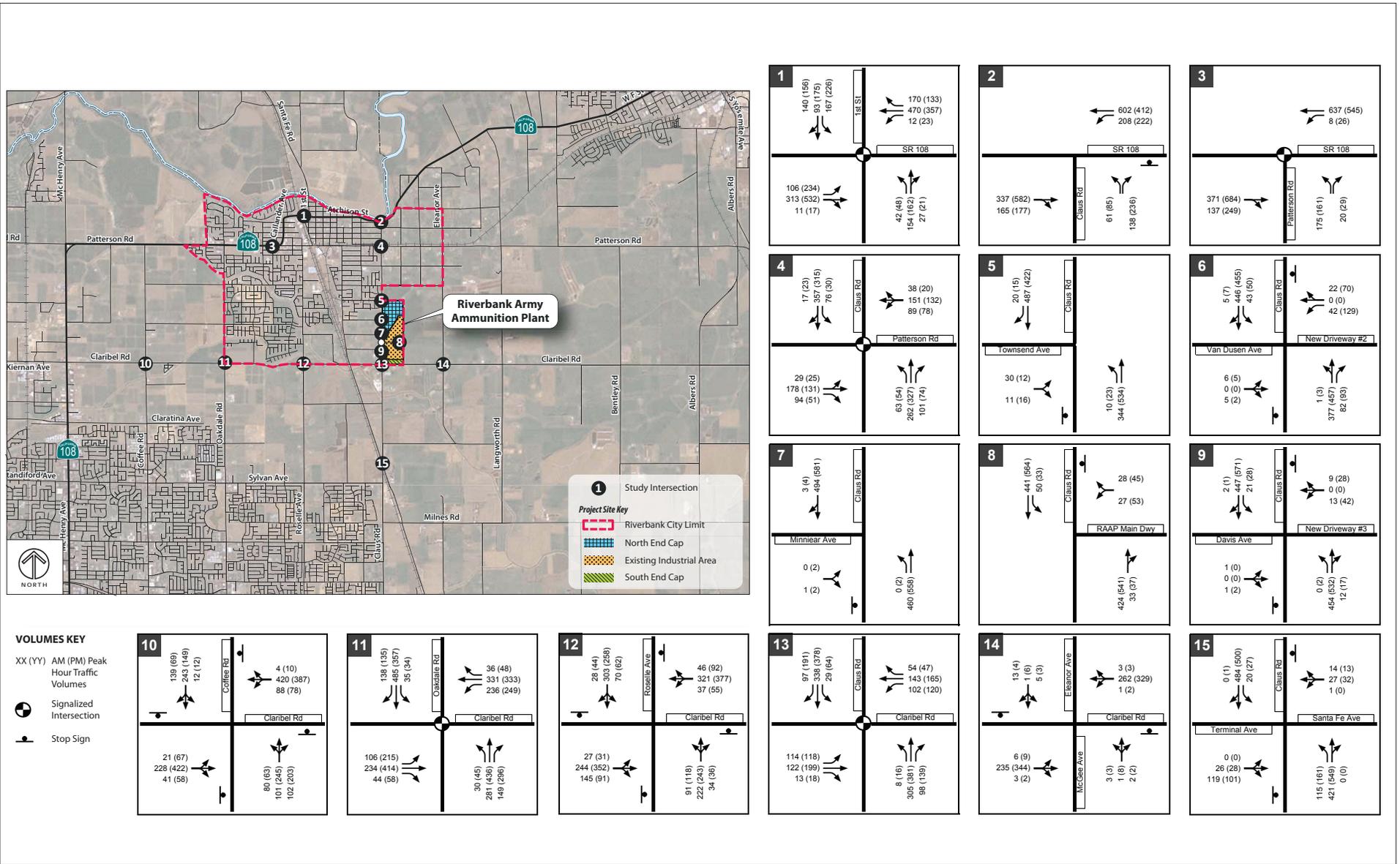
a. Existing Plus Project Traffic Volumes and Roadway Improvements

The project traffic volumes (Figure 4.16-5) were added to the existing peak hour traffic volumes (Figure 4.16-3) to estimate the Existing Plus Project peak hour traffic volumes, as shown on Figure 4.16-7. No roadway improvements were assumed over existing conditions, except for new driveway connections to Claus and Claribel Roads that would be constructed as part of the project.

b. Analysis of Existing Plus Project Conditions

i. Intersection Levels of Service

The Existing Plus Project analysis results are presented in Table 4.16-7. The addition of project traffic would worsen already deficient operations at the



Source: Fehr & Peers, 2012.

FIGURE 4.16-7

EXISTING PLUS PROJECT LANE CONFIGURATIONS, TRAFFIC CONTROL AND PEAK HOUR VOLUMES

TABLE 4.16-7 EXISTING AND EXISTING PLUS PROJECT PEAK HOUR INTERSECTION LEVELS OF SERVICE

Intersection	Control ^a	Peak Hour	Existing		Existing Plus Project	
			Delay ^b	LOS ^c	Delay ^b	LOS ^c
1. Atchison Street (SR 108)/ 1st Street	Signal	AM	39	D	40	D
		PM	46	D	46	D
2. SR 108/Claus Road	SSSC	AM	3 (15)	A (B)	4 (17)	A (C)
		PM	4 (18)	A (C)	6 (23)	A (C)
3. SR 108/Patterson Road	Signal	AM	15	B	15	B
		PM	16	B	16	B
4. Patterson Road/ Claus Road ^d	Signal	AM	38	D	41	D
		PM	28	C	31	C
5. Townsend Avenue/ Claus Road ^d	SSSC	AM	1 (15)	A (B)	1 (18)	A (C)
		PM	1 (13)	A (B)	1 (16)	A (C)
1. Van Dusen Avenue/ Claus Road	SSSC	AM	0 (13)	A (B)	2 (21)	A (C)
		PM	0 (14)	A (B)	9 (55)	A (F)
2. Minniear Avenue/ Claus Road	SSSC	AM	0 (11)	A (B)	0 (12)	A (B)
		PM	0 (11)	A (B)	0 (13)	A (B)
3. RAAP Main Entrance/ Claus Road	SSSC	AM	1 (11)	A (B)	1 (13)	A (B)
		PM	1 (12)	A (B)	1 (16)	A (C)
4. Davis Avenue/Claus Road	SSSC	AM	0 (11)	A (B)	1 (13)	A (B)
		PM	0 (11)	A (B)	1 (16)	A (C)
5. Claribel Road/Coffee Road	AWSC	AM	94	F	116	F
		PM	118	F	151	F
6. Claribel Road/ Oakdale Road	Signal	AM	39	D	42	D
		PM	41	D	45	D
7. Claribel Road/ Roselle Avenue	AWSC	AM	97	F	131	F
		PM	108	F	176	F
8. Claribel Road/Claus Road	Signal	AM	24	C	38	C
		PM	28	C	33	D
9. Claribel Road/McGee Avenue/Eleanor Avenue	SSSC	AM	1 (12)	A (B)	1 (13)	A (B)
		PM	1 (14)	A (B)	1 (16)	A (C)
10. Terminal Avenue/Santa Fe Avenue/Claus Road ^d	SSSC	AM	5 (28)	A (D)	5 (35)	A (E)
		PM	6 (44)	A (E)	7 (68)	A (F)

^a Signal = signalized intersection, SSSC = side street stop controlled, AWSC = all way stop controlled

^b Delay presented in seconds per vehicle; for side-street stop-controlled intersections, delay is presented as Intersection average (worst approach).

^c LOS = Level of Service; bold indicates deficient service level. For intersections in italics, the standard is LOS C, for all other intersections the standard is LOS D.

^d Level of service is worse than shown here when a train is at the adjacent crossing.

Source: Fehr & Peers, 2012.

Claribel Road/Coffee Road and Claribel Road/Roselle Avenue intersections, resulting in a *significant impact*. [MM TRANS-1 and MM TRANS-2] No other intersections would degrade beyond their level of service standard, which is LOS C for the intersections of Claribel Road/Coffee Road and Terminal Avenue/Santa Fe Avenue/Claus Road, and LOS D for the remaining intersections.

The project would increase traffic on State Route 108, where Surface Transportation Assistance Act (STAA) terminal access designation is desired to facilitate the movement of large trucks throughout the area. This would result in a *significant impact*. [MM TRANS-3]

ii. Signal Warrants

In the Existing Plus Project condition, the unsignalized intersections of Claribel Road/Coffee Road and Claribel Road/Roselle Avenue would continue to meet signal warrants in both the morning and afternoon peak hours. Signal warrants would not be satisfied at any other study intersections with the addition of project traffic.

iii. Railroad Crossing Operations

As discussed in the previous section, future train operations on the tracks in the study area of the project site are unknown. Assuming train operations continue as they are today, the increased traffic generated by the project could lengthen the level of vehicle queues, especially at the Claus Road/Terminal Avenue crossing. The project is expected to add approximately 116 morning peak hour trips and 184 evening peak hour trips to the Claus Road rail crossing at Terminal Avenue. Approximately 167 morning peak hour trips and 269 evening peak hour trips would be added over the Claus Road crossing at Townsend Avenue. With these volume increases, vehicle queues during rail-car crossings are expected to increase. However, vehicle queues are anticipated to disperse quickly and sufficient distance is provided between intersections on Claus Road that vehicle queues would not affect the operation of upstream or downstream intersections. Additionally, the crossings are equipped with warning devices and other deterrents to keep drivers from

driving around the gate arms. Therefore, the project impact to rail crossings is expected to be *less-than-significant*.

iv. Construction Period

Construction of the proposed project could potentially result in disruption of traffic flows, blocking lanes in area roadways, and contributing to decreased level of traffic in fewer lanes. Traffic impacts during project construction can also include disruption of alternative modes of transportation, such as blocking bicycle or pedestrian pathways or public transit lanes on area roadways. Additional impacts may result during the construction phase of the proposed project, when there are heavy-duty construction vehicles sharing the roadway with normal vehicle traffic. This can create impacts due to incompatible uses and hazards. Impacts resulting to transportation and traffic due to project construction would be considered a *significant impact*. [MM TRANS-4]

2. Cumulative Impacts

This section discusses Cumulative traffic conditions both without and with the project. The future traffic conditions analysis considers the build out of the project as well as new development and roadway improvements in the surrounding areas.

a. Cumulative Roadway Assumptions

There are a number of roadway improvements that have been identified for construction in northern Stanislaus County to support the transportation needs of existing and planned development. Roadway network improvements consistent with Tier 1 projects identified in the StanCOG Regional Transportation Plan were assumed to be in place for the analysis of cumulative conditions. Tier 1 projects are those where funding sources have been identified. Major roadway improvements assumed in the study area include Phase 1 of the NCC project, which would construct an expressway between McHenry Avenue east to State Route 120 east of Oakdale. Phase 2 of the NCC project would connect McHenry Avenue to State Route 99. The facility is planned to improve regional circulation, relieve existing traffic congestion, reduce traffic delay, and accommodate future traffic. It is anticipated

that the facility would be a multi-lane, access-controlled expressway/freeway, with interchanges. At-grade intersections would be limited and grade-separation would be provided of railroad crossings, irrigation district canals, frontage roads, and local streets.

The NCC alignment considered in this analysis is consistent with the alignment identified in the *State Route 108 East Route Adoption* project as of the time this analysis was conducted. However, the ultimate alignment is still under evaluation and a preferred route has not yet been adopted. One alignment currently under consideration would construct the NCC along Claribel Avenue, which could have site access and circulation implications from Claus and Claribel Roads. Once the preferred alignment is selected, the Specific Plan and associated technical documents may need to be modified to reflect site access and circulation changes necessary to accommodate the roadway construction.

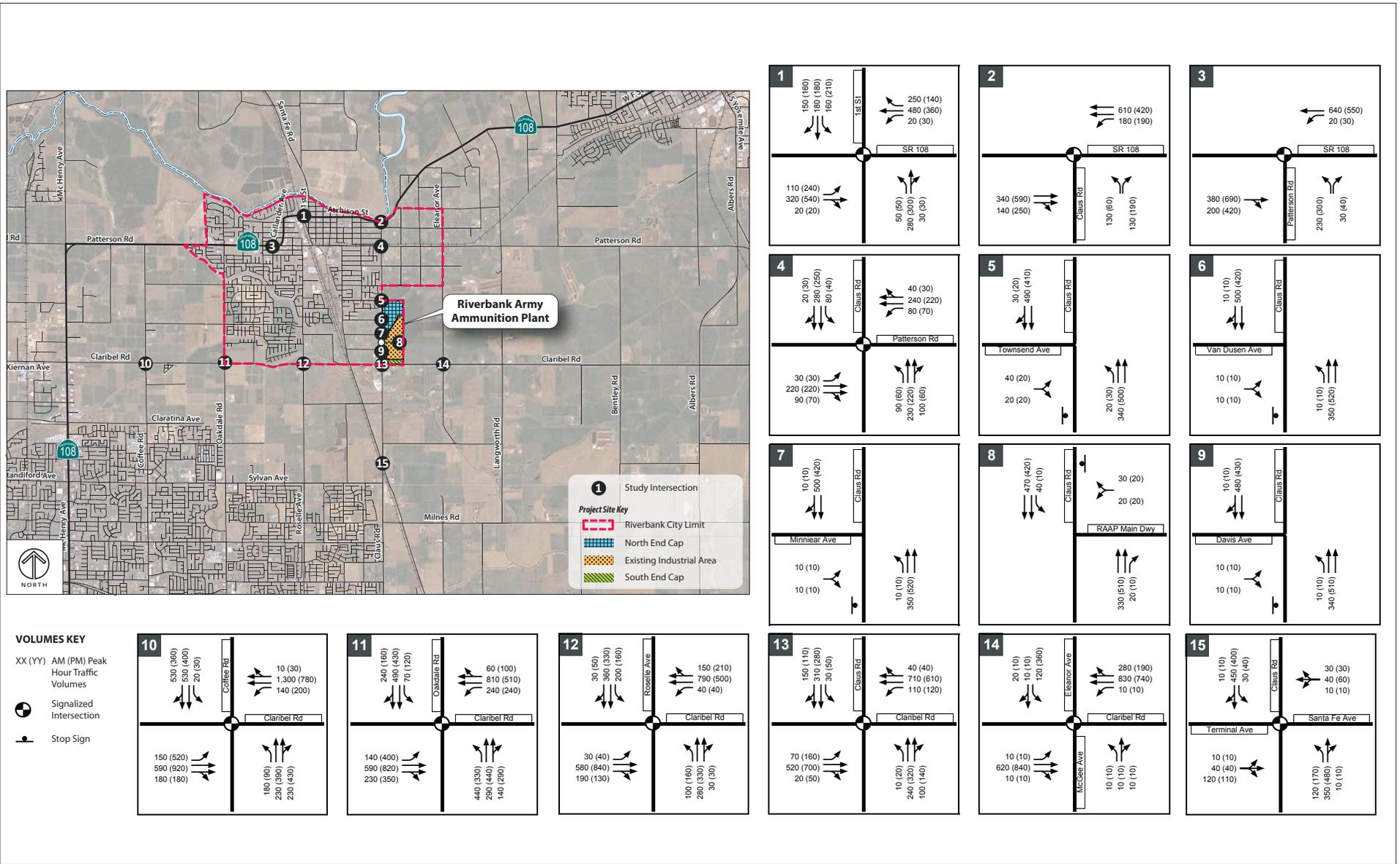
The City of Riverbank General Plan identifies additional roadway network improvements to be constructed with planned land use development, including widening of Coffee Road, Oakdale Road, Roselle Avenue, Claus Road, and Claribel Road to provide two travel lanes in each direction. Traffic signals are planned to be constructed at the following intersections:

- State Route 108/Claus Road
- Claribel Road/Coffee Road
- Claribel Road/Roselle Avenue
- Claribel Road/McGee Avenue/Eleanor Avenue
- Terminal Avenue/Santa Fe Avenue/Claus Road

The lane configuration assumptions for the study intersections are shown on Figure 4.16-8.

b. Cumulative Traffic Forecasts

The 2011 StanCOG RTP Model (StanCOG Model) was selected as the modeling tool for this project. The StanCOG Model was developed in the Cube/TP+ software platform. An extensive sub-area calibration/validation



Source: Fehr & Peers, 2012.

FIGURE 4.16-8

CUMULATIVE WITHOUT PROJECT LANE CONFIGURATIONS, TRAFFIC CONTROL AND PEAK HOUR VOLUMES

exercise was undertaken before using the model to predict future volumes. The detailed results of this process are presented in the memorandum entitled Final Travel Demand Forecasting (TDF) Model Calibration and Validation for the North County Corridor PA/ED (March 16, 2011). Buildout of the land uses identified in City of Riverbank General Plan is reflected in the resulting traffic forecasts.

