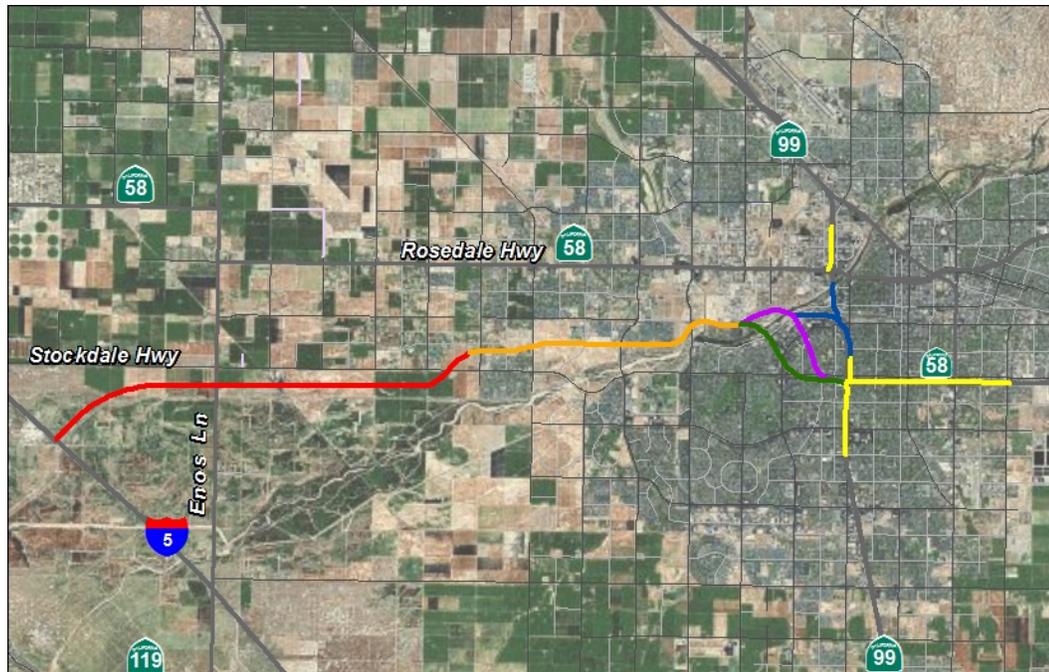


Centennial Corridor Project

State Route 99 to Interstate 5

KERN COUNTY, CALIFORNIA
District 06 - KERN – 58 - PM T31.7 to PM 55.6
District 06 - KERN – 99 - PM 21.2 to PM 26.2
Project ID# 06-0000-0484

Biological Assessment



March 2013
(Revised March 2014)

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Biological Assessment

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March 2013

STATE OF CALIFORNIA

Department of Transportation

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Summary of Findings, Conclusions and Determinations

The California Department of Transportation (Caltrans) proposes to establish a new alignment to connect what is locally known as the Westside Parkway to the existing State Route 58 (East) freeway. Improvements to the Stockdale Highway/State Route 43 (known locally as Enos Lane) intersection would also be made to accommodate additional traffic. The project area is located at the southern end of the San Joaquin Valley in the City of Bakersfield and in unincorporated Kern County, California.

The purpose and need of the Centennial Corridor project is to improve route continuity along State Route 58 within Metropolitan Bakersfield and Kern County from the existing State Route 58/State Route 99 freeway interchange to Interstate 5. The Centennial Corridor project is part of the Thomas Roads Improvement Program, which includes nine projects: six road improvement projects in the planning and environmental review phases; and three road projects that have been completed (the Westside Parkway, State Route 178 at Fairfax Interchange and 7th Standard Road).

The biological study area for the project includes the alignment and alternatives plus a 500-foot buffer area on each side of the project right-of-way. Most of the biological study area is highly urbanized. Biological resources are generally found along the Kern River or in undeveloped areas interspersed within or on the edge(s) of development, such as canals, oil refinery lands, and vacant lots.

Twenty-one threatened or endangered plant and wildlife species are known to occur in the project region and were evaluated in the *Natural Environment Study*. Of these species, only the federally listed endangered San Joaquin kit fox (*Vulpes macrotis mutica*) has potential to occur in the biological study area.

The remaining species are not expected to occur in the biological study area because:

- they are associated with particular habitat types that are absent from the biological study area;
- they were not observed during surveys; or
- they are not known to occur in the immediate project vicinity.

The project would result in direct and indirect effects to the federally listed endangered San Joaquin kit fox:

- Direct Effects

Alternative A would result in:

- the permanent loss of 24.44 acres of habitat for the San Joaquin kit fox in the biological study area that are considered suitable for foraging and denning. Permanent effects to habitat include the removal of habitat to accommodate the new roadbed, intersection improvements, and new project right-of-way limits.
- the permanent or temporary loss of one active kit fox den within the alignment.

Alternative B would result in:

- the permanent loss of 11.28 acres of habitat for the San Joaquin kit fox in the biological study area that are considered suitable for foraging and denning. Permanent effects to habitat include the removal of habitat to accommodate the new roadbed, intersection improvements, and new project right-of-way limits.
- the permanent or temporary loss of three potential kit fox dens within the alignment.

Alternative C would result in:

- the permanent loss of 10.24 acres of habitat for the San Joaquin kit fox in the biological study area that are considered suitable for foraging and denning. Permanent effects to habitat include the removal of habitat to accommodate the new roadbed, intersection improvements, and new project right-of-way limits.
- the permanent or temporary loss of one potential kit fox den within the alignment.

- Temporary Effects

Alternative A would affect 70.94 acres of habitat due to disturbance such as equipment and materials staging.

Alternative B would affect 65.55 acres of habitat due to disturbance from equipment and materials staging.

Alternative C would affect 62.25 acres of habitat due to equipment and materials staging.

- Indirect effects

Project implementation may include:

- a. the potential for an unintentional increase in vehicular strikes of kit foxes crossing the road;
- b. habitat fragmentation;
- c. change in movement corridors;
- d. geographic isolation; and/or
- e. altered space use.

All of these indirect effects could result in disrupted social ecology; reduced fertility, pregnancy rates, and prenatal survival; mortality, and reduced carrying capacity in the vicinity of the biological study area.

There is no critical habitat for the San Joaquin kit fox within the biological study area; therefore no critical habitat would be affected by the project.

The following Avoidance and Minimization, and Mitigation Measures shall be implemented to reduce impacts to biological resources.

Prior to Project Construction:

- Construction activities shall adhere to the standard construction and operational requirements, as described in the U.S. Fish and Wildlife Service's 2011 *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance*.
- Approximately 60 days before road construction, a biologist shall conduct a survey for kit fox dens within 200 feet of the construction footprint (project footprint plus temporary construction zone), including utility relocations. A letter report and map of known and potential kit fox dens shall be submitted to the U.S. Fish and Wildlife Service. Pre-activity clearance surveys for kit fox shall be repeated approximately 2 weeks (no less than 14 days and no more than 30 days) before construction or after any delays in construction of over 2 weeks. Any new kit fox dens identified since completing the 60-day survey shall be reported to the U.S. Fish and Wildlife Service in a letter report and map. If no new kit fox dens are identified, an internal record shall be maintained that includes the survey date, designated biologist conducting the survey, and general survey findings.
- If dens or potential dens are detected in the project footprint during 60-day and/or 2 week pre-activity clearance surveys, agency permission shall be requested to monitor and excavate dens that would be affected by the project; active dens shall not be excavated during the natal season (January 1–June 14). The biologist shall monitor potential dens for three consecutive nights and submit monitoring results in a letter report to the U.S. Fish and Wildlife Service. The biologist shall oversee the excavation of dens with no kit fox use following approval by the U.S. Fish and Wildlife Service. Dens found within 200 feet of project construction but not affected by construction activities shall be monitored and buffered from construction by an exclusion zone. The biologist shall place flagged stakes in a 50-foot radius buffer around any potential or atypical den and shall place a fence (e.g., untreated wood particle board, silt fencing, orange construction fencing, or

other fencing as long as it has openings for kit fox entry/exit and keeps humans and equipment out) 100 feet from a known den; the U.S. Fish and Wildlife Service shall be contacted if a natal den is found. The biologist shall submit results of den excavation and exclusion in a letter report to the U.S. Fish and Wildlife Service.

- The biologist shall conduct an employee education program for all construction crews before ground-disturbing activities. The purpose of this training is to inform construction crew members of permit terms and conditions and the potential for kit fox to occur at a site and be affected by construction activities. The training shall include, at a minimum (1) special-status species identification; (2) a description of suitable habitat for these species; (3) avoidance of environmentally sensitive areas; and (4) measures to implement in the event that this species is found during construction. The training shall be repeated to all new crew members working in kit fox habitat. Following the training, crew members shall sign an attendance sheet stating that they attended the training and understand the protective measures and construction restrictions. Training materials and records of attendees shall be submitted to the U.S. Fish and Wildlife Service.
- During Construction: The biologist shall monitor road construction activities once daily. The biologist shall verify that construction complies with permit terms and conditions and construction and operational requirements described in the *Standardized Recommendations for the Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S. Fish and Wildlife Service 2011b). The biologist shall maintain a log of daily monitoring notes that can be summarized and transmitted to the U.S. Fish and Wildlife Service at its request.
- In areas of known kit fox activity, the project right-of-way shall be fenced with permeable fencing. In high-density residential areas, the project right-of-way shall be fenced with exclusionary fencing. For a permeable fencing design, one or a combination of the following three design options may be adopted to provide kit fox with movement opportunities: (1) elevating the bottom of the fence 5 inches above ground to allow unobstructed movement by kit foxes under the fence; (2) installing ground level 8-inch by 8-inch gaps no more than 100 feet apart for the length of the fence, which would allow kit fox movement at regular intervals along the right-of-way; and (3) installing fencing with a minimum mesh size of 3½ by 7 inches, preferably 5 by 12 inches, which would allow unlimited movement by kit fox through the fence.

- Curbed medians and median barriers shall be used as part of the project design. In areas of known kit fox activity, either 6-inch-high curbed medians with low vegetation (e.g., less than 6 inches) or 10-inch-high unvegetated curbed medians are proposed. The 10-inch curbed medians shall remain unvegetated to prevent obstructing the visual field of kit foxes near the roadway. Curbed medians less than 10 inches high and requiring landscaping shall be planted with low-level vegetation (i.e., less than 6 inches) that does not require mowing. Median barriers are required in some portions of the project for public safety. In areas of known kit fox activity, Caltrans-designed modified median barrier type 60/S shall be used. The Caltrans type 60/S design has been approved by the U.S. Fish and Wildlife Service (Biological Opinion #81420-2009-F-0752; U.S. Fish and Wildlife Service 2009) and includes 9-inch radius openings (9-inch-high by 18-inch-wide, half circle openings) spaced every 150 feet to allow for kit fox passage.
- In areas of known kit fox activity, existing kit fox movement corridors along all canals and railroads shall be preserved through the use of bridges and/or culverts for wildlife crossing. The toe-of-road fill and bridge support walls shall be maintained and new walls designed, no less than 20 feet from the centerline of canal access roads and the railroad centerlines.
- If landscaping is required, project landscaping shall be designed to allow unobstructed visibility to kit fox and to provide opportunities for movement across the roadway. Curbed median and roadside landscaping shall be planted in 1 of 2 alternative strategies: selecting plants that do not exceed 6 inches tall at maturity and/or creating gaps no less than 4 feet wide every 12 feet in areas landscaped with trees and shrubs.
- Warning signage alerting drivers to potential kit fox presence is proposed at several locations. The need for and number of appropriate signage at intersections shall continue to be evaluated as the project design advances.

Compensatory mitigation:

- Purchase of credits through the Metropolitan Bakersfield Habitat Conservation Plan for effects to non-native grassland, riparian woodland/Great Valley cottonwood riparian forest, waterways, detention basin, disturbed/ruderal, and agriculture lands.
- Implementation of the Sump Habitat Program (currently under development) which includes installation of artificial dens in selected sumps, controlling vegetation in and around dens, increasing accessibility to sumps through

fence/gate gaps, and maintenance procedures to reduce the potential for effects to kit foxes.

The project '*may affect, likely to adversely affect*' the San Joaquin kit fox due to the direct and indirect impacts on this species resulting from project implementation. However, with the measures described above from the *San Joaquin Kit Fox Life History, Effects Analysis, Mitigation Strategy, and Implementation Plan*, effects would be avoided and minimized to *the extent practicable*.

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Chapter 1. Introduction

The purpose of this Biological Assessment is to provide technical information and to review the project in sufficient detail to determine to what extent the project may affect threatened, endangered, or proposed species. This Biological Assessment is prepared in accordance with (1) legal requirements found in Section 7(a)(2) of the federal Endangered Species Act (16 United States Code 1536[c]) and (2) Federal Highway Administration and Caltrans regulations, policies, and guidance. The document presents technical information upon which later decisions regarding project effects are developed.

The California Department of Transportation (Caltrans) proposes to construct the Centennial Corridor, which would connect what is locally known as the Westside Parkway to the existing State Route 58 (East) freeway. In conjunction with this construction, improvements to the Stockdale Highway/State Route 43 (known locally as Enos Lane) intersection would be made to accommodate additional traffic. The project area is located at the southern end of the San Joaquin Valley in the City of Bakersfield and in unincorporated Kern County, California (Figure 1).

The project would connect a local freeway, known as the Westside Parkway, to the existing State Route 58 (East) freeway. The project is all new construction. Three build alternatives and the No-Build Alternative are being evaluated. The No-Build Alternative assumes the connection from the Westside Parkway to State Route 58 is not constructed. The build alternatives are each proposed to be constructed as a six-lane freeway; they are identified as Alternatives A through C.

- Alternative A would travel in a westerly direction from the existing State Route 58/State Route 99 Interchange for about one mile south of Stockdale Highway, at which point it would turn in a northwesterly direction and span Stockdale Highway/Montclair Street, California Avenue/Lennox Avenue, Truxtun Avenue, and the Kern River before joining the east end of the Westside Parkway in the vicinity of the Mohawk Street interchange. Alternative A is about 8.2 miles long.
- Alternative B would travel in a westerly direction from the existing State Route 58/State Route 99 Interchange for about 1,000 feet south of Stockdale Highway, at which point it would turn in a northwesterly direction and span Stockdale Highway/Stine Road, California Avenue, Commerce Drive, Truxtun Avenue, and the Kern River before joining the east end of the Westside Parkway between the Mohawk Street and Coffee Road interchanges. This alignment proposes State

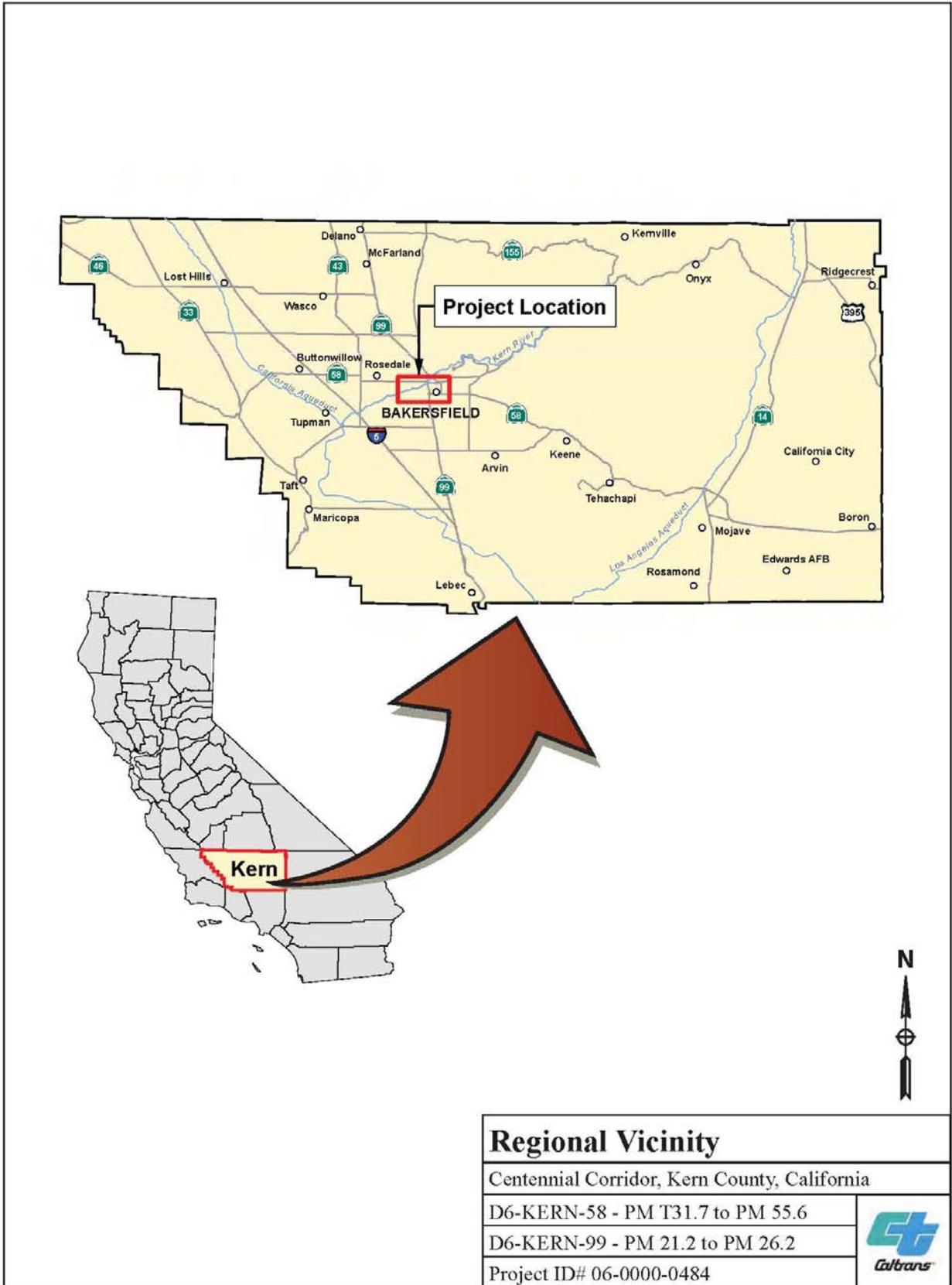


Figure 1

Route 58 to be depressed (the roadway would be lower than the existing ground level) between California Avenue and Ford Avenue. Overcrossings are proposed at Marella Way and La Mirada Drive to facilitate traffic circulation. Alternative B is about 8.6 miles long.

- In the vicinity of the existing State Route 58/State Route 99 interchange, Alternative C would turn north and run parallel to the west of State Route 99 for about one mile. The freeway would turn west and span the BNSF Railway rail yard, Truxtun Avenue, and the Kern River. This alternative proposes undercrossings at Brundage Lane, Oak Street, State Route 99, Palm Avenue, and California Avenue. Alternative C is about 8.7 miles long.

1.1. Project History

1.1.1. Purpose and Need

1.1.1.1. Project Purpose

The purpose of the Centennial Corridor project is to improve route continuity along State Route 58 within Metropolitan Bakersfield and Kern County from the existing State Route 58/State Route 99 freeway interchange to Interstate 5.

1.1.1.2. Project Need

State Route 58 is a critical link in the state transportation network that is used by interstate travelers, commuters, and a large number of trucks. State Route 58 lacks continuity in central Bakersfield, which results in severe traffic congestion and reduced levels of service on adjoining highways and local streets. This route is offset by about 1 mile at State Route 43 (known locally as Enos Lane) and by about 2 miles at State Route 99. The merging of two major State Routes (58 and 99) into one alignment between the eastern and western legs of State Route 58 degrades the traffic level of service on this segment of freeway. In addition, State Route 99's close spacing for its two interchanges with State Route 58 (East and West), and an interchange at California Avenue, results in vehicles aggressively changing lanes, which adds to the congestion.

1.2. Project Description

The Centennial Corridor project begins near the intersection of State Route 58 and Cottonwood Road and continues westerly to connect to the Westside Parkway. The study area is bound on the east by Cottonwood Road, on the west by Coffee Road, on the north by Gilmore Avenue, and on the south by Wilson Road. The preferred

alternative would connect State Route 58 (East) to the east end of the Westside Parkway by means of a six-lane freeway.

Dust-, erosion-, and sediment control measures will be developed at a later project design phase, but will follow standard Best Management Practices. Specific construction equipment will also be determined at a later project design phase, but will follow standard construction techniques. Detours will be developed at a later project design phase, but will use existing streets. Relocation/reconstruction of utilities and drainage facilities within the project right-of-way would include power poles, underground utilities, and storm drains. Utility relocations are expected to be accomplished without interrupting service. Drainage improvements would include installation of operational Best Management Practices. The design is expected to start in mid-2013 and be completed by mid-2015. Construction would start in 2016 and be completed by 2018.

Alternative A

Alternative A would travel westerly from the existing State Route 58/State Route 99 interchange for about 1 mile south of Stockdale Highway, where it would turn northwesterly and span Stockdale Highway/Montclair Street, California Avenue/Lennox Avenue, Truxtun Avenue, and the Kern River before joining the eastern end of the Westside Parkway near the Mohawk Street interchange. Figures 2A–2B show the footprint for the project and potential kit fox dens and other observations near the project area.

A link would be provided from northbound State Route 99 to westbound State Route 58 and from eastbound State Route 58 to southbound State Route 99 via high-speed connectors. No direct connector ramps would be built from southbound State Route 99 to westbound State Route 58 or from eastbound State Route 58 to northbound State Route 99. Southbound State Route 99 would be widened to accommodate the additional traffic from eastbound State Route 58 to the southbound State Route 99 connector.

