

# Chapter 2 Project Alternatives

---

The purpose of the alternatives analysis is to allow for informed decision-making and meaningful public participation. CEQA and NEPA require that a reasonable range of options be considered that accomplish the agency’s project purpose and need/objectives. The comparative merits of the alternatives must be evaluated, thus defining the issues and providing a clear basis for choice among options by the decision-makers and the public. This chapter describes the project alternatives for CEQA and NEPA.

## 2.1 Alternatives Development Process and Alternatives Considered and Withdrawn

Beginning in 1996, the County undertook a comprehensive screening process to evaluate alternative interchange configurations and to select alternatives that would warrant detailed consideration as part of the environmental review process. Based on this screening process, the County identified the SPDI as the preferred 2025 alternative and the 6-Lane Tight Diamond Alternative as an additional viable “build” 2025 alternative. The County also evaluated 2015 alternatives to the 4-lane tight diamond interchange and determined that the modified L-9 and modified L-8 interchanges were technically infeasible.

The screening process is summarized below based on the detailed description contained in the U.S. Highway 50/Missouri Flat Road Interchange Project Study Report (HDR Engineering, Inc. 2000). This screening process involved the following evaluations:

- **Preliminary Analysis of 4-Lane Missouri Flat Road Configurations (2025):** In 1996, 5 configurations north of the U.S. 50/Missouri Flat Road interchange and 5 configurations south of the U.S. 50/Missouri Flat Road interchange were considered. These configurations included modified L-8, modified L-9, tight diamond, and SPDI designs. Based on the results of the preliminary traffic operations analysis conducted for these configurations (summarized in Table 7 on page 21 of the Project Study Report [HDR Engineering, Inc. 2000]), the SPDI and the modified L-9 configurations were selected for additional analysis.
- **Detailed Analysis of Screened 4-Lane Missouri Flat Road Configurations (2025):** A more detailed analysis of the SPDI and the modified L-9 configurations was conducted, including evaluation of the freeway sections, ramp junction and

intersection operations, accident trends, storage requirements, and other operational issues under 2015 conditions. Based on this analysis, the SPDI was selected for further analysis and the modified L-9 was dropped from consideration because the SPDI would result in reduced impacts on existing and proposed development in the vicinity of the interchange, require less right-of-way acquisition, and have better traffic operational characteristics, as compared to the modified L-9 interchange design.

- **Detailed Comparative Analysis of 6-Lane Missouri Flat Road Configurations (2025):** The evaluations described above, focused on providing 4 through lanes (2 in each direction) on the Missouri Flat Road overcrossing of U.S. 50. This effort concluded that the SPDI would provide the best overall traffic operations for the corridor. However, in 1997, Caltrans identified concerns statewide regarding SPDIs with crest vertical curve designs.

Caltrans directed the County to analyze other interchange configurations to determine whether they would also provide acceptable operations. To provide comparable traffic operations to the SPDI, the County analyzed configurations with 6 lanes (3 lanes in each direction) on the Missouri Flat Road overcrossing. Six new 6-lane configurations were analyzed and compared to the 4-lane SPDI based on peak hour levels of service and average delay per vehicle (see page 20 of the Project Study Report for this comparison). These 6 configurations included the 6-lane tight diamond configuration (referenced as Alternative 2a in the Project Study Report) that is analyzed in this joint document as an additional viable “build” alternative.

Based on the detailed analysis of the six 6-lane configurations (comprising 3 tight diamond and 3 modified L-8 configurations), 5 configurations, including Alternative 2a, were dropped from further consideration. The 6-lane modified L-8 (referenced as Alternative 4) was retained for further study (together with the 4-lane SPDI) even though there was concern regarding the need to have a 3-lane westbound loop off-ramp under this configuration. Three lanes would be required on the loop off-ramp because the projected high volumes would exceed the capacity of 2 lanes. In addition, the 3-lane westbound loop off-ramp would allow westbound-to-southbound vehicles to bypass the queue at westbound off-ramp signal.