The process of developing forecasts is described in detail in the TIA. The Cumulative Without Project Forecasts are presented on Figure 4.16-8. The peak hour project volumes from Figure 4.16-6 were added to the Cumulative Without Project traffic volumes to determine cumulative traffic volumes with the proposed project, as presented on Figure 4.16-9.

c. Analysis of Cumulative Conditions

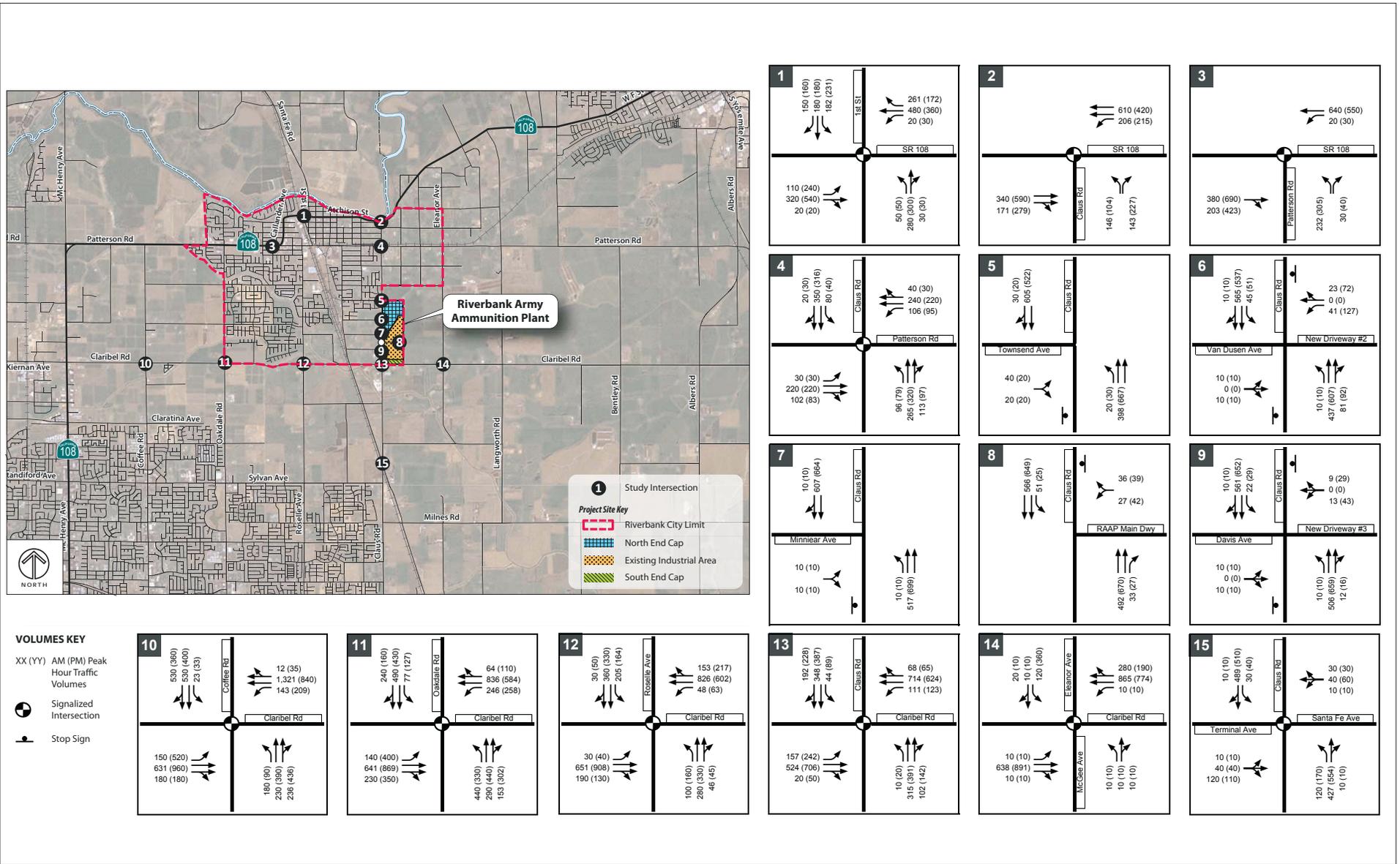
i. Intersection Levels of Service

The Cumulative Without and With Project conditions analysis results are presented in Table 4.16-8. In the Cumulative Without Project condition, the Claribel Road/Coffee Road and Claribel Road/Oakdale Road intersections are projected to operate at unacceptable service levels during both peak hours. The addition of project traffic would potentially increase delay at these intersections, resulting in a significant impact at each intersection. [MM TRANS-5 and MM TRANS-6]

It should be noted that the timing of the conditions shown in Table 4.16-9 is uncertain, as it is dependent on the level of local and regional development that could occur over the next 20 years.

ii. Signal Warrants

A number of intersections that are currently unsignalized are planned to be signalized by 2030. Peak hour signal warrants would not be satisfied at any unsignalized study intersection in the Cumulative condition, even with the addition of project traffic.



Source: Fehr & Peers, 2012.

FIGURE 4.16-9

CUMULATIVE WITH PROJECT LANE CONFIGURATIONS, TRAFFIC CONTROL AND PEAK HOUR VOLUMES

TABLE 4.16-8 CUMULATIVE WITHOUT AND WITH PROJECT PEAK HOUR INTERSECTION LEVELS OF SERVICE

Intersection	Control ^a	Peak Hour	Without Project		With Project	
			Delay ^b	LOS ^c	Delay ^b	LOS ^c
1. Atchison Street (SR 108) /1st Street	Signal	AM	43	D	44	D
		PM	48	D	50	D
2. SR 108/Claus Road	Signal	AM	11	B	11	B
		PM	12	B	14	B
3. SR 108/Patterson Road	Signal	AM	18	B	18	B
		PM	34	C	36	D
4. Patterson Road/ Claus Road ^d	Signal	AM	27	C	28	C
		PM	24	C	26	C
5. Townsend Avenue/ Claus Road ^d	SSSC	AM	1 (16)	A (C)	1 (18)	A (B)
		PM	1 (14)	A (B)	1 (17)	A (B)
6. Van Dusen Avenue/ Claus Road	SSSC	AM	0 (15)	A (B)	2 (21)	A (C)
		PM	0 (15)	A (B)	11 (74)	B (F)
7. Minniear Avenue/ Claus Road	SSSC	AM	0 (11)	A (B)	0 (12)	A (B)
		PM	0 (11)	A (B)	0 (13)	A (B)
8. RAAP Main Entrance/ Claus Road	SSSC	AM	1 (11)	A (B)	1 (12)	A (B)
		PM	1 (12)	A (B)	1 (14)	A (B)
9. Davis Avenue/Claus Road	SSSC	AM	0 (11)	A (B)	1 (12)	A (B)
		PM	0 (11)	A (B)	1 (14)	A (B)
10. Claribel Road/ Coffee Road	Signal	AM	87	F	89	F
		PM	65	E	73	E
11. Claribel Road/ Oakdale Road	Signal	AM	99	F	110	F
		PM	91	F	99	F
12. Claribel Road/ Roselle Avenue	Signal	AM	33	C	34	C
		PM	32	C	33	C
13. Claribel Road/Claus Road	Signal	AM	28	C	33	C
		PM	34	C	40	D
14. Claribel Road/McGee Avenue/Eleanor Avenue	Signal	AM	20	B	20	B
		PM	28	C	28	C
15. Terminal Avenue/Santa Fe Avenue/Claus Road ^d	Signal	AM	29	C	29	C
		PM	29	C	33	C

^a Signal = signalized intersection, SSSC = side street stop controlled intersection

^b Delay presented in seconds per vehicle; for side-street stop-controlled intersections, Delay presented in Intersection average (worst approach).

^c LOS = Level of Service; bold indicates deficient service level. For intersections in italics, the standard is LOS C, for all other intersections the standard is LOS D.

^d Level of service is worse than shown here when a train is at the adjacent crossing.

Source: Fehr & Peers, 2012.

iii. Railroad Crossing Operations

The potential project impact to rail crossings was considered less-than-significant in the near-term condition. In the Cumulative condition, there are a number of roadway improvements planned in the area to accommodate existing and projected levels of vehicle traffic. Rail traffic patterns may change as well. For example, Tuolumne County approved a quarry project (currently the subject of litigation), that could increase rail activity on the Claus Road, north of Patterson Road crossing by up to 20 trains per week, more than doubling the number of trains over the crossing each week. It is expected that as roadways are improved and widened, grade separated crossings may be constructed at existing at-grade crossings, including with the NCC project. As the RAAP is developed, it is expected that through the payment of regional and local traffic impact fees, the project would contribute to future rail crossing improvements.

F. Impacts And Mitigation Measures

1. Project Impacts

Based on the level of service results, impacts could potentially occur at two study intersections. Mitigations to address these impacts are discussed below.

Impact TRANS-1: The Claribel Road/Coffee Road intersection operates at LOS F during both the AM and PM peak hours and signal warrants are met during both peak hours in the Existing Condition. The addition of project traffic would worsen operations and increase delay.

Mitigation Measure TRANS-1: Future developers within the RAAP area shall contribute their fair share, through the payment of local and regional fees, towards the construction of left-turn pockets on all approaches with appropriate storage and deceleration length, and signalization of the intersection. This improvement would improve the service level to LOS C or better (the level of service standard for this intersection) in both peak hours, as shown on Table 4.16-9. Stanislaus County plans to signalize this intersection as part of the Claribel Road widening project. Fund-

ing for signalization is provided from Congestion Mitigation and Air Quality (CMAQ) Federal funding. Construction is scheduled to begin in 2013.

Significance After Mitigation: *Less than significant.*

Impact TRANS-2: The Claribel Road/Roselle Avenue intersection operates at LOS F during both the AM and PM peak hours and signal warrants are met during both peak hours in the Existing Condition. The addition of project traffic would worsen operations and increase delay.

Mitigation Measure TRANS-2: Future developers within the RAAP area shall contribute their fair share, through the payment of local and regional fees, towards the construction of left-turn pockets on all approaches with appropriate storage and deceleration length, and signalization of the intersection. This improvement would improve the service level to LOS D or better (the level of service standard for this intersection) in both peak hours, as shown on Table 4.16-9. Signalization of this intersection is programmed in the Stanislaus County 2011-2012 budget using CMAQ funding and is scheduled for construction in 2015/2016.

Significance After Mitigation: *Less than significant.*

Impact TRANS-3: Future development within the RAAP area would add truck traffic to intersections on State Route 108, specifically at the intersections of Atchison Street (State Route 108)/1st Street, State Route 108/Claus Road and State Route 108/Patterson Road. As these intersections do not currently accommodate the turning movements of large trucks, this is considered a potentially significant impact based on the significance criteria.

TABLE 4.16-9 EXISTING PLUS PROJECT WITH MITIGATION PEAK HOUR INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Peak Hour	Existing		Existing Plus Project		Existing Plus Project Plus Mitigation	
		Delay ^a	LOS ^b	Delay ^a	LOS ^b	Delay ^a	LOS ^b
10. Claribel Road/ Coffee Road	AM	94	F	120	F	35	C
	PM	118	F	151	F	15	B
12. Claribel Road/ Roselle Avenue	AM	88	F	131	F	33	C
	PM	108	F	176	F	36	D

^a Delay presented in seconds per vehicle.

^b LOS = Level of Service.

Source: Fehr & Peers, 2012.

Mitigation Measure TRANS-3: Future developers within the RAAP area shall contribute their fair share towards improvements at the intersections identified above, though the payment of local and regional traffic fees, that improve turning radii for large trucks. No improvements have been identified for these intersections.

Significance After Mitigation: *Significant and unavoidable.*

Impact TRANS-4: Future Development in the RAAP Specific Plan area could substantially increase hazards due to a design feature or incompatible uses.

Mitigation Measure TRANS-4: Although construction impacts are expected to be temporary and less-than-significant, for all future development in the plan area, the following is recommended to minimize the effects of construction related activity:

- “ Prepare a construction management plan, including:
 - ÿ Project staging plan to maximize on-site storage of materials and equipment.

- ÿ A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak hours; lane closure proceedings; signs, cones, and other warning devices for drivers; and designation of construction access routes.
- ÿ Permitted construction hours.
- ÿ Location of construction staging.
- ÿ Provision of on-site parking for all construction employees, site visitors, and inspectors.
- ÿ Provisions for street sweeping to remove construction related debris on public streets.

Significance After Mitigation: *Less than significant.*

2. Cumulative Impacts

Based on the level of service results, impacts could potentially occur at two study intersections. Mitigations to address these impacts are discussed below. It should be noted that the future project developers would be required to pay all applicable local and regional transportation impact fees in place at the time of development to fund construction of local and regional roadway improvements.

Impact TRANS-5: The Claribel Road/Coffee Road intersection is projected to operate at LOS F during the AM and LOS E during the PM peak hours. The addition of project traffic would worsen deficient operations in both peak hours. This is considered significant based on the significance criteria, as LOS C is the standard for this intersection.

Mitigation Measure TRANS-5: Construction of Phase 2 of the North County Corridor Project, which would connect the Phase 1 project, which is planned to terminate at McHenry Avenue, to State Route 99, is expected to shift sufficient traffic from this intersection that LOS C would be achieved. Alternatively, intersection improvements beyond the cross-section identified in the General Plan could be provided to improve

peak hour operations, such as dual left-turn lanes and right-turn only lanes on all approaches. This improvement would improve the service level to LOS E during the AM peak hour and LOS D during the PM peak hour, as shown on Table 4.16-10. These service levels are considered deficient for this intersection. Given the uncertainty of constructing parallel capacity or the feasibility of additional improvements beyond the planned General Plan cross section, this impact is expected to remain significant and unavoidable.

Significance After Mitigation: *Significant and unavoidable.*

Impact TRANS-6: The Claribel Road/Oakdale Road intersection is projected to operate at LOS F during the AM and PM peak hours. The addition of project traffic would worsen LOS F operations. This is considered significant based on the significance criteria, as LOS D is the standard for this intersection.

Mitigation Measure TRANS-6: Construction of Phase 2 of the North County Corridor Project, which would connect the Phase 1 project, which is planned to terminate at McHenry Avenue, to State Route 99, is expected to shift sufficient traffic from this intersection that LOS D would be achieved. Alternatively, construction of additional improvements at this intersection that would result in acceptable service levels, including dual left-turn pockets on the northbound, westbound, and eastbound approaches could be constructed. This improvement would improve the service level to LOS D or better (the level of service standard for this intersection) in both peak hours, as shown in Table 10 of the TIA, reducing this impact to a less-than-significant level. However, given the uncertainty of constructing parallel capacity or the feasibility of additional improvements beyond the planned General Plan cross section, this impact is expected to remain significant and unavoidable.

Significance After Mitigation: *Significant and unavoidable.*

TABLE 4.16-10 CUMULATIVE WITH PROJECT WITH MITIGATION PEAK
HOUR INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Peak Hour	Cumulative Without Project		Cumulative With Project		Cumulative With Project With Mitigation	
		Delay ^a	LOS ^b	Delay ^a	LOS ^b	Delay ^a	LOS ^c
Claribel Road/	AM	87	F	89	F	66	E
Coffee Road	PM	65	E	73	E	38	D
Claribel Road/	AM	99	F	110	F	53	D
Oakdale Road	PM	91	F	99	F	51	D

^a Delay presented in seconds per vehicle; for side-street stop-controlled intersections, Delay presented in Intersection average (worst approach).

^b LOS = Level of Service.

Source: Fehr & Peers, 2012.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SITE SPECIFIC PLAN EIR
TRANSPORTATION AND TRAFFIC

4.17 UTILITIES AND SERVICE SYSTEMS

This chapter describes the existing utilities and services systems on the RAAP site and evaluates the potential impacts of the Plan on those services and facilities. Wastewater, water supply, stormwater, and solid waste are each addressed in a separate section of this chapter. In each section, a summary of the relevant regulatory setting and existing conditions is followed by a discussion of project-specific and cumulative impacts.