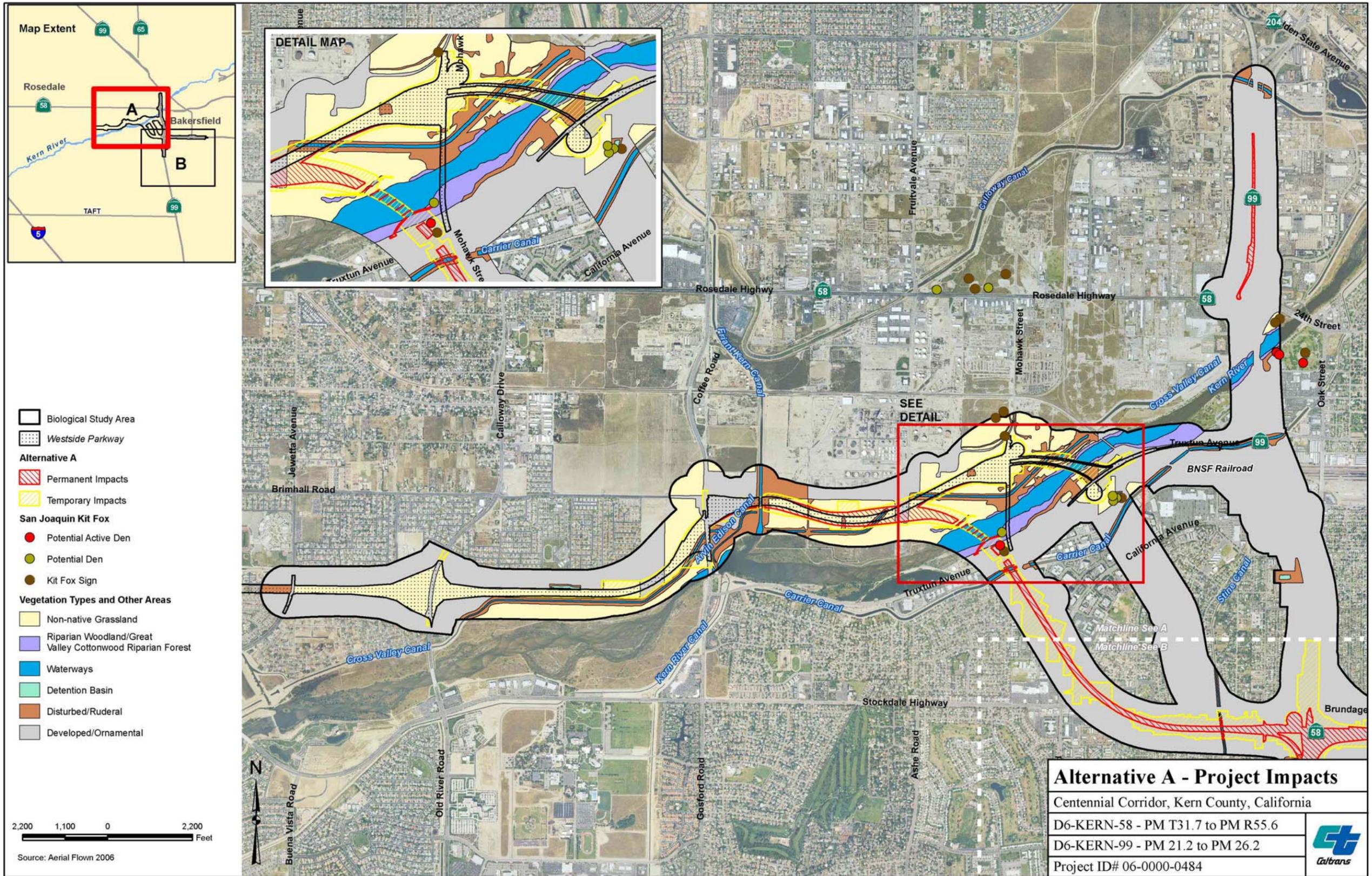


Figure 2A

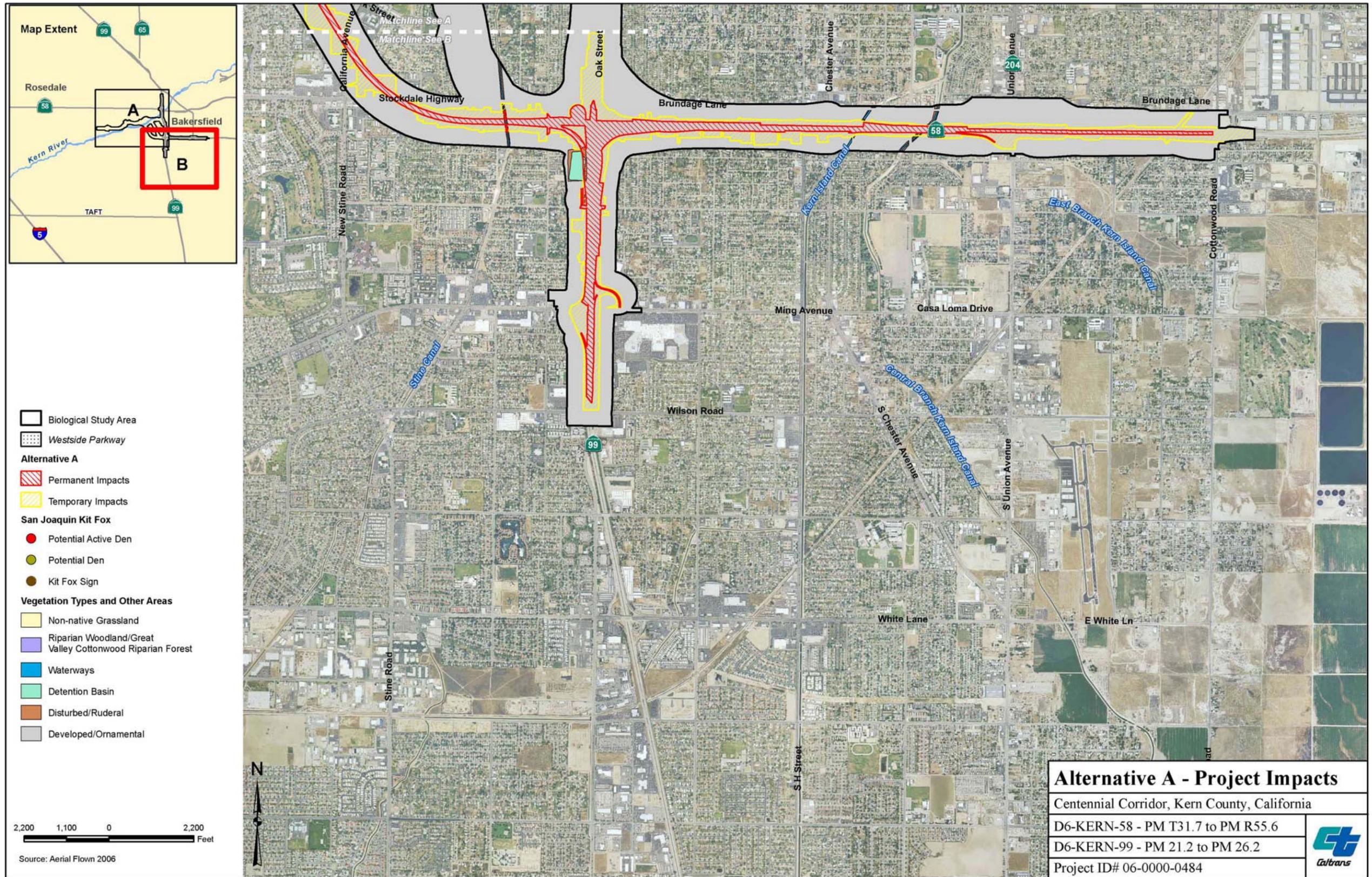


Figure 2B

The existing westbound State Route 58 to southbound State Route 99 loop-ramp connector would be realigned and would connect to the eastbound State Route 58 to southbound State Route 99 connector before merging onto southbound State Route 99. The existing southbound State Route 99 to eastbound State Route 58 connector and northbound State Route 99 to eastbound State Route 58 would be preserved with some changes. The limits of widening on State Route 99 would extend to the Wilson Road overcrossing. On northbound State Route 99, a three-lane exit would be provided just north of Wilson Road to carry the northbound State Route 99 to westbound State Route 58 traffic on two lanes and the Ming Avenue on- and off-ramp traffic on the third lane. All ramps in this area would have to be realigned to provide for the additional lanes.

The Wible Road on- and off-ramps just south of the existing State Route 58/State Route 99 interchange, which is in conflict with the Caltrans standards of interchange spacing, would have to be removed to accommodate this design. The Stockdale Highway off-ramp on the southbound State Route 99 to eastbound State Route 58 connector would be removed as well. Under this concept, State Route 58 would also lose its link with Real Road. Also, Alternative A would provide an auxiliary lane on southbound State Route 99 from south of Gilmore Avenue to the Rosedale Highway off-ramp.

The maximum depth of excavation for Alternative A is 25 feet. This would occur near State Route 58 between Stephens Drive and H Street to accommodate the widened ramps. On State Route 99, the maximum excavation would be about 18.5 feet and would occur between Belle Terrace and Ming Avenue.

Seven drainage basins would be placed throughout the study area to retain storm water runoff for water quality improvement purposes.

Alternative B

Alternative B would run westerly from the existing State Route 58/State Route 99 interchange to about 1,000 feet south of Stockdale Highway, where it would turn northwesterly and span Stockdale Highway/Stine Road, California Avenue, Commerce Drive, Truxtun Avenue, and the Kern River before joining the east end of Westside Parkway between the Mohawk Street and Coffee Road interchanges. Figures 3A–3B show the footprint for the project and potential kit fox dens and other observations near the project area

This alignment would depress State Route 58 between California Avenue and Ford Avenue, minimizing visual impacts to the neighborhood. Overcrossings are proposed at Marella Way and La Mirada Drive to ease traffic circulation.

This alternative would have the same connections to State Route 99 that Alternative A does and would require similar improvements on State Route 99 and the existing State Route 58.

The maximum depth of excavation for Alternative B is 25 feet. This would occur near State Route 58 between Stephens Drive and H Street to accommodate the widened ramps and between California Avenue and Ford Avenue where the freeway would be built below the existing grade. On State Route 99, the maximum excavation would be about 18.5 feet, between Belle Terrace and Ming Avenue.

Eight drainage basins would be placed throughout the study area to retain storm water for water quality improvement purposes.

Alternative C

Near the existing State Route 58/State Route 99 interchange, Alternative C would turn north and run parallel to the west of State Route 99 for about 1 mile. The freeway would turn west and span the BNSF Railway rail yard, Truxtun Avenue, and the Kern River. Figures 4A–4B show the footprint for the project and potential kit fox dens and other observations near the project area

This alternative proposes undercrossings at Brundage Lane, Oak Street, State Route 99, Palm Avenue, and California Avenue.

Connections would be provided from eastbound State Route 58 to southbound State Route 99 and from northbound State Route 99 to westbound State Route 58.

- The existing westbound State Route 58 to southbound State Route 99 loop-ramp connector would connect to the eastbound State Route 58 to southbound State Route 99 connector before merging onto southbound State Route 99.
- The southbound State Route 99 Ming Avenue off-ramp would be relocated north of the eastbound State Route 58 to southbound State Route 99 connector to facilitate weaving between the Ming Avenue off-ramp and the eastbound State Route 58 to southbound State Route 99 connector traffic.

- A connector would be provided east of northbound State Route 99 from Brundage Lane to south of California Avenue to facilitate weaving between westbound State Route 58 to northbound State Route 99 traffic with northbound State Route 99 to westbound State Route 58 traffic.

Improvements on State Route 99 would extend from the Wilson Road overcrossing (south of the State Route 58/State Route 99 interchange) to the Gilmore Avenue overcrossing (north of the State Route 58/State Route 99 interchange).

A collector-distributor road system would provide access from westbound State Route 58 to northbound State Route 99 as well as from northbound State Route 99 to westbound State Route 58.

The Wible Road on- and off-ramps just south of the existing State Route 58/State Route 99 interchange would be removed to accommodate the northbound State Route 99 auxiliary lane.

The Stockdale Highway off-ramp on the southbound State Route 99 to eastbound State Route 58 connector would be removed as well. Under this concept, southbound State Route 99 would also lose its link with Real Road.

The maximum depth of excavation for Alternative C is 25 feet. This would occur near State Route 58 between Stephens Drive and H Street to accommodate the widened ramps. On State Route 99, the maximum excavation would be about 18.5 feet and be located between Belle Terrace and Brundage Lane.

Eleven drainage basins would be placed throughout the study area to retain storm water runoff for water quality improvement purposes.

Stockdale Highway/State Route 43 (common to all alternatives)

Improvements would be required at the Stockdale Highway and State Route 43 (Enos Lane) intersection. The proposed improvements would widen the intersection and add signals to control the traffic movements. State Route 43 would be widened to add a dedicated left-turn lane in both directions. Stockdale Highway would be widened to add a dedicated left-turn lane and a shared through/right-turn lane in both directions.

Figure 5 shows the footprint for the project improvements at Stockdale Highway and State Route 43. All borrow, disposal, staging, access, and utility relocations would be within the footprint identified in these figures, or within nearby developed areas.

There are no interdependent or interrelated projects.

1.2.1. Avoidance and Minimization Measures

Standard Avoidance and Minimization Measures for the San Joaquin kit fox (such as pre-construction surveys, worker environmental awareness training, and construction monitoring) will be implemented. In addition to the standard Avoidance and Minimization Measures, the project proposes to incorporate structural design elements that are intended to facilitate safe kit fox crossing and to reduce the potential for unintentional vehicular strikes. The structural design elements would include kit fox crossing structures under the new roadway; avoidance of current movement corridors (i.e., canals and railways); fencing to exclude kit foxes from high traffic portions of the roadway; and limited median height, low-level landscaping, and warning signs in lower traffic portions of the roadway. These design elements are addressed in more detail in Section 4.1.1.5.