- **Detailed Analysis of 6-Lane Modified L-8 (2025):** The 6-lane modified L-8 configuration was further analyzed based on the most recent land use projections derived from the County General Plan and the Missouri Flat Area MC&FP and adjusted by Measure Y and the County’s current knowledge of planned development in the area. Although this land use forecast projected lower levels of growth than was originally assumed, the 3-lane westbound loop off-ramp was determined to still be required to make the 6-lane modified L-8 operationally acceptable. Because of concerns related to the operational comfort of the driver on a 3-lane loop ramp (side-by-side vehicle spacing) and safety concerns

(geometric alignment and weaving), the 6-lane modified L-8 was found to be infeasible and dropped from further consideration.

- **Detailed Analysis of 6-Lane Tight Diamond (2025):** The evaluation described above indicated that the 6-lane tight diamond configuration (Alternative 2a) operated most effectively of the tight diamond configurations considered. Therefore, this configuration was further analyzed with the lower land use projections described above. Based on these lower projections, the 6-lane tight diamond configuration was determined to be viable.

The 6-Lane Tight Diamond Alternative also represents an alternative design to the SPDI that would require slightly less land acquisition during the Ultimate Phase. Some viewers would also consider the 6-Lane Tight Diamond configuration as less visually unique than the SPDI since it would consist of similar facility features (relatively straight ramp configurations) to the existing interchange, whereas the SPDI would reconfigure the ramps in a circular/arching manner (EDAW 1998). The residents of the County are also more accustomed to viewing tight diamond interchanges than SPDI's as no other SPDI exists in the County (EDAW 1998). Therefore, the 6-lane tight diamond configuration is analyzed in this joint document as an additional "build" alternative to the SPDI.

- **Analysis of the Modified L-9 and L-8 (2015):** Two build alternatives to the 4-Lane Tight Diamond Alternative, the modified L-9 interchange and the modified L-8 interchange, were evaluated. The modified L-9 interchange included the following ramp configurations:
  - Westbound diagonal off-ramp to Missouri Flat Road
  - Westbound diagonal on-ramp for southbound Missouri Flat Road traffic
  - Westbound loop on-ramp for northbound Missouri Flat Road traffic
  - Eastbound diagonal off-ramp to Mother Lode Drive
  - Eastbound loop on-ramp for southbound Missouri Flat Road traffic
  - Eastbound diagonal on-ramp from Mother Lode Drive
  - Eastbound diagonal on-ramp for northbound Missouri Flat Road traffic

The modified L-9 interchange was rejected since it had more extensive right-of-way impacts than the 4-lane tight diamond interchange in the northeast and southwest quadrants of the interchange. In the northeast quadrant, the modified L-9 interchange would require acquisition of 2.5 hectares (6.2 acres) from the approved 6.2-hectare (15.3 acres) El Dorado Villages shopping center development for construction of a westbound loop on-ramp and westbound diagonal off-ramp, whereas the 4-lane tight diamond interchange would only require 1.4 hectares (3.5 acres) for the westbound diagonal off-ramp. The property acquisition needed for the modified L-9 interchange would substantially affect the El Dorado Villages shopping center development and would require the re-design of building pads, parking areas, and internal traffic circulation

roadways. Such changes to the El Dorado Villages shopping center development may make the El Dorado Villages shopping center financially infeasible.

In the southwest quadrant, the modified L-9 would require acquisition of 3,500 square meters (0.9 acre) from the Seventh Day Adventist Church, including relocation of the house on the property and the main driveway to the church, and 73 parking spaces from the park-and-ride lot, whereas the 4-lane tight diamond interchange would require 400 square meters (0.1 acre) and 20 parking spaces. With the modified L-9, the Seventh Day Adventist Church property would need to be reconfigured to maintain its functionality, and the park-and-ride lot would essentially be eliminated in its entirety.