A. Wastewater

1. Regulatory Framework

a. Federal Regulations

The federal government has some regulations regarding wastewater treatment and planning. The federal regulation relevant to the RAAP is described below.

i. Clean Water Act

The Federal Water Pollution Control Act of 1972, more commonly known as the Clean Water Act (CWA), regulates the discharge of pollutants into watersheds throughout the nation. Under the CWA, the United States Environmental Protection Agency (EPA) implements pollution control programs and sets wastewater standards.

ii. National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the Clean Water Act 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 stormwater 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.

b. State Regulations and Agencies

Wastewater treatment and planning is regulated at the State level. Specific regulations relevant to the proposed Plan are described below.

i. State Water Resources Control Board

On May 2, 2006 the 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 Central Valley Regional Water Quality Control Board (CVRWQCB) is the local division of the SWRCB. The CVRWQCB issues NPDES permits in Riverbank. NPDES permits allow the RWQCB to collect information on where the waste is disposed, what type of waste is being disposed, and what entity is depositing the wastes. The RWQCB is also charged with conducting inspections of permitted discharges and monitoring permit compliance. The current California RWQCB requirements for the Riverbank WWTP state that the monthly average influent flow of the City of Riverbank Waste Water Treatment Plant (City WWTP) must not exceed 4.5 million gallons per day (mgd) during the three-month tomato-processing season and 1.8 mgd during the remainder of the year.¹

¹ City of Riverbank, General Plan Background Report, 2005, Public Services and Facilities, page PS&F-29.

c. Local Regulations

Locally, wastewater treatment and planning is regulated at the city level, as described below.

i. City of Riverbank 2007 Sewer Collection System Master Plan

The City has projected wastewater flows for future development in Riverbank based on land uses projected in its General Plan and has identified facility improvements required to maintain service at or above the required level in the 2007 Sewer Collection System Master Plan (Sewer Master Plan). The wastewater generation factors vary ranging from 400 gpd per acre to 2,500 gpd per acre based on land uses, as shown in Table 4.17-1. According to the Sewer Master Plan, the existing sewer flows within the City limits are 1,861,000 gpd, but the future sewer flows within the City limits and the General Plan area would increase up to 6,635,000 gpd at buildout. Improvements are prioritized and phased in the Capital Improvement Plan, which is part of the Sewer Master Plan.

ii. City of Riverbank General Plan

Goals and policies from the Riverbank General Plan that are relevant to wastewater are listed in Table 4.17-2.

iii. Industrial Discharge Permits

Industrial dischargers to the City treatment plant operate under individual industrial discharge permits issued annually by the City. The industrial discharge permits specify flow and quality limits for wastewater discharge to the City treatment plant. The existing RAAP industrial permit required an optimization study for an ion exchange unit, the results of which reflected their ability to reduce total dissolved solids (TDS) concentrations discharged to the City treatment plant. Decreases to TDS loading were subsequently agreed upon between the City and RAAP and reflected in new permit limits.²

² Weston Solutions, Environmental Opportunities and Constraints Analysis Riverbank Army Ammunitions Plant Riverbank, California, November 2009. See Appendix F of this Draft EIR.

TABLE 4.17-1 FUTURE SEWER FLOW PROJECTIONS FOR THE GENERAL PLAN AREAS AND THE CITY SERVICE AREAS

Land Use	Gross Area (Acres)	Generation Factor (gpd/Acre)	Average Dry Weather Flow (gpd)
Within City Service Areas			
Medium Density Residential	1,558	2,500	2,501,000
Low Density Residential	148	1,500	178,000
Commercial	219	1,200	198,000
Industrial	244	1,500	227,000
Government	80	425	29,000
Parks	69	400	22,000
Total			3,155,000
Sewer Flow for General Plan Areas including the City			
Total			6,635,000

Source: City of Riverbank, 2007 Sewer Collection System Master Plan, page 4-5.

iv. System Development Fees

The City of Riverbank established public facility impact fees (also known as System Development Fees) by Resolution in order to make reasonable provisions for new facilities. As required by the City's General Plan, new development should provide for adequate public facilities and new development would bear the fair share of providing such facilities. Such fees may include charges for drainage improvements, traffic and roadway improvements, and other capital improvements such as parks and public buildings. The City Council approved increases to the City's development impact fees in 2008.

TABLE 4.17-2 GENERAL PLAN GOALS AND POLICIES RELEVANT TO WASTEWATER

Goal/Policy Number	Goal/Policy Content
Goal PUBLIC-1	<p>Public service and infrastructure provision to meet or exceed level of service standards consistent with other community goals.</p>
Policy PUBLIC-1.2	<p>New development must pay for the public facilities, services, and infrastructure required to serve the needs of such development based on service standards applied by the City. The mechanisms for such funding will be part of the development approval, or as set forth in any applicable development agreement or specific plan, which, with the approval of the City Council, may provide for alternative financing mechanisms in-lieu of City development fee programs and ordinances. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities that serve areas beyond the proposed project or plan. Construction and dedication of facilities will be the method for providing facilities that serve the proposed project or plan area. The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.</p>
Policy PUBLIC-1.3	<p>The City will require that new developments, depending on their size, either: 1) designate lands in appropriate locations, sizes, and free of constraints to accommodate public facilities and infrastructure needed to serve such development, or 2) pay a fee proportional to the development's cost of acquiring such land at the time acquisition will be required.</p>
Policy PUBLIC-1.4	<p>The City shall give priority to serving areas within the existing City limits as of the adoption of this General Plan based on current infrastructure and service capacity. New growth proposed outside existing City limits is responsible for providing, or paying a proportionate share of the cost of, public facilities and infrastructure adequate to serve the needs of such development according to the General Plan, a specific plan (if prepared for such development), and/or any infrastructure Master Plan that covers such development through the use of a City-approved development agreement. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities that serve areas beyond the proposed project or plan.</p> <p>Construction and dedication of facilities will be the method for providing facilities that serve the proposed project or plan area.</p>

TABLE 4.17-2 GENERAL PLAN GOALS AND POLICIES RELEVANT TO
 WASTEWATER (CONTINUED)

Goal/Policy Number	Goal/Policy Content
	The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.
Goal PUBLIC-3	Adequate wastewater service to meet existing and future projected development determined in the general plan.
Policy PUBLIC-3.1	The City will require that wastewater collection, conveyance, and treatment facilities meet or exceed local, State, and federal standards, as addressed in the City’s Sewer Collection System Master Plan.

Source: City of Riverbank, 2006, General Plan 2005-2025.

v. Sewer Service Charge

The major source of revenue for the Sewer fund is Sewer Service Charges. These are the charges made to residential and commercial customers on a bi-monthly basis. These charges are used to maintain the City’s sewer lines and to fund the operations of the City WWTP.

2. Existing Conditions

Prior to 1975, sanitary sewer waste was collected and treated on the RAAP site. The effluent and sewage beds remain intact, but were closed in 1975 when connection with the City of Riverbank’s system was made. The Public Work Sewer Division of the City operates and maintains the City’s sewer collection system including sewer mains, laterals, lift stations, and the City WWTP.

a. Wastewater (Sewer) Collection

As mentioned above, the Public Work Sewer Division maintains the wastewater collection system in Riverbank, including the RAAP site. The City sewer system consists of 6-inch to 36-inch diameter collection piping, nine lift/pump stations, and the City WWTP, located on the north side of the Stanislaus River in San Joaquin County. All wastewater is conveyed from the

collection system to the City WWTP through a 27-inch gravity line located on a trestle over the Stanislaus River.³

The sanitary sewer system on the RAAP site conveys waste to the City of Riverbank. The sanitary sewer collection system begins as a series of 6-inch pipes in the Production Area. These pipes drain to the north by gravity feed and become progressively larger as waste from Buildings 9, 10, 13, 16, 17, and the 120 area are added. Ultimately, one 12-inch diameter pipe conveys waste to the lift station north of Building 9 and across the railroad tracks from the propane storage area. From the lift station, waste is transferred by a 4-inch diameter force main before transitioning back to gravity flow and connecting to the City of Riverbank collection system. There is an additional lift station near the Industrial Wastewater Treatment Plant (IWTP). The total length of the gravity sanitary sewer system on the RAAP site is approximately 6,078 linear feet.⁴

The sanitary sewer system on the RAAP site is built mostly of reinforced concrete pipe with some small sections of cement asbestos and corrugated metal pipe. There are over 55 manholes and clean-out locations. Due to the age of the concrete pipe, there are many areas with vertical and/or horizontal pipe cracks. Based on a camera assessment performed by Weston Solutions during the week of September 20, 2009, the severity of the cracks range from minor superficial cracking to at least one section of collapsed pipe.⁵ Additionally, there are pipe segments of both vertical crowns and valleys, meaning the gravity system cannot function properly, as material will settle in these

³ City of Riverbank, *2007 Sewer Collection System Master Plan*.

⁴ Weston Solutions, 2010, *Operations and Infrastructure Assessment – Riverbank Army Ammunition Plant*, July 1. See Appendix F of this Draft EIR.

⁵ Weston Solutions, 2009, *Environmental Opportunities and Constraints Analysis Riverbank Army Ammunitions Plant Riverbank*, November. See Appendix F of this Draft EIR.

areas. Many instances of cracked or offset joints were also noted during the camera inspection of the sewer lines.⁶

b. Wastewater (Sewer) Treatment and Disposal

There are three main generators of wastewater on the RAAP site: a Groundwater Treatment System (GWTS), an IWTP, and domestic wastewater. The GWTP is the remediation project that pumps out water, treats it, and sends it to the IWTP where it is pumped to the Stanislaus River. The IWTP handles all the wastewater from metal production. It treats the waste with two types of chemicals. This process creates a brine water from the treatment facility much like a water softener. Both that water and the treated effluent are discharged into the City system. Consequently, there are two types of discharge water coming from the IWTP and going into the City system: the ion exchange brine water and the treated effluent. The domestic wastewater is commingled with the IWTP wastewater and then goes into a single pipe to be discharged to the City sewer system.

All RAAP wastewater except the effluence from the GWTP is discharged to the City of Riverbank collection system and treated at the City WWTP. Treated wastewater is discharged, under a NPDES Direct Discharge permit, into the Stanislaus River. The City WWTP went through a five-year upgrade program from 2002 to 2007 that allowed an increase in industrial treatment capacity. The City WWTP has a peak capacity of 7.9 million gallons per day (mgd).⁷ The existing average dry-weather flows within the City limits are 1,861,000 gpd (or 1.86 mgd).⁸

The treated industrial discharge from the RAAP site was permitted for discharge to the Stanislaus River through the waste discharge requirements (WDRs) issued by the State Water Resources Board (SWRB) and the

⁶ Weston Solutions, 2009, *Environmental Opportunities and Constraints Analysis Riverbank Army Ammunitions Plant Riverbank*, November. See Appendix F of this Draft EIR.

⁷ City of Riverbank, *General Plan Draft EIR*, page 4.16-10, adopted in 2009.

⁸ City of Riverbank, 2007, *2007 Sewer Collection System Master Plan*.

CVRWQCB.⁹ The industrial discharge used to be permitted for discharge to the City sewer treatment system through an industrial wastewater permit held by Norris Industries (NI) until 2010.¹⁰

3. Standards of Significance

The Plan would have a significant impact related to wastewater if it would:

- a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.
- b. 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.
- c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

4. Impacts Discussion

- a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

As described in Section A.1 of this chapter, sanitary wastewater treatment requirements are established in the NPDES Permit issued by the RWQCB. The permit also sets out a framework for compliance and enforcement.

Currently the discharger named in the WDR is NI, but the WDRs are transferable if there is a name change only and the timing is not nearing the normal re-permitting time. When the WDR is transferred to the City of Riverbank, the City will implement and enforce a pretreatment program for effluent discharged from the GWTS and the IWTS on the RAAP site.

⁹ State of California Regional Water Quality Control Board (RWQCB) Waste Discharge Requirements (WDR) Order No. 5-01-200, 2001.

¹⁰ City of Riverbank Industrial Wastewater Discharge Permit 08-001, 2008.

Additionally, the City of Riverbank has a permit for discharge from the City WWTP to the Stanislaus River. The City proposed wastewater treatment system upgrade through the 2007 Sewer Collection System Master Plan, and the upgrade is expected to comply with RWQCB requirements as well as State standards. Additionally, as discussed in Section 4.c below, the projected wastewater generated from build-out of the draft Specific Plan would not exceed the City WWTP's capacity. Therefore there would be a *less-than-significant* impact to exceeding the wastewater treatment requirements from the proposed Plan.

- b. 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.

Based on the General Plan projection, the City has already accounted for future development in Riverbank, including the Plan Area.¹¹ As described in Section A.1 of this chapter, the Sewer Collection System Master Plan recommended several improvements to the sewer collection systems to ensure that the City would have the capacity to meet its wastewater demands according to the projected buildout of the proposed General Plan. Future development from the Plan would be subject to permits as well as associated fees and charges levied on all new development at the time of connection as described above.

The Plan would not require any off-site expansions or new construction of wastewater treatment facilities because the anticipated wastewater generation would be within the capacity of the existing City WWTP. See the response to criteria c) below for additional information on project wastewater volumes versus capacity.

However, as described in Section A.2 of this chapter, the existing sewer pipes on the RAAP site are old and have areas where there are improperly functioning gravity systems, cracked or offset joints, or vertical and/or horizontal

¹¹ City of Riverbank, 2006, *General Plan 2005-2025*. City of Riverbank, 2007, *Sewer Collection System Master Plan*.

pipe cracks. Consequently, buildout of the Plan would require improvements to existing wastewater collection facilities. The Plan includes Policy PUB-2 that ensures that adequate infrastructure is provided as necessary to support new development. The implementation of this policy will reduce impacts to wastewater collection to a *less-than-significant* level.

- c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

As described in Chapter 4.13, Population and Housing, buildout of the Plan would result in growth for Riverbank that is in line with the anticipated growth under the General Plan and the Sewer Master Plan. Buildout of the Plan could result in construction of as much as 119,058 square feet of commercial/retail and 1,411,542 square feet of industrial space. Using demand factors of 1,200 gpd per acre (or 43,560 square feet) of commercial space and 1,500 gpd per acre of industrial space, as much as 51,887 gpd of wastewater would be generated.¹² Added to existing average demand of 1.82 mgd¹³, this demand would not exceed the WWTP's existing peak capacity of 7.9 mgd. As a result, a *less-than-significant* impact would occur.

5. Cumulative Impacts

This section analyzes potential impacts to sanitary wastewater that could occur from the Plan in combination with reasonably foreseeable growth in Riverbank.

As discussed above, development associated with the Plan would comply with RWQCB treatment standards for wastewater. Buildout of the Plan would increase the volume of wastewater for treatment at the City WWTP; however, as this increase represents only approximately 0.6 percent of the existing peak treatment capacity, and as it would occur incrementally over a period of

¹² Demand factors are the same used in the 2007 Sewer Collection System Master Plan, 2007.

¹³ City of Riverbank, 2007, *2007 Sewer Collection System Master Plan*.

20 years, it would not be cumulatively considerable, and would result in a *less-than-significant* cumulative impact.

6. Impacts and Mitigation Measures

The Plan would not result in any significant impacts to wastewater; therefore, no mitigation measures are necessary.

B. Water Supply

1. Regulatory Framework

a. Federal Regulations

The following is federal regulations that affect water service in the Plan Area.

i. Safe Drinking Water Act

The Safe Drinking Water Act (SDWA), passed in 1974, is the initial federal legislation passed to ensure the quality of drinking water. The law was amended in 1986 and 1996, and requires many actions to protect drinking water and its sources, such as rivers, lakes, reservoirs, springs, and ground water wells.¹⁴ Under SDWA, the US Environmental Protection Agency (US EPA) sets standards for drinking water quality and oversees the water suppliers that implement those standards. Regulatory standards established by the SDWA include maximum allowable levels of chemicals and other substances in drinking water, protocols for monitoring drinking water quality and methods for treating drinking water.

In 1976, California enacted its own Safe Drinking Water Act (Health and Safety Code Section 116270 et seq.), granting the California Department of Health Services (CDHS) primary enforcement responsibility. In 1989, the California Legislature passed Assembly Bill 21 (Sher, Chapter 823, Statutes of

¹⁴ United States Environmental Protection Agency (US EPA), <http://water.epa.gov/lawsregs/rulesregs/sdwa/>, accessed on May 7, 2012.

1989), which amended California's Safe Drinking Water Act.¹⁵ The law requires the California Department of Public Health (CDPH) to regulate drinking water by:

- Setting and enforcing federal and State drinking water standards;
- Administering water quality testing programs; and
- Administering permits for public water system operations.

The standards established by the CDPH are found in the California Code of Regulations, Title 22.

b. State Regulations

The following are State regulations that affect water service in the Plan Area.

i. Senate Bill 610 and Assembly Bill 901

Senate Bills (SB) 610 and Assembly Bill (AB) 901, Water Supply Planning, amend the Public Resources and Water Codes as they pertain to consultation with water supply agencies, urban water management plans, and State funding restrictions for agencies who do not prepare urban management plans and water supply assessments. SB 610 requires water supply assessments (WSAs) for "projects" (as defined by Water Code § 10912 and of which the Specific Plan is one such "project"), that are subject to the California Environmental Quality Act (CEQA).