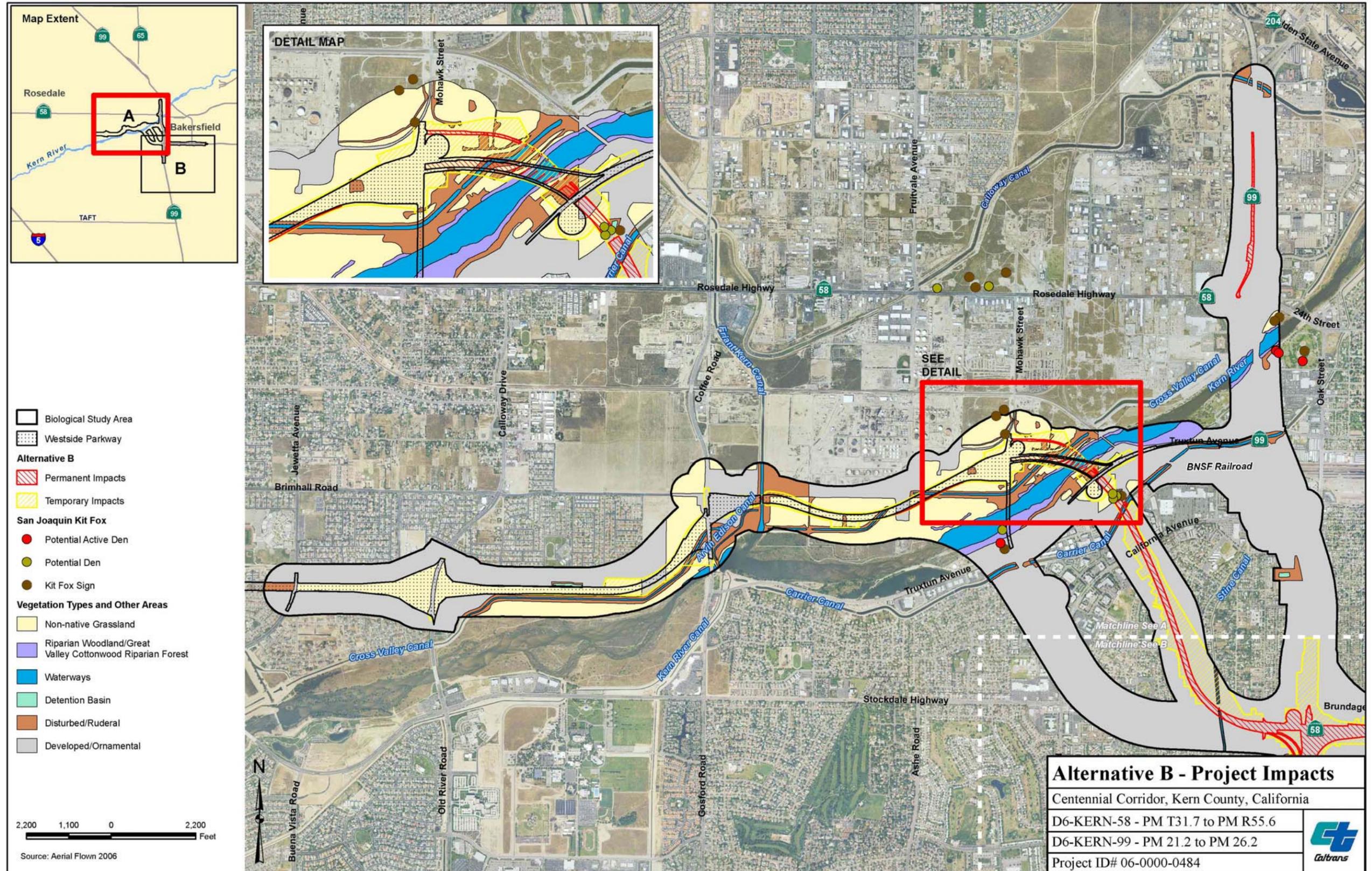


Figure 3A

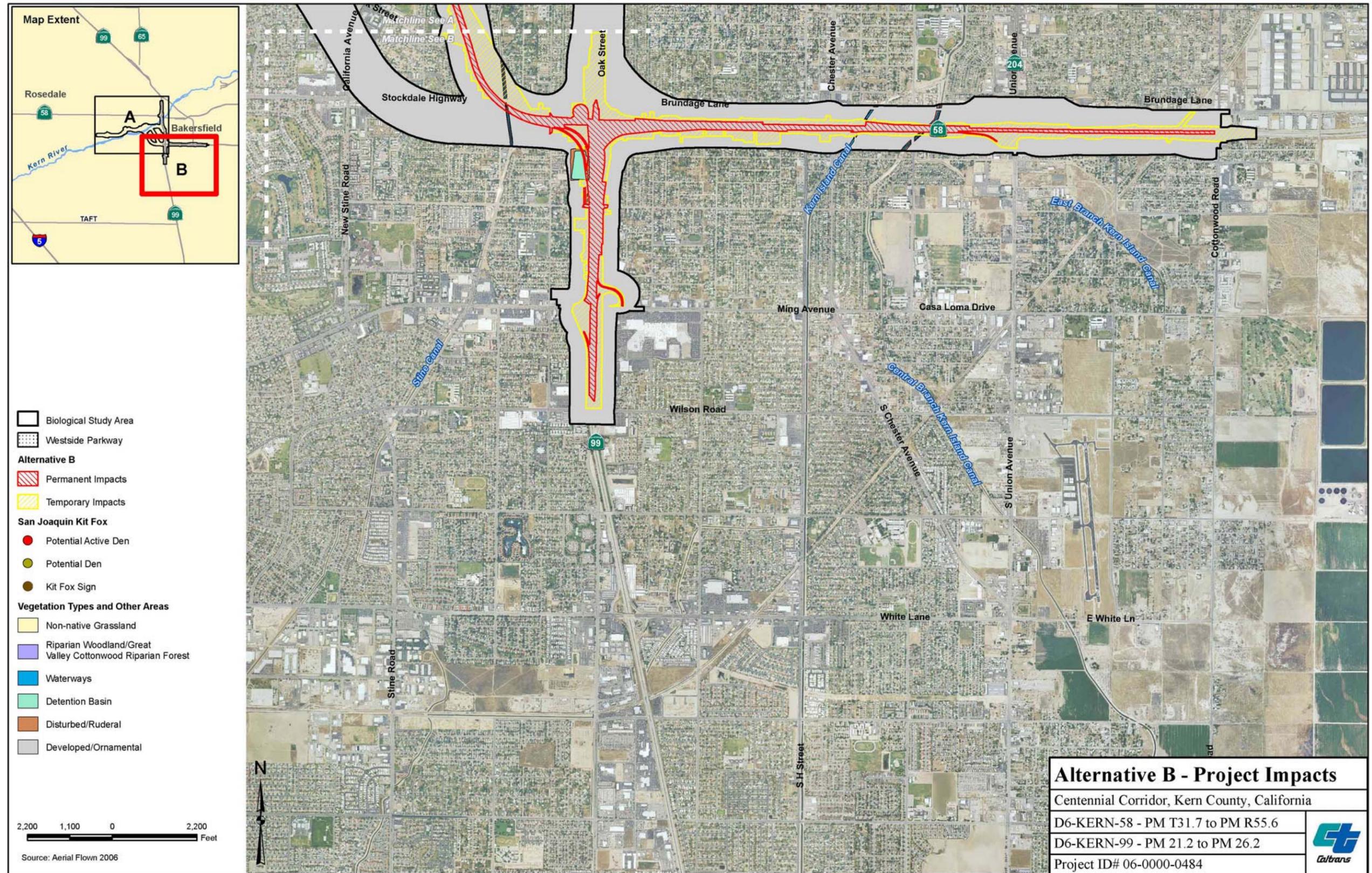


Figure 3B

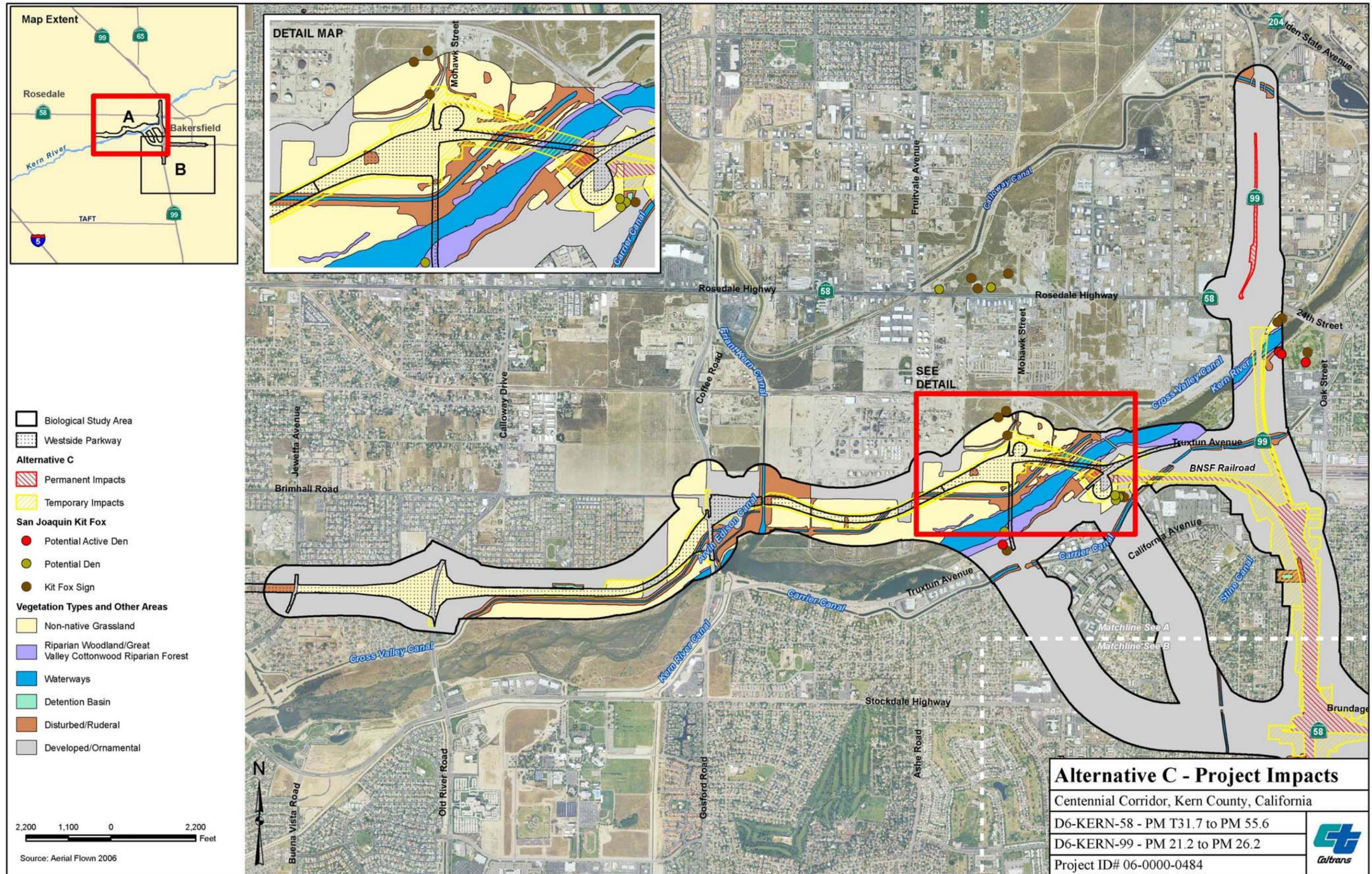


Figure 4A

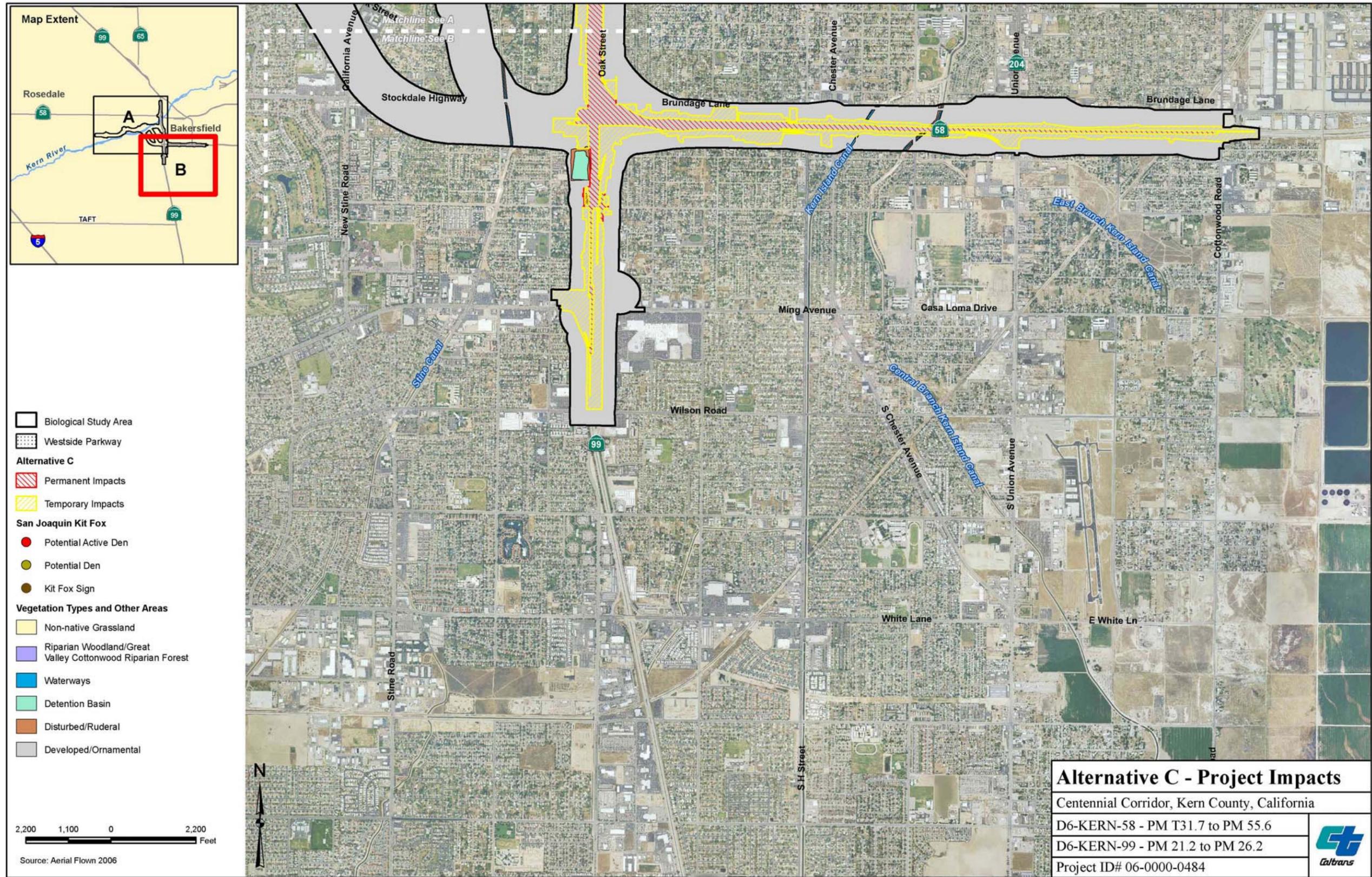


Figure 4B

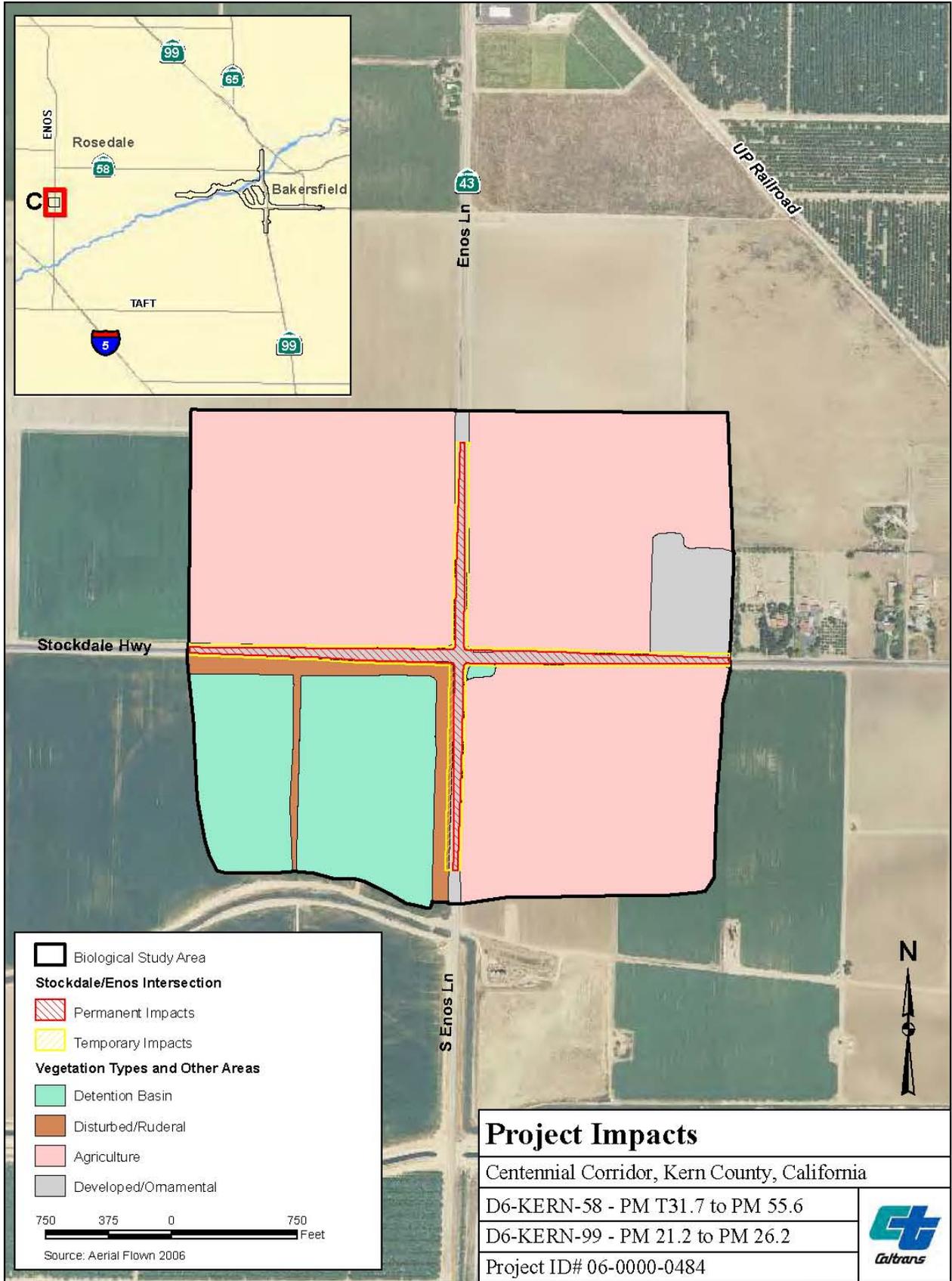


Figure 5

1.3. Summary of Consultation to Date

This section will summarize the consultation that has been on-going from 2007. More details can be found in Appendix B.

2007:

The City of Bakersfield and Caltrans authorized the development of a conceptual strategy for San Joaquin kit fox to determine the potential effects of implementing the Thomas Roads Improvement Program projects on kit fox and to evaluate mitigation options for such effects with the concurrence of U.S. Fish and Wildlife Service and the California Department of Fish and Game. The U.S. Fish and Wildlife Service requested cumulative and project-specific analyses of potential effects on kit fox to comply with Section 7 consultation for each Thomas Roads Improvement project evaluated.

2008:

The U.S. Fish and Wildlife Service and the California Department of Fish and Game concurred on:

- methods to develop the kit fox conceptual strategy, including diurnal surveys for kit fox dens and signs and collaboration with Dr. Brian Cypher;
- a project specific and cumulative approach to evaluating potential impacts on kit fox and efforts to avoid, minimize, and compensate for potential effects;
- preliminary results of kit fox surveys; and
- that habitat connectivity and the maintenance of corridors connecting kit fox populations as a major issue facing kit fox in Bakersfield. Potential compensatory mitigation options were discussed, including culverts, refugia, and artificial kit fox dens.

2009:

- The U.S. Fish and Wildlife Service and the California Department of Fish and Game approved the draft *San Joaquin Kit Fox Life History, Effects Analysis, and Conceptual Mitigation Strategy* (City of Bakersfield and Caltrans 2009) that describes program-level impacts and conceptual program-level mitigation.

- The U.S. Fish and Wildlife Service and the California Department of Fish and Game concurred that Caltrans should begin to develop a mitigation implementation plan for the conceptual approach.

2010:

- The U.S. Fish and Wildlife Service and the California Department of Fish and Game approved the Implementation Plan (City of Bakersfield and Caltrans 2010).
- The California Department of Fish and Game recommended that Caltrans seek a 2080.1 Consistency Determination for projects requiring a state Incidental Take Permit.
- The U.S. Fish and Wildlife Service and the California Department of Fish and Game approved the standard Avoidance and Minimization Measures that would be described for the San Joaquin kit fox in Biological Assessments.
- The U.S. Fish and Wildlife Service and the California Department of Fish and Game approved eligible Thomas Roads Improvement Program projects to participate in the fee payment program for projects that are ready to build prior to Metropolitan Bakersfield Habitat Conservation Plan expiration in 2014.
- The U.S. Fish and Wildlife Service and the California Department of Fish and Game approved the concept of the Sump Habitat Program to compensate for program-level effects.

2011:

- A 3:1 mitigation ratio is identified by the U. S. Fish and Wildlife Service and California Department of Fish and Game for Thomas Roads Improvement Program for all permanent impacts and a 1.1:1 ratio is identified for all temporary impacts.
- Caltrans is no longer seeking an Incidental Take Permit or a Consistency Determination under the California Endangered Species Act as it is now assumed that take of San Joaquin kit fox, as defined under the California Endangered Species Act, can be avoided.

1.4. Document Preparation History

This document was prepared based on the Implementation Plan (City of Bakersfield and Caltrans 2010). Information on the biological study area was obtained from the *Centennial Corridor Project Final Natural Environment Study* (Caltrans 2012).

Chapter 2. Study Methods

2.1. Listed and Proposed Species Potentially in the Biological Study Area

Twenty-one federally listed species were evaluated in the *Natural Environment Study* for the project (Table 1). Of these species, the San Joaquin kit fox has potential to occur in the biological study area. The remaining species are not expected to occur in the biological study area because they are associated with particular habitat types that are absent from the biological study area; because they were not observed during surveys; or because they are not known to occur in the immediate project vicinity.

Table 1 Listed, Proposed Species, and Critical Habitat Potentially Occuring or Known to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A)		Rationale (Potential for Species to Occur)
				Segment 1	Stockdale Highway and State Route 43	
California jewelflower	<i>Caulanthus californicus</i>	FE, SE	Saltbush scrub; pinyon and juniper woodland; valley and foothill grassland (sandy).	HP/A	HP/A	Marginally suitable habitat present along unlined canals, detention basins, and in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1.
Kern mallow	<i>Eremalche parryi</i> ssp. <i>kernensis</i> [<i>E. kernensis</i>]	FE	Saltbush scrub; valley and foothill grassland.	A	A	Marginally suitable habitat present along unlined canals and detention basins, and in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1.

Table 1 Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A)		Rationale (Potential for Species to Occur)
				Segment 1	Stockdale Highway and State Route 43	
San Joaquin woolly-threads	<i>Monolopia [Lembertia] congdonii</i>	FE	Saltbush scrub; valley and foothill grassland (sandy).	HP/A	HP/A	Suitable habitat present in unlined canals, detention basins, and wet places in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1.
Bakersfield cactus	<i>Opuntiasylvestris</i> var. <i>treleasei</i>	FE, SE	Saltbush scrub; cismontane woodland; valley and foothill grassland (sandy or gravelly).	HP/A	A	Marginally suitable habitat present in non-native grassland; not expected to occur because not observed during focused surveys along Segment 1.
<i>Pseudobahia peirsonii</i>	San Joaquin adobe sunburst	FT, SE	Valley and foothill grassland (adobe clay soil).	A	A	No suitable habitat (soils); not expected to occur; not observed during focused surveys along Segment 1.
<i>Branchinecta conservatio</i>	conservancy fairy shrimp	FE	Ephemeral freshwater habitats, such as vernal pools and swales; prefers large pools.	A	A	Not expected to occur; outside known range; no suitable habitat; not observed during general surveys.
<i>Branchinecta longiantenna</i>	longhorn fairy shrimp	FE	Ephemeral freshwater habitats, such as vernal pools and swales; prefers pools with very low conductivity, total dissolved solids, and alkalinity.	A	A	Not expected to occur; no suitable habitat (soils are alkaline); not observed during general surveys.

Table 1 Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A)		Rationale (Potential for Species to Occur)
				Segment 1	Stockdale Highway and State Route 43	
vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT	Ephemeral freshwater habitats, such as vernal pools and swales; prefers pools with very low conductivity, total dissolved solids, and alkalinity.	A	A	Not expected to occur; no suitable habitat.
valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	FT	Associated with blue elderberry.	A**	A	Not expected to occur; no suitable habitat (elderberry) observed.
delta smelt	<i>Hypomesus transpacificus</i>	FT, ST	Sacramento-San Joaquin Delta.	A	A	Not expected to occur; outside known range.
California red-legged frog	<i>Rana [aurora] draytonii</i>	FT, SSC	Variety of aquatic habitats in forests, woodlands, grasslands, and streambanks with deep, still, or slow-moving water; requires perennial water.	A	A	Not expected to occur; no suitable habitat.
blunt-nosed leopard lizard	<i>Gambelia sila</i>	FE, SE/FP	Semiarid grasslands, alkali flats, washes, saltbush scrub, valley sink scrub.	A	A	Not expected to occur; no suitable habitat.
giant garter snake	<i>Thamnophis gigas</i>	FT, ST	Perennial fresh water with emergent wetland vegetation and basking sites.	A	A	Not expected to occur; outside current known range.
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	FE, SE	Riparian forest habitats typically dominated by willows with dense understory vegetation.	A	A	Not expected to occur; no suitable habitat (riparian woodland/ Great Valley cottonwood riparian forest is not dense enough).

Table 1 Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A)		Rationale (Potential for Species to Occur)
				Segment 1	Stockdale Highway and State Route 43	
California condor	<i>Gymnogyps californianus</i>	FE, SE	Forages in open habitats such as savannahs, grasslands, and foothill chaparral; nests in caves, crevices, and ledges on cliffs.	A	A	Not expected to occur for foraging or nesting; suitable foraging habitat but not known to forage in project vicinity; no suitable nesting habitat.
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	FT (Pacific coastal population only), SSC	Barren sandy beaches and flats, alkali lakes.	A	A	Not expected to occur for nesting; no suitable nesting habitat; not observed during general surveys.
<i>Vireo bellii pusillus</i>	least Bell's vireo	FE, SE	Riparian habitats dominated by willows with dense understory vegetation.	A	A	Not expected to occur; Kern River provides only a small amount of marginally suitable habitat; outside current known range; not observed during general surveys; absent during focused surveys conducted in 2008 for the Westside Parkway (EDAW 2008).
giant kangaroo rat	<i>Dipodomys ingens</i>	FE, SE	Slopes in grasslands and shrub communities.	A	A	Not expected to occur; no suitable habitat; not observed during general surveys.
Tipton kangaroo rat	<i>Dipodomys nitratooides nitratooides</i>	FE, SE	Alkali sink scrub and valley saltbrush scrub with widely scattered shrubs; fallow agricultural lands.	A	A	Not expected to occur; no suitable habitat.
Buena Vista Lake shrew	<i>Sorex ornatus relictus</i>	FE, SSC	Wetlands with dense vegetation and an abundant layer of detritus.	A	A	Not expected to occur; no suitable habitat.

Table 1 Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Species Present (HP/P); Habitat Present/Species Absent (HP/A); Habitat Present/Species Presence Unknown (HP); Habitat Absent (A)		Rationale (Potential for Species to Occur)
				Segment 1	Stockdale Highway and State Route 43	
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE, ST	Valley sink scrub, saltbush scrub, upper Sonoran scrub, annual grasslands, oil fields, urban areas.	HP/P	HP	Potential dens observed during focused surveys in 2008 and pre-construction surveys in 2009; no potential dens observed at Stockdale Highway/ State Route 43 ; suitable habitat present throughout the biological study area.
<p>STATUS DESIGNATIONS HP/P: Habitat Present/Species Present; HP/A: Habitat Present/Species Absent; HP: Habitat Present/Species Presence Unknown (HP); A: Habitat Absent</p> <p>Federal Designations FE Listed by the federal government as an endangered species FT Listed by the federal government as a threatened species</p> <p>State Designations SE Listed as endangered by the State of California ST Listed as threatened by the State of California SSC Species of Special Concern FP Fully Protected</p> <p>** A pre-construction survey for this species conducted for the Westside Parkway project found a single elderberry in the project footprint (AECOM 2009). This elderberry was removed as part of the Westside Parkway project.</p>						

2.2. Studies Required

2.2.1. Literature Review

The biological study area for the project includes the project alignment, all three alternatives evaluated in the environmental document, plus a 500-foot buffer area on each side of each alignment’s right-of-way. An extensive literature review was completed. Details can be found in Appendix C.

2.2.2. Vegetation Mapping

Vegetation mapping was done in spring 2008 to describe the vegetation present throughout the biological study area and to evaluate the habitat’s potential to support

special-status plant and wildlife species. During project design, the position of the alignments slightly changed the extent of the buffer in some areas; additional areas were mapped concurrently with special-status plant surveys in 2009. The intersection of Stockdale Highway and State Route 43 was mapped in 2011.

2.2.3. General Wildlife Surveys

Wildlife species surveys were done in the biological study area in 2008 and 2009 to document wildlife habitat and to evaluate the biological study area's potential to support special-status wildlife species that are known or expected to occur in the biological study area. During the surveys, active searches for reptiles and amphibians were completed by systematically surveying appropriate habitat and included lifting, overturning, and carefully replacing rocks and debris. Birds were identified by visual and auditory recognition. Surveys for mammals were conducted during the day and included searching for and identifying diagnostic sign including scat, footprints, scratch-outs, dust bowls, burrows, and trails. Wildlife species observed in the biological study area during all general and focused wildlife surveys are included in Appendix A.

2.2.4. Focused Surveys

2.2.4.1. San Joaquin Kit Fox

Surveys for San Joaquin kit fox dens and sign were done in the biological study area following a methodology established for the Thomas Roads Improvement Program and approved by the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife (formerly known as the California Department of Fish and Game) (consultation described above in Section 1.3). The biological study area was surveyed once on September 17, 2008. The Stockdale Highway and State Route 43 portion of the biological study area was surveyed on April 4, 2012. All accessible habitat within a 250- to 500-foot boundary from the right-of-way was surveyed. Surveys were done on accessible parcels where the property owner had granted access. In general, field surveys did not include residential property.

During surveys, biologists walked linear transects within the survey area; transects were separated by no more than 50 feet and included 100 percent visual coverage. At all times, biologists had maps that included locations of known kit fox dens, sightings, and activity areas as reported in the California Natural Diversity Database (California Department of Fish and Game 2008), the Metropolitan Bakersfield

Habitat Conservation Plan kit fox den database (Bakersfield 2008), and in Bjurlin et al. (2005).

Data collected during the surveys included potential dens, natal dens, sign, and kit fox observations. Kit fox dens were described as potential and natal according to descriptions provided in the *U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S. Fish and Wildlife Service 1999). All dens were further described in field notes by number of entrances; proximity to nearest road; potential for den to be located within the new project alignment; substrate; and surrounding habitat type. Kit fox data were recorded using a Global Positioning System (GPS) unit. Kit fox data categories are described below.

Results of the surveys are included in the *San Joaquin Kit Fox Life History, Effects Analysis, and Conceptual Mitigation Strategy* (City of Bakersfield and Caltrans 2009) and *San Joaquin Kit Fox Effects Analysis, Mitigation Strategy, and Implementation Plan* (City of Bakersfield and Caltrans 2010).

2.3. Personnel and Survey Dates

Consulting Botanists Pam De Vries and Otto Gasser conducted a general plant survey, a habitat assessment for special-status plant species, and vegetation mapping on April 4 and 13, and May 27 and 30, 2008. Ms. DeVries conducted a general plant survey, a habitat assessment for special-status plant species, and vegetation mapping for Stockdale Highway and State Route 43 on November 14, 2011.

Ms. De Vries and Mr. Gasser conducted the 2008 focused surveys for special-status plants on March 24, 27, and 28, and May 15, 21, and 22, 2008. Botanist Andrea Edwards and Biologist Kimberly Oldehoeft assisted with surveys on March 27, 2008. Ms. DeVries, Ms. Edwards, and Senior Botanist Sandra Leatherman conducted the 2009 focused surveys for special-status plant species from March 24 to 27, and May 5 to 7, 2009. Ms. DeVries and Mr. Gasser conducted the 2012 focused surveys for special-status plant species at Stockdale Highway and Enos Lane on March 27 and June 4, 2012.

Wildlife Biologists Kimberly Oldehoeft and Allison Rudalevige conducted general wildlife surveys, a habitat assessment for special-status wildlife species, and focused surveys for burrowing owl (*Athene cunicularia*) on March 24 and 27; May 14 through 16, 22, and 28 through 30; June 10 through 13; July 29 and 30; and August 21 and 22,

2008. Senior Wildlife Biologist Brian Daniels conducted general wildlife surveys and focused surveys for Swainson's hawk on March 9, 23, and 24; April 6 and 7; June 2; and July 29, 2009. Wildlife Biologist Lindsay Messett conducted a general wildlife survey and a burrowing owl burrow survey at Stockdale Highway and State Route 43 on April 4, 2012.

Wildlife Biologist Stephanie Coppeto conducted San Joaquin kit fox den and sign surveys once on September 17, 2008. Ms. Messett conducted a survey for potential dens at Stockdale Highway and State Route 43 on April 4, 2012.

2.4. Agency Coordination and Professional Contacts

The following is a summary of consultation to date with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife for the Thomas Roads Improvement Program. More details can be found in Appendix B

2007:

The City of Bakersfield and Caltrans authorized development of a San Joaquin kit fox conceptual strategy to determine the potential effects of the Thomas Roads Improvement Program projects on the kit fox and to evaluate mitigation options for such effects with concurrence from the U.S. Fish and Wildlife Service and the California Department of Fish and Game. The U.S. Fish and Wildlife Service requested cumulative and project-specific analyses of potential effects on kit fox.

2008:

June

The U.S. Fish and Wildlife Service and the California Department of Fish and Game concurred on:

- methods to develop the kit fox conceptual strategy, including diurnal surveys for kit fox dens and sign and collaboration with Dr. Cypher;
- a project-specific and cumulative approach to evaluating potential impacts on kit fox; and
- efforts to avoid, minimize, and compensate for potential effects.