The modified L-8 interchange was also rejected due to traffic safety and operations concerns. For 2015 traffic volumes, a 3-lane westbound loop off-ramp was determined to be required to accommodate a minimum of 2 left-turn lanes and 1 free right-turn lane at the ramp intersections with adequate storage on the ramp. Because of concerns related to the operational comfort of the driver on a 3-lane loop ramp (side-by-side vehicle spacing) and safety concerns (geometric alignment and weaving), the modified L-8 interchange was found to be infeasible and dropped from further consideration.

## 2.2 CEQA Project Alternatives

Three alternatives to the SPDI are evaluated in Chapter 5—the No-Project Alternative (2025 no-build alternative), the 6-Lane Tight Diamond, and the 4-Lane Tight Diamond (2025) Alternatives (additional viable build alternatives).

As noted above, the 6-lane tight diamond interchange was previously referred to as Alternative 2a in the Project Study Report. Under the 4-Lane Tight Diamond Alternative (2025), the Phase 1 interchange and Weber Creek bridges would be constructed as the ultimate project, provided that adequate LOS can be achieved through 2025. The 4-Lane Tight Diamond Alternative (2025) is analyzed in this joint document to support the range of land use alternatives being evaluated as part of the County's new general plan process. If the County adopts a new general plan that provides for no more growth than allowed by the current Writ of Mandate, then the 4-Lane Tight Diamond Alternative (2025) would be adequate to accommodate traffic associated with planned growth in the County through 2025 (see section 1.2, "Project Background," for a description of the Writ of Mandate).

### **2.2.1 No-Project Alternative (2025)**

Under the No-Project Alternative (Figure 2.2-1), no interchange and intersection improvements would be constructed along Missouri Flat Road. The No-Project Alternative would maintain the existing U.S. 50/Missouri Flat Road interchange configuration. The existing interchange configuration is described in detail in the “Existing Interchange” section of this chapter, but generally includes single-lane diagonal on- and off-ramps in the eastbound direction, and a loop off-ramp and diagonal on-ramp in the westbound direction. Additionally, improvements to the Prospector’s Plaza Drive, Mother Lode Drive, Perks Court, and U.S. 50 ramp intersections along Missouri Flat Road would not occur. The Weber Creek bridges would also not be brought into compliance with current seismic thresholds as a part of this project or be upgraded by Caltrans as a stand-alone seismic retrofit and shoulder/railing upgrade project. Seismic retrofitting of these bridges may occur as a separate project in the future even if the No-Project Alternative is implemented.

The No-Project Alternative would not address the projected LOS deterioration at the interchange and surrounding roadways, would not address existing operational deficiencies or safety concerns, and would be inadequate to accommodate projected future traffic volumes associated with approved and planned development in the Missouri Flat area.

### **2.2.2 6-Lane Tight Diamond Alternative**

The 6-Lane Tight Diamond Alternative represents an alternative design to the preferred alternative (Figure 2.2-2). Phase 1 of this alternative would be identical to the preferred alternative, entailing construction of an interim tight diamond interchange configuration. As noted above, the modified L-9 and modified L-8 interchanges were also evaluated as possible interim projects, but were rejected since the modified L-9 had more extensive right-of-way impacts than the 4-lane tight diamond interchange in the northeast and southwest quadrants of the interchange, and the modified L-8 interchange had traffic safety and operations concerns.

The Ultimate Phase would be constructed, but only if warranted, based on LOS, prior to the future LOS reaching an unacceptable level. Under this alternative, the Phase 1 tight diamond would be upgraded to accommodate future traffic volumes while maintaining the tight diamond interchange configuration with 2 ramp intersections. Missouri Flat Road within the project limits would also be widened to 6 lanes.

Improvements to the Weber Creek bridges during Phase 1 and the Ultimate Phase would be identical to the preferred alternative.

Under this alternative, the Perks Court cul-de-sac (Figure 1.6-3) or realignment option (Figure 1.6-4) could be implemented. Because under the 6-Lane Tight Diamond Alternative, the toe of fill for the eastbound on-ramp does not encroach as far to the east as under the SPDI, Perks Court would be realigned during Phase 1 only (not during the Ultimate Phase of construction).