The basic requirement of WSAs is that they include a discussion of whether projected water supplies available during normal, single dry and multiple dry water years during a 20-year projection will meet the projected demand of existing and planned future uses, plus the demand of the proposed project. If water demand is accounted for in an adopted Urban Water Management Plan (UWMP), the WSA may incorporate UWMP information. If the UWMP does not account for the project's projected demand, the WSA must be based

¹⁵ California Senate Office of Research, <http://www.sor.govoffice3.com/vertical/Sites/%7b3bdd1595-792b-4d20-8d44-626ef05648c7%7d/uploads/%7bebdeb6f2-dbd7-4728-b2d3-c627be99185a%7d.pdf>, accessed on May 7, 2012.

on the available evidentiary record. If a project's water supply includes groundwater, the WSA must include a review of UWMP information, a description of the relevant groundwater basin(s), a detailed description and analysis of the amount and location of groundwater pumped by the public water system, a detailed description and analysis of the amount and location of groundwater projected to be pumped by the public water system and an analysis of whether groundwater is sufficient to supply projected water demand. Weston Solutions prepared a WSA for the RAAP site in 2011 and updated it in February 2013 (see Appendix D of this Draft EIR). The WSA is scheduled to be approved by the City Council prior to adoption of this Draft EIR.¹⁶

ii. 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 State Water Resources Control Board (SWRCB) has the ultimate authority over State water rights and water quality policy. Porter-Cologne also establishes nine Regional Water Quality Control Boards (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.¹⁷ Riverbank is overseen by the Central Valley RWQCB.

iii. 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

¹⁶ Pam Carder, Riverbank Local Redevelopment Authority, email conversation with The Planning Center | DC&E, February 12, 2013.

¹⁷ California Wetlands Information System, *Summary of the Porter-Cologne Water Quality Control Act*, http://ceres.ca.gov/wetlands/permitting/Porter_summary.html, accessed on May 7, 2012.

than 3,000 customers or supplying more than 3,000 acre-feet¹⁸ of water annually. The Act is intended to support conservation and efficient use of urban water supplies at the local level. The Act requires that total projected 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.¹⁹ The City of Riverbank has developed a UWMP and included the Plan Area in their future developments, as described below in detail.

iv. California Groundwater Management Act

The Groundwater Management Act of the California Water Code (AB 3030) 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.²⁰

Some groundwater basins in California are managed through adjudication, and groundwater rights of all the overlayers and appropriators are determined by the court. The RAAP site is located within the Modesto Groundwater Subbasin, which has not been adjudicated. The groundwater aquifers serving the RAAP site are recharged by percolating groundwater. The RAAP wells will be owned by the City of Riverbank, and their use will be overseen by the

¹⁸ 1 acre-foot is the amount of water required to cover 1 acre of ground (43,560 square feet) to a depth of 1-foot.

¹⁹ Department of Water Resources, *About Urban Water Management*, <http://www.water.ca.gov/urbanwatermanagement/>, accessed on May 7, 2012.

²⁰ Department of Water Resources Planning and Local Assistance Central District, *Groundwater, Groundwater Management*, <http://www.cd.water.ca.gov/groundwater/gwab3030.cfm>, accessed on May 7, 2012.

City of Riverbank and the Stanislaus and Tuolumne Rivers Groundwater Basin Association, which includes the City of Riverbank.²¹

v. *The Water Conservation Act of 2009 (Senate Bill x7-7)*²²

Senate Bill x7-7 (SBx7-7) requires all water suppliers to increase water use efficiency. SBx7-7 mandates the reduction of per capita water use and agricultural water use throughout the state by 20 percent by 2020.

vi. *The Water Conservation in Landscaping Act of 2006 (Assembly Bill 1881)*²³

Assembly Bill 1881 requires cities and counties (including charter 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 California Updated Model Water Efficient Landscape Ordinance that went into effect in October 2009.²⁴ Until such time as the City's amendments are complete, the provisions of the Updated Model Landscape Ordinance are in effect.²⁵ According to the California Department of Water Resources, the City of Riverbank has not adopted a landscape water conservation ordinance; therefore, the standards set forth in the Updated Model Landscape Ordinance would apply.²⁶

²¹ Weston Solutions, 2013, *SB 610 Water Supply Assessment for the Riverbank Army Ammunition Plant*.

²² California Department of Water Resources, <http://www.water.ca.gov/wateruseefficiency/sb7/>, accessed May 7, 2012.

²³ California Department of Water Resources, <http://www.water.ca.gov/wateruseefficiency/landscapeordinance/>, accessed May 7, 2012.

²⁴ Division 2, Title 23, California Code of Regulations, Chapter 2.7, Sections 490 through 495.

²⁵ AquaSave, AB 1881, <http://aquasave.us/ab1881.html>, accessed on May 7, 2012.

²⁶ <ftp://ftp.water.ca.gov/Model-Water-Efficient-Landscape-Ordinance/Local-Ordinances/>, accessed on May 7, 2012.

c. Local Regulations

Locally, wastewater treatment and planning is regulated at the city level, as described below.

i. City of Riverbank Urban Water Management Plan

The City of Riverbank adopted the 2007 UWMP in accordance with State of California Assembly Bill 797 and the Urban Water Management Planning Act, outlined in Section 10610 of Division 6 of the California Water Code. The 2007 UWMP includes an assessment of groundwater supply for the General Plan Area, including the RAAP site. The UWMP development assumptions differ slightly from the draft Specific Plan, however the overall water demand assumptions are similar. The UWMP assumes that the majority of the RAAP site would be used for Industrial/Business Park development, with a small portion planned for Medium-Density Residential. The UWMP determines that there is adequate groundwater to supply existing development in the City of Riverbank as well as the planned development subareas.

ii. City of Riverbank Water Supply Study and Water Master Plan (2007)

The City of Riverbank prepared the Water Supply Study and Water Master Plan (Water Master Plan) in November 2007 to ensure that the City system can adequately meet the demands of development goals adopted in the General Plan. The Water Master Plan addresses four major issues: a) projected water demands based on land uses from the General Plan; b) the future supply and distribution system to accommodate expanded service areas; c) the capacity and condition of the existing distribution system; and d) a phased Capital Improvements Program (CIP) that provides appropriate infrastructure to support growth while remedying existing system deficiencies.

iii. City of Riverbank General Plan

Goals and policies from the Riverbank General Plan that are relevant to water are listed in Table 4.17-3.

TABLE 4.17-3 GENERAL PLAN GOALS AND POLICIES RELEVANT TO WATER SUPPLY

Goal/Policy Number	Goal/Policy Content
Goal PUBLIC-1	Public service and infrastructure provision to meet or exceed level of service standards consistent with other community goals.
Policy PUBLIC-1.2	New development must pay for the public facilities, services, and infrastructure required to serve the needs of such development based on service standards applied by the City. The mechanisms for such funding will be part of the development approval, or as set forth in any applicable development agreement or specific plan, which, with the approval of the City Council, may provide for alternative financing mechanisms in-lieu of City development fee programs and ordinances. The use of in-lieu fees or in-lieu financing will be reserved for communitywide facilities that serve areas beyond the proposed project or plan. Construction and dedication of facilities will be the method for providing facilities that serve the proposed project or plan area. The City may make exceptions on the basis of financial hardship or small projects or plans, allowing payment of an in-lieu fee.
Policy PUBLIC-1.3	The City will require that new developments, depending on their size, either: 1) designate lands in appropriate locations, sizes, and free of constraints to accommodate public facilities and infrastructure needed to serve such development, or 2) pay a fee proportional to the development's cost of acquiring such land at the time acquisition will be required.
Policy PUBLIC-1.6	The City will require that the methods, materials, and design of infrastructure and utilities achieve the City's environmental, public health and safety, and community character goals and policies, in addition to the City's level of service standards for public services, facilities, and infrastructure.
Policy PUBLIC-1.7	New development projects shall provide compatible utility services in common trenching to minimize the land required and ongoing costs for underground services.
Goal PUBLIC-2	Adequate supply of quality water to serve existing and future projected development needs.
Policy PUBLIC-2.1	The City will require that water supply, treatment, and delivery meet or exceed local, State, and federal standards.

Goal/Policy Number	Goal/Policy Content
Policy PUBLIC-2.2	The City will manage and enhance the City’s water supply and facilities to accommodate existing and planned development, as identified in the City’s Water Master Plan, Urban Water Management Plan, and Groundwater Source Efficiency Report.
Policy PUBLIC-2.3	New developments shall incorporate water conservation techniques to reduce water demand in new growth areas, including the use of reclaimed water for landscaping and irrigation.
Policy PUBLIC-2.4	The City will condition approval of new developments on demonstrating the availability of adequate water supply and infrastructure, including multiple dry years, as addressed in the City’s Water Master Plan, Urban Water Management Plan, and Groundwater Source Efficiency Report.

Source: City of Riverbank, 2006, General Plan 2005-2025.

2. Existing Conditions

Currently, the RAAP operates a water system that serves the entire facility, including 26 service connections at points throughout the RAAP site. There are a total of six wells on the site, identified as Wells 1 through 6; only Wells 1, 5, and 6 are operational. Treatment of the water supply is accomplished at the well head by gas chlorination. It is assumed that the wells and the water system in the Plan Area will be managed by the Riverbank Local Redevelopment Authority (RLRA) when the Plan is adopted.

a. Existing Water Supply

The RAAP site is located within the Modesto Groundwater Subbasin. The subbasin is bounded to the north by the Stanislaus River, to the south by the Tuolumne River, to the east by the bedrock of the foothills, and to the west by the San Joaquin River. The Stanislaus River is a significant source of groundwater recharge to the subbasin.

Within the Modesto Groundwater Subbasin, groundwater is found in a total of four aquifers. However, only two of the four aquifers underlie the RAAP site: 1) deep confined aquifers within consolidated sediments of the Mehrten,

Valley Springs, and Ione formations; and 2) the shallow unconfined Forebay aquifers consisting of the Laguna, Turlock Lake, and Riverbank formations.²⁷

The existing RAAP groundwater supply system consists of three production wells, Wells 1, 5, and 6. Two additional wells, Wells No. 2 and 3 are not currently permitted for potable use. Well No. 4 was abandoned immediately after its construction due to high nitrate concentrations. The capacity of the each well is shown in Table 4.17-4.

TABLE 4.17-4 WATER WELL INFORMATION

Source	Capacity (gpm)	Depth (Feet)	Status
Well 1	765 gpm	430	Standby
Well 2	715 gpm	372	Standby – Not approved for Potable Use
Well 3	710 gpm	185	Standby – Not approved for Potable Use
Well 5	1100 gpm	710	Active
Well 6	1500 gpm	605	Active

Source: Weston Solutions, SB 610 Water Supply Assessment for the Riverbank Army Ammunition Plant, 2013.

The RAAP site has one existing water storage tank. The tank has a 100,000-gallon capacity but is presently operated over a range of 0 to 40,000 gallons. Seismic analysis led to the tank being restricted to 40,000 gallons. The low waterline on the tank is 106 feet above grade, resulting in a static pressure of 46 per square inch (psi) at grade. At the maximum water level, the static pressure is at 50 psi at grade. The two primary wells are used to supply the pota-

²⁷ Weston Solutions, SB 610 Water Supply Assessment for the Riverbank Army Ammunition Plant, 2013.

ble distribution system via this elevated tank. Much of the distribution system on the RAAP site varies from 60 to 80 years old.²⁸

b. Water Demand

Based on historical pumping data, the average day demand between 1992 and 2003 ranged between 18,208 gallons per day (gpd) and 64,473 gpd.²⁹

The WSA has estimated the water demands for the development proposed by the draft Specific Plan based on the assumptions used in the 2007 UWMP and the 2007 Water Master Plan, as shown in Table 4.17-5. The estimated demands for the RAAP site in the WSA are slightly lower than the ones in the 2007 UWMP³⁰ because the proposed Plan does not include residential development, while the 2007 UWMP assumed residential development on the RAAP site.

TABLE 4.17-5 WSA ESTIMATED DEMAND

Parcel	Gross Acreage	Demand Factor (gpd/acre)	Average Daily Demand (gpd)	Maximum Daily Demand (gpd)	Peak Hour Demand (gpm)	Yearly Demand (acre-ft/year)
Main Plant	75.6	2,000	105,840	243,432	257	119
Other parcels within the Plan Area	53	2,000	74,200	170,660	181	83
Total	128.6		180,040	414,092	438	202

Source: Weston Solutions, SB 610 Water Supply Assessment Final, 2013.

²⁸ Weston Solutions, Operations and Infrastructure Assessment – Riverbank Army Ammunition Plant, July 2010.

²⁹ Weston Solutions, *SB 610 Water Supply Assessment Final*, 2013. Data between 2004 and present is not available.

³⁰ The 2007 UWMP estimated a total average daily demand of 185,656 gpd for the RAAP site.

c. Future Water Supply Needs

The 2007 UWMP analyzed the projected water supply during hydrologic normal, single dry, and multiple dry years for the General Plan. The 2007 UWMP found that the groundwater pumping rates would fall within the safe yield of the groundwater basin, and future groundwater extraction within the General Plan area would fall within the recharge capacity of the basin, as shown in Table 4.17-6.

TABLE 4.17-6 UWMP SUPPLY AND DEMAND (ACRE-FT/YEAR)

	2005 Pre-Plan Implemen- tation	2012 Buildout	2016 Single Dry Year	2022 Normal	2030 Multi- Dry Years
Supply Capacity	88,956	78,982	63,180	78,982	47,419
Projected Demand	26,843	21,091	18,982	21,091	17,927
Groundwater Supply Reserve	62,113	57,891	44,198	57,891	28,492

Source: City of Riverbank, 2007 UWMP, 2007.

The 2007 UWMP proposes to install six new wells in the eastern area of Riverbank, each sized at 1,500 gpm, to service development in Planning Sub-area 2 and Planning Subarea 3. The RAAP site is part of Planning Subarea 3.

Four of the wells would be used to supply average and maximum daily demand, and the remaining two wells would be used as emergency standby. The 2007 UWMP does not plan to use the existing RAAP on-site wells.

d. Water Quality

The RAAP water supply system currently operates under the following permits issued by the California Department of Health Services, Division of Drinking Water and Environmental Management Branch:

- “ Original Permit No. 03-10-03P-005 issued 5/14/2003 – Approves Wells 1, 5, and 6 for potable water supply.
- “ Permit Amendment No. 03-10-05PA-004 issued 04/15/2005 – Changes status of Well 1 from “Active” to “Standby.”

3. Standards of Significance

The Plan would have a significant impact related to water supply if it would:

- a. Require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- b. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.

4. Impacts Discussion

- a. Require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

The WSA for the Plan Area has calculated the water demands from the Plan development, as shown in Table 4.17-5, and concludes that the two active on-site wells and the storage tank within the Plan Area have enough capacity to serve the RAAP redevelopment for the next 20 years.

While the WSA concludes the existing water treatment facilities are sufficient for development under the proposed Plan, the Plan recommends adding storage tanks to the RAAP site or connecting to the City system on Claus Road via a minimum 4-inch pipe and the looped distribution system near Building 9.

Moreover, the 2007 UWMP has included a consideration of development in the Plan Area over the next 20 years even though the WSA does not assume connecting to the City’s water supply systems. Therefore, implementation of the proposed Plan would not include any improvements that are not already included in the 2007 UWMP or in the 2007 Water Master Plan. Additionally,

future development from the Plan would be subject to associated fees and charges levied on all new development as described in Section A.1.c.iv.

As a result, the impact of the proposed Plan on water treatment facilities would be *less than significant*.

b. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.

The WSA prepared for the Plan concludes that the two active on-site wells, which have the total capacity of approximately 2,600 gpm, would exceed the estimated peak hour demand of 438 gpm and the yearly demand of 202 afy for the proposed Plan. Moreover, because the on-site wells are screened within the same aquifers as the City's portable wells and the City has adequate groundwater supply reserve to supply the RAAP site, as shown in Table 4.17-6, the WSA concludes that the on-site wells have sufficient capacity to meet the future demands for the proposed Plan. Therefore, there would be a *less-than-significant* impact from having an insufficient water supply.

5. Cumulative Impacts

This section analyzes potential cumulative impacts to water supply that could occur from buildout of the Plan in combination with other past, present, and reasonably foreseeable projects in Riverbank and the surrounding area. The geographic scope of this analysis is taken as the City of Riverbank sphere of influence (SOI), as defined in the Riverbank General Plan. Cumulative impacts would be significant if development associated with the Plan together with other projects in the Riverbank SOI would result in insufficient water supply, construction of new water treatment facilities, or expansion of existing facilities.

In the 2007 UWMP and the 2007 Water Master Plan, the City assessed future water demand for its service area, which includes the City of Riverbank SOI. The 2007 UWMP determined that the groundwater supply reserve of 29,492 afy under multiple dry years will be sufficient to accommodate future demand in the service area through 2030. The 2007 Water Master Plan also identified

existing deficiencies in water treatment capacity in the service area and taken action to correct them through the CIP Program. Therefore, all reasonably foreseeable projects have been considered in the 2007 UWMP and the 2007 Water Master Plan assessments. Consequently, the proposed Plan would result in a *less-than-significant* cumulative impact on water supply.

6. Impacts and Mitigation Measures

The Plan would not result in any significant impacts to water supply; therefore, no mitigation measures are necessary.