August

- Preliminary results of kit fox surveys were completed.
- The U.S. Fish and Wildlife Service identified habitat connectivity and the maintenance of corridors that connect kit fox populations as major issues facing kit foxes in the Bakersfield area.
- Potential compensatory mitigation options were discussed, including culverts, refugia, and kit fox artificial dens.

2009:

The U.S. Fish and Wildlife Service issued a letter concurring with the conceptual mitigation strategy.

2010:

- The U.S. Fish and Wildlife Service and California Department of Fish and Game approved the Draft Thomas Roads Improvement Program San Joaquin Kit Fox Effects Analysis, Mitigation Strategy, and Implementation Plan.
- The California Department of Fish and Game recommended that Caltrans seek a 2080.1 permit for projects requiring a State Incidental Take Permit.
- The U.S. Fish and Wildlife Service and California Department of Fish and Game approved the Sump Habitat Program and requested that the City of Bakersfield, in coordination with Caltrans, establish long-term conservation assurances.
- The U.S. Fish and Wildlife Service requested that the City of Bakersfield submit a letter of commitment with each project's Biological Assessment for the Sump Habitat Program for compensatory mitigation (See Appendix G).
- Caltrans would submit project Biological Assessments to the U.S. Fish and Wildlife Service and the California Department of Fish and Game for concurrent review to expedite the California Endangered Species Act consultation process. The Sump Habitat Program would be discussed in the Biological Assessments, but the requirements would not need to be met before construction of a road project.
- The U.S. Fish and Wildlife Service and the California Department of Fish and Game approved the standard Avoidance and Minimization Measures that

would be described for the San Joaquin kit fox in the Biological Assessment for each project.

- The California Department of Fish and Game recommended that Caltrans and the City of Bakersfield consider an alternative compensatory mitigation strategy to the Metropolitan Bakersfield Habitat Conservation Plan because of concerns about plan expiration in 2014.
- The U.S. Fish and Wildlife Service and the California Department of Fish and Game agreed that mitigation for cumulative effects (Sump Habitat Program) could be described generally in the Biological Assessment for each project to maintain flexibility while the program evolves, but that a chapter describing the cumulative mitigation framework that would later be finalized and included in the *Thomas Roads Improvement Program San Joaquin Kit Fox Effects Analysis, Mitigation Strategy, and Implementation Plan*, be submitted as a separate supporting document with the Biological Assessment.
- The California Department of Fish and Game requested that standard California Endangered Species Act requirements be included in the “Terms and Conditions” section of the Biological Opinion so that the Biological Opinion complies with the California Endangered Species Act. The U.S. Fish and Wildlife Service and the California Department of Fish and Game agreed that the letter from the Metropolitan Bakersfield Habitat Conservation Plan Trust Group to the City of Bakersfield (dated August 30, 2010 [Appendix G]) approving eligible Thomas Roads Improvement Program projects to participate in the fee payment program. As the amount of required mitigation acreage is determined for each project by the U.S. Fish and Wildlife Service, the City of Bakersfield will request the corresponding acreage credits from the Trust Group, and the Trust Group will acquire the required acreage.
- The California Department of Fish and Game recommended that the Sump Habitat Program prioritize high and medium conservation priority sumps that are owned in fee by the City of Bakersfield.
- The U.S. Fish and Wildlife Service determined that paying advance mitigation for the six Thomas Roads Improvement Program projects is acceptable provided credits are purchased for all projects prior to initiating project construction.
- The U.S. Fish and Wildlife Service recommended that a Memorandum of Agreement between the City of Bakersfield, Caltrans, and the Service be

developed that recognizes Caltrans's financial responsibilities to pay mitigation fees and describes Caltrans responsibilities if mitigation credits purchased in advance ends up exceeding or is less than the amount of mitigation required for all six projects.

- The City of Bakersfield received a letter from the Metropolitan Bakersfield Habitat Conservation Plan Trust Administrator stating the City of Bakersfield could continue to use the Metropolitan Bakersfield Habitat Conservation Plan to mitigate for Thomas Roads Improvement Program projects and payment could occur after approval of the final environmental document for each project.

2011:

- A 3:1 mitigation ratio was identified for all permanent impacts and a 1.1:1 ratio was identified for all temporary impacts.
- Caltrans is no longer seeking an Incidental Take Permit or a Consistency Determination under the California Endangered Species Act as it is now assumed that take of the San Joaquin kit fox, as defined under the California Endangered Species Act, can be avoided.
- The U.S. Fish and Wildlife Service, Caltrans and the City of Bakersfield agreed to the following steps for developing Sump Habitat Program long-term assurances:
 - (1) evaluate title reports for sump properties to determine if encumbrances have the potential to adversely affect the Sump Habitat Program conservation strategy;
 - (2) attempt to resolve any encumbrances that have the potential to adversely affect the Sump Habitat Program conservation strategy;
 - (3) develop contingency measures that would be implemented if/when any unresolved encumbrance is identified as reducing the kit fox conservation value associated with any sump included in the Sump Habitat Program.

2.5. Limitations That May Influence Results

Average rainfall in Bakersfield is 6.5 inches annually. Rainfall in 2008 and 2009 was lower than average (about 2.25 inches and 4.55 inches, respectively); however, reference populations of threatened and endangered plants germinated in the project

region (in the Lokern Preserve), indicating that results of special-status plant surveys would be considered valid for species observed at a reference population. Due to lower than average rainfall during the two years over which the general and focused surveys were done, the list of plant species present may not include all annual plant species present in the biological study area, though it is expected to contain a representative sample.

Much of the open space in the biological study area is private property or property belonging to other agencies; therefore, permission was required to do surveys on those properties. Access was granted for all areas with potential to support special-status plant species and for most areas with potential to support the burrowing owl and San Joaquin kit fox. Private property for which access was not granted was surveyed from the boundary of the property with the use of binoculars. The few access limitations are not expected to affect the conclusions presented in the *Natural Environment Study*.

The focused surveys for the San Joaquin kit fox did not follow the standard methodology for this species; however, the agencies approved the Thomas Roads Improvement Program methodology, as described above in Section 2.4.

Chapter 3. Results: Environmental Setting

3.1. Description of Existing Biological and Physical Conditions

3.1.1. Study Area

The biological study area sits roughly between the intersection of State Route 58 and Cottonwood Road, east of State Route 99, and Interstate 5 in the City of Bakersfield and unincorporated Kern County, California (Figure 1). The biological study area includes the three alternative alignments evaluated in the environmental document; the intersection of Stockdale Highway and State Route 43; and a buffer zone extending 500 feet beyond the highway right-of-way (Figures 6A–6C). The biological study area sits in the western portion of the Metropolitan Bakersfield Habitat Conservation Plan on the U.S. Geological Survey’s Tupman, Stevens, Gosford, Oildale, and Lamont 7.5-minute quadrangles (Figures 7A–7C).

Several watercourses, shown as blue line streams or canals on the U.S. Geological Survey quadrangles, run through the study area and are shown in Figures 7A–7C:

- The Kern River and six canals cross the biological study area.
- The Cross Valley Canal runs parallel to the northern side of the Kern River, and the Carrier Canal runs parallel to the southern side of the Kern River.
- The Arvin Edison Canal is located near Coffee Road at the southern end of the Friant-Kern Canal.
- The Stine Canal crosses the southern end of Alternatives A and B.
- The Kern Island Canal crosses the eastern end of the biological study area.
- The Calloway Canal crosses State Route 99 in the northern portion of the biological study area.

Land use in the biological study area is mostly urban, with open space north of the Kern River. Land uses in the biological study area are primarily privately owned and include commercial, industrial, residential development, and natural open space; there are public parks along the Kern River (i.e., Kern River Parkway, Kern River Bike Trail, Yokuts Park, and Beach Park) and a few public parks interspersed with developed areas (i.e., Belle Terrace Park, Jastro Park, Quailwood Park, and Wayside

Park). Land use at the intersection of Stockdale Highway and State Route 43 is mostly agricultural. See Appendix B for photographs of the biological study area.

3.1.2. Physical Conditions

The biological study area is in the southern portion of the San Joaquin Valley, which is the southernmost basin of the Great Central Valley of California. Topography in the area is generally flat. The elevation ranges from about 310 to 400 feet above mean sea level.

The biological study area contains the following soil types: Cajon loamy sand; Cajon sandy loam, overblown; Excelsior sandy loam; Kimberlina – Urban land – Cajon complex; Panoche – Urban land complex; riverwash; urban land; Wasco sandy loam; and Wasco fine sandy loam. Excelsior sandy loam and riverwash soils are considered to be hydric, which are soils that formed under conditions of saturation, flooding, or ponding (U.S. Department of Agriculture Natural Resource Conservation Service 2009).