Full takes on Missouri Flat Road would be the same under the 6-Lane Tight Diamond Alternative as under the SPDI. This alternative requires that slightly less land be acquired under the Ultimate Phase than does the SPDI.

The total cost of this alternative, including construction and right-of-way acquisition, is estimated at \$39.8 million (2003 dollars); Phase 1 is estimated to cost approximately \$29.9 million (2003 dollars) with the Ultimate Phase cost estimated at \$9.9 million.

### **Phase 1: 4-Lane Tight Diamond**

As noted above, Phase 1 under this alternative would be identical to that described for the preferred alternative.

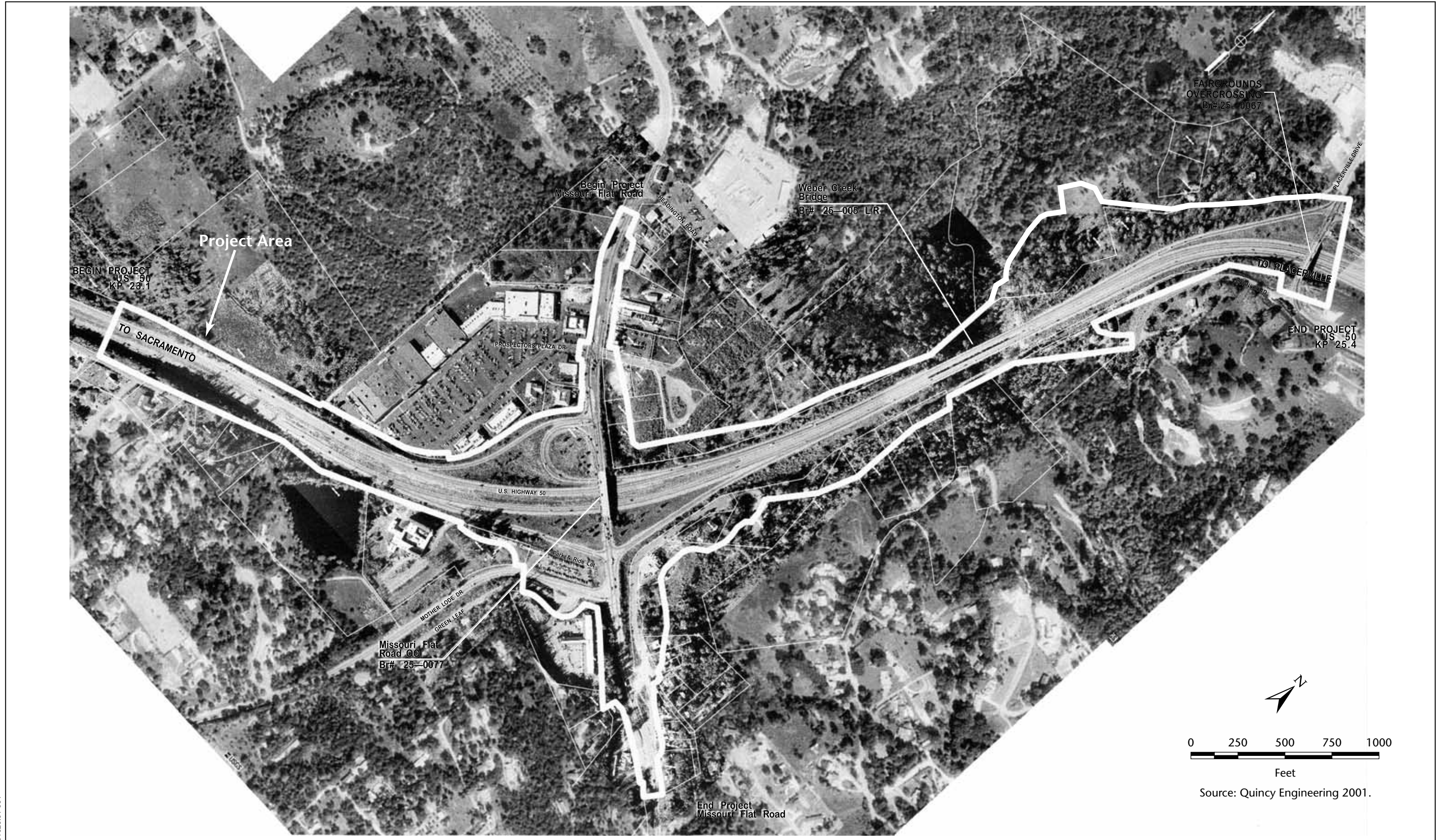
### **Ultimate Phase: 6-Lane Tight Diamond**