C. Stormwater

1. Regulatory Framework

There are several laws and policy documents that affect the requirements and infrastructure needs for water quality and stormwater discharge in the Specific Plan Area, as well as flood protection. The most important of these are described below.

a. Federal Regulations

i. Federal Water Pollution Control Act

The Federal Water Pollution Control Act, more commonly known as the Clean Water Act (CWA) of 1972, regulates the discharge of pollutants into watersheds throughout the nation. Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point-source dischargers (municipalities and industries). Section 303(d) requires the State to develop a total maximum daily load (TMDL) for each of the pollutants impacting the listed water bodies. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. The TMDL can also act as a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given water body on the Section 303(d) list would be remediated.

Section 402(p) of the CWA establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) Program.³¹ Section 402(p) requires that stormwater associated with industrial activity that discharges either directly to surface waters or indirectly through municipal separate storm sewers must be regulated by a NPDES permit. On December 8, 1999, the US Environmental Protection Agency (EPA) circulated Phase II regulations for non-point sources requiring permits for stormwater. Permits will be required for discharges from Small Municipal Separate Storm Sewer System (MS4s) operators.³² In California, the NPDES program is administered by the State (see below).

b. State Regulations and Agencies

i. *State Water Resources Control Board*

The State Water Resources Control Board (SWRCB) is responsible for implementing the CWA and does so through issuing NPDES permits to cities and counties through regional water quality control boards. Federal regulations allow two permitting options for stormwater discharges – individual permits and general permits. The SWRCB elected to adopt a statewide general permit (Water Quality Order No. 2003-0004-DWQ) for MS4s covered under the CWA to efficiently regulate numerous stormwater discharges under a single permit. Permittees must meet the requirements in Provision D of

³¹ Authorized by the CWA, the permit program controls water pollution by regulating point sources (discrete conveyances such as pipes or man-made ditches) that discharge pollutants into waters of the United States. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. In most cases, the NPDES permit program is administered by authorized states with oversight from the EPA. Summarized from the EPA website, <http://cfpub.epa.gov/npdes/>, accessed on July 21, 2009.

³² Small MS4s are publicly owned conveyances or conveyance systems of ditches, curbs, or underground pipes that divert stormwater into the surface waters of the State. Summarized from the EPA website, <http://cfpub.epa.gov/npdes/stormwater/munic.cfm>, accessed on July 21, 2009.

the General Permit, which require development and implementation of a Storm Water Management Plan (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable. A SWMP for the RAAP site was prepared by Weston Solutions in 2011.

The RAAP holds a NPDES General Permit for discharges of stormwater associated with industrial activities. Stormwater permits are general State permits where dischargers need to comply with permit and plan requirements (i.e. maintain a program that meets permit conditions and a Stormwater Pollution Prevention Plan that details how the facility will meet the requirements). Compliance with the general permit requires inspections, control of runoff from industrial areas and sampling of discharges. The permit states that when the operator changes a new Notice of Intent, site map, and fee should be submitted by the new operator.³³

ii. Regional Water Quality Control Board

The State's Porter-Cologne Water Quality Control Act outlines the specific responsibilities of the Regional Water Quality Control Boards (RWQCB), and the procedures for coordinating with the SWQCB to meet federal CWA standards. Stanislaus County falls within the Central Valley Region, which is the largest in the State, stretching from the Oregon border south to Los Angeles County. It encompasses 60,000 square miles, or about 40 percent of the State's total area, and includes 38 of the State's 58 counties. The Central Valley Regional Water Quality Control Board (CVRWQCB) headquarters are in Sacramento with branch offices in Redding and Fresno.

The CVRWQCB's mission is to "preserve and enhance the quality of California's water resources for the benefit of present and future generations." This duty is carried out by formulating and adopting water quality control plans for specific ground and surface water basins and by prescribing and enforcing requirements on waste discharges. As mentioned above, jurisdictions

³³ State Water Resources Control Board, NPDES General Permit to discharge of stormwater associated with industrial activity, WDID ID No. 5S50I015886, 2000.

submit various water quality and stormwater plans to the regional and State boards for approvals.³⁴

c. Local Regulations and Agencies

i. *City of Riverbank General Plan 2005-2025*

Goals, policies, and programs from the Riverbank General Plan that are relevant to stormwater are listed in Table 4.17-7.

2. Existing Conditions

In general, stormwater runoff is collected in numerous inlets located around the site that connect to a main storm drain line. The main storm drain line carries flows towards the north, opposite the surface grade. At Gate 10, flow is directed through a diversion structure. A valve located at the discharge of the diversion structure remains open allowing stormwater runoff to travel through the diversion structure and down a 36-inch pipe towards a lift station, located adjacent to the north stormwater reservoir. Pumps 1 and 2 of the lift station convey flow into the north reservoir. This reservoir is designed as a detention basin that allows for temporary stormwater runoff to facilitate settling of suspended sediment. Two outlets, with approximately one foot of elevation difference, are provided in the reservoir to discharge water into the Oakdale Irrigation District (OID) 30-inch diameter line that runs parallel to the north side of the reservoir. Between rain events, some water remains in the reservoir, below the outlets, and either evaporates, infiltrates into the ground, or is used by the vegetation that grows in the basin. The lift station located near the reservoir has a third smaller pump that conveys stormwater from the lift station directly to the OID pipe during periods of excessive rain.

Rodents, mainly squirrels, have dug a large hole completely through the south bank of the reservoir. The hole is located a short distance above the normal level of standing water in the reservoir; therefore, the holding capacity of the reservoir is greatly reduced. The lower elevation outlet is normally

³⁴ http://www.waterboards.ca.gov/about_us/water_boards_structure/mission.shtml, accessed on May 9, 2012.

TABLE 4.17-7 GENERAL PLAN GOALS AND POLICIES RELEVANT TO STORMWATER

Goal/Policy Number	Goal/Policy Content
Goal PUBLIC-4	Storm drainage systems that protect public safety, preserve natural resources, and prevent erosion and flood potential.
Policy PUBLIC-4.1	The City will maintain and improve, as necessary, existing public storm basins and flood control facilities, as identified in the Stormwater Master Plan.
Policy PUBLIC-4.2	The City will coordinate with County and Regional agencies, as well as the railroad, in the maintenance and improvement of storm drainage facilities to protect the City's residents, property, and structures from flood hazards.
Policy PUBLIC-4.3	The City will consider a variety of means for floodplain management, depending on the context, which may include development, improvement, and maintenance of structural flood control facilities; land use policy and zoning to prohibit incompatible urban development within the floodplain; erosion control techniques; setbacks from flood-prone areas; and other measures, as circumstances dictate.
Policy PUBLIC-4.5	New development shall be designed to control surface runoff discharges to comply with the National Pollutant Discharge Elimination System Permit and the receiving water limitations assigned by the Regional Water Quality Control Board.
Policy PUBLIC-4.6	The City will establish and new development shall implement nonpoint source pollution control measures and programs designed to reduce and control the discharge of pollutants into the City's storm drains and river.
Policy PUBLIC-4.7	The City will require minimization of the amount of new impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment and, where feasible, maximize on-site infiltration of stormwater runoff.

Source: City of Riverbank, 2006, General Plan 2005-2025.

closed allowing the reservoir to fill to the higher inlet level prior to discharge, but since the squirrel hole was discovered, the valve for the lower elevation outlet has been left in the open position.³⁵

³⁵ Weston Solutions, Stormwater Master Plan Final Report for the Riverbank Army Ammunition Plant, February 25, 2011.

The north reservoir has a design capacity of approximately 3.0 million gallons (MGAL). More specifically, the capacity includes 1.5 MGAL in the west side, which typically has approximately 2 feet of ponding water, and 1.5 MGAL in the east side, or overflow side, which is typically dry.

A small portion of the site drains to the south stormwater reservoir, located near the southeast corner of the site. A lift station adjacent to the south stormwater reservoir pumps runoff from the reservoir to the south end, or high side, of the above-mentioned main storm drain.

Generally, the system is operating properly but has some deficiencies. The deficiencies include cracked or offset joints, horizontal or vertical cracking in the concrete pipe, and low areas in pipes where waste is settling. According to the Stormwater Master Plan, prepared by Weston Solutions, the existing storm drain main line piping is considerably undersized when compared with current standards. The current system is capable of conveying stormwater runoff from storm events with roughly a two-year return period or less, while the County Standards require a capacity of 10-year return period or larger for new systems. Additionally, the 10-year storm would require approximately 1.0 acre-feet of storage volume, which is greater than the storage volume provided by the existing lift station, and thus the excess runoff would be stored as ponding water around various inlets and low points, which results in flooding.

3. Standards of Significance

The Plan would have a significant impact related to stormwater if it would:

- a. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

4. Impacts Discussion

- a. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Development under the proposed Plan would have the potential to cause significant impacts by increasing stormwater runoff associated with construction activities and increasing impermeable surfaces, thereby placing greater demands on the stormwater handling system. Runoff from developed surfaces, building roofs, parking lots, and roads also contain impurities and has the potential to increase flooding.

The General Plan goals and policies call for the provision of an adequate drainage infrastructure, in order to protect public safety, preserve natural resources, and prevent erosion and flood potential, as described in Section C.1 of this chapter. Goal PUB-1 of the draft Specific Plan requires that adequate facilities are provided that serve the needs of new development. Policy PUB-1 specifies that investment is made in new “backbone” infrastructure on the North and South End Cap properties to attract new development at the RAAP. Additionally, Policy PUB-2 ensures that adequate infrastructure is provided as necessary to support new development. Furthermore the draft Specific Plan includes Goal PUB-2 and Policy PUB-3 that call for sustainable infrastructure that exhibits principles of low-impact development (LID) and “green” infrastructure, such as on-site stormwater management, water reclamation, permeable surfaces, solar, and clean energy. With these goals and policies in place, buildout of the proposed Plan would not increase demands on the stormwater handling system, and stormwater facilities would be upgraded and expanded, as necessary to facilitate development within the project site. As a result, a *less-than-significant* impact would occur on stormwater treatment facilities.

5. Cumulative Impacts

This section analyzes potential impacts to stormwater systems that could occur from the proposed Plan in combination with other reasonably foreseeable

projects in the surrounding area. The geographic scope of this analysis is taken as the City of Riverbank SOI, as defined in the Riverbank General Plan.

As described above, all the stormwater from the Plan Area would be treated on site. Development under the proposed Plan would comply with draft Specific Plan Goal PUB-2 and Policy PUB-3 and includes low impact development and sustainable design approaches for stormwater management. With Mitigation Measure UTIL-2 in place, cumulative impacts to stormwater systems would therefore be *less than significant*.

6. Impacts and Mitigation Measures

The following impacts and mitigation measures have been identified with regard to stormwater.

Impact UTIL-1: Buildout of the Plan would require improvements to existing stormwater facilities. The existing stormwater pipes have areas where there are improperly functioning gravity systems, cracked or offset joints, or vertical and/or horizontal pipe cracks. Other deficiencies in the existing stormwater system include the squirrel hole in the reservoir and the under-sized main line piping. With the existing deficiencies, the proposed Plan would have the potential to increase flooding. This would be a *significant* impact.

Mitigation Measure UTIL-1: The Stormwater Master Plan for the proposed Plan recommends the following measures:

- “ Manholes should be repaired to ensure the lids seal properly to prevent inflow and infiltration of storm water during rain events.
- “ In order to mitigate the possible contamination of polychlorinated biphenyls (PCBs) within the storm drain, one of the following options could be implemented:
 - ÿ Clean and apply a lining or coating to all affected storm drain pipes;
 - ÿ Replace affected storm drain pipes with larger pipes;

- Ÿ A combination of lining a portion of the storm drain pipes and replacing other storm drain pipes: this involves adding a second pipe between the north reservoir lift station and the diversion structure located near Gate 10. Also includes replacing storm drain piping, with larger pipe size, from the diversion structure to the Building Group.
- “ Current County Standards require new systems to have a capacity to convey storm events equal to the 10-year return period or larger. Lining the interior of affected piping is a cost effective way to mitigate potential contamination of pipes while providing approximately the same (slightly improved) level of service in relation to stormwater conveyance.
 - “ If there are opportunities to upgrade the lift station pumping capacity in the future, the LRA should use that opportunity to significantly increase lift station capacity. Increasing size (i.e. conveyance capacity) of storm drain piping upstream from the north lift station will not be effective unless the lift station capacity is increased.
 - “ Improvements to the existing north reservoir should be completed at the LRA’s earliest opportunity. The squirrel hole(s) in the reservoir bank should be repaired and the lower outlet valve returned to the normal operating position (i.e. closed). This would allow more storage capacity of the reservoir prior to discharge, which would allow more time for suspended soils to settle out in stormwater traveling through the reservoir during rainfall events. Currently, the exterior bank slope is approximately 2:1 (horizontal to vertical). The slopes may be reduced as much possible within the constraints of space allotted to the reservoir (i.e. approximately 3:1) to reduce the possibility of the rodent holes extending through the bank. Additionally, the repaired slopes may be hardened with rock or crushed brick to make it more difficult for rodents to penetrate the surface.
 - “ To determine the performance of the reservoir outlets, a detailed hydraulic analysis of the OID piping would need to be accomplished. The 10-year and 50-year storm events produce approximately 4.0

MGAL and 4.2 MGAL, respectively. Therefore, the combined outlet piping would need to discharge approximately 1.0 to 1.2 MGAL to prevent the reservoir from becoming full and having water overtopping the banks during these types of storm events. In order to discharge 1.2 MGAL, the outlet piping would need to discharge at an average rate of 3.2 cubic feet per second (cfs) over a 24-hour period. This is a relatively small flow rate and most likely the discharge piping connected to the OID piping and overflow piping would prevent the reservoir from reaching maximum capacity during these types of storms events (i.e. approximately 3.2 cfs is the minimum required and unrestricted gravity flow to OID piping would be approximately 10 cfs, if the OID piping was empty and able to accept full gravity flow).

- “ If the properties around the reservoir are developed, additional analysis to determine the OID piping hydraulic capacity should be conducted and, if needed, the north reservoir should be increased in size to prevent potential flooding of the newly developed sites. By removing the earthen divider and extending the basin to the northeast by approximately 120 feet, the reservoir capacity could be increased to approximately 4.5 MGAL. This would provide the additional capacity necessary to ensure the basin can adequately store stormwater runoff from larger events even if the OID has little or no capacity to receive water from the reservoir outlets.
- “ Based on the results of percolation testing, the soils within the site appear to have adequate capacity to infiltrate stormwater directed into basins, swales, or rain gardens. Final design for these areas of the site should include additional percolation testing in order to estimate infiltration rates at the locations and depths of final design basins and other LID components proposed within these areas.
- “ Future development should include LID features to the maximum extent practical, and at a minimum LID components (in addition to large infiltration basins) should cover 15 percent of the total site area. This minimum percentage is based on the example site layout conducted as part of this study that incorporates LID features into a prac-

tical commercial site layout. The LID components may include, but not be limited to the following:

- ÿ Shallow infiltration basins
- ÿ Bioretention basin / rain gardens
- ÿ Porous concrete within parking stalls
- ÿ Rainwater harvesting system (cisterns and/or rain barrels)

- “ In addition to structural LID components, sites should be designed to minimize continuous impervious surfaces where possible. This includes providing landscaping around buildings and breaks between roadways and sidewalks. This also includes generally reducing the amount of impervious surfaces around sites.

Significance After Mitigation: This impact would be *less than significant* after implementation of this mitigation measure.

D. Solid Waste

This section describes existing conditions and potential impacts of the Plan with regard to solid waste services.

1. Regulatory Framework

a. State Regulations

Solid waste handling and disposal is regulated at the State level. Specific regulations relevant to the proposed Plan are described below.

i. California Integrated Waste Management Act

California Integrated Waste Management Act of 1989 (AB 939 or Public Resources Code Section 40050 et seq.)³⁶ 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. 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

³⁶ Public Resources Code Section 40050-40063, <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=prc&group=40001-41000&file=40050-40063>, accessed on May 4, 2012.

for all California counties to provide at least 15 years of on-going landfill capacity.

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. CIWMB, now known as the California Department of Resources Recycling and Recovery (CalRecycle), sets a target per capita disposal rate for each jurisdiction. Each jurisdiction must submit an annual report to CIWMB with an update of its progress in implementing diversion programs and its current per capital disposal rate.³⁷

Stanislaus County and the cities of Ceres, Hughson, Modesto, Newman, Oakdale, Patterson, Riverbank, Turlock and Waterford developed a County-wide Integrated Waste Management Plan (CIWMP) that identified strategies for meeting the 50 percent diversion goal. The CIWMP consists of: Source Reduction and Recycling Elements (SRRE), Household Hazardous Waste Elements (HHWE), and Non-Disposal Facility Elements (NDFE) for each individual jurisdiction, plus a countywide Siting Element and Summary Plan. The State of California Public Resources Code (PRC) requires each jurisdiction or agency to review its CIWMP at least once every five years. The CIWMP Five-Year Review Report for the County of Stanislaus was approved by the CalRecycle in June 2011.

ii. California Solid Waste Reuse and Recycling Access Act of 1991

The California Solid Waste Reuse and Recycling Access Act (Public Resources Code Sections 42900 et seq.)³⁸ requires areas to be set aside for collecting and loading recyclable materials in development projects. The Act required the CIWMB to develop a model ordinance for adoption by any local

³⁷ California Integrated Waste Management Board, <http://www.calrecycle.ca.gov/LGCentral/Basics/PerCapitaDsp.htm#Jurisdiction>, accessed on May 7, 2012.

