

CHAPTER 1 PROJECT PURPOSE AND NEED

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1.1 INTRODUCTION

1.1.1 Scope and Project Location

The Department of Transportation (Department) proposes to improve the segment of Route 116 in Sonoma County from Adobe Road in the west to Arnold Drive in the east between the cities of Petaluma and Sonoma. The Federal Highway Administration (FHWA) is the Department's federal partner in proposing this project. Under the direction of the FHWA, this project has been determined to be Categorical Excluded from the National Environmental Policy Act (NEPA). The Department would prepare documentation of this categorical exemption before the proposed project could be approved.

The proposed project is 4.6 kilometers (2.9 miles) in length. Improvements would include shoulder widening and curve alignment modifications, and a realignment of Highway 116 (Stage Gulch Road) for a length of 1.2 kilometers (0.75 miles). Maps 1 and 2 show the vicinity and location of the project.

This project is included in the 2004 State Highway Operations Protection Program (SHOPP). It is also included in the Metropolitan Transportation Commission's (MTC) 2003 Regional Transportation Plan (RTP) and the Sonoma County Transportation Plan, developed by the Sonoma County Transportation Authority (SCTA).

1.1.1.1 Purpose