Under the Ultimate Phase of the 6-Lane Tight Diamond Alternative, the Missouri Flat overcrossing structure would be widened to accommodate 3 through lanes in both the northbound and southbound directions from the Prospector's Plaza Drive intersection to the Perks Court intersection. The dual northbound left-turn lanes leading to the westbound on-ramp would be revised slightly to accommodate truck-turning movements from the westbound off-ramp.

The westbound off ramp would be widened to provide 3 left-turn lanes and 2 right-turn lanes. The eastbound off-ramp would be widened to provide 2 left-turn lanes and 2 right-turn lanes.

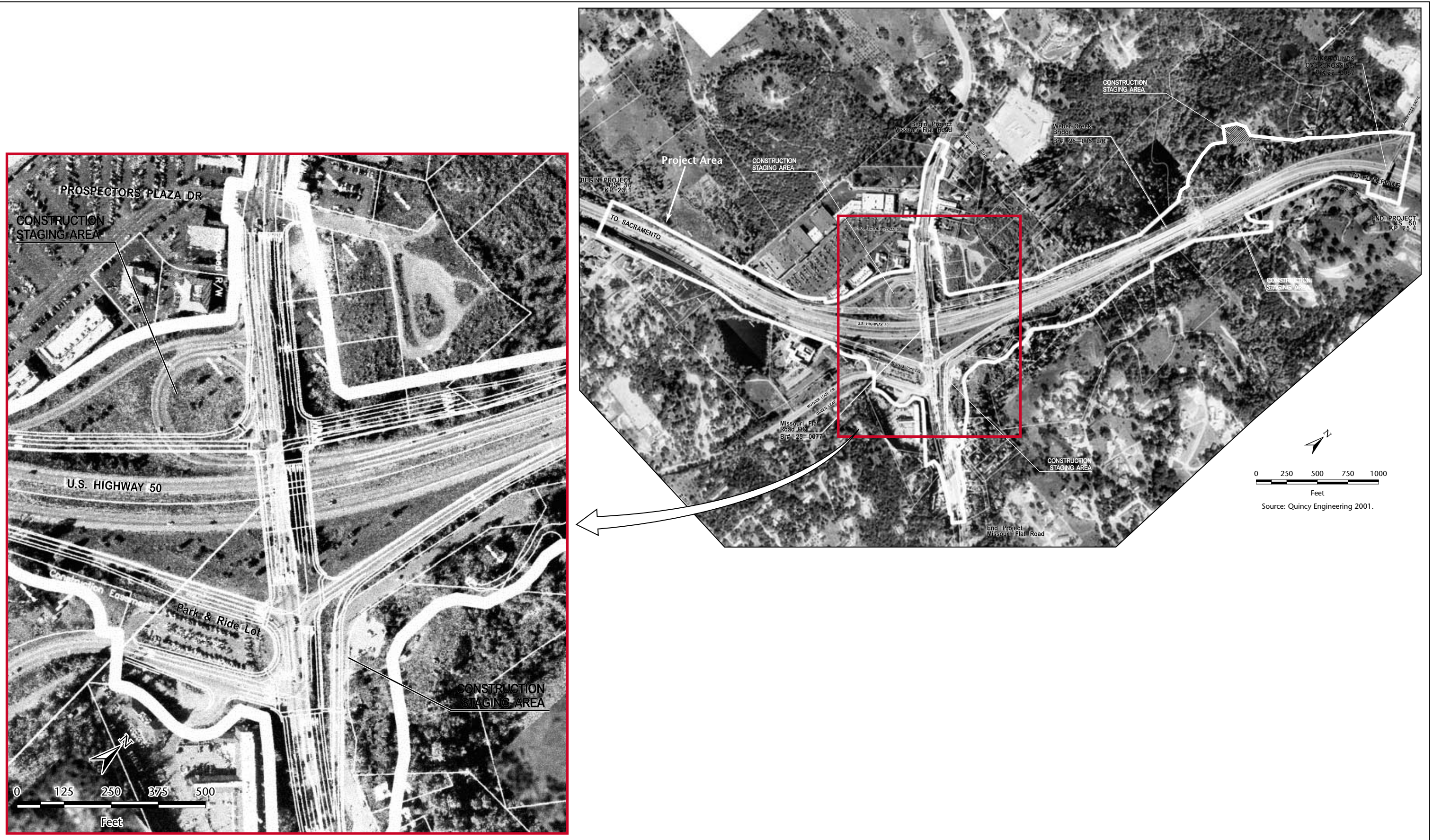
## **2.2.3 4-Lane Tight Diamond Alternative (2025)**