³⁸ Public Resources Code Section 42900-42901, <http://www.leginfo.ca.gov/cgi-bin/waisgate?WAIISdocID=47078826743+0+0+0&WAIISaction=retrieve>, accessed on May 7, 2012.

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, governing adequate areas for collection and loading of recyclable materials in development projects.

b. Local Regulations and Agencies

i. *City of Riverbank General Plan 2005-2025*

Goals, policies, and programs from the Riverbank General Plan that are relevant to solid waste services are listed in Table 4.17-8.

TABLE 4.17-8 **GENERAL PLAN GOALS AND POLICIES RELEVANT TO SOLID WASTE**

Goal/Policy Number	Goal/Policy Content
Goal PUBLIC-5	Adequate capacity for solid waste disposal.
Policy PUBLIC-5.1	The City will approve new development projects only if adequate capacity exists to accommodate solid waste demand, including processing, recycling, transportation, and disposal.
Policy PUBLIC-5.2	The City will encourage provision of recycling and conservation service and public education to reduce the amount of solid waste at the landfill.

Source: City of Riverbank, 2006, General Plan 2005-2025.

2. Existing Conditions

Gilton Solid Waste (GSW) collects solid waste from residences and businesses from Riverbank, including the Plan Area. GSW serves approximately 6,600 residences in the City. Annually, GSW hauls approximately 11,600 tons of waste from Riverbank residential customers, or about 1.76 tons per household. GSW hauls approximately 3,000 tons of waste from commercial sources and approximately 2,300 tons of waste from industrial and construction sources annually in the City.³⁹

³⁹ Dennis Shuler, Environmental Affairs Manager, Gilton Solid Waste Management, Inc. Email communication with The Planning Center | DC&E, on May 10, 2012.

As the franchise waste hauler, GSW is contractually obligated to accommodate any increase in the need for residential and commercial waste management services. Solid waste hauled by GSW from Riverbank is taken to the Gilton Resource Recovery/Transfer Facility. At the Gilton Resource Recovery/Transfer Facility, much of the recyclable and compostable materials are removed. Residual waste requiring disposal is deposited in two landfills and a waste-to-energy facility: the Forward, Inc. landfill in San Joaquin County, the Fink Road Landfill administered by the County of Stanislaus Public Works Department, and the Covanta Stanislaus administered by the County of Stanislaus Department of Environmental Resources in Stanislaus County.⁴⁰

Covanta Stanislaus is an Energy-from-Waste facility that converts municipal solid waste (MSW) into clean, renewable energy. The facility operates two MSW-fired combustors capable of processing approximately 400 tons per day.⁴¹ The Waste-to-Energy Facility was developed via a public-private partnership among Covanta Stanislaus, Inc., Stanislaus County, and the City of Modesto. Contractually, Covanta Stanislaus is obligated to process at least 243,300 tons of waste annually and the contracting communities, including Stanislaus County and the City of Modesto, are obligated to deliver at least this same amount annually. The facility has processed an average of 253,710 tons per calendar year in the last five years (2007 through 2011).⁴² This facility has a permitted capacity of 1,700 tons per day.⁴³

⁴⁰ Dennis Shuler, Environmental Affairs Manager, Gilton Solid Waste Management, Inc. Email communication with The Planning Center | DC&E, on May 10, 2012.

⁴¹ Covanta Stanislaus website, <http://www.covantaenergy.com/en/facilities/facility-by-location/stanislaus/about.aspx>, accessed on May 7, 2012.

⁴² Jami Aggers, Assistant Director, Stanislaus County, Department of Environmental Resources. Email communication with The Planning Center | DC&E, on May 3, 2012.

⁴³ CalRecycle, <http://www.calrecycle.ca.gov/>, accessed on May 7, 2012.

Under the current permit issued in 2007, the Fink Road Landfill is permitted to receive 2,400 tons per day and estimated to close by 2023.⁴⁴ However, according to the Department of Environmental Resources, the Fink Road Landfill has remaining capacity that is estimated to extend to 2029 at the average disposal rate of approximately 400 tons per day.⁴⁵ Currently, the facility is pursuing an interior expansion that will add an estimated 10 to 15 years of additional disposal capacity if approved. CEQA for this project was certified by the Board of Supervisors in February 2010, and the development of the application for a revised Solid Waste Facility Permit is underway.⁴⁶ Under the permit issued in 2012, the Forward Landfill has a permitted capacity of 8,668 tons per day, and its estimated closure date is in 2012.⁴⁷

In 2010, the Stanislaus County Regional Solid Waste Planning Agency, which the City of Riverbank is included, disposed 299,257 tons of solid waste and achieved a disposal rate of 3.9 pounds per person per day (ppd), which is better than the AB939 goal of 6.3 ppd.⁴⁸

3. Standards of Significance

The Plan would have a significant impact related to solid waste if it would:

- a. Not be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

⁴⁴ CalRecycle, <http://www.calrecycle.ca.gov/>, accessed on May 7, 2012.

⁴⁵ Jami Aggers, Assistant Director, Stanislaus County, Department of Environmental Resources. Email communication with The Planning Center | DC&E, on May 3, 2012.

⁴⁶ Jami Aggers, Assistant Director, Stanislaus County, Department of Environmental Resources. Email communication with The Planning Center | DC&E, on May 3, 2012.

⁴⁷ CalRecycle, <http://www.calrecycle.ca.gov/SWFacilities/Directory/39-AA-0015/Detail/>, accessed on May 7, 2012.

⁴⁸ CalRecycle, <http://www.calrecycle.ca.gov/LGCentral/Reports/DiversionProgram/JurisdictionDiversionDetail.aspx?JurisdictionID=616&Year=2010>, accessed on May 4, 2012. Data for individual cities is not available.

- b. Not comply with federal, State, and local statutes and regulations related to solid waste?

4. Impacts Discussion

a. Insufficient Landfill Capacity

Solid waste from the proposed Plan site would be transferred to the Forward, Inc. landfill in San Joaquin County, the Fink Road Landfill, and the Covanta Waste-to-Energy Facility in Stanislaus County. As described above, the Covanta is permitted to receive up to 1,700 tons of waste per day, and the Fink Road Landfill is expected to receive approximately 400 tons per day by 2029 and will add an estimated 10 to 15 years of additional disposal capacity if approved.

As mentioned above, the California Integrated Waste Management Act requires that jurisdictions maintain a 50 percent or better diversion rate for solid waste. The Stanislaus County Regional Solid Waste Planning Agency has achieved this goal from 2006 to 2010, the latest available data.⁴⁹ The CIWMB jurisdictional profile for the Stanislaus County Regional Solid Waste Planning Agency indicates that 3.9 pounds of solid waste per resident and 16 pounds per job is generated daily in 2010. Buildout of the Plan would be expected to create as many as 1,654 new jobs in Riverbank,⁵⁰ which would result in an additional 13.2 tons of solid waste per day or 4,818 tons annually. Maximum total solid waste generated from the Plan would therefore be approximately 13.2 per day, which is 0.8 percent of the permitted daily capacity of the Covanta, 3.3 percent of the daily capacity of the Fink Road Landfill, or 0.2 percent of the daily capacity of the Forward Landfill. Even through the Forward Landfill would close in 2012; the other two facilities would have sufficient capacity to accommodate the Plan's solid waste disposal needs.

Moreover, the City has set an agreement with the franchised trash disposal companies, such as GSW, to ensure that each franchise is responsible for

⁴⁹ Department of Environmental Resources, Stanislaus County Five-Year CIWMP Review Report, June 2011.

⁵⁰ See Chapter 4.13, Population and Housing, of this Draft EIR.

meeting the minimum recycling diversion rate of 50 percent on a quarterly basis. Future development in the Plan Area would comply with the GSW's recycling system, and thus, would meet the City's and California's solid waste diversion regulations. Additionally, implementation of goals and policies contained in the Riverbank General Plan would ensure that sufficient landfill capacity is provided and would accommodate the buildout of the proposed Plan. Development under the draft Specific Plan would have a *less-than-significant* impact on solid waste disposal and landfill capacity.

b. Compliance with Solid Waste Statutes and Regulations

As part of the City of Riverbank, the Plan Area would be subject to existing Municipal Code and General Plan policies that govern compliance with existing federal, state, and local statutes and regulations pertaining to solid waste. Additionally, as discussed above, the County of Stanislaus has adopted a Source Reduction and Recycling Element (SRRE), a Household Hazardous Waste Element (HHWE), and a Non-Disposal Facility Element (NDFE) in compliance with AB939, the California Integrated Waste Management Act of 1989. Implementation of strategies and programs from these plans allowed the County to meet the State mandated waste diversion goal of 50 percent from 2006 to 2010. These programs are sufficient to ensure that future development in the Plan Area would not compromise the ability to meet or perform better than State the mandated target. Therefore, development under the proposed Plan would comply with applicable statutes and regulations and the impact would be *less than significant*.

5. Cumulative Impacts

This section analyzes potential impacts to solid waste services that could occur from a combination of the proposed Plan with other reasonably foreseeable projects in the surrounding area. The geographic scope of this analysis is taken as the GSW service area. A cumulative impact would be considered significant if, taken together with past, present and reasonably foreseeable projects in the GSW service area, it would result in an insufficient landfill capacity or conflict with solid waste statutes and regulations.

The proposed Plan would not make a significant contribution to cumulative impacts relating to solid waste management or disposal. The General Plan policies will ensure that sufficient landfill capacity is provided throughout Riverbank, including the GSW service area. As described above, future development in the GSW service area would comply with the GSW's recycling system, and thus, would meet the City's and California's 50-percent solid waste diversion regulations. Additionally, GSW future plans include improving and updating the equipment and operating capabilities of GSW facility.⁵¹ According to the CIWMP Five-Year Review Report, there would be sufficient landfill capacity until 2025. For the years beyond 2025, goals established by AB 939 will continue to ensure that all California counties provide at least 15 years of on-going landfill capacity. Therefore, cumulative impacts from the proposed Plan would be *less than significant*.

6. Impacts and Mitigation Measures

The Plan would not result in any significant impacts to solid waste; therefore, no mitigation measures are necessary.

⁵¹ Dennis Shuler, Environmental Affairs Manager, Gilton Solid Waste Management, Inc. Email communication with The Planning Center | DC&E, on May 10, 2012.

5 ALTERNATIVES TO THE PROPOSED PROJECT

The RAAP Specific Plan was described and analyzed in the previous chapters with an emphasis on potentially significant impacts and recommended mitigation measures to avoid those impacts. The State CEQA Guidelines require the description and comparative analysis of a range of alternatives to the Specific Plan or to the location of the project, which would feasibly attain most of the basic objectives but would avoid or substantially lessen any of the significant effects. The Guidelines also require that an EIR evaluate the comparative merits of the alternatives, focusing on alternatives that would avoid or substantially lessen 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 (CEQA Guideline Section 15126.6(a), (b)).

“There is no ironclad rule governing the nature or scope of the alternatives to be discussed [in an EIR] other than the rule of reason” (CEQA Guidelines Section 15126.6(a)). Under the rule of reason, an EIR need discuss only those alternatives necessary to permit a reasoned choice (CEQA Guidelines Section 15126.6(f)). An EIR need only contain a “range of reasonable alternatives to the project” which would “feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant [impacts] of the project” (CEQA Guidelines Section 15126.6(a)).

The following discussion is intended to inform the public and decision makers of the feasible alternatives that would avoid or substantially lessen any significant effects of the project.

A. Alternatives Evaluated

CEQA requires that an EIR analyze a "no project" alternative (CEQA Guidelines, Section 15126.6(e)). Where, as here, this alternative means a proposed project would not proceed, the discussion "[sh]ould compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the project is approved" (Id. at (e)(3)(B)).

CEQA Guidelines also require that the environmentally superior alternative be designated. If the alternative with the least environmental impact is the No Project Alternative, then the EIR must also designate the next most environmentally superior alternative.

The three alternatives are as follows:

- “ **No Project Alternative.** Under the No Project Alternative, the RAAP site would retain its existing zoning designations and land uses. Since the existing structures could be leased in its current condition, without any further discretionary approval from the City, this alternative assumes re-occupancy of the existing buildings in their current condition.
- “ **Reduced Density Alternative.** This alternative would reduce the intensity of proposed land uses in order to reduce impacts to air quality, cultural resources, noise, and traffic. This alternative would also prohibit demolition of the existing structures, which contribute to the eligibility of a historic district, to avoid impacts to cultural resources.
- “ **Reconfigured Site Plan Alternative.** This alternative would reconfigure the site in order to reduce impacts to biological resources and cultural resources. Specifically, the existing structures would not be demolished, and new buildings would have smaller footprints and heights compared to the proposed project.

B. Comparison of Alternatives

Table 5-1 presents a comparative summary of the alternatives considered in this analysis. Each alternative is analyzed against the impact factors considered for the Specific Plan, according to whether it would have a mitigating or adverse effect. The basis for the determinations presented in Table 5-1 is presented in the next section of this chapter, where each of the topics listed is evaluated for each alternative.

TABLE 5-1 COMPARISON OF ALTERNATIVES

Topic	No Project Alternative	Reduced Density Alternative	Reconfigured Site Plan Alternative
Aesthetics	-	0	0
Agriculture and Forestry Resources	+	0	0
Air Quality	++	+	0
Biological Resources	+	+	+
Cultural Resources	++	++	++
Geology and Soils	--	0	0
Greenhouse Gas Emissions	+	+	0
Mineral Resources	0	0	0
Hazards and Hazardous Materials	0	+	+
Hydrology and Water Quality	-	+	+
Land Use and Planning	-	0	0
Noise	++	+	0
Population, Housing, and Employment	0	0	0
Public Services	+	+	0
Recreation	0	0	0
Transportation and Traffic	++	+	+
Utilities and Service Systems	+	0	0
Project Objectives	--	++	++
++ Substantial improvement compared to the Specific Plan. + Insubstantial improvement compared to the Specific Plan. 0 Similar to the Specific Plan. - Insubstantial deterioration compared to the Specific Plan. -- Substantial deterioration compared to the Specific Plan.			

C. No Project Alternative

1. Principal Characteristics

Consistent with Section 15126.6(e)(2) of the CEQA Guidelines, under the No Project Alternative, the RAAP site would retain its existing zoning designations and land uses. Since the existing structures (673,625 square feet of industrial uses) could be leased in its current condition, without any further discretionary approval from the City, this alternative assumes re-occupancy of the existing buildings in their current condition. Additionally, remediation activities are planned for the future, and these will continue.