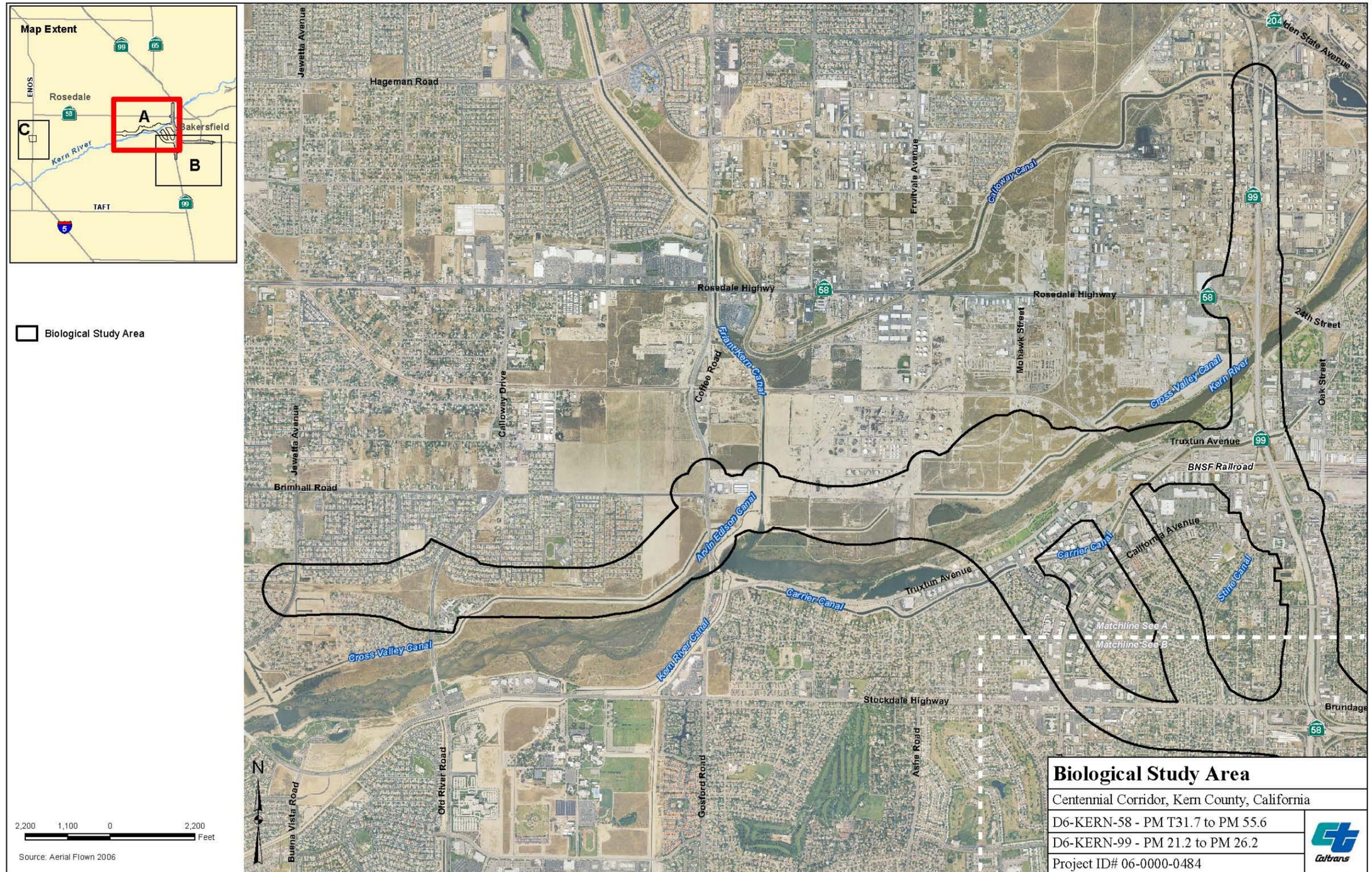


Figure 6A

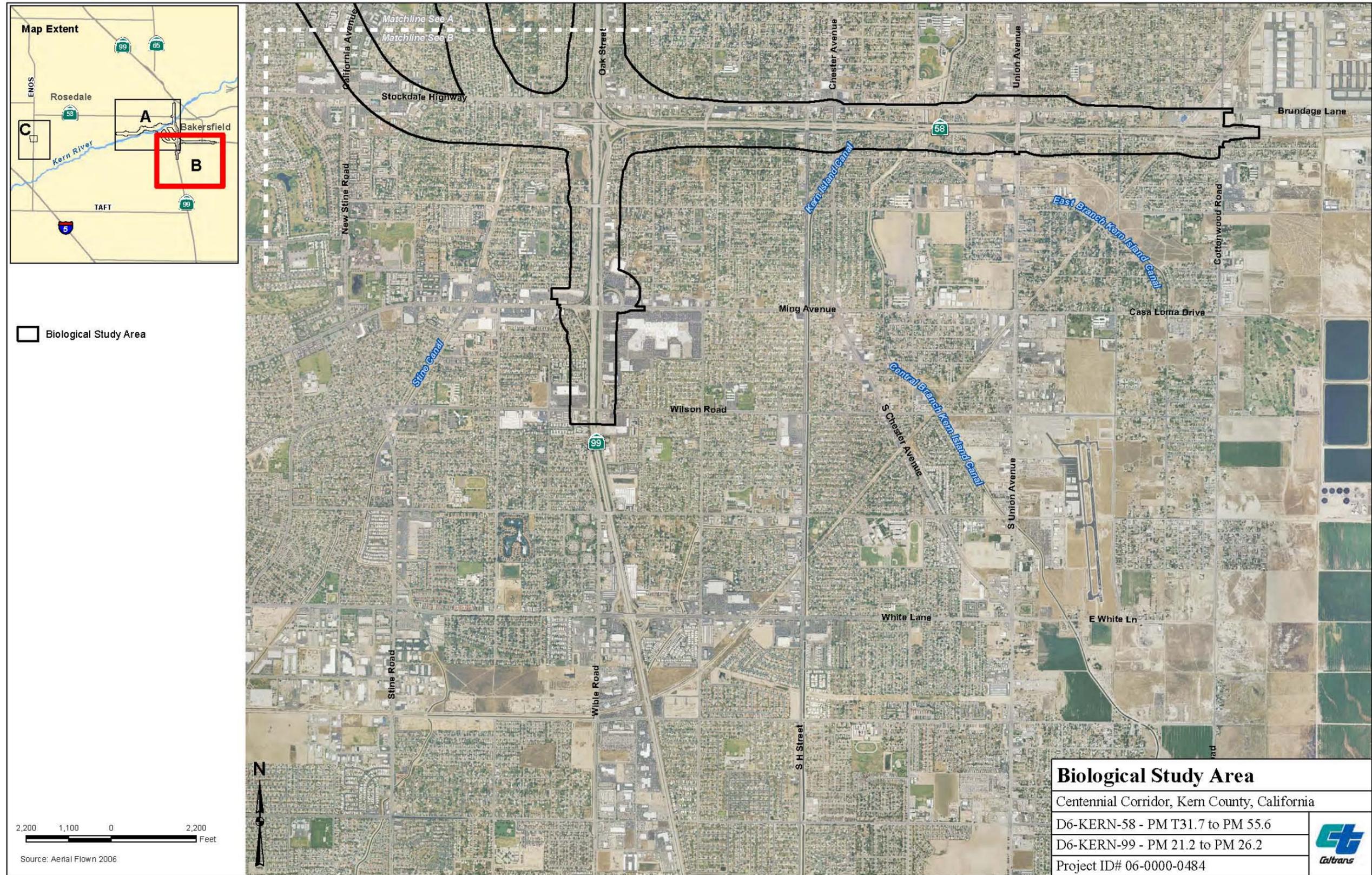


Figure 6B

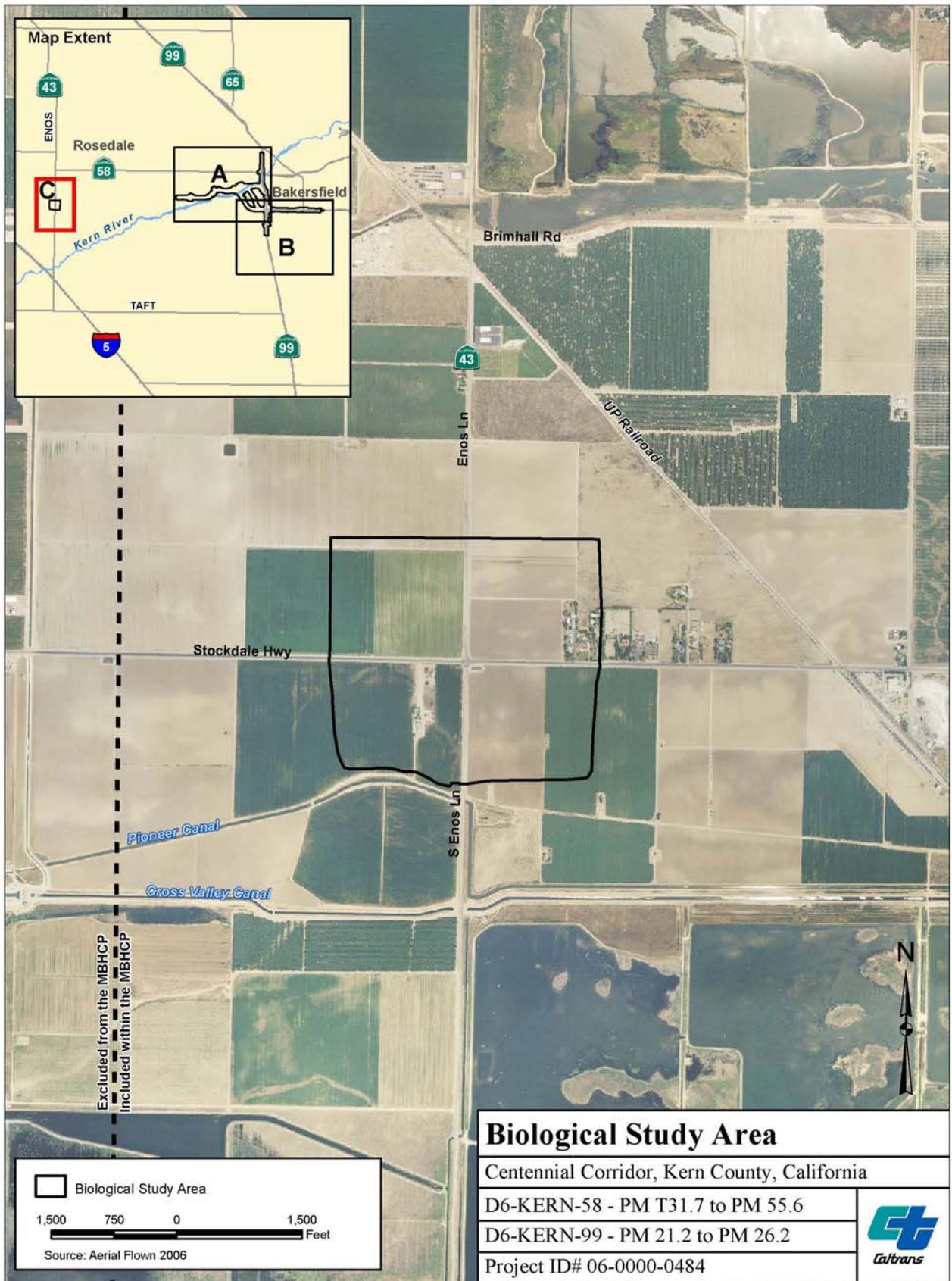


Figure 6C

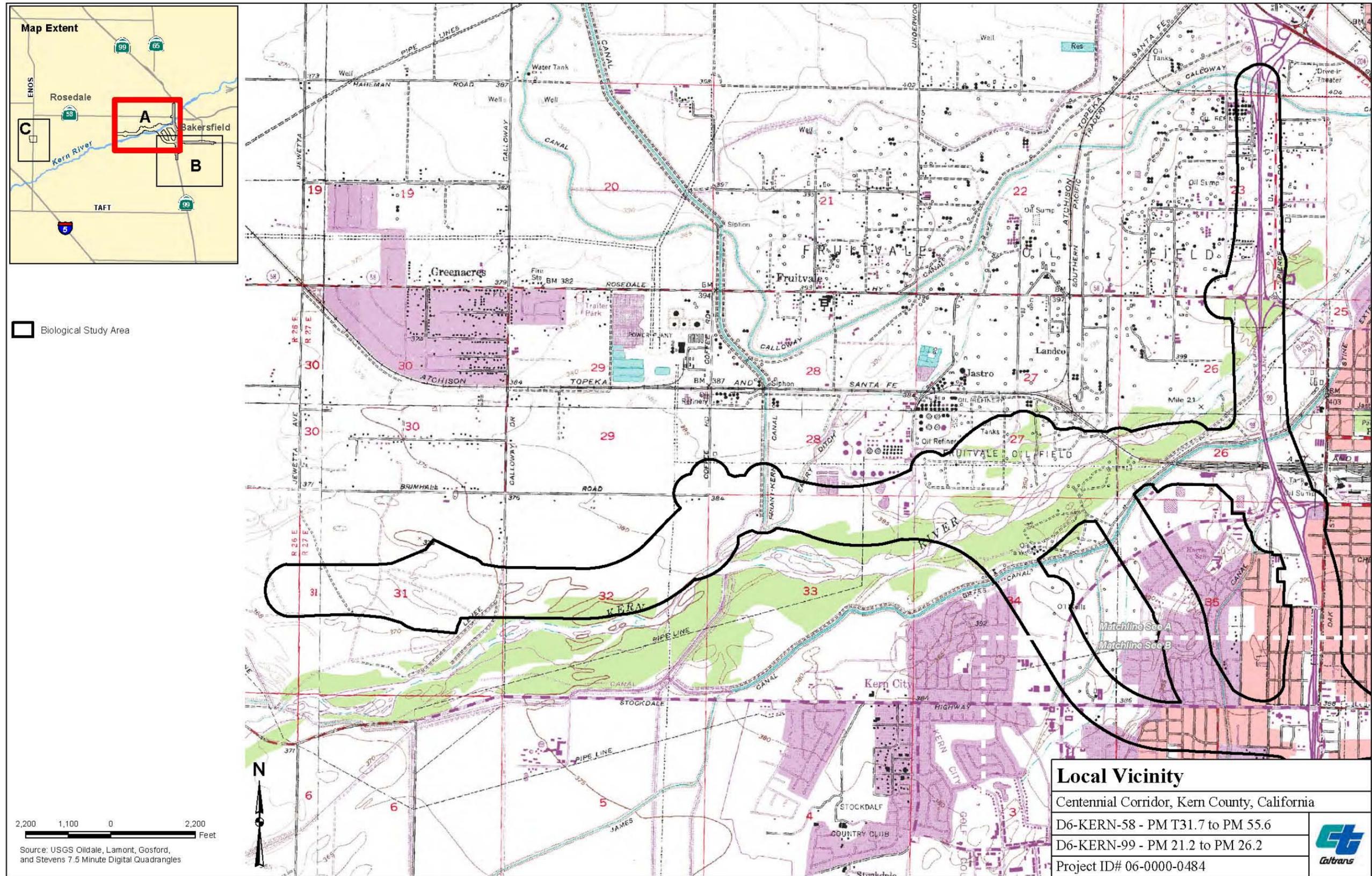


Figure 7A

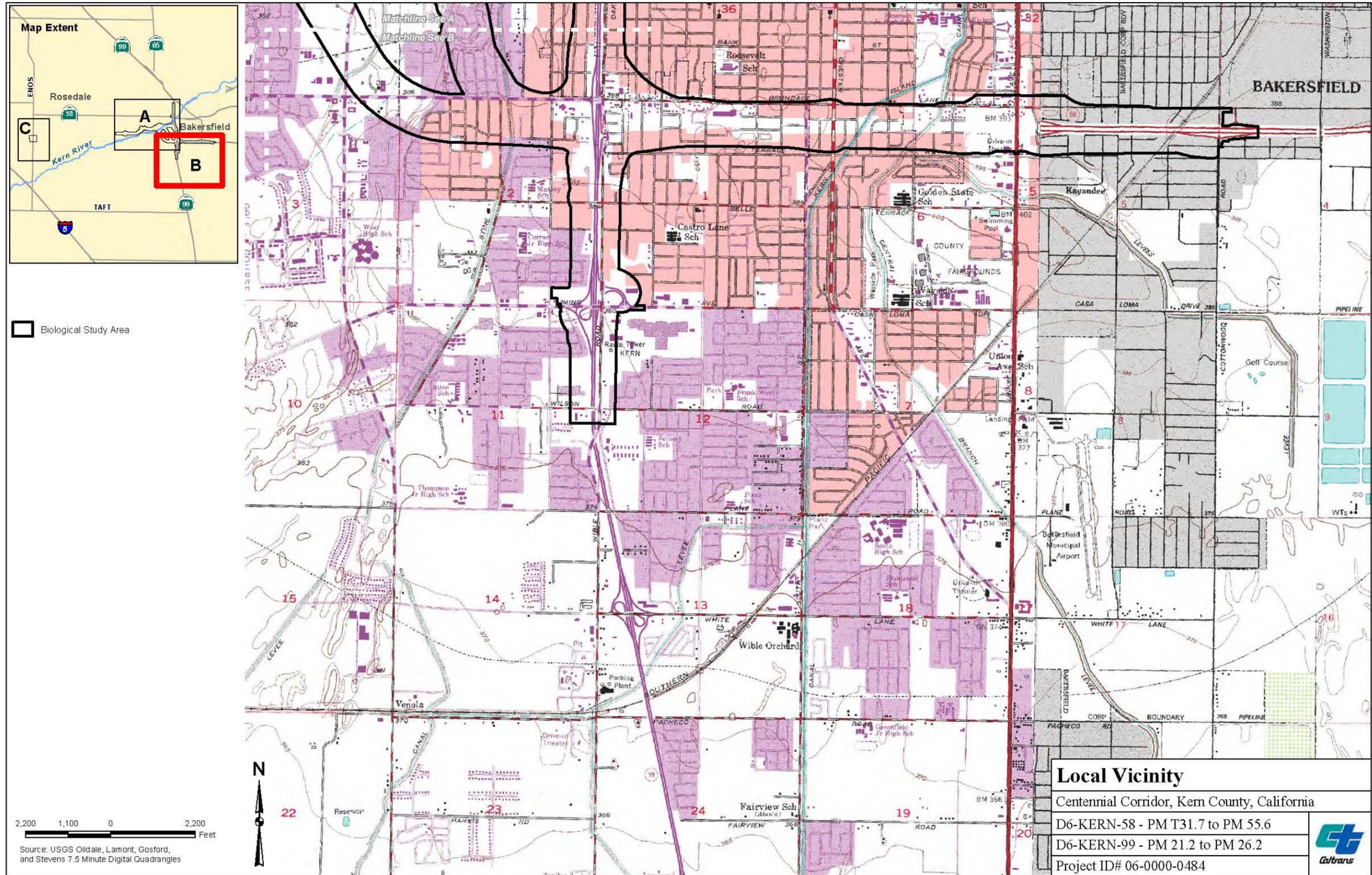


Figure 7B

3.1.3. Biological Conditions in the Biological Study Area

3.1.3.1. Vegetation Types

Vegetation types in the biological study area include non-native grassland, riparian woodland/Great Valley cottonwood riparian forest, disturbed/ruderal, agriculture, and developed/ornamental; other areas present in the biological study area include waterways and detention basins (Table 2; Figure 2A–2C). A description of each of the vegetation types and other areas observed in the biological study area is included below.

Table 2 Vegetation Types and Other Areas Within the Biological Study Area

Vegetation Types and Other Areas	Existing (Acres)
Non-native Grassland	405.41
Riparian Woodland/Great Valley Cottonwood Riparian Forest	39.92
Waterways	102.89
Detention Basin	47.32
Disturbed/Ruderal	151.84
Agriculture	143.81
Developed/Ornamental	2,153.23
Total	3,044.42

Vegetation Types

Non-native Grassland

Non-native grassland is dominated by non-native annual grasses with native and non-native herbs. Dominant species include red brome (*Bromus madritensis* ssp. *rubens*), ripgut grass (*Bromus diandrus*), foxtail barley (*Hordeum murinum* var. *jeporinum*), Arizona chess (*Bromus arizonicus*), Mediterranean schismus (*Schismus barbatus*), foxtail fescue (*Vulpia myuros*), telegraph weed (*Heterotheca grandiflora*), long-beaked filaree (*Erodium botrys*), red-stemmed filaree (*Erodium cicutarium*), and common fiddleneck (*Amsinckia menziesii* var. *intermedia*). Non-native grassland areas occur mostly in the western portion of the biological study area and sometimes include disturbed areas with vegetation consisting of the species listed above. These areas match Sawyer and Keeler-Wolf’s description of California annual grassland (1995) and Holland’s description of non-native grassland (1986).

Riparian Woodland/Great Valley Cottonwood Riparian Forest

Riparian woodland/Great Valley cottonwood riparian forest occurs along the banks of the Kern River in the biological study area. This vegetation type consists of an overstory of willows (*Salix* spp.) with occasional Fremont cottonwood (*Populus fremontii* ssp. *fremontii*). The understory consists of mule fat (*Baccharis salicifolia*), salt grass (*Distichlis spicata*), curly dock (*Rumex crispus*), and non-native annual grasses. This vegetation type matches Holland's (1986) description of southern willow scrub and Sawyer and Keeler-Wolf's (1995) mixed willow series (in part).

Waterways

Much of the Kern River stream channel consists of an open sandy wash that was either very sparsely vegetated or essentially devoid of vegetation at the time of the survey. Some scattered forb species were present in the open areas of the wash, including miniature lupine (*Lupinus bicolor*), bajada lupine (*Lupinus concinnus*), stigose lotus (*Lotus strigosus*), and lowland cudweed (*Gnaphalium palustre*).

Numerous constructed water canals are present throughout the biological study area. Most of these canals are part of the Central Valley Project, a federal water project administered by the Bureau of Reclamation to provide long-term water supply to the San Joaquin Valley. The Cross Valley Canal is an unlined (soft-bottom) channel bordered by wide dirt access roads; open water was present in most of this canal during the surveys. The Friant-Kern Canal and Arvin-Edison Canal are concrete-lined channels that cross the biological study area just east of Coffee Road; open water was also present in these canals during the surveys. Other canals in the biological study area (the Calloway Canal, the Carrier Canal, the Stine Canal, and the Kern Island Canal) are unlined. These canals appear to be regularly maintained by disking or mowing. A sparse cover of non-native grasses (brome grasses [*Bromus* spp.]) and mustards [*Brassica* spp. and *Descurainia* spp.]) may be present in these canals when water is not moving through them.

Detention Basin

Three small basins constructed as flood-control or water catchment basins associated with residential developments or other urban infrastructures are mapped as detention basins. These small isolated basins were typically vegetated with riparian or wetland species such as willows, mule fat, and cattails (*Typha* spp.) that are regularly disturbed by maintenance activities (such as mowing). A detention basin is also present southwest of the intersection of Stockdale Highway and State Route 43; this basin contained open water at the time of vegetation mapping.

Disturbed/Ruderal

Disturbed/ruderal areas consist of recently graded or disked areas, dirt roads and trails, active oil fields, and cleared roadsides. These areas are generally devoid of vegetation or have a sparse cover of ornamental or weedy species. These areas are scattered throughout the biological study area.

Agriculture

Agricultural areas lie next to the intersection of Stockdale Highway and Enos Lane (State Route 43). They consist of actively cultivated fields.

Developed/Ornamental

Developed/ornamental areas consist of residential and commercial developments, paved roadways, compacted road shoulders, railroad tracks, and ornamental plantings, including maintained turf grass. Common plant species observed in these areas include oleander (*Nerium oleander*), American sweet gum (*Liquidambar styraciflua*), olive (*Olea europaea*), and Mexican fan palm (*Washingtonia robusta*). Developed areas and ornamental plants are found throughout the biological study area, and make up the primary vegetation type in the eastern portion of the biological study area.

3.1.3.2. Invasive Species

Although non-native species (non-native grasses and ornamental species) occur throughout the biological study area, invasive species are not prevalent within the biological study area. One listed noxious weed species from the California Department of Food and Agriculture Noxious Weed List (2010) and five listed invasive weed species from the California Invasive Plant Council List (2006) were identified in the biological study area: wild turnip (*Brassica tournefortii*), foxtail chess (*Bromus madritensis* ssp. *rubens*), cheat grass (*Bromus tectorum*), halogeton (*Halogeton glomeratus*), English ivy (*Hedera helix*), and Mediterranean tamarisk (*Tamrix ramosissima*). No species on the Federal Weed List (U.S. Department of Agriculture Natural Resource Conservation Service 2010) were identified within the biological study area.

3.1.3.3. Common Animal Species

Most of the biological study area is highly urbanized, with development becoming less dense toward the west. Some urban-tolerant species can use ornamental vegetation or unvegetated areas within urban areas; however, most wildlife species in the biological study area would generally be found along the Kern River or in undeveloped areas interspersed with or on the edge of development, such as the canals, oil refinery lands, and vacant lots. Wildlife species that were observed in the open space areas within the biological study area are discussed in the *Natural Environment Study* (California Department of Transportation 2012).

3.1.3.4. Migration and Travel Corridors

The Kern River is a regional wildlife corridor in the biological study area and provides for wildlife movement through the Metropolitan Bakersfield Habitat Conservation Plan area to connect areas of open space between the northeastern reserve, the southwestern reserve, and the Kern Water Bank Habitat Conservation Plan reserve. The canals in the biological study area are also used for wildlife movement, especially in the highly urbanized portions of the biological study area. A study of kit fox movement (City of Bakersfield and Caltrans 2007) identified the Carrier Canal, the Friant-Kern Canal, and Cross Valley Canal as movement corridors for San Joaquin kit fox.

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

One federally listed species has potential to occur in the BSA: the San Joaquin kit fox. The following analysis covers background information on this species; the presence of this species in the biological study area; Avoidance and Minimization Measures; project effects on the kit fox; compensatory mitigation; and cumulative effects.

4.1. Federally Listed or Proposed Animal Species Occurrences

4.1.1. San Joaquin Kit Fox

4.1.1.1. Survey Results

Near the biological study area, the San Joaquin kit fox is known to occur near the Calloway Canal; the Friant-Kern Canal; northwest of State Route 43 and Interstate 5; near Coffee Road; near State Route 99 and Rosedale Highway; and near Interstate 5 and Rosedale Highway. Focused surveys for this species were done in the biological study area. In addition, pre-construction surveys for this species were done for the Westside Parkway project, which overlaps with the biological study area (see Appendix H; AECOM 2009).

Suitable habitat for this species is present within the biological study area. Several dens of this species were observed along the Kern River near Mohawk Street and adjacent grasslands and in City Basin 143 (Alternative B) during focused surveys of the biological study area in 2008 and during pre-construction surveys in 2009 (AECOM 2009). In addition, kit foxes were documented south of Truxtun Avenue; in the landscaped Kern River Parkway; along the Carrier Canal and BNSF Railway corridor; and in the City of Bakersfield maintenance facility and basins (City of Bakersfield and Caltrans 2009).

San Joaquin kit foxes are also known to occur near the biological study area at the Sundale Country Club, Quailwood Park, Seven Oaks Country Club, and the California State University, Bakersfield campus (City of Bakersfield and Caltrans 2009).

During focused surveys of the biological study area for sign of kit fox, four potentially active San Joaquin kit fox dens, four potential San Joaquin kit fox dens, and eight instances of scat were observed in the biological study area. All of the San Joaquin kit fox sign were observed within open space along the Kern River between approximately Mohawk Street and 24th Street (Figures 2A–2B, 3A–3B, 4A–4B).

4.1.1.2. Critical Habitat

No Critical Habitat has been proposed or designated by the U.S. Fish and Wildlife Service for the San Joaquin kit fox.

4.1.1.3. Avoidance and Minimization Efforts

Standard Avoidance and Minimization Measures

Measures have been developed from standard recommendations described in the *U.S. Fish and Wildlife Service's Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S. Fish and Wildlife Service 2011b). In addition, project design changes have been identified to reduce impacts on the kit fox to be incorporated into the design plans for the project. The main objective of project designs are to maintain opportunities for kit foxes to cross the road while reducing the potential for unintentional vehicle strikes. Project designs, when implemented together, are expected to reduce the potential for adverse effects on the kit fox.

- SJKF – 1 U.S. Fish and Wildlife Service Standardized Construction and Operational Requirements

Construction activities shall adhere to the standard construction and operational requirements, as described in the U.S. Fish and Wildlife Service *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S. Fish and Wildlife Service 2011b).

- SJKF – 2 Pre-activity Surveys

Approximately 60 days before road construction, a biologist shall conduct a survey for kit fox dens within 200 feet of the construction footprint (project footprint plus temporary construction zone), including utility relocations. A letter report and map of known and potential kit fox dens shall be submitted to the U.S. Fish and Wildlife Service. Pre-activity clearance surveys for kit fox shall be repeated approximately 2 weeks (no less than 14 days and no more than 30 days) before construction or after any delays in construction of over 2 weeks. Any new kit fox dens identified since

completing the 60-day survey shall be reported to the U.S. Fish and Wildlife Service in a letter report and map. If no new kit fox dens are identified, an internal record shall be maintained that includes the survey date, designated biologist conducting the survey, and general survey findings. The records can be submitted to the U.S. Fish and Wildlife Service upon request.

- SJKF – 3 Den Monitoring, Excavation, and Exclusion

If dens or potential dens are detected in the project footprint during 60-day and/or 2-week pre-activity clearance surveys, agency permission shall be requested to monitor and excavate dens that would be affected by the project; active dens shall not be excavated during the natal season (January 1–June 14). The biologist shall monitor potential dens for three consecutive nights and submit monitoring results in a letter report to the U.S. Fish and Wildlife Service. The biologist shall oversee the excavation of dens with no kit fox use following approval by the U.S. Fish and Wildlife Service. Dens found within 200 feet of project construction but not affected by construction activities shall be monitored and buffered from construction by an exclusion zone. The biologist shall place flagged stakes in a 50-foot radius buffer around any potential or atypical den and shall place a fence (e.g., untreated wood particle board, silt fencing, orange construction fencing, or other fencing as long as it has openings for entry/exit of kit fox and keeps humans and equipment out) 100 feet from a known den; the U.S. Fish and Wildlife Service shall be contacted if a natal den is found. The biologist shall submit results of den excavation and exclusion in a letter report to the U.S. Fish and Wildlife Service.

- SJKF – 4 Employee Education Program

The biologist shall conduct an employee education program for all construction crews before ground-disturbing activities. The purpose of this training is to inform construction crew members of permit terms and conditions and the potential for kit fox to occur at a site and be affected by construction activities. The training shall include, at a minimum (1) special-status species identification; (2) a description of suitable habitat for these species; (3) avoidance of environmentally sensitive areas; and (4) measures to implement in the event that this species is found during construction. The training shall be repeated to all new crew members working in kit fox habitat. Following the training, crew members shall sign an attendance sheet stating that they attended the training and understand the protective measures and construction restrictions. Training materials and records of attendees shall be submitted to the U.S. Fish and Wildlife Service.

- SJKF – 5 Construction Monitoring

Construction activities shall be monitored on a daily basis. The biologist shall verify that construction complies with permit terms and conditions and construction and operational requirements described in the U.S. Fish and Wildlife Service's *Standardized Recommendations for the Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S. Fish and Wildlife Service 2011b). The biologist shall maintain a log of daily monitoring notes that can be summarized and transmitted to the U.S. Fish and Wildlife Service at its request.

4.1.1.4. Project Effects

The effects of the project on San Joaquin kit fox are described as direct and indirect effects.

Direct, permanent effects include the removal of non-native grassland, riparian woodland/Great Valley cottonwood riparian forest, waterways, detention basin, disturbed/ruderal, and agricultural land to accommodate the new roadbed, intersection improvements, and project right-of-way limits. Direct temporary effects include disturbance during construction of the project to provide access and staging areas for the project. Kit fox could forage and den in this habitat and the permanent loss and temporary disturbance of habitat could cause kit fox to move elsewhere in search of foraging and denning opportunities.

Disturbances associated with the construction of the project may also temporarily affect the San Joaquin kit fox. Kit foxes could be struck by construction equipment or other vehicles or become entrapped in dens during ground-disturbing activities. Noise and light pollution during construction are considered direct effects as they may prevent kit foxes from foraging, mating, or rearing their young.

This estimate of den loss (discussed below under Direct Effects) is based on those dens identified within the project footprints during the 2008 and 2009 surveys and could change if kit fox create additional dens or abandon dens in the project footprint, or if the footprint limits are extended or reduced. Loss of dens could result in kit fox displacement

Direct Effects

Alternative A The project could result in the direct permanent loss of approximately 24.44 acres (19.19 acres non-native grassland, 0.35 acre riparian woodland/Great Valley cottonwood riparian forest, 1.11 acres waterways, 0.64 acre detention basin,

3.09 acres disturbed/ruderal, 0.06 acre agriculture) of kit fox habitat, which represent both potential foraging and denning habitat for this species, and temporary effects to approximately 70.94 acres (46.91 acres non-native grassland, 3.19 acres riparian woodland/Great Valley cottonwood riparian forest, 6.54 acres waterways, 0.08 acre detention basin, 13.42 acres disturbed/ruderal, 0.80 acre agriculture) of kit fox habitat (Table 3).

One active den is located within the project footprint and could be directly permanently eliminated during project construction.

Alternative B The project could result in the direct permanent loss of approximately 11.28 acres (5.82 acres non-native grassland, 1.07 acres waterways, 0.84 acre detention basin, 3.49 acres disturbed/ruderal, 0.06 acre agriculture) of kit fox habitat, which represent both potential foraging and denning habitat for this species, and temporary effects to approximately 65.55 acres (45.17 acres non-native grassland, 1.06 acre riparian woodland/Great Valley cottonwood riparian forest, 4.43 acres waterways, 0.04 acre detention basin, 14.05 acres disturbed/ruderal, 0.80 acre agriculture) of kit fox habitat (Table 3).

Three potential dens are located within the project footprint and could be directly permanently eliminated during project construction

Alternative C The project could result in the direct permanent loss of approximately 10.24 acres (4.73 acres non-native grassland, 0.76 acre waterways, 4.69 acres disturbed/ruderal, 0.06 acre agriculture) of kit fox habitat, which represent both potential foraging and denning habitat for this species, and temporary effects to approximately 62.25 acres (40.44 acres non-native grassland, 1.42 acres riparian woodland/Great Valley cottonwood riparian forest, 4.93 acres waterways, 0.75 acre detention basin, 13.91 acres disturbed/ruderal, 0.80 acre agriculture) of kit fox habitat (Table 3).

One potential den is located within the project footprint.

Table 3 San Joaquin Kit Fox Potential Habitat Areas That Would Be Impacted by the Project

Vegetation Types	Segment 1 ²						
	Existing	Alternative A		Alternative B		Alternative C	
		Perm	Temp	Perm	Temp	Perm	Temp
Non-Native Grassland	405.41	19.19	46.91	5.82	45.17	4.73	40.44
Riparian Woodland/Great Valley Cottonwood Riparian Forest	39.92	0.35	3.19	0.00	1.06	0.00	1.42
Waterways ¹	102.89	1.11	6.54	1.07	4.43	0.76	4.93
Detention Basin	47.32	0.64	0.08	0.84	0.04	0.00	0.75
Disturbed/Ruderal	151.84	3.09	13.42	3.49	14.05	4.69	13.91
Agriculture	143.81	0.06	0.80	0.06	0.80	0.06	0.80
Total	891.19	24.44	70.94	11.28	65.55	10.24	62.25

¹Waterway is the mapping unit to describe areas potentially within the jurisdiction of the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and the Regional Water Quality Control Board, primarily the canals within the biological study area. These areas are vegetated with non-native grassland vegetation.

²All alternatives include the improvements at Stockdale Highway and State Route 43.

Indirect Effects

Vehicle strikes are considered an indirect effect as a result of the project. Currently, the San Joaquin kit fox is exposed to the traffic along existing roadways. Crossing a new, larger roadway may result in an unintentional increase in vehicle-related mortality. Several kit fox road kills have been reported from the biological study area from data collected between 1998 and 2004 (AECOM 2009): three kit fox road kills were reported from the south side of the Kern River near Mohawk Street and Truxtun Avenue; six kit fox road kills were reported along Coffee Road; and four kit fox road kills were reported along the Kern River Canal (south of the Kern River) (AECOM 2009).

Kit foxes in Bakersfield have been found to move along linear habitat features (canals, railway rights-of-way, Kern River corridor, roads), moving from one patch of open space to another. Construction of the new roadway would incorporate several features to allow continued kit fox movement, including maintaining existing movement corridors along existing linear habitat features, such as the Kern River and Friant-Kern Canal.

However, other canals would be converted from trapezoidal channels to box culverts under the project roadway; the project would extend existing box culverts in some of these locations. In areas of kit fox activity (e.g., Carrier Canal and Cross Valley Canal), this extension of the box culvert could disrupt kit fox movement when the canal is full of water. With a longer culvert to follow, kit foxes may choose to move out of the corridor and into upland habitat or developed areas to go around the box

culvert. The increased movement through developed areas could increase kit fox mortality near these canals. Primary movement corridors would be maintained (e.g., Kern River, Friant-Kern Canal), movement along the other canals may be disrupted (e.g., Cross Valley Canal, Carrier Canal). Therefore, the project could substantially change movement patterns along canals in the biological study area. For Alternative A, portions of the Cross Valley Canal, Carrier Canal, and Stine Canal would replace a trapezoidal channel with a box culvert; the Friant Kern Canal would be crossed with a bridge. For Alternative B, portions of the Carrier Canal would replace a trapezoidal channel with a box culvert; the Cross Valley Canal and Stine Canal would be crossed with bridges. For Alternative C, portions of the Carrier Canal and Stine Canal would replace a trapezoidal channel with a box culvert; the Cross Valley Canal would be crossed with a bridge.

Kit foxes attempting to cross the road would be expected to encounter a higher vehicle strike hazard as the new roadway begins to carry a higher volume of traffic (Bjurlin et al. 2005). The increased mortality associated with the increase in traffic volume may affect kit foxes and other wildlife crossing the road.

Construction of the project could result in the displacement of kit foxes and altered space use patterns, such as a change in habitat use or daily movement patterns, both of which could result in disrupted social ecology; reduced fertility, pregnancy rates, and prenatal survival; mortality; and reduced carrying capacity in the vicinity of the biological study area.