As noted above, this alternative entails building the Phase 1 improvements for the interchange and Weber Creek bridges as the ultimate project. This alternative would be constructed in 1 phase, rather than in 2 phases. The proposed improvements



01020.01 004

**Figure 2.2-1**  
**No-Project Alternative**



01020.01 016 (11/02)

Figure 2.2-2  
6-Lane Tight Diamond Alternative, Ultimate Phase



would be identical to those described above under “Phase 1.” Either the Perks Court cul-de-sac or realignment (Phase 1 only) option could be implemented under this alternative.

The total cost of this alternative, including construction and right-of-way acquisition, is estimated at \$29.9 million (2003 dollars).

## **2.3 NEPA Project Alternatives**

Two build alternatives to the 4-Lane Tight Diamond Alternative, the modified L-9 interchange and the modified L-8 interchange, were evaluated, but rejected from further consideration. The modified L-9 interchange was rejected since it had more extensive right-of-way impacts than the 4-lane tight diamond interchange in the northeast and southwest quadrants of the interchange.

The modified L-8 interchange was also rejected due to traffic safety and operations concerns. For 2015 traffic volumes, a 3-lane westbound loop off-ramp was determined to be required to accommodate a minimum of 2 left-turn lanes and 1 free right-turn lane at the ramp intersections with adequate storage on the ramp. Because of concerns related to the operational comfort of the driver on a 3-lane loop ramp (side-by-side vehicle spacing) and safety concerns (geometric alignment and weaving), the modified L-8 interchange was found to be infeasible and dropped from further consideration.

### **2.3.1 No-Action Alternative**

Under the No-Action Alternative (Figure 2.2-1), no interchange and intersection improvements would be constructed along Missouri Flat Road. The No-Action Alternative would maintain the existing U.S. 50/Missouri Flat Road interchange configuration. The existing interchange configuration is described in detail in the “Existing Interchange” section of this chapter, but generally includes single-lane diagonal on- and off-ramps in the eastbound direction, and a loop off-ramp and diagonal on-ramp in the westbound direction. Additionally, improvements to the Prospector’s Plaza Drive, Mother Lode Drive, Perks Court, and U.S. 50 ramp intersections along Missouri Flat Road would not occur. The Weber Creek bridges would also not be brought into compliance with current seismic thresholds as a part of this project or be upgraded by Caltrans as a stand-alone seismic retrofit and

shoulder/railing upgrade project. Seismic retrofitting of these bridges may occur as a separate project in the future even if the No-Action Alternative is implemented.

The No-Action Alternative would not address the projected LOS deterioration at the interchange and surrounding roadways, would not address existing operational deficiencies or safety concerns, and would be inadequate to accommodate projected future traffic volumes associated with approved and planned development in the Missouri Flat area.