2. Impact Discussion

a. Aesthetics

Implementation of the Specific Plan would result in changes to the visual character of the RAAP site that would be considered less than significant through the implementation of Specific Plan policies and reliance on policies in the Riverbank General Plan. The No Project Alternative would not result in any significant visual changes to the project site and the site would maintain the buffers of fallow grass fields, security fencing, and industrial warehouse character. Future development of the site under the Specific Plan would improve the visual characteristics of the RAAP site through landscaping and gateway features. As a result, the No Project Alternative would result in an *insubstantial deterioration* when compared to the Specific Plan.

b. Agriculture and Forestry Resources

The RAAP site does not contain any forestry resources, therefore changes under the Specific Plan and the No Project Alternative would be considered the same. The conversion of on-site farmland under the Specific Plan is considered to be less-than-significant given the location of the site and other factors such as water availability and surrounding uses. The No Project Alternative proposes no changes to the existing site that would change the land uses and would therefore be considered an *insubstantial improvement*.

c. Air Quality

Implementation of the Specific Plan would result in significant and unavoidable impacts related to the construction and operation of future projects, including project-generated increases in traffic. The No Project Alternative would result in continued use of the RAAP site, including new employees traveling to the site and emissions associated with allowable uses on the site. Since future conditions would not change to the extent as they would under Specific Plan, the No Project Alternative would be a *substantial improvement* when compared to the Specific Plan.

d. Biological Resources

Implementation of the Specific Plan would result in a potential impact to biological resources in the Specific Plan Area. These impacts would be reduced to a less than significant level through existing General Plan policies and federal and State regulations and a limited number of new policies proposed in the Specific Plan. Additionally, the mitigation measures are included to reduce the impacts to animal species during construction and demolition activities. The No Project Alternative may result in disturbances within the project site, but the overall area within the project site would not be substantially altered. Therefore, the No Project Alternative would be considered an *insubstantial improvement* when compared to the Specific Plan.

e. Cultural Resources

Implementation of the Specific Plan would result in significant and unavoidable impact to cultural resources because individual structures that could contribute to the eligibility of a historic district would be removed as projects are constructed. The No Project Alternative would not result in changes to the RAAP site that would require demolition of existing structures and, therefore, the No Project Alternative would be considered a *substantial improvement* when compared to the Specific Plan.

f. Geology and Soils

Implementation of the Specific Plan would result in potential impacts related to construction on expansive soils that would be reduced to a less-than-

significant level through policies contained in the Specific Plan and existing policies and regulations. If the existing buildings were not constructed to accommodate the conditions, they would be susceptible to damage from the expansive soils. New structures under the Specific Plan would be required to comply with building code regulations to avoid the impact. Therefore, this alternative is considered a *substantial deterioration* compared to the Specific Plan.

g. Greenhouse Gas Emissions

Implementation of the Specific Plan would result in an increase in GHG emissions resulting from the development and operation of projects under the Specific Plan. The utilization of the RAAP site under the No Project Alternative would result in an increase in GHG emissions, but the intensity of use would not match that of the implementation of the Specific Plan. Therefore, the No Project Alternative would be an *insubstantial improvement* when compared to the Specific Plan.

h. Mineral Resources

Implementation of the Specific Plan would result in construction of new facilities on portions of the RAAP site that are not currently developed. However, because no mineral resources are known to exist within the RAAP site, and the surrounding land uses are not compatible for the extraction of mineral resources, the Specific Plan would result in a less-than-significant impact on mineral resources. The No Project Alternative would not result in construction on undeveloped portions of the site. However, as mentioned above, due to no known mineral resources within the RAAP site and conflicting land uses, the No Project Alternative would have *the same potential impact* when compared to the Specific Plan.

i. Hazards and Hazardous Materials

Implementation of the RAAP Specific Plan would result in an increase in the use, storage, and transport of hazardous materials and activities associated with safety hazards and hazardous materials sites. The potential impacts related to hazards and hazardous materials would be reduced to a less-than-

significant level through compliance with existing General Plan policies and federal and State regulations. Planned remediation activities would continue under the No Project Alternative. However, as discussed in the Chapter 4.9, Hazards and Hazardous Materials, of this EIR, there are several locations within the RAAP site that require evaluation and possible remediation. Because implementation of the Specific Plan would require remediation activities to continue, and additional areas would need to be remediated, overall, the No Project Alternative would have *the same potential impact* when compared to the Specific Plan

j. Hydrology and Water Quality

Implementation of the RAAP Specific Plan would result in increased impervious surfaces, and consequently increase surface runoff, but all surface runoff from the site would be captured and treated onsite, complying with applicable State and local regulations. As a result, the Specific Plan would not substantially increase off-site surface runoff and degrade water quality. In comparison, under the No Project Alternative, untreated stormwater would continue to flow off site, if not at a higher rate, resulting in degrading water quality conditions. Therefore, the No Project Alternative would be considered an *insubstantial deterioration* in relation to the Specific Plan.

k. Land Use and Planning

Implementation of the RAAP Specific Plan would create new office and industrial uses but would not result in land use conflicts or exacerbate existing conflicts between land uses in the Plan Area and on surrounding properties. The No Project Alternative would also not create land use conflicts. However, this alternative would not meet some of the goals of the Economic Development Element of the General Plan, which call for creating jobs and income growth for local residents. Additionally, continuing operation of the existing industrial use without providing landscaped buffers, which are proposed under the Specific Plan, may increase conflicts with surrounding residential properties. Therefore, the No Project Alternative would be an *insubstantial deterioration* compared to the Specific Plan.

l. Noise

Implementation of the RAAP Specific Plan would increase noise levels due to construction activities, noise-generating land uses, and increased volumes of traffic. While the noise impacts related to construction activities and noise-generating land uses could be reduced to less-than-significant levels after mitigation, traffic-related noise impacts would be unavoidable. In comparison, the No Project Alternative would not introduce any uses or traffic that could increase existing noise level to the extent as they would under the Specific Plan. Therefore, the No Project Alternative would be a *substantial improvement* over the Specific Plan.

m. Population, Housing and Employment

Implementation of the RAAP Specific Plan would not directly induce population growth because the Plan would not include residential development. The Specific Plan would cause indirect population growth through the creation of jobs both during the construction and operational phases of the Plan. However, this would not cause a substantial and unplanned level of growth, resulting in a less-than-significant impact. The No Project Alternative would not result in a substantial change to population or housing, and therefore would not cause a substantial and unplanned level of growth. Because neither the Specific Plan nor the No Project Alternative would result in significant impacts to population or housing, the No Project Alternative would have *the same potential impact* when compared to the Specific Plan.

n. Public Services

Implementation of the RAAP Specific Plan would result in an indirect increase in population, a direct increase in service population, and an increased demand for public services. Project impacts associated with fire protection services would be potentially significant but mitigable. Impacts to other public services would be less than significant. Conversely, the No Project Alternative would not increase population or result in an increase in demand for public services. Therefore, the No Project Alternative would be considered an *insubstantial improvement* over the Specific Plan.

o. Recreation

Implementation of the RAAP Specific Plan would result in an indirect increase in population and an increased demand for parks and recreational facilities. However, the increased demand would not be substantial enough to require construction or expansion of recreational facilities. Additionally, the Specific Plan would incorporate plazas, green spaces, and pedestrian areas into site design to mitigate any potential impacts. The No Project Alternative would not increase population or result in an increase in demand for parks and recreational facilities. Overall, because neither the Specific Plan nor the No Project Alternative would result in significant impacts to parks and recreational facilities, the No Project Alternative would have *the same potential impact* when compared to the Specific Plan.

p. Transportation and Traffic

Implementation of the RAAP Specific Plan would increase the number of vehicle trips in the area and result in significant and unavoidable impacts related to increased truck traffic and level of service (LOS) standards. In comparison, the No Project Alternative would not increase the number of vehicle trips in the area to the extent that would result in significant traffic impacts. Overall, because the No Project Alternative would avoid the significant impacts of the Specific Plan, the No Project Alternative would be considered a *substantial improvement*.

q. Utilities and Service Systems

Implementation of the RAAP Specific Plan would increase demand for utilities and service systems, particularly requiring improvements of stormwater facilities. The impacts to stormwater facilities would be less-than-significant after mitigation. The No Project Alternative would not result in an increase in employment population to the extent that would occur under the Specific Plan, and therefore would not have the same effect on water supply, wastewater services, and solid waste disposal. Because the No Project Alternative would not have the same utility and service system demands as buildout of the Specific Plan, the No Project Alternative would be considered an *insubstantial improvement* when compared to the Specific Plan.

D. Reduced Density Alternative

1. Principal Characteristics

This alternative would lessen the intensity of the proposed land uses in the Specific Plan roughly by 30 percent. Under this alternative, development of 83,300 square feet of commercial/retail, 988,000 square feet of industrial, and 81,600 square feet of R&D/office uses would be allowed on the project site, creating new jobs in an amount ranging between 579 and 1,158. Less intense uses onsite would be attributed to a combination of smaller building footprints and lower building heights than under the Specific Plan. The reduction of development intensity would potentially reduce impacts related to air quality, noise, and traffic. This alternative would also prohibit demolition of the existing structures, which contribute to the eligibility of a historic district, to avoid impacts to cultural resources.

2. Impact Discussion

a. Aesthetics

Implementation of the RAAP Specific Plan would result in changes to the visual character of the RAAP site that would be considered less than significant through the implementation of Specific Plan policies and reliance on Riverbank General Plan policies. The Reduced Density Alternative would result in lower building heights than under the Specific Plan. However, the reduced height would not result in a substantial difference in regard to visual impact. The General Plan policies and the policies proposed by the Specific Plan that seek to improve the visual quality of the Plan Area would also be in effect under this alternative. Future development of the site under both the Specific Plan and this alternative would improve the visual characteristics of the RAAP site through landscaping and gateway features. Overall, this alternative would have *the same potential impact*.

b. Agriculture and Forestry Resources

The RAAP site does not contain any forestry resources, therefore changes under the Specific Plan and the Reduced Density Alternative would be considered the same. The conversion of on-site farmland under both the Specific Plan and this alternative is considered to be less-than-significant given the lo-

cation of the site and other factors such as water availability and surrounding uses. Overall, this alternative would have *the same potential impact* when compared to the Specific Plan.

c. Air Quality

Implementation of the RAAP Specific Plan would result in significant and unavoidable impacts related to construction and operation of future projects. The Reduced Density Alternative would result in less development on the site, consequently fewer employees traveling to the site and emissions associated with allowable uses, and therefore fewer air quality impacts would occur. As a result, the Reduced Density Alternative would be an *insubstantial improvement* when compared to the Specific Plan.

d. Biological Resources

Implementation of the RAAP Specific Plan would result in potential impacts to biological resources in the Plan Area. These impacts would be reduced to a less than significant level through conformance with existing General Plan policies and federal and State regulations and a limited number of new policies proposed in the Specific Plan. Additionally, mitigation measures are included to reduce the impacts to animal species, such as special-species bats, during construction and demolition activities. The Reduced Density Alternative may result in disturbances within the project site, but would not allow demolition of the existing structures where the maternity roosts of special-species bats are potentially present. Additionally, similar to the Specific Plan, compliance with federal, State, and local regulations, new policies proposed in the Specific Plan, as well as mitigation measures would reduce the other potential impacts to less-than-significant levels. Therefore, the Reduced Density Alternative would be considered an *insubstantial improvement* when compared to the Specific Plan.

e. Cultural Resources

Implementation of the Specific Plan would result in a significant and unavoidable impact to cultural resources because individual structures that could contribute to the eligibility of a historic district would be removed as projects

are constructed. The Reduced Density Alternative would not involve demolition of existing structures and therefore, would not result in a significant and unavoidable impact. Overall, the Reduced Density Alternative would be considered a *substantial improvement*.

f. Geology and Soils

Implementation of the Specific Plan would have potential impacts related to expansive soils that would be reduced to less than significant level through policies contained in the Specific Plan and existing policies and regulations. Although the Reduced Density Alternative would result in less development onsite, this alternative would have *the same potential impact* due to the underlying geologic conditions.

g. Greenhouse Gas Emissions

Implementation of the Specific Plan would result in an increase in GHG emissions resulting from the development and operation of projects under the Specific Plan. The Reduced Density Alternative would result in less development, and therefore less GHG emissions associated with the development and operation of projects would occur. Overall, the Reduced Density Alternative would be *an insubstantial improvement* when compared to the Specific Plan.

h. Mineral Resources

Implementation of the Specific Plan would result in the construction of new facilities on portions of the project site that are not currently developed. However, given that no mineral resources are known to exist within the project site, and that the surrounding land uses are not compatible for the extraction of mineral resources, the Specific Plan would result in a less-than-significant impact on mineral resources. The Reduced Density Alternative would also result in construction on undeveloped portions of the site although with lower intensity compared to the Specific Plan. However, as mentioned above, due to no known mineral resources within the RAAP site and conflicting land uses, the Reduced Density Alternative would have *the same potential impact*.

i. Hazards and Hazardous Materials

Implementation of the RAAP Specific Plan would result in an increase in the use, storage, and transport of hazardous materials and activities associated with safety hazards and hazardous materials sites. These potential impacts related to hazards and hazardous materials would be reduced to a less-than-significant level through existing General Plan policies and federal and State regulations. In comparison, under the Reduced Density Alternative, the hazardous materials sites would not be redeveloped or demolished and therefore would not pose the risk of releasing hazardous materials. Overall, the Reduced Density Alternative would be an *insubstantial improvement* when compared to the Specific Plan.

j. Hydrology and Water Quality

Implementation of the RAAP Specific Plan would result in an increase in impervious surfaces and, consequently, stormwater runoff, but all surface runoff from the site would be captured and treated onsite, complying with applicable State and local regulations. As a result, the Specific Plan would not substantially increase off-site surface runoff or degrade water quality. The Reduced Density Alternative would increase surface runoff rates but not to the extent as they would under the Specific Plan because of smaller building footprints. Similar to the Specific Plan, all surface runoff from the site would be captured and treated onsite through compliance with applicable State and local regulations. Overall, because the Reduced Density Alternative would result in less amount of stormwater runoff that would be captured and treated onsite, this alternative would be considered an *insubstantial improvement* in relation to the Specific Plan.

k. Land Use and Planning

Implementation of the RAAP Specific Plan would create new office and industrial uses but would not result in land use conflicts or exacerbate existing conflicts between land uses in the Plan Area and on surrounding properties. Similarly, the Reduced Density Alternative would neither create land use conflicts nor exacerbate existing conflicts. Both the Specific Plan and this alternative would meet the Economic Development Element of the General

Plan goals, which call for creating jobs and income growth for local residents although this alternative would bring fewer jobs than the Specific Plan. Overall, the Reduced Density Alternative would have *the same potential impact* with regard to land use and planning.

l. Noise

Implementation of the RAAP Specific Plan would increase noise levels due to construction activities, noise-generating land uses, and increased volumes of traffic. While the noise impacts related to construction activities and noise-generating land uses could be reduced to less-than-significant levels after mitigation, traffic-related noise impacts would be unavoidable. In comparison, the Reduced Density Alternative would introduce less intense uses and therefore less traffic that could increase the existing noise level to the extent as they would under the Specific Plan. Therefore, the Reduced Density Alternative would be an *insubstantial improvement* over the Specific Plan.

m. Population, Housing and Employment

Implementation of the RAAP Specific Plan would not directly induce population growth but would cause indirect population growth through the creation of jobs. Nevertheless, the Specific Plan would not result in a significant impact because the Plan would not cause a substantial and unplanned level of growth. Similar to the Specific Plan, the Reduced Density Alternative would cause indirect population growth through the creation of jobs, which although would be fewer than under the Specific Plan due to less development. Because neither the Specific Plan nor the Reduced Density Alternative would result in significant impacts to population or housing, the Reduced Density Alternative would have *the same potential impact* when compared to the Specific Plan.

n. Public Services

Implementation of the RAAP Specific Plan would result in an indirect increase in population, a direct increase in service population, and therefore an increased demand for public services. Project impacts associated with fire protection services would be potentially significant but mitigable. Impacts to

other public services would be less than significant. The Reduced Density Alternative would bring less service population than under the Specific Plan, and therefore less demand for public services would occur. Overall, the Reduced Density Alternative would be considered an *insubstantial improvement* over the Specific Plan.

o. Recreation

Implementation of the RAAP Specific Plan would result in an indirect increase in population and an increased demand for parks and recreational facilities. However, the increased demand would not be substantial enough to require construction or expansion of recreational facilities. The Reduced Density Alternative would bring less service population than under the Specific Plan, and therefore less demand for parks and recreational facilities would occur. Overall, because neither the Specific Plan nor the Reduced Density Alternative would result in significant impacts to parks and recreational facilities, the Reduced Density Alternative would have *the same potential impact* when compared to the Specific Plan.

p. Transportation and Traffic

Implementation of the RAAP Specific Plan would increase the number of vehicle trips in the area and result in significant and unavoidable impacts related to increased truck traffic and level of service (LOS) standards. The Reduced Density Alternative would also increase the number of vehicle trips in the area up to but not to the extent that would occur under the Specific Plan due to less intense development. Overall, because the Reduced Density Alternative could potentially avoid some of the significant impacts of the Specific Plan, this alternative would be considered an *insubstantial improvement*.

q. Utilities and Service Systems

The Specific Plan would increase demand for utilities and service systems, particularly requiring improvements of stormwater facilities. The impacts to stormwater facilities would be less than significant after mitigation. The Reduced Density Alternative would also increase demand for utilities and service systems in the area but not to the extent that would occur under the Spe-

cific Plan due to less intense development. Although the Reduced Density Alternative would generate less demand for utilities and service systems than the Specific Plan, the increased demand would still necessitate improvements to stormwater facilities. Therefore, the Reduced Density Alternative would have *the same potential impact* when compared to the Specific Plan.

E. Reconfigured Site Plan Alternative

1. Principal Characteristics

This alternative would reconfigure the site plan in order to avoid the significant impacts associated with biological resources and cultural resources. Under this alternative, no development would occur in the northern part of the Plan Area, including the North End Cap, wetland areas, and the existing detention pond. The proposed uses in the northern part would be distributed throughout the Plan Area, except for the area with existing structures. Because of site constraints, especially for industrial uses, the overall development intensity would be marginally reduced, and slightly less industrial and somewhat increased R&D development than the Specific Plan would be allowed: 119,000 square feet of commercial/retail; 1,199,800 square feet of industrial; and 120,000 square feet of R&D/office uses. Nevertheless, this alternative is expected to create a similar amount of jobs ranging between 827 and 1,654 as under the Specific Plan. Demolition of existing structures would be prohibited under this alternative to reduce potential impacts on animal species, hazardous materials, and historic resources.