In an effort to minimize impacts on the kit fox, the project design team (Caltrans, design engineers, project biologists) have determined that in areas with high traffic speed and/or volume, kit foxes should be entirely excluded from the roadway. Kit fox crossing structures have been incorporated into the design of the roadway in areas of high kit fox activity where there were no existing canals for movement (Alternative A Figure 8, Alternative B Figure 9, Alternative C Figure 10). A conceptual design for the proposed kit fox crossings is shown in Figure 11.

Effects Determination

Based on the analysis of the potential direct and indirect effects, it can be concluded that the project ‘*may affect, likely to adversely affect*’ the San Joaquin kit fox.

To reduce the potential for adverse effects on San Joaquin kit fox that could occur during ground-disturbing activities, Caltrans is proposing to implement standard Avoidance and Minimization Measures that were described previously in

Section 4.1.1.3. These measures include standard construction and operational requirements, pre-activity surveys, den monitoring, worker environmental awareness training, and construction monitoring that are in accordance with the U.S. Fish and Wildlife Service's *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S. Fish and Wildlife Service 2011b) and are expected to avoid or substantially reduce the potential for adverse effects on kit fox such as den loss and disturbance during construction activities.

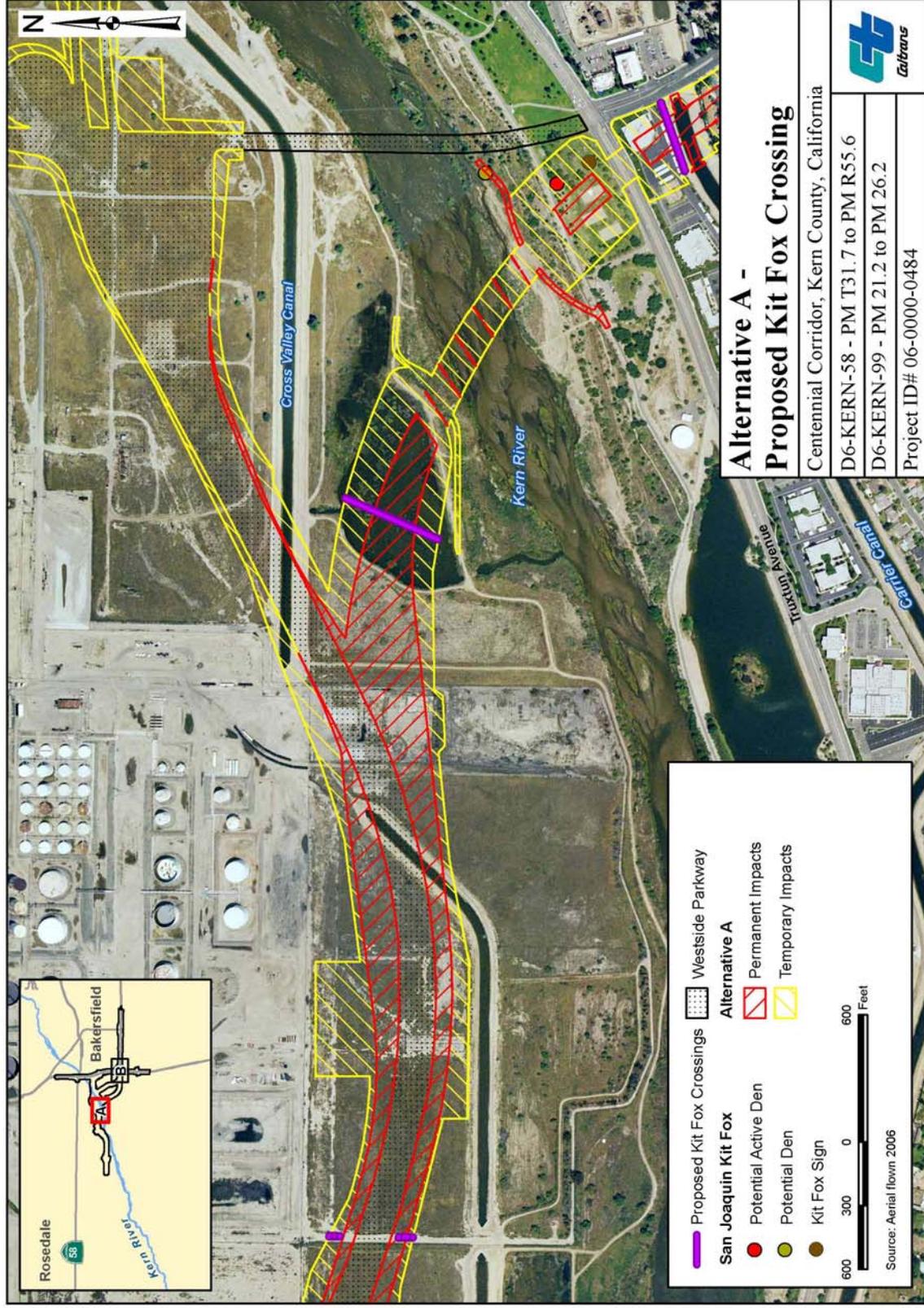


Figure 8



Figure 9

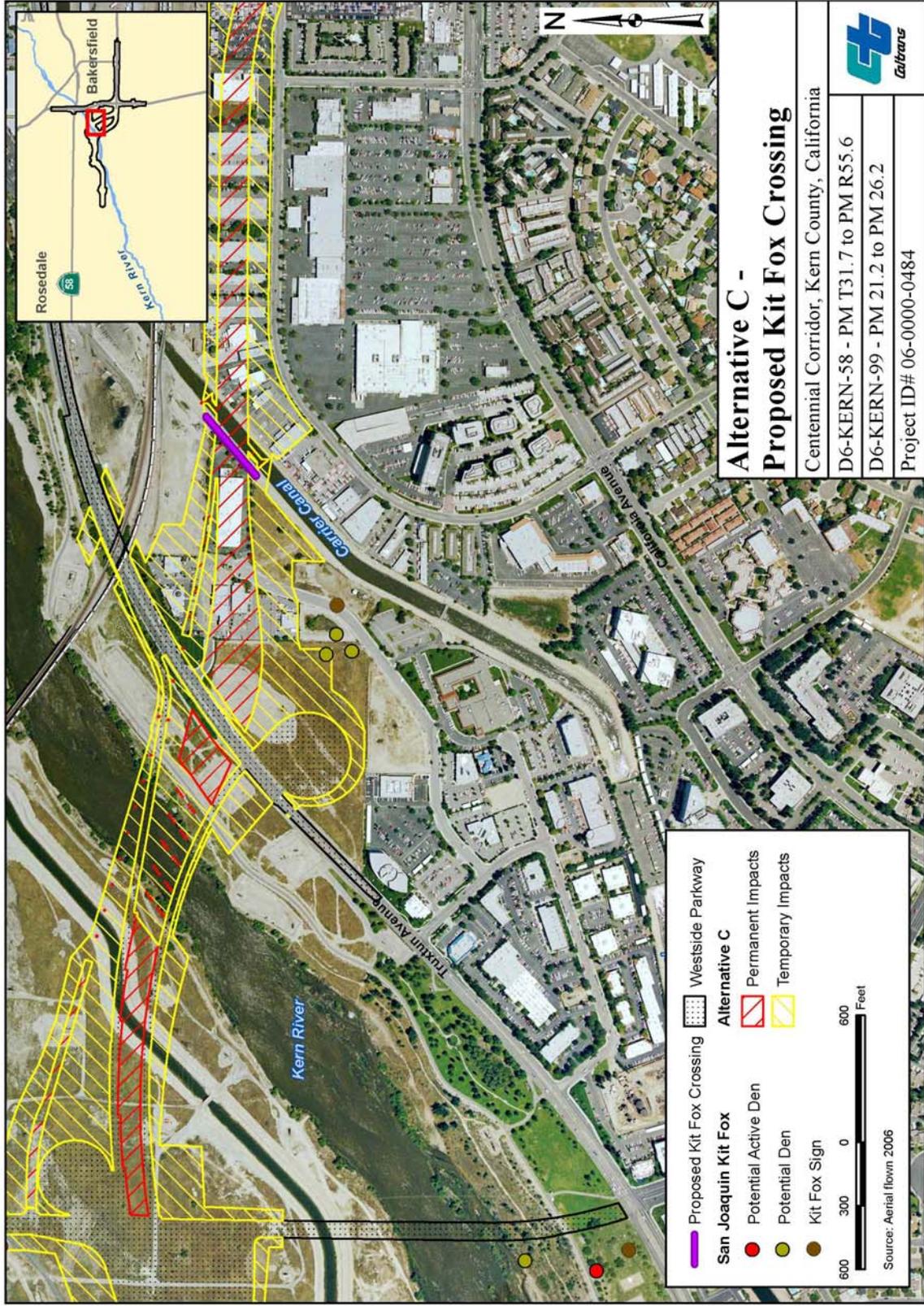
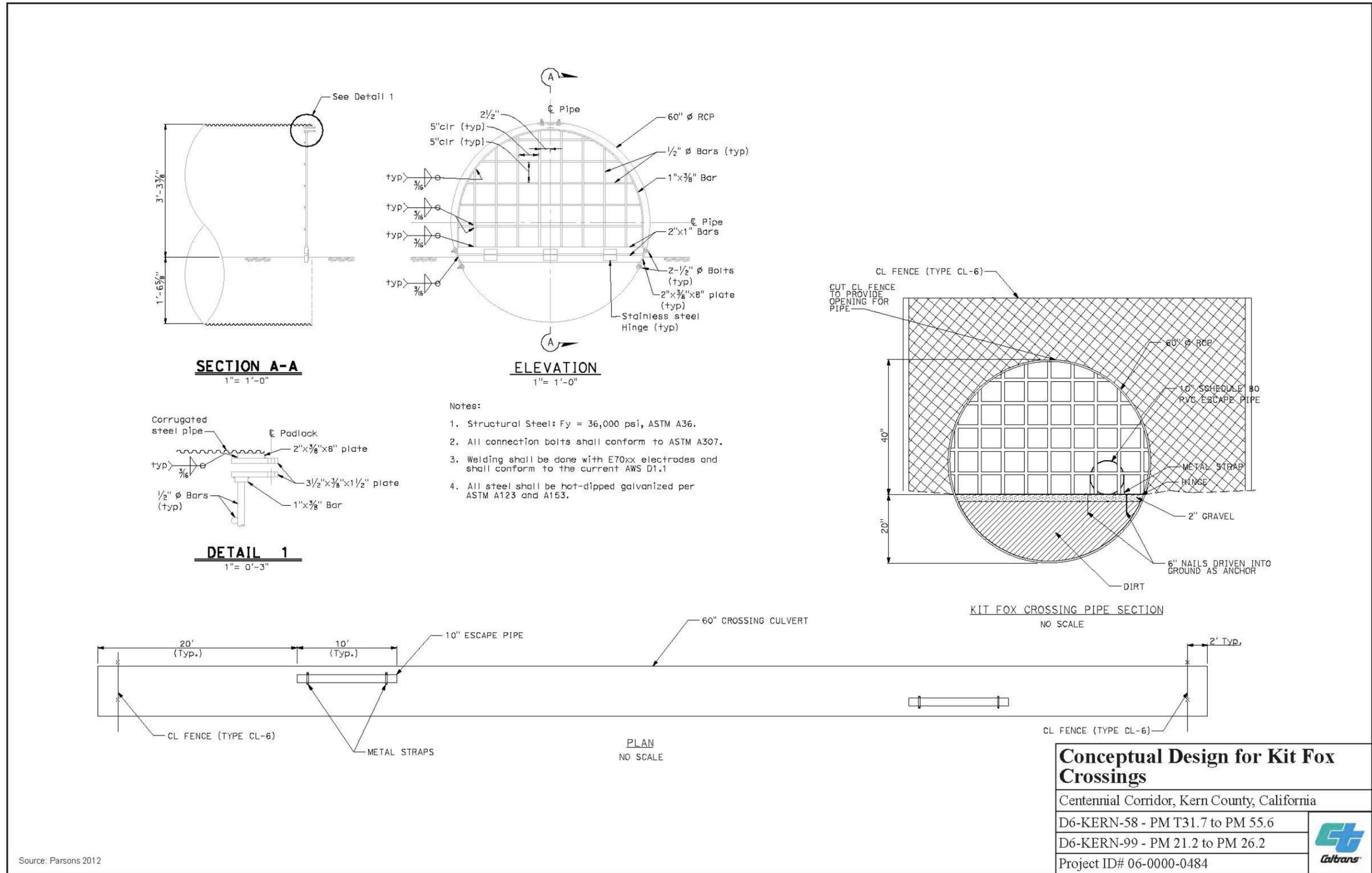


Figure 10



Source: Parsons 2012

Figure 11

Caltrans is also proposing to implement additional conservation measures beyond those described for the standard Avoidance and Minimization Measures that would further offset the potential adverse effects and also compensate for effects to habitat that would result from the project.

As described in the following section (4.1.1.5, see “On-site Mitigation through Project Design”), Caltrans is proposing to incorporate elements into the road design that are intended to facilitate safe movement by kit foxes and substantially reduce adverse direct effects associated with habitat fragmentation, reduced connectivity, and indirect effects associated with the potential for vehicle strike.

Caltrans is also proposing to compensate for habitat permanently lost and temporarily disturbed during ground-disturbing activities by paying fees in accordance with requirements in the Metropolitan Bakersfield Habitat Conservation Plan.

Compensation according to the Metropolitan Bakersfield Habitat Conservation Plan requirements would serve to enhance comparable kit fox foraging and denning habitat within the local Metropolitan Bakersfield Habitat Conservation Plan area, at ratios requested by the U.S. Fish and Wildlife Service, and greater than those required by the Metropolitan Bakersfield Habitat Conservation Plan. Compensatory mitigation for habitat loss and disturbance is described below in Section 4.1.1.5. (see “Off-site Mitigation for Project-specific Habitat Loss”).

Together, the standard construction-related Avoidance and Minimization Measures and additional conservation measures are expected to reduce substantially the potential for take and to compensate for residual impacts. However, although the Avoidance and Minimization Measures would reduce potential for direct mortality of kit foxes related to construction, the project would result in a loss of occupied suitable habitat. Therefore, it is concluded that the project ‘*may affect, likely to adversely affect*’ the San Joaquin kit fox.

4.1.1.5. Project Designs to Mitigate Effects

Standard Avoidance and Minimization Measures will be in place during construction to avoid and minimize potential adverse effects on kit fox during project construction. In addition to these measures, mitigation will be implemented to compensate for post-construction project-specific and program-level effects on kit fox and habitat loss.

On-site mitigation for project effects includes implementing project design modifications that are intended to reduce adverse effects on kit fox movement and

potential for vehicle strike. Off-site mitigation for project effects involves compensating for the permanent and temporary loss of known kit fox habitat by participating in the Metropolitan Bakersfield Habitat Conservation Plan fee payment program. Off-site mitigation for program-level effects resulting from construction of the six Thomas Roads Improvement Program road improvement projects involves implementing the Sump Habitat Program, a long-term habitat conservation program for the urban kit fox population. Caltrans will be responsible for implementing these measures.

On-site Mitigation through Project Design

The primary objective of the project designs is to maintain opportunities for kit foxes to cross the road while reducing the potential for vehicle strike. Limited research indicates that kit foxes infrequently use culverts to cross under a roadway, even when a culvert is present nearby; foxes tend to continue to cross over the roadway surface opportunistically (Cypher 2009). Therefore, project design modifications do not emphasize the creation of new culverts where the project is not anticipated to disrupt a known movement corridor (e.g., canal and/or railway corridor). However, some use of culverts has been documented by the Endangered Species Recovery Program, and use has increased with increasing culvert size (Cypher 2002). In areas of high traffic speed and/or volume, culverts for kit fox movement have been incorporated into the project design. Additionally, project design focuses on retaining existing culverts in the biological study area to the extent feasible for use by kit fox in the project area.

SJKF – 6 Fencing

In areas of known kit fox activity and lower traffic speed/volume, the project right-of-way shall be fenced with permeable fencing. In high-density residential areas and areas with higher traffic speed/volume, the project right-of-way shall be fenced with exclusionary fencing. For a permeable fencing design, one or a combination of the following three design options shall be adopted to provide kit fox with movement opportunities: (1) elevating the bottom of the fence 5 inches above ground to allow for unobstructed movement by kit foxes under the fence; (2) installing ground-level 8-inch by 8-inch gaps no more than 100 feet apart for the length of the fence, which would allow kit fox movement at regular intervals along the right-of-way; and (3) installing fencing with a minimum mesh size of 3½ by 7 inches, preferably 5 by 12 inches, to allow unlimited movement by kit fox through the fence.

SJKF – 7 Curbed Medians and Median Barriers

Curbed medians and median barriers shall be used as part of the project design. In areas of known kit fox activity and lower traffic speed/volume, either 6-inch-high curbed medians with low vegetation (e.g., less than 6 inches) or 10-inch-high unvegetated curbed medians are proposed. The 10-inch curbed medians shall remain unvegetated to prevent obstruction of the visual field of kit foxes near the roadway. Curbed medians less than 10 inches high and requiring landscaping shall be planted with low-level vegetation (i.e., less than 6 inches) that does not require mowing. Median barriers are required in some portions of the project for public safety. In areas of known kit fox activity and lower speed/volume, Caltrans-designed modified median barrier type 60/S shall be used. The Caltrans type 60/S design has been approved by the U.S. Fish and Wildlife Service (Biological Opinion #81420-2009-F-0752; U.S. Fish and Wildlife Service 2009) and includes 9-inch radius openings (9-inch-high by 18-inch-wide, half-circle openings) spaced every 150 feet to allow for kit fox passage. In areas of known kit fox activity and higher traffic speed/volume, exclusionary fencing shall be used and these modifications shall not be necessary in those areas.

SJKF – 8 Maintain Open Movement Corridors

In areas of known kit fox activity, existing kit fox movement corridors along all canals and railroads shall be preserved and/or mitigated through the use of bridges and/or culverts for wildlife crossing. The toe-of-road fill and bridge support walls shall be maintained and new walls designed, no less than 20 feet from the centerline of canal access roads and railroad centerlines.

SJKF – 9 Landscaping

If landscaping is required, project landscaping shall be designed to allow unobstructed kit fox visibility and to provide opportunities for movement across the roadway in areas of lower traffic speed/volume. Curbed median and roadside landscaping shall be planted in 1 of 2 alternative strategies: selecting plants that do not exceed 6 inches tall at maturity and/or creating gaps no less than 4 feet wide every 12 feet in areas landscaped with trees and shrubs.

SJKF – 10 Warning Signs

Warning signage alerting drivers to potential kit fox presence is proposed at several locations. The need for and number of appropriate signs at intersections shall continue to be evaluated as the project design advances.

Off-site Mitigation for Project-Specific Habitat Loss

Permanent and temporary loss of San Joaquin kit fox habitat resulting from construction of the project will be mitigated by participating in the Metropolitan Bakersfield Habitat Conservation Plan fee payment program. Suitable kit fox habitat that will be affected by project construction and mitigated through the Metropolitan Bakersfield Habitat Conservation Plan is comprised of non-native grassland, riparian woodland/Great Valley cottonwood riparian forest, waterways, detention basin, disturbed/ruderal, and agriculture. In accordance with prior direction from Peter Cross, Susan Jones, and Ellen McBride (U.S. Fish and Wildlife Service) to Caltrans for habitat mitigation for the Mohawk Street Extension (U.S. Fish and Wildlife Service 2008), which is a Thomas Roads Improvement Program project that has been constructed in Bakersfield and mitigated through the Metropolitan Bakersfield Habitat Conservation Plan, fees shall be paid to the Metropolitan Bakersfield Habitat Conservation Plan Trust Group at a ratio of 3:1 for permanent impacts and 1.1:1 for temporary impacts to all suitable San Joaquin kit fox habitat types. These ratios are based on recent agency consultation and the release of the Biological Opinion for the Morning Drive/State Route 178 Interchange Project.

SJKF – 11 Metropolitan Bakersfield Habitat Conservation Plan Fee Payment

Alternative A The permanent loss of 24.44 acres of habitat for the alignment and the temporary disturbance of 70.94 acres of habitat for the alignment shall be mitigated by participating in the Metropolitan Bakersfield Habitat Conservation Plan at agency-approved ratios. Sufficient funding shall be paid to allow the Metropolitan Bakersfield Habitat Conservation Plan Trust Group to purchase 151.35 acres of habitat (Table 4).

Table 4 San Joaquin Kit Fox Habitat Compensatory Mitigation Ratios, Anticipated Acreage of Effect, and Mitigation Acreage – Alternative A

	Habitat Type Affected	Compensatory Mitigation Ratios	Permanent Project Effects (acres)	Temporary Project Effects (acres)	Mitigation Required (acres)
Project Roadway – Alternative A	Non-native grassland, riparian woodland/Great Valley cottonwood riparian forest, waterways, ¹ detention basin, disturbed/ruderal, and agriculture.	Permanent: acquisition of habitat of similar or greater value at 3:1 ratio. Temporary: acquisition of habitat of similar or greater value at 1.1:1 ratio.	24.44	70.94	151.35
Total			24.44	70.94	151.35
¹ Open water/waterway is the mapping unit to describe areas potentially within the jurisdiction of the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and the Regional Water Quality Control Board, primarily the canals within the biological study area. These areas are vegetated with non-native grassland vegetation. Source: U.S. Fish and Wildlife Service 2008 (See Table 7 of Appendix A). Note: Vegetation types have been changed to correspond to those mapped for the project.					

Alternative B The permanent loss of 11.28 acres of habitat for the alignment and the temporary disturbance of 65.55 acres of habitat for the alignment will be mitigated by participating in the Metropolitan Bakersfield Habitat Conservation Plan at agency-approved ratios. Sufficient funding would be paid to allow the Metropolitan Bakersfield Habitat Conservation Plan Trust Group to purchase 105.95 acres of habitat (Table 5).

Table 5 San Joaquin Kit Fox Habitat Compensatory Mitigation Ratios, Anticipated Acreage of Effect, and Mitigation Acreage – Alternative B

	Habitat Type Affected	Compensatory Mitigation Ratios	Permanent Project Effects (acres)	Temporary Project Effects (acres)	Mitigation Required (acres)
Project Roadway – Alternative B	Non-native grassland, riparian woodland/Great Valley cottonwood riparian forest, waterways, ¹ detention basin, disturbed/ruderal, and agriculture.	Permanent: acquisition of habitat of similar or greater value at 3:1 ratio. Temporary: acquisition of habitat of similar or greater value at 1.1:1 ratio.	11.28	65.55	105.95
Total			11.28	65.55	105.95
<p>¹ Open water/waterway is the mapping unit to describe areas potentially within the jurisdiction of the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and the Regional Water Quality Control Board, primarily the canals within the biological study area. These areas are vegetated with non-native grassland vegetation.</p> <p>Source: U.S. Fish and Wildlife Service 2008 (See Table 7 of Appendix A); Note: Vegetation types have been changed to correspond to those mapped for the project.</p>					

Alternative C The permanent loss of 10.24 acres of habitat for the alignment and the temporary disturbance of 62.25 acres of habitat for the alignment will be mitigated by participating in the Metropolitan Bakersfield Habitat Conservation Plan at agency-approved ratios. Sufficient funding would be paid to allow the Metropolitan Bakersfield Habitat Conservation Plan Trust Group to purchase 99.20 acres of habitat (Table 6).