2. Impact Discussion

a. Aesthetics

Implementation of the Specific Plan would result in changes to the visual character of the RAAP site that would be considered less than significant through the implementation of Specific Plan policies and reliance on Riverbank General Plan policies. The Reconfigured Site Plan Alternative may result in higher building heights in the western and southern parts than under the Specific Plan. However, the increased height would not result in significant visual impacts because development under this alternative would

also comply with the General Plan policies and the policies proposed by the Specific Plan that seek to improve the visual quality of the Plan. Future development of the site under both the Specific Plan and this alternative would improve the visual characteristics of the RAAP site through landscaping and gateway features. Overall, this alternative would have *the same potential impact*.

b. Agriculture and Forestry Resources

The RAAP site does not contain any forestry resources, therefore changes under the Specific Plan and the Reconfigured Site Plan Alternative would be considered the same. The conversion of on-site farmland under both the Specific Plan and this alternative is considered to be less-than-significant given the location of the site and other factors such as water availability and surrounding uses. Overall, this alternative would have *the same potential impact* when compared to the Specific Plan.

c. Air Quality

Implementation of the Specific Plan would result in significant and unavoidable impacts related to the construction and operation of future projects, including project-generated increases in traffic. The Reconfigured Site Plan Alternative would result in a similar level of development on the site, and therefore similar levels of impacts to air quality would occur. Overall, this alternative would have *the same potential impact* when compared to the Specific Plan.

d. Biological Resources

Implementation of the Specific Plan would result in a potential impact to biological resources in the Specific Plan Area. These impacts would be reduced to a less-than-significant level through existing General Plan policies and federal and State regulations and a limited number of new policies proposed in the Specific Plan. Additionally, the mitigation measures are included to reduce the impacts to animal species during construction and demolition activities. The Reconfigured Site Plan Alternative would not disturb the northern portion of the site where wetlands and potential species may reside. In addition, this alternative would not involve demolition of the existing structures

where the maternity roosts of special-species bats are potentially present. As a result, the Reconfigured Site Plan Alternative would avoid potential impacts that may occur under the Specific Plan and would be considered an *insubstantial improvement* when compared to the Specific Plan.

e. Cultural Resources

Implementation of the Specific Plan would result in a significant and unavoidable impact to cultural resources because individual structures that could contribute to the eligibility of a historic district would be removed as projects are constructed. The Reconfigured Site Plan Alternative would avoid demolition of existing structures and therefore would not result in a significant and unavoidable impact related to the eligibility of a historic district. In addition, new construction would occur outside of the area that could contribute to the eligibility of a historic district. Overall, the Reconfigured Site Plan Alternative would be considered a *substantial improvement*.

f. Geology and Soils

Implementation of the Specific Plan would result in potential impacts related to expansive soils that would be reduced to less than significant level through General Plan policies and existing State and local regulations. Similar to the Specific Plan, the Reconfigured Site Plan Alternative would result in intensified development onsite and the potential impacts related to expansive soils would be reduced to less than significant level through applicable policies and regulations. Therefore, this alternative would have *the same potential impact* when compared to the Specific Plan.

g. Greenhouse Gas Emissions

Implementation of the Specific Plan would result in an increase in GHG emissions resulting from the development and operation of projects under the Specific Plan. The Reconfigured Site Plan Alternative would result in a similar level of development in the Plan Area, and therefore similar amount of GHG emissions associated with the development and operation of projects would occur. Therefore, this alternative would have *the same potential impact* when compared to the Specific Plan.

h. Mineral Resources

Implementation of the Specific Plan would result in construction of new facilities on portions of the project site that are not currently developed. However, because no mineral resources are known to exist within the project site, and the surrounding land uses are not compatible for the extraction of mineral resources, the Specific Plan would result in a less-than-significant impact on mineral resources. The Reconfigured Site Plan Alternative would also result in construction on undeveloped portions of the site except for the northern portion of the site. Nevertheless, as mentioned above, due to no known mineral resources within the RAAP site and conflicting land uses, the Reconfigured Site Plan Alternative would have *the same potential impact*.

i. Hazards and Hazardous Materials

Implementation of the RAAP Specific Plan would result in an increase in the use, storage, and transport of hazardous materials and activities associated with safety hazards and hazardous materials sites. The potential impacts related to hazards and hazardous materials would be reduced to a less-than-significant level through existing General Plan policies and federal and State regulations. In comparison, under the Reconfigured Site Plan Alternative, the hazardous materials sites would not be redeveloped or demolished and therefore would not pose the risk of releasing hazardous materials. Overall, the Reconfigured Site Plan Alternative would be an *insubstantial improvement* when compared to the Specific Plan.

j. Hydrology and Water Quality

Implementation of the RAAP Specific Plan would result in an increase in impervious surfaces and, consequently, stormwater runoff, but all surface runoff from the site would be captured and treated onsite, complying with applicable State and local regulations. As a result, the Specific Plan would not substantially increase off-site surface runoff or degrade water quality. In comparison, because the Reconfigured Site Plan Alternative would remain the northern portion of the site undeveloped, this alternative would result in less impervious surfaces than the Specific Plan. Consequently, this alternative would not increase surface runoff rates to the extent as they would under the

Specific Plan. Overall, because of less stormwater runoff generated under the Reconfigured Site Plan Alternative, this alternative would be considered an *insubstantial improvement* in relation to the Specific Plan.

k. Land Use and Planning

Implementation of the RAAP Specific Plan would create new office and industrial uses but would not result in land use conflicts or exacerbate existing conflicts between land uses in the Plan Area and on surrounding properties. Similarly, the Reconfigured Site Plan Alternative would neither create land use conflicts nor exacerbate existing conflicts. Both the Specific Plan and this alternative would meet the Economic Development Element of the General Plan goals, which call for creating jobs and income growth for local residents. Therefore, this alternative would have *the same potential impact* with regard to land use and planning.

l. Noise

Implementation of the RAAP Specific Plan would increase noise levels due to construction activities, noise-generating land uses, and increased volumes of traffic. While the noise impacts related to construction activities and noise-generating land uses could be reduced to less-than-significant levels after mitigation, traffic-related noise impacts would be unavoidable. The Reconfigured Site Plan Alternative would also increase overall noise levels in the area although impacts to the southern portion of the site would be greater than the northern portion due to different development intensities. The traffic-related noise impacts would remain significant and unavoidable. Therefore, this alternative would have *the same potential impact* when compared to the Specific Plan.

m. Population, Housing and Employment

Implementation of the RAAP Specific Plan would not directly induce population growth but would cause indirect population growth through the creation of jobs. Nevertheless, the Specific Plan would not result in a significant impact because the Specific Plan would not cause a substantial and unplanned level of growth. The Reconfigured Site Plan Alternative would cause indirect

population growth through the creation of jobs at the same level as the Specific Plan. Because neither the Specific Plan nor the Reconfigured Site Plan Alternative would result in significant impacts to population or housing, the Reconfigured Site Plan Alternative would have *the same potential impact* when compared to the Specific Plan.

n. Public Services

Implementation of the RAAP Specific Plan would result in an indirect increase in population, a direct increase in service population, and therefore an increased demand for public services. Project impacts associated with fire protection services would be potentially significant but mitigable. Impacts to other public services would be less than significant. The Reconfigured Site Plan Alternative would result in a similar increase of service population as the Specific Plan, and therefore a similar demand for public services would occur. Overall, the Reconfigured Site Plan Alternative would have *the same potential impact* when compared to the Specific Plan.

o. Recreation

Implementation of the RAAP Specific Plan would result in an indirect increase in population and an increased demand for parks and recreational facilities. However, the increased demand would not be substantial enough to require construction or expansion of recreational facilities. The Reconfigured Site Plan Alternative would bring a similar increase in population but would result in less demand for parks and open space than the Specific Plan due to the undeveloped lands in the northern portion of the site. Overall, because neither the Specific Plan nor the Reconfigured Site Plan Alternative would result in significant impacts to parks and recreational facilities, the Reconfigured Site Plan Alternative would have *the same potential impact* when compared to the Specific Plan.

p. Transportation and Traffic

The Specific Plan would increase the number of vehicle trips in the area and result in significant and unavoidable impacts related to increased truck traffic and level of service (LOS) standards. The Reconfigured Site Plan Alternative

would generate a similar number of vehicle trips in the area, although, because of the reconfigured development patterns, its traffic flows would be different from those under the Specific Plan. Consequently, the locations of impacted areas would differ from the proposed project. Less industrial development under this alternative would generate slightly fewer truck trips than under the Specific Plan. Because this alternative could lessen some of the significant impacts related to truck traffic, the Reconfigured Site Plan Alternative would be considered an *insubstantial improvement* when compared to the Specific Plan.

q. Utilities and Service Systems

Implementation of the Specific Plan would increase demand for utilities and service systems, particularly requiring improvements of stormwater facilities. The impacts to stormwater facilities would be less than significant after mitigation. The Reconfigured Site Plan Alternative would increase demand for utilities and service systems at a similar level as the Specific Plan. Therefore, the Reconfigured Site Plan Alternative would have *the same potential impact* when compared to the Specific Plan.

F. Ability to Meet Project Objectives

This section describes how each alternative would meet the Specific Plan objectives, described in Chapter 3 of this Draft EIR, and repeated below for reference:

The stated objectives of the Specific Plan are to:

- “ Define the vision for the future of the Specific Plan Area. (The Specific Plan envisions the Plan Area to be a thriving industrial park that is occupied by a variety of manufacturing businesses.)
- “ Create goals and policies intended to facilitate achievement of the vision.
- “ Designate land for uses that implement the vision.

- “ Create development standards for the form and physical design of new development within the Specific Plan Area.
- “ Provide recommendations for circulation and infrastructure improvements required to support future buildout of the Specific Plan Area.
- “ Provide an implementation strategy for achieving the goals in the Specific Plan and putting the policies in the Specific Plan into action.

a. No Project Alternative

Under the No Project Alternative, the Specific Plan would not be implemented, and therefore this alternative does not meet any of the objectives.

b. Reduced Density Alternative

Under this alternative, less development and fewer jobs than under the Specific Plan would occur. However, this would still satisfy the Specific Plan’s vision, which calls for a thriving industrial park that is occupied by a variety of manufacturing businesses. This alternative would incorporate applicable goals, policies, development standards, improvement strategies, and land use designations of the Specific Plan. Therefore, this alternative would meet all of the objectives.

c. Reconfigured Site Plan Alternative

This alternative would provide slightly less amount of development and jobs as envisioned in the Specific Plan. This alternative would also incorporate applicable goals, policies, development standards, improvement strategies, and land use designations of the Specific Plan. Therefore, this alternative would meet all of the objectives.

G. Environmentally Superior Alternative

In addition to the discussion and comparison of impacts of the Specific Plan 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 alter-

native 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 Specific Plan objectives.

As shown in Table 5-1, the Reduced Density Alternative would have the fewest environmental impacts as compared to the other two alternatives, and would therefore be considered the environmentally superior alternative.

The City notes, that where, as is the case here, an EIR determines that the potential adverse impacts of a project can be avoided or substantially lessened by mitigation measures, the Lead Agency is not required to make any findings regarding the feasibility of proposed alternatives. (*Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal.App.4th 351, 379.)

6 CEQA REQUIRED ASSESSMENT CONCLUSIONS

This chapter provides an overview of the impacts of the RAAP Specific Plan (the Plan) based on the analyses presented in Chapters 4 and 5 of this Draft EIR. The topics covered in this Chapter include growth inducement, unavoidable significant impacts, and significant irreversible changes. A more detailed analysis of the effects the Plan would have on the environment and proposed mitigation measures to minimize significant impacts is provided in Chapters 4.1 through 4.17.

A. Growth Inducement

Section 15126.2(d) of the CEQA Guidelines requires that an EIR discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Typical growth-inducing factors might be the 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 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 Plan growth would cause adverse environmental impacts.

Implementation of the Plan is not expected to directly induce growth because it is not building any housing, although it will provide substantial employment opportunities compared to those currently available in the Plan Area. However, some employment growth for the area is anticipated by the Riverbank General Plan.

While development of the Plan would not add any housing, it would add industrial, commercial, and office uses which could indirectly increase the demand for housing not only within the Plan Area but throughout Riverbank by increasing the number of employees in the area that may want to live near work. However, it is unknown whether future employees of the Plan Area would already be Riverbank residents, whether they would relocate to Riverbank from other places, or whether they would already be people who

live elsewhere and commute to the site. Although buildout of the Plan would result in the extension of infrastructure, this expansion is to replace existing infrastructure currently serving the site, and this growth, including the additional infrastructure, was planned for and envisioned under the Riverbank General Plan.

Development of the Plan would involve construction activities that could generate temporary employment opportunities; it is unlikely that construction workers would relocate to Riverbank as a result implementation of the Plan. Thus, development of the Plan would not be considered growth-inducing from an employment perspective.

B. Unavoidable Significant 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 project that were found to be significant and unavoidable. More information on these impacts is found in Chapter 4 of this Draft EIR.

Impact AQ-1: Construction of the Specific Plan could emit significant levels of criteria pollutants, potentially contributing to an existing or projected air quality violation. Because of the project size and the uncertainty of the construction schedule, construction period emissions would be considered to remain *significant* with mitigation.

Impact AQ-2: Operation of the Specific Plan could emit significant levels of criteria pollutants, potentially contributing to existing or projected air quality violations. This would be considered a *significant* impact.

Impact CUL-1: Implementation of the RAAP Specific Plan would alter the significance of an historic resource. By removing individual structures that contribute to the eligibility of an historic district, the RAAP's ability to convey its importance to local and national history is significantly altered, the

resource may not be eligible for inclusion on the CRHR. This would be considered a *significant* impact.

Impact NOISE-2: Existing noise environments at outdoor activity areas of residences along Claus Road are greater than 65 dBA L_{dn}, and would increase by more than 1.5 dBA as a result of transportation noise following implementation of the Specific Plan. This would be considered a *significant* impact.

Impact NOISE-4: Traffic volume increases in the vicinity of the Specific Plan vicinity will result with the development of the plan area and other planned developments in the southeast portion of the City of Riverbank. This would be considered a *significant* impact.

Impact TRANS-3: Future development within the RAAP area would add truck traffic to intersections on State Route 108, specifically at the intersections of Atchison Street (State Route 108)/1st Street, State Route 108/Claus Road and State Route 108/Patterson Road. As these intersections do not currently accommodate the turning movements of large trucks, this is considered a potentially *significant* impact based on the significance criteria.

Impact TRANS-5: The Claribel Road/Coffee Road intersection is projected to operate at LOS F during the AM and LOS E during the PM peak hours. The addition of Project traffic would worsen deficient operations in both peak hours. This is considered *significant* based on the significance criteria, as LOS C is the standard for this intersection.

Impact TRANS-6: The Claribel Road/Oakdale Road intersection is projected to operate at LOS F during the AM and PM peak hours. The addition of Project traffic would worsen LOS F operations. This is considered *significant* based on the significance criteria, as LOS D is the standard for this intersection.

C. Significant Irreversible Changes

Section 15126.2(c) of the CEQA Guidelines requires an EIR to discuss the extent to which implementation of the 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.

1. Changes in Land Use that Commit Future Generations

Buildout of the Plan would result in the conversion of some agricultural land currently used for growing crops to developed area for business, commercial, and industrial uses. However, as the Plan Area has already been planned for future growth and is adjacent to a developed area, implementation of the Plan is not expected to result in any land use changes that would commit future generations to uses that are not already prevalent and/or planned for in the Plan Area and its immediate vicinity.

2. Irreversible Damage from Environmental Accidents

Potential environmental accidents of concern include those that would have adverse effects on the environment or public health due to the nature or quantity of material released during an accident and the receptors exposed to that release. Demolition and construction activities associated with development of the Plan would involve some risk for environmental accidents. However, these activities would be monitored by City of Riverbank, State, and federal agencies, and would follow professional industry standards for safety and construction. Additionally, although the land uses proposed by the Plan may include some uses or activities that could contribute to or be the cause of significant environmental accident, existing regulations at the City, State, and federal levels would limit the potential for accidents and the effects. As a result, the Plan would not pose a substantial risk of environmental accidents.

3. Large Commitment of Nonrenewable Resources

Consumption of nonrenewable resources involves issues related to increased energy consumption, conservation of agricultural lands, and lost access to

mining reserves. Development of the Plan would require water, electric, and gas service, and resources for construction, and the ongoing operation of the Plan would involve the use of nonrenewable resources. Construction and ongoing maintenance of the Plan 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 and 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 Plan (post-construction), energy sources including oil and gasoline would be used for lighting, heating, and cooling of businesses, and transportation of people to and from the Plan Area.

Implementation of the Plan, however, would include several features that would offset or reduce the need for nonrenewable resources. The 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 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.

Although the construction and ongoing operation of the Plan would involve the use of nonrenewable resources, through the inclusion of energy-conserving Plan features, compliance with applicable standards and regulations, and implementation of mitigation measures, the Plan would not represent a large commitment of nonrenewable resources.

The Plan Area contains agricultural land, but its proposed future non-agricultural use represents a commitment of non-renewable resources. The Plan Area does not provide access to a mining reserve, so it would not affect those natural resources.

RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
RAAP SPECIFIC PLAN EIR
CEQA REQUIRED ASSESSMENT

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