Table 6 San Joaquin Kit Fox Habitat Compensatory Mitigation Ratios, Anticipated Acreage of Effect, and Mitigation Acreage – Alternative C

	Habitat Type Affected	Compensatory Mitigation Ratios	Permanent Project Effects (acres)	Temporary Project Effects (acres)	Mitigation Required (acres)
Project Roadway – Alternative C	Non-native grassland, riparian woodland/Great Valley cottonwood riparian forest, waterways, ¹ detention basin, disturbed/ruderal, and agriculture.	Permanent: acquisition of habitat of similar or greater value at 3:1 ratio. Temporary: acquisition of habitat of similar or greater value at 1.1:1 ratio.	10.24	62.25	99.20
Total			10.24	62.25	99.20
<p>¹ Open water/waterway is the mapping unit to describe areas potentially within the jurisdiction of the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and the Regional Water Quality Control Board, primarily the canals within the biological study area. These areas are vegetated with non-native grassland vegetation.</p> <p>Source: U.S. Fish and Wildlife Service 2008 (See Table 7 of Appendix A); Note: Vegetation types have been changed to correspond to those mapped for the project.</p>					

SJKF – 12 Delineating Impact Acreages

Prior to construction, the limits of permanent and temporary effects would be verified and mapped by habitat type within those limits. The map would be submitted for approval by the U.S. Fish and Wildlife Service before submittal to the City of Bakersfield Planning Department for fee payment.

Mitigation for Program-Level Effects

Caltrans, in coordination with the City of Bakersfield, is proposing to mitigate for program-level effects of construction of the six Thomas Roads Improvement Program road improvement projects by implementing the Sump Habitat Program, which is intended to provide long-term habitat conservation for the urban kit fox population. The conservation goals of the program would be achieved by installing artificial dens in selected sumps; enhancing kit fox habitat by controlling vegetation in and around dens; increasing kit fox accessibility to sumps through fence/gate gaps; and reducing the potential for effects to kit foxes associated with regular maintenance activities. Long-term conservation assurances will also be provided for all sumps included in the Sump Habitat Program. These assurances will include the following: (1) a recorded covenant for each sump; (2) a perpetual, non-wasting endowment to pay for management, maintenance, and monitoring costs associated with ongoing

implementation of the Sump Habitat Program; and (3) an agency-approved long-term preservation management plan.

The program is currently being developed with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife. The conceptual framework for the program is described in the *Draft Thomas Roads Improvement Program Mitigation for Cumulative Effects to San Joaquin Kit Fox*, a working version of the Implementation Plan (City of Bakersfield and Caltrans 2010). The program will continue to be refined through an ongoing collaborative, consultation process among Caltrans, the City of Bakersfield, the U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife. Caltrans and the City of Bakersfield have taken necessary actions to begin developing the program by participating in four meetings with the U.S. Fish and Wildlife Service and the California Department of Fish and Game on March 11, 2010, May 11, 2010, July 14, 2010, and August 18, 2010, and the City of Bakersfield has begun evaluating sumps with potential to be conserved as part of the program; has calculated a preliminary estimate of anticipated program costs; and has collected information from the resource agencies that would be required in a long-term management plan.

SJKF – 13 Implement the Sump Habitat Program

The final approved version of the Sump Habitat Program shall be implemented within one year of the approval of the Final Environmental Document for the last of the six Thomas Roads Improvement Program projects.

4.1.1.6. Cumulative Effects (Federal Endangered Species Act)

A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor, but collectively substantial, impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, industrial, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. This analysis considers known projects identified on the cumulative projects map maintained by the City of Bakersfield. In addition, the long-term growth projections for the area are used because they provide for future projects that would contribute to potential cumulative impacts for the project design year (2038).

Each of the cumulative projects has prepared its own environmental document. The following projects have the greatest potential to influence cumulative impacts:

- The Bakersfield Commons project (GPA/ZC 06-1877) is a 255-acre project located east and west of Coffee Road between Brimhall Road and State Route 58 (Rosedale Highway). The City of Bakersfield approved the General Plan Amendment and zone change in August 2010. The Bakersfield Commons project allows 1,400,000 square feet of retail commercial, 600,000 square feet of office commercial, 345 multi-family homes, and 80 single-family homes.
- A General Plan amendment and zone change were approved for the 564-acre Stockdale Ranch project in June 2010. The project site, which is on the south side of Stockdale Highway near Heath Road, will be annexed into the City of Bakersfield. The project provides for 3,583 residential units and 941,700 square feet of commercial/business park uses. Twenty acres are provided for Open Space-Park use.
- A General Plan amendment and zone change were approved for the 323-acre Saco Ranch Commercial Center project in August 2010. The project is located in the northwestern portion of Bakersfield, generally southeast and southwest of the intersection of Coffee Road and 7th Standard Road, west of the Union Pacific Railroad. The project would allow for approximately 1,459,500 square feet of retail commercial, 332,000 square feet of office uses, and 1,376,496 square feet of industrial uses. Full buildout is expected in 2030.
- The Crossroads Plaza Commercial Center project is located in the southern portion of Bakersfield, on the west side of Gosford Road, between Panama Lane and Harris Road. The project, on 75 net acres, would allow for development of a retail store (approximately 138,621 square feet with 10,817 square feet containing a garden center), restaurants (42,741 square feet), and a community retail center (605,008 square feet with 26,568 square feet containing a garden center). Discretionary actions included a Tentative Parcel Map and Site Plan Review. The project was approved in December 2010.
- The Regional Traffic Impact Fee Program requires new development to pay a proportionate share of the cost for new and expanded transportation facilities. The program includes a range of local street improvements designed to relieve traffic congestion. These improvements, which would be built through 2035, include the widening of several north-south roadways that cross State Route 58, particularly in the western portion of the study area.

Implementing the development projects listed above would result in permanent and temporary loss of habitat for plant and wildlife species. Habitat fragmentation could also result from the following: when the landscape is parceled into smaller patches of habitat through the development of about 1,200 acres of open space.

The current strategy of mitigating for the loss of habitat is to secure large contiguous blocks of habitat to support core populations and to serve as corridors between core areas (U.S. Fish and Wildlife Service 1998). The Metropolitan Bakersfield Habitat Conservation Plan was designed to accomplish conservation of core habitat areas and wildlife movement corridors in metropolitan Bakersfield. The Metropolitan Bakersfield Habitat Conservation Plan covers 11 special-status plant species and 7 special-status wildlife species. Mitigation fees paid by each project are used to purchase and maintain habitat reserves. All of the development projects will be mitigating for cumulative loss of habitat by paying the Metropolitan Bakersfield Habitat Conservation Plan in-lieu mitigation fees.

Chapter 5. Conclusions and Determination

5.1. Conclusions

Alternative A The construction of the project will result in the permanent loss of 24.44 acres and the temporary loss of 70.94 acres of potential San Joaquin kit fox habitat. One active kit fox den may be directly affected by project development.

Alternative B The construction of the project will result in the permanent loss of 11.28 acres and the temporary loss of 65.55 acres of potential San Joaquin kit fox habitat. Three potential kit fox dens may be directly affected by project development.

Alternative C The construction of the project will result in the permanent loss of 10.24 acres and the temporary loss of 62.25 acres of potential San Joaquin kit fox habitat. One potential kit fox den may be directly affected by project development.

Direct mortality resulting from contact with construction equipment or other vehicles or entrapment within dens, pipes, or trenches may occur. Noise and light pollution may directly affect the kit fox.

Indirect effects include the potential for unintentional increased vehicle strikes, habitat fragmentation, disruption in movement patterns, displacement of kit foxes, and altered space use patterns that could result in disrupted social ecology; reduced fertility, pregnancy rates, and prenatal survival; mortality; and reduced carrying capacity in the vicinity of the biological study area.

5.2. Determination

The standard construction-related Avoidance and Minimization Measures and additional conservation measures are expected to substantially reduce the potential for take and compensate for residual effects. Although Avoidance and Minimization Measures would reduce the potential for direct mortality of kit fox related to construction, the project would result in a loss of occupied suitable habitat. Therefore, the project *'may affect, likely to adversely affect'* the San Joaquin kit fox.

Chapter 6. References

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Appendix A Wildlife Species Observed in the Biological Study Area

WILDLIFE SPECIES OBSERVED IN THE BIOLOGICAL STUDY AREA

Species
Reptiles
PHRYNOSOMATIDAE - ZEBRA-TAILED, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS
<i>Uta stansburiana</i> side-blotched lizard
Birds
ANATIDAE - WATERFOWL
<i>Branta hutchinsii</i> cackling goose
<i>Branta canadensis</i> Canada goose
<i>Anas platyrhynchos</i> mallard
<i>Anas clypeata</i> northern shoveler
PHASIANIDAE - PHEASANTS & UPLAND GAME BIRDS
<i>Gallus gallus</i> * domestic chicken
ODONTOPHORIDAE - QUAILS
<i>Callipepla californica</i> California quail
PODICIPEDIDAE - GREBES
<i>Podilymbus podiceps</i> pied-billed grebe
<i>Aechmophorus clarkii</i> Clark's grebe
<i>Phalacrocorax auritus</i> double-crested cormorant
ARDEIDAE - HERONS
<i>Ardea herodias</i> great blue heron
<i>Ardea alba</i> great egret
<i>Egretta thula</i> snowy egret
<i>Nycticorax nycticorax</i> black-crowned night-heron
CATHARTIDAE - NEW WORLD VULTURES
<i>Cathartes aura</i> turkey vulture

**WILDLIFE SPECIES OBSERVED IN THE
BIOLOGICAL STUDY AREA**

Species
ACCIPITRIDAE - HAWKS
<i>Pandion haliaetus</i> osprey
<i>Accipiter striatus</i> sharp-shinned hawk
<i>Accipiter cooperii</i> Cooper's hawk
<i>Buteo lineatus</i> red-shouldered hawk
<i>Buteo jamaicensis</i> red-tailed hawk
FALCONIDAE - FALCONS
<i>Falco sparverius</i> American kestrel
<i>Falco columbarius</i> merlin
RALLIDAE - RAILS
<i>Fulica americana</i> American coot
CHARADRIIDAE - PLOVERS
<i>Charadrius vociferus</i> killdeer
RECURVIROSTRIDAE - STILTS & AVOCETS
<i>Recurvirostra americana</i> American avocet
LARIDAE - GULLS & TERNS
<i>Larus californicus</i> California gull
<i>Hydroprogne caspia</i> Caspian tern
COLUMBIDAE - PIGEONS & DOVES
<i>Columba livia</i> rock pigeon *
<i>Streptopelia decaocto</i> Eurasian collared-dove *
<i>Zenaida macroura</i> mourning dove
PSITTACIDAE - PARAKEETS & PARROTS
<i>Psittacula krameri</i> * rose-ringed parakeet
CUCULIDAE - CUCKOOS & ROADRUNNERS
<i>Geococcyx californianus</i> greater roadrunner
TROCHILIDAE - HUMMINGBIRDS
<i>Archilochus alexandri</i> black-chinned hummingbird

**WILDLIFE SPECIES OBSERVED IN THE
BIOLOGICAL STUDY AREA**

Species
<i>Calypte anna</i> Anna's hummingbird
ALCEDINIDAE - KINGFISHERS
<i>Megaceryle [Ceryle] alcyon</i> belted kingfisher
PICIDAE - WOODPECKERS
<i>Picoides nuttallii</i> Nuttall's woodpecker
<i>Picoides pubescens</i> downy woodpecker
<i>Picoides villosus</i> hairy woodpecker
<i>Colaptes auratus</i> northern flicker
TYRANNIDAE - TYRANT FLYCATCHERS
<i>Sayornis nigricans</i> black phoebe
<i>Myiarchus cinerascens</i> ash-throated flycatcher
<i>Tyrannus verticalis</i> western kingbird
LANIIDAE - SHRIKES
<i>Lanius ludovicianus</i> loggerhead shrike
CORVIDAE - JAYS & CROWS
<i>Aphelocoma californica</i> western scrub-jay
<i>Corvus brachyrhynchos</i> American crow
<i>Corvus corax</i> common raven
ALAUDIDAE - LARKS
<i>Eremophila alpestris</i> horned lark
HIRUNDINIDAE - SWALLOWS
<i>Tachycineta bicolor</i> tree swallow
<i>Tachycineta thalassina</i> violet-green swallow
<i>Stelgidopteryx serripennis</i> northern rough-winged swallow
<i>Petrochelidon pyrrhonota</i> cliff swallow
<i>Hirundo rustica</i> barn swallow

**WILDLIFE SPECIES OBSERVED IN THE
BIOLOGICAL STUDY AREA**

Species
AEGITHALIDAE - BUSHTITS
<i>Psaltriparus minimus</i> bushtit
TROGLODYTIDAE - WRENS
<i>Thryomanes bewickii</i> Bewick's wren
<i>Troglodytes aedon</i> house wren
REGULIDAE - KINGLETS
<i>Regulus calendula</i> ruby-crowned kinglet
SYLVIIDAE - GNATCATCHERS
<i>Polioptila caerulea</i> blue-gray gnatcatcher
TURDIDAE - THRUSHES & ROBINS
<i>Turdus migratorius</i> American robin
MIMIDAE - THRASHERS
<i>Mimus polyglottos</i> northern mockingbird
<i>Toxostoma redivivum</i> California thrasher
STURNIDAE - STARLINGS
<i>Sturnus vulgaris</i> European starling *
PARULIDAE - WARBLERS
<i>Vermivora celata</i> orange-crowned warbler
<i>Dendroica petechia</i> yellow warbler
<i>Dendroica coronata</i> yellow-rumped warbler
<i>Wilsonia pusilla</i> Wilson's warbler
EMBERIZIDAE - SPARROWS & JUNCOS
<i>Pipilo maculatus</i> spotted towhee
<i>Pipilo crissalis</i> California towhee
<i>Spizella passerina</i> chipping sparrow
<i>Spizella breweri</i> Brewer's sparrow
<i>Chondestes grammacus</i> lark sparrow
<i>Passerculus sandwichensis</i> savannah sparrow

**WILDLIFE SPECIES OBSERVED IN THE
BIOLOGICAL STUDY AREA**

Species
<i>Passerella iliaca</i> fox sparrow
<i>Melospiza melodia</i> song sparrow
<i>Melospiza lincolni</i> Lincoln's sparrow
<i>Zonotrichia leucophrys</i> white-crowned sparrow
<i>Zonotrichia atricapilla</i> golden-crowned sparrow
<i>Junco hyemalis</i> dark-eyed junco
CARDINALIDAE - GROSBILLS & BUNTINGS
<i>Pheucticus melanocephalus</i> black-headed grosbeak
ICTERIDAE - BLACKBIRDS
<i>Agelaius phoeniceus</i> red-winged blackbird
<i>Sturnella neglecta</i> western meadowlark
<i>Euphagus cyanocephalus</i> Brewer's blackbird
<i>Quiscalis mexicanus</i> great-tailed grackle
<i>Molothrus ater</i> brown-headed cowbird
<i>Icterus bullockii</i> Bullock's oriole
FRINGILLIDAE - FINCHES
<i>Carpodacus mexicanus</i> house finch
<i>Carduelis psaltria</i> lesser goldfinch
<i>Carduelis lawrencei</i> Lawrence's goldfinch
<i>Carduelis tristis</i> American goldfinch
PASSERIDAE - OLD WORLD SPARROWS
<i>Passer domesticus</i> house sparrow *
Mammals
LEPORIDAE - HARES & RABBITS
<i>Sylvilagus audubonii</i> desert cottontail
<i>Lepus californicus</i> black-tailed jackrabbit

**WILDLIFE SPECIES OBSERVED IN THE
BIOLOGICAL STUDY AREA**

Species
SCIURIDAE - SQUIRRELS
<i>Spermophilus beecheyi</i> California ground squirrel
CANIDAE - WOLVES & FOXES
<i>Canis familiaris</i> domestic dog
<i>Vulpes vulpes</i> red fox
FELIDAE - CATS
<i>Felis catus</i> domestic cat
*Non-native species

Appendix B Consultation to Date

Summary of Consultation to Date

During preparation of the Implementation Plan (City of Bakersfield and Caltrans 2010), Stephanie Coppeto, Leo Edson, and the City of Bakersfield consulted with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife (formerly known as the California Department of Fish and Game); Caltrans; Dr. Brian Cypher with the California State University, Stanislaus Endangered Species Recovery Program; and other environmental consultants with knowledge of the status and distribution of the San Joaquin kit fox in Bakersfield.

Stephanie Coppeto, Leo Edson, and the City of Bakersfield coordinated with the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and Caltrans on the approach for San Joaquin kit fox field surveys, potential project-specific and program-level effects of the Thomas Roads Improvement Program, and mitigation options for project-specific and program-level effects.

Stephanie Coppeto and Leo Edson worked closely with Dr. Brian Cypher, kit fox specialist with the Endangered Species Recovery Program, to gather supplemental information about kit fox distribution, abundance, and ecology in metropolitan Bakersfield, including known kit fox locations, reported observations, habitat associations of kit fox in Bakersfield, suitable kit fox habitat areas, and potential movement corridors. Dr. Cypher provided guidance throughout the development of field surveys; synthesized and interpreted kit fox data for project-specific surveys; created appropriate project-specific and program-level mitigation measures; and prepared kit fox technical reports. Stephanie Coppeto and Leo Edson also sought input from various environmental consultants in Bakersfield with knowledge of the local San Joaquin kit fox population. Marcia Wolfe of MH Wolfe and Associates provided a general assessment of the kit fox distribution in central and northeastern Bakersfield. Steven Pruett of Paul Pruett and Associates conducted field surveys with Stephanie Coppeto and provided information on suitability of project-specific habitat, kit fox den evaluation, and historical accounts of kit fox movement in project-specific study areas and throughout metropolitan Bakersfield.

In 2007, the City of Bakersfield and Caltrans authorized Stephanie Coppeto and Leo Edson to develop a conceptual strategy for the San Joaquin kit fox to determine the potential effects of implementing the Thomas Roads Improvement Program projects

on kit fox and to evaluate mitigation options for such effects. The U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife concurred that a conceptual strategy was needed. The U.S. Fish and Wildlife Service requested cumulative and project-specific analyses of potential effects on kit fox to comply with Section 7 consultation for each Thomas Roads Improvement project evaluated.

In 2008, the U.S. Fish and Wildlife Service and the California Department of Fish and Game concurred on methods proposed by Stephanie Coppeto and Leo Edson to develop the kit fox conceptual strategy, including diurnal surveys for kit fox dens and signs; collaboration with Dr. Brian Cypher; and a project-specific and cumulative approach to evaluating potential impacts on kit fox and efforts to avoid, minimize, and compensate for potential effects. The U.S. Fish and Wildlife Service, the California Department of Fish and Game, Caltrans, Stephanie Coppeto and Leo Edson, and the City of Bakersfield agreed to meet throughout the development of the conceptual strategy to ensure that it complies with the Federal Endangered Species Act and California Endangered Species Act. In July 2008, the California Department of Fish and Game, Caltrans, Stephanie Coppeto and Leo Edson, the City of Bakersfield, Steven Pruett, and Dr. Brian Cypher toured various Thomas Roads Improvement Program projects in Bakersfield. In August 2008, Stephanie Coppeto and Leo Edson presented preliminary results of kit fox surveys. The U.S. Fish and Wildlife Service identified habitat connectivity and the maintenance of corridors connecting kit fox populations as a major issue facing kit fox in Bakersfield. Potential compensatory mitigation options were discussed, including culverts, refugia, and artificial kit fox dens.

In 2009, the U.S. Fish and Wildlife Service and the California Department of Fish and Game approved the *San Joaquin Kit Fox Life History, Effects Analysis, and Conceptual Mitigation Strategy* (City of Bakersfield and Caltrans 2009) that describes program-level impacts and conceptual program-level mitigation. The U.S. Fish and Wildlife Service and the California Department of Fish and Game concurred that Caltrans should begin to develop a mitigation implementation plan for the conceptual approach.

In 2010, the U.S. Fish and Wildlife Service and the California Department of Fish and Game approved the Implementation Plan (City of Bakersfield and Caltrans 2010). The California Department of Fish and Game recommended that Caltrans seek a 2080.1 Consistency Determination for projects requiring a State Incidental Take Permit. The U.S. Fish and Wildlife Service and the California Department of Fish and

Game approved the standard Avoidance and Minimization Measures that would be described for the San Joaquin kit fox in Biological Assessments. The U.S. Fish and Wildlife Service and the California Department of Fish and Game agreed that the letter from the Metropolitan Bakersfield Habitat Conservation Plan Trust Group to the City of Bakersfield (dated August 3, 2010) approving eligible Thomas Roads Improvement Program projects to participate in the fee payment program was valid for projects that are ready to build prior to Metropolitan Bakersfield Habitat Conservation Plan expiration in 2014, but asked that the City of Bakersfield clarify that fees can be paid at higher than 1:1 ratios as required by the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service and the California Department of Fish and Game approved the concept of the Sump Habitat Program to compensate for program-level effects.

In 2011, based on agency consultation and the release of the Draft Biological Opinion for the Morning Drive/State Route 178 Interchange Project, a 3:1 mitigation ratio is identified for all permanent impacts and a 1.1:1 ratio is identified for all temporary impacts. Caltrans is no longer seeking an Incidental Take Permit or a Consistency Determination under the California Endangered Species Act as it is now assumed that take of San Joaquin kit fox, as defined under California Endangered Species Act, can be avoided. The U.S. Fish and Wildlife Service also released an updated *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (U.S. Fish and Wildlife Service 2011b).

Detail for Consultations to Date

November 20, 2007: The City of Bakersfield and Caltrans authorized AECOM to develop a San Joaquin kit fox conceptual strategy to determine the potential effects of the Thomas Roads Improvement Program projects on the kit fox and to evaluate mitigation options for such effects. The U.S. Fish and Wildlife Service and the California Department of Fish and Game concurred that a conceptual strategy was needed. The U.S. Fish and Wildlife Service requested cumulative and project-specific analyses of potential effects on kit fox to comply with the Section 7 consultation for each Thomas Roads Improvement Program project evaluated.

June 3, 2008: The U.S. Fish and Wildlife Service and the California Department of Fish and Game concurred on methods AECOM proposed to develop the kit fox conceptual strategy, including diurnal surveys for kit fox dens and sign; collaboration with Dr. Cypher; a project-specific and cumulative approach to evaluating potential impacts on kit fox; and efforts to avoid, minimize, and compensate for potential

effects. The U.S. Fish and Wildlife Service, the California Department of Fish and Game, Caltrans, AECOM, and the City of Bakersfield agreed to meet throughout the development of the conceptual strategy to ensure that it complied with the Federal Endangered Species Act and the California Endangered Species Act. The U.S. Fish and Wildlife Service, the California Department of Fish and Game, Caltrans, AECOM, and the City of Bakersfield also agreed to visit the various Thomas Roads Improvement Program projects in Bakersfield.

July 8, 2008: The California Department of Fish and Game, Caltrans, AECOM, the City of Bakersfield, Steve Pruett of Paul Pruett and Associates, and Dr. Cypher toured various Thomas Roads Improvement Program projects in Bakersfield.

August 26, 2008: AECOM presented preliminary results of kit fox surveys. The U.S. Fish and Wildlife Service identified habitat connectivity and the maintenance of corridors that connect kit fox populations as major issues facing kit foxes in the Bakersfield area. Potential compensatory mitigation options were discussed, including culverts, refugia, and kit fox artificial dens. The following people attended this meeting: Susan Jones, Rocky Montgomery, Ellen McBride (U.S. Fish and Wildlife Service); Laura Peterson-Diaz (California Department of Fish and Game), Zachary Parker, Rachel Kleinfelter, Heather Baker, and Kirsten Helton (California Department of Transportation); David Clark (Parsons/City of Bakersfield); Luis Topete (City of Bakersfield); Leo Edson, and Stephanie Coppeto (EDAW).

October 7, 2009: The U.S. Fish and Wildlife Service issued a letter (#81420-2008-TA-0368-29) concurring with the conceptual mitigation strategy (Appendix G).

March 11, 2010: The U.S. Fish and Wildlife Service and California Department of Fish and Game approved the Draft Thomas Roads Improvement Program San Joaquin Kit Fox Effects Analysis, Mitigation Strategy, and Implementation Plan. The report included (1) information on the San Joaquin kit fox life history and focuses on aspects that are unique to the urban kit fox population in Bakersfield; (2) a program-level analysis of anticipated Thomas Roads Improvement Program impacts; and (3) a conceptual mitigation implementation plan. The report also included project engineering design changes to reduce kit fox impacts, monitoring and reporting requirements, and proposed compensatory mitigation measures. The plan incorporates the strategies discussed in consultation with the U.S. Fish and Wildlife Service and California Department of Fish and Game. The California Department of Fish and Game recommended that Caltrans seek a 2080.1 permit for projects requiring a State

Incidental Take Permit. The U.S. Fish and Wildlife Service and California Department of Fish and Game approved the Sump Habitat Program and requested that the City of Bakersfield, in coordination with Caltrans, establish long-term conservation assurances for the 19 sumps through conservation easements, endowment, and a long-term management plan.

May 5, 2010: Stephanie Coppeto and Leo Edson held an informal teleconference with the U.S. Fish and Wildlife Service to discuss the Endangered Species Act compliance approach and schedule before the May 11, 2010, meeting (which Susan Jones and Jennifer Schofield would not be able to attend). For compensatory mitigation, the U.S. Fish and Wildlife Service requested that the City of Bakersfield submit a letter of commitment with each Biological Assessment for the Sump Habitat Program.

May 11, 2010: A strategy was discussed at this meeting and is described as follows. Caltrans would submit project Biological Assessments to the U.S. Fish and Wildlife Service and the California Department of Fish and Game for concurrent review to expedite the California Endangered Species Act consultation process. The Sump Habitat Program would be discussed in the Biological Assessments, but the requirements (easement application, management plan, and endowment) would not need to be met before construction of a road project. The California Department of Fish and Game is willing to hold the conservation easement for the sumps, and the City of Bakersfield and Caltrans will identify an agency-approved endowment holder. The City of Bakersfield and Caltrans considered identifying an alternative cumulative mitigation strategy in the event that the Sump Habitat Program is fiscally infeasible.

July 14, 2010: Caltrans would submit the Draft Biological Assessment for the State Route 178/Morning Drive interchange to the California Department of Fish and Game for review and comment before submittal to the U.S. Fish and Wildlife Service to expedite the California Endangered Species Act process. The U.S. Fish and Wildlife Service and the California Department of Fish and Game approved the standard Avoidance and Minimization Measures that would be described for the San Joaquin kit fox in the Biological Assessment. The California Department of Fish and Game recommended that Caltrans and the City of Bakersfield consider an alternative compensatory mitigation strategy to the Metropolitan Bakersfield Habitat Conservation Plan because of concerns about plan expiration in 2014. The U.S. Fish and Wildlife Service and the California Department of Fish and Game agreed that mitigation for cumulative effects (Sump Habitat Program) could be described generally in the Biological Assessment to maintain flexibility while the program

evolves, but that a chapter describing the cumulative mitigation framework that would later be finalized and included as Chapter 3 in the *Thomas Roads Improvement Program San Joaquin Kit Fox Effects Analysis, Mitigation Strategy, and Implementation Plan*, be submitted as a separate supporting document with the Biological Assessment. The California Department of Fish and Game requested that standard California Endangered Species Act requirements be included in the “Terms and Conditions” section of the Biological Opinion so that the Biological Opinion complies with the California Endangered Species Act. Attendees at this meeting included Mike Welsh and Jennifer Schofield (U.S. Fish and Wildlife Service); Julie Vance, Annee Ferranti, and Laura Peterson-Diaz (California Department of Fish and Game); Zachary Parker and Kirsten Helton (California Department of Transportation); David Clark (Parsons/City of Bakersfield); Leo Edson and Stephanie Coppeto (AECOM).

August 18, 2010: The U.S. Fish and Wildlife Service and the California Department of Fish and Game agreed that the letter from the Metropolitan Bakersfield Habitat Conservation Plan Trust Group to the City of Bakersfield (dated August 3, 2010) approving eligible Thomas Roads Improvement Program projects to participate in the fee payment program was valid for projects that are ready to build prior to expiration of the Metropolitan Bakersfield Habitat Conservation Plan in 2014, but asked that the City of Bakersfield clarify that fees can be paid at higher than 1:1 ratios as required by the U.S. Fish and Wildlife Service. The City of Bakersfield suggested that long-term conservation assurances for the Sump Habitat Program (mitigation for cumulative effects) include the National Fish and Wildlife Foundation as endowment holder, the California Department of Fish and Game as conservation easement holder, and the City of Bakersfield as program manager. This arrangement would require review and approval by the California Department of Fish and Game and the U.S. Fish and Wildlife Service as the Sump Habitat Program continues to be finalized. The California Department of Fish and Game recommended that the Sump Habitat Program prioritize high and medium conservation priority sumps that are owned in fee by the City of Bakersfield. Attendees at this meeting included Mike Welsh and Jennifer Schofield (U.S. Fish and Wildlife Service); Annee Ferranti, and Laura Peterson-Diaz (California Department of Fish and Game); Zachary Parker and Kirsten Helton (California Department of Transportation); David Clark (Parsons/City of Bakersfield); Luis Topete (City of Bakersfield); Leo Edson and Stephanie Coppeto (AECOM).

September 30, 2010: The Service determined that paying advance mitigation for the six Thomas Roads Improvement Program projects is acceptable provided credits are purchased for all projects prior to initiating project construction. The Service recommended that a Memorandum of Agreement between the City of Bakersfield, Caltrans, and the Service be developed that recognizes Caltrans' financial responsibilities to pay mitigation fees and describes Caltrans responsibilities if mitigation credits purchased in advance ends up exceeding or is less than the amount of mitigation required for all six projects.

December 3, 2010: The City of Bakersfield received a letter from the Metropolitan Bakersfield Habitat Conservation Plan Trust Administrator stating the City of Bakersfield could continue to use the Metropolitan Bakersfield Habitat Conservation Plan to mitigate for Thomas Roads Improvement Program projects and payment could occur after approval of the final environmental document for each project.

January 2011: The U.S. Fish and Wildlife Service released an updated *Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance*.

May 11, 2011: Based on agency consultation and the release of the Draft Biological Opinion for the Morning Drive/State Route 178 Interchange Project, a 3:1 mitigation ratio was identified for all permanent impacts and a 1.1:1 ratio was identified for all temporary impacts. Caltrans is no longer seeking an Incidental Take Permit or a Consistency Determination under the California Endangered Species Act as it is now assumed that take of San Joaquin kit fox, as defined under the California Endangered Species Act, can be avoided.

June 22, 2011: A meeting was held with the Service, the City of Bakersfield, Caltrans, and AECOM to discuss the status of the Sump Habitat Program. The U.S. Fish and Wildlife Service, Caltrans and the City of Bakersfield agreed to following steps for developing Sump Habitat Program long-term assurances: (1) evaluate title reports for sump properties to determine if encumbrances have the potential to adversely affect the Sump Habitat Program conservation strategy; (2) attempt to resolve any encumbrances that have the potential to adversely affect the Sump Habitat Program conservation strategy; (3) develop contingency measures that would be implemented if/and when any unresolved encumbrances are identified as reducing the kit fox conservation value associated with any sump included in the Sump Habitat Program.

Appendix C Literature Review

Prior to conducting field surveys, a list of special-status plant and animal species that have potential to occur within a 10-mile query radius of the Biological Study Area was established by conducting a literature review. The following were reviewed for the U.S. Geological Survey's Conner, Millux, Mouth of Kern, Taft, Gosford, Stevens, Tupman, East Elk Hills, Oildale, Rosedale, Rio Bravo, Buttonwillow, North of Oildale, Weed Patch, Edison, Lamont, and Oil Center 7.5-minute quadrangles: the California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society 2008, 2009, and 2011); the California Department of Fish and Game's California Natural Diversity Database (California Department of Fish and Game 2008, 2009, and 2011); and a List of Proposed, Threatened, and Endangered Species (U.S. Fish and Wildlife Service 2009, 2011a). The database searches were updated each time the Natural Environment Study was updated. The U.S. Fish and Wildlife Service list was updated in December 2011 (U.S. Fish and Wildlife Service 2011a). The *Western Rosedale Specific Plan* (Kern County 1994), the *Metropolitan Bakersfield General Plan* (Bakersfield and Kern County 2002), the Metropolitan Bakersfield Habitat Conservation Plan and supporting documents (Thomas Reid Associates 1994, 1991, and 1990), and the U.S. Fish and Wildlife Service's *Recovery Plan for Upland Species of the San Joaquin Valley, California* (U.S. Fish and Wildlife Service 1998) were also reviewed.

Other documentation that included information on biological resources in the biological study area and in the general project vicinity were reviewed, including the *7th Standard Road Widening Environmental Assessment/Initial Study with Proposed Mitigated Negative Declaration* (Caltrans 2006), the *Tier II Environmental Assessment/Final Environmental Impact Report for Westside Parkway* (Bakersfield et al. 2006), the *Natural Environment Study Westside Parkway* (Bakersfield Public Works Department and Federal Highway Administration 2005), the *Biological Assessment Route 58 Adoption, Interstate 5 to State Route 99* (Caltrans et al. 1998), the *Kern County Waste Facilities Habitat Conservation Plan* (Kern County Waste Management Department 1997), the *Kern Water Bank Authority Habitat Conservation Plan* (Kern Water Bank Authority 1997), and the *Draft Kern County Valley Floor Habitat Conservation Plan* (Garcia and Associates 2006).

Appendix D Kit Fox Den Definitions

Potential Den: A potential den is any subterranean hole that has entrances of appropriate dimensions and for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox (U.S. Fish and Wildlife Service 1999). Dens were not described as having kit fox potential if there were signs of active use by a squirrel (fresh scat, tracks) and/or if the biologist saw a squirrel using the den during the time of surveys. A potential den was presumed active if excavation appeared recent or recently maintained and/or included kit fox sign within about 10 feet of the den.

Natal Den: A natal den is any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances (U.S. Fish and Wildlife Service 1999).

Sign: Kit fox scat, tracks, and/or prey remains.

Observations: Visual sightings of live or dead kit foxes within the biological study area.

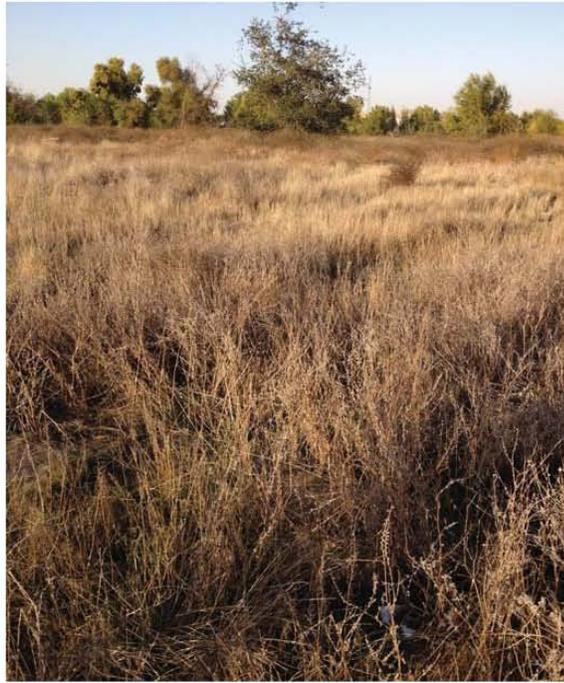
Appendix E Background Information on San Joaquin Kit Fox

The San Joaquin kit fox is a federally listed endangered species and a state-listed threatened species. Of the various subspecies of kit fox (*Vulpes macrotis*), the San Joaquin kit fox is the largest (U.S. Fish and Wildlife Service 1998). Kit foxes are primarily nocturnal, emerging at sunset to hunt prey such as kangaroo rats (*Dipodomys* spp.), black-tailed jackrabbits (*Lepus californicus*), desert cottontails, and California ground squirrels (Thomas Reid Associates 1994).

Before the introduction of irrigated agriculture in the valley, this species occurred in valley saltbrush scrub, alkali sink, and lower Sonoran grassland communities (Thomas Reid Associates 1994). In the southern portion of its range, the kit fox is associated with valley sink scrub, saltbush scrub, upper Sonoran subshrub scrub, and annual grassland; it also inhabits grazed grasslands, oil fields, and urban areas (Thomas Reid Associates 1994).

This species has historically occurred throughout most of the San Joaquin Valley from San Joaquin County to the north and Kern County to the south (U.S. Fish and Wildlife Service 1998b). The largest extant populations of kit foxes are in western Kern County near the Elk Hills and Buena Vista Valley and in the Carrizo Plain Natural Area in San Luis Obispo County (U.S. Fish and Wildlife Service 1998b). In urban areas, the kit fox is subject to tremendous environmental stress: animals are killed on roads; burrows are destroyed in the path of development; animals are poisoned by rodenticides; and foxes can be hunted or harassed by domestic dogs. "At first, we thought they were displaced stragglers that would be pushed out or die off as development continued," said Bryan Cypher, a biologist with the Endangered Species Recovery Program at California State University, Stanislaus. "But they're doing surprisingly well in the urban area."

Appendix F Site Photographs



Non-native grassland habitat north of Truxtun Avenue and south of the Kern River in Segment 1 of the BSA.



Developed/ornamental area on the north side of Truxtun Avenue west of Mohawk Street in Segment 1 of the BSA.

Site Photographs

Centennial Corridor, Kern County, California

D6-KERN-58 - PM T31.7 to PM 55.6

D6-KERN-99 - PM 21.2 to PM 26.2

Project ID# 06-0000-0484



Appendix F



Kern River (waterway bordered by riparian woodland/Great Valley cottonwood riparian forest) east of State Route 99 in Segment 1 of the BSA. Note: Photo taken in the winter when riparian trees have shed their leaves for winter.



Waterway (i.e., Kern Island Canal) with open water near the eastern end of Segment 1 of the BSA.

Site Photographs	
Centennial Corridor, Kern County, California	
D6-KERN-58 - PM T31.7 to PM 55.6	
D6-KERN-99 - PM 21.2 to PM 26.2	
Project ID# 06-0000-0484	

Appendix F



Agriculture at the intersection of Stockdale Highway and Enos Lane.



Detention basin at the intersection of Stockdale Highway and Enos Lane.

Site Photographs

Centennial Corridor, Kern County, California

D6-KERN-58 - PM T31.7 to PM 55.6

D6-KERN-99 - PM 21.2 to PM 26.2

Project ID# 06-0000-0484



Appendix F

Appendix G U.S. Fish and Wildlife Correspondence



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



IN REPLY REFER TO:
81420-2008-TA-0368-29

OCT 07 2009

Mr. Dave Clark, Parsons Corporation
Thomas Roads Improvement Program
900 Truxtun Avenue, Suite 201
Bakersfield, CA 93301

Subject: Concurrence with the *Draft Thomas Roads Improvement Program San Joaquin Kit Fox Life History, Effects Analysis, and Conceptual Mitigation Strategy*, City of Bakersfield, Kern County, California

Dear Mr. Clark:

The U.S. Fish and Wildlife Service (Service) is responding to the verbal request for approval of the *Draft Thomas Roads Improvement Program San Joaquin Kit Fox Life History, Effects Analysis, and Conceptual Mitigation Strategy* (Draft Strategy) as discussed at the September 10, 2009 Draft Strategy meeting at the Service office in Sacramento, California. The Draft Strategy, dated July 23, 2009, was received in this office on July 27, 2009 and is a collaborative effort of participation and preparation by EDAW | AECOM, the City of Bakersfield, the California Department of Transportation, Parsons Corporation, Paul Pruett and Associates, the California Department of Fish and Game, and the Service. The Endangered Species Recovery Program at California State University, Stanislaus was also consulted and provided independent expert knowledge of the San Joaquin kit fox. The Service commends you and your team for the document's thorough and extensive analyses. We concur with the Draft Strategy's proposals for identifying, linking, and including the conceptual mitigation strategy that addresses effects on both the individual project- and program-level scales.

Please contact Jen Schofield or Susan P. Jones at the letterhead address or at (916) 414-6600 if you have any questions regarding this letter on the Thomas Roads Improvement Program. The

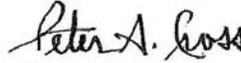
TAKE PRIDE
IN AMERICA 

Mr. Dave Clark

2

Service wishes to thank you for your continued efforts and dedication to the conservation of America's wildlife resources.

Sincerely,

A handwritten signature in black ink that reads "Peter A. Cross". The signature is written in a cursive style with a large, stylized "P" and "C".

Peter A. Cross
Deputy Assistant Field Supervisor

cc:

Zachary Parker, California Department of Transportation, District 6, Fresno, California
Kirsten Helton, California Department of Transportation, District 6, Fresno, California
Stephanie Coppeto, EDAW | AECOM, Sacramento, California
Leo Edson, EDAW | AECOM, Sacramento, California
Laura Peterson-Diaz, California Department of Fish and Game, Fresno, California



RAUL M. ROJAS, DIRECTOR • CITY ENGINEER

August 10, 2010

Jennifer Schofield
United States Fish and Wildlife Service
Endangered Species Division
Sacramento Fish and Wildlife Office
2800 Cottage Way, W-2605
Sacramento, CA 95825-1846

Subject: City of Bakersfield Commitment to the City Sump Habitat Mitigation Program in Support of the Thomas Roads Improvement Program (TRIP)

Dear Ms. Schofield:

The purpose of this letter is to inform the U.S. Fish and Wildlife Service (USFWS) that the City of Bakersfield is fully supportive of the ongoing efforts to conserve habitat for the San Joaquin kit fox through implementation of the City Sump Habitat Mitigation Program, which is currently being developed in coordination with your agency and the California Department of Fish and Game (CDFG). The City recognizes the importance of this program in offsetting cumulative impacts to kit fox that would result from implementation of the six Thomas Roads Improvement Program (TRIP) projects currently in the planning and environmental review phases. These projects include: 24th Street Improvement, Hageman Flyover, Rosedale Highway Widening, SR 178/Morning Drive Interchange, SR 178 Widening, and Centennial Corridor.

The City is committed to addressing management actions under the Terms and Conditions of the project BO(s) as issued by the U.S. Fish and Wildlife Service. We appreciate your support of TRIP and your assistance with ensuring that these important projects achieve compliance with the federal Endangered Species Act (ESA) in a timely manner.

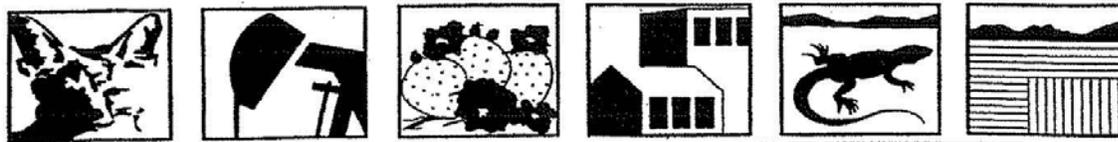
Sincerely,

Raul M. Rojas,

A handwritten signature in blue ink, appearing to read "Raul M. Rojas", is written over a faint blue line.

Public Works Director

c: Ted Wright, City TRIP
Chris Clark, Parsons
Girair Kotchian, Parsons
David Clark, Parsons



METROPOLITAN BAKERSFIELD HABITAT CONSERVATION PLAN

August 30, 2010

Mr. Raul Rojas, Director of Public Works
City of Bakersfield
1600 Truxtun Avenue
Bakersfield, CA 93301

Re: MBHCP as Mitigation for Thomas Roads Improvement Program (TRIP) Projects

Dear Mr. Rojas:

We understand from our discussions with you that the City of Bakersfield (City) in cooperation with Caltrans is consulting with the US Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) for potential impacts to San Joaquin kit fox and other sensitive species by TRIP roadway projects and improvements which occur within the boundaries of the MBHCP. We also understand that the City desires to continue to use the MBHCP for each of the TRIP projects including: 24th Street Improvements, Rosedale Highway Widening, Hageman Road Flyover, SR 178/Morning Drive Interchange, SR 178 Widening, and Centennial Corridor/SR 58 Connector.

We agree that the City will use the MBHCP for compensatory mitigation for each project. As the amount of required mitigation in acreage is determined for each project by the resource agencies and the City, the City will request corresponding acreage credits from the MBHCP Trust Group. The City will pay the appropriate fee amount to the Trust Group for the acreage credits and the Trust Group will then acquire the required acreage amounts.

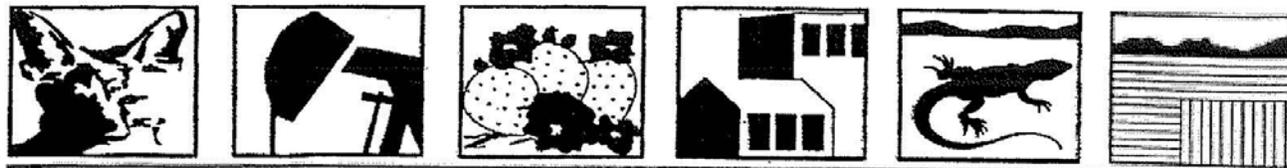
On behalf of the Trust Group Board, we welcome the opportunity to assist the City and Caltrans in completing TRIP projects and fulfilling your mitigation requirements. Please note that this letter supersedes our previous correspondence dated August 3, 2010. Feel free to contact me if you have further questions.

Sincerely,

Martin Ortiz
MBHCP Trust Administrator

cc

1715 Chester Avenue, Bakersfield CA 93301



METROPOLITAN BAKERSFIELD HABITAT CONSERVATION PLAN

December 3, 2010

Mr. Raul Rojas, Director of Public Works Department
City of Bakersfield
1600 Truxtun Avenue
Bakersfield, CA 93301

Re: MBHCP as Mitigation for Thomas Roads Improvement Program (TRIP) Projects

Dear Mr. Rojas:

We understand from our discussions with you that the City of Bakersfield (City) in cooperation with Caltrans is consulting with the US Fish and Wildlife Service (USWS) and the California Department of Fish and Game (CDFG) for potential impacts to the San Joaquin kit fox and other sensitive species by TRIP projects and improvements to the circulation system, which occur within the boundaries of the MBHCP. We also understand from our conversation that City desires to continue to use the MBHCP for the TRIP projects that includes: 24th Street Improvements, Rosedale Highway Widening, Hageman Road Flyover, SR 178 Widening, Centennial Corridor/SR 58 Connector, and SR 178/Morning Drive Interchange.

We agree that the City will continue to use the MBHCP for compensatory mitigation required by USWS and CDFG for the TRIP projects and payment could occur after approval of the final environmental document for each project. The City will pay the appropriate fee amount to the Trust Group for the acreage disturbed and the Trust Group will acquire the required acreage amounts.

We welcome the opportunity to assist the City and Caltrans in completing TRIP projects and fulfilling your mitigation requirements. Please feel free to contact me if you have further questions.

Sincerely,

Martin Ortiz, MBHCP Trust Administrator

CC: Ted Wright, Civil Engineer IV – TRIP Manager
David Clark, Environmental Coordinator

\\letter to PW Dir re,TRIP - Dec 2010.doc

1715 Chester Avenue, Bakersfield CA 93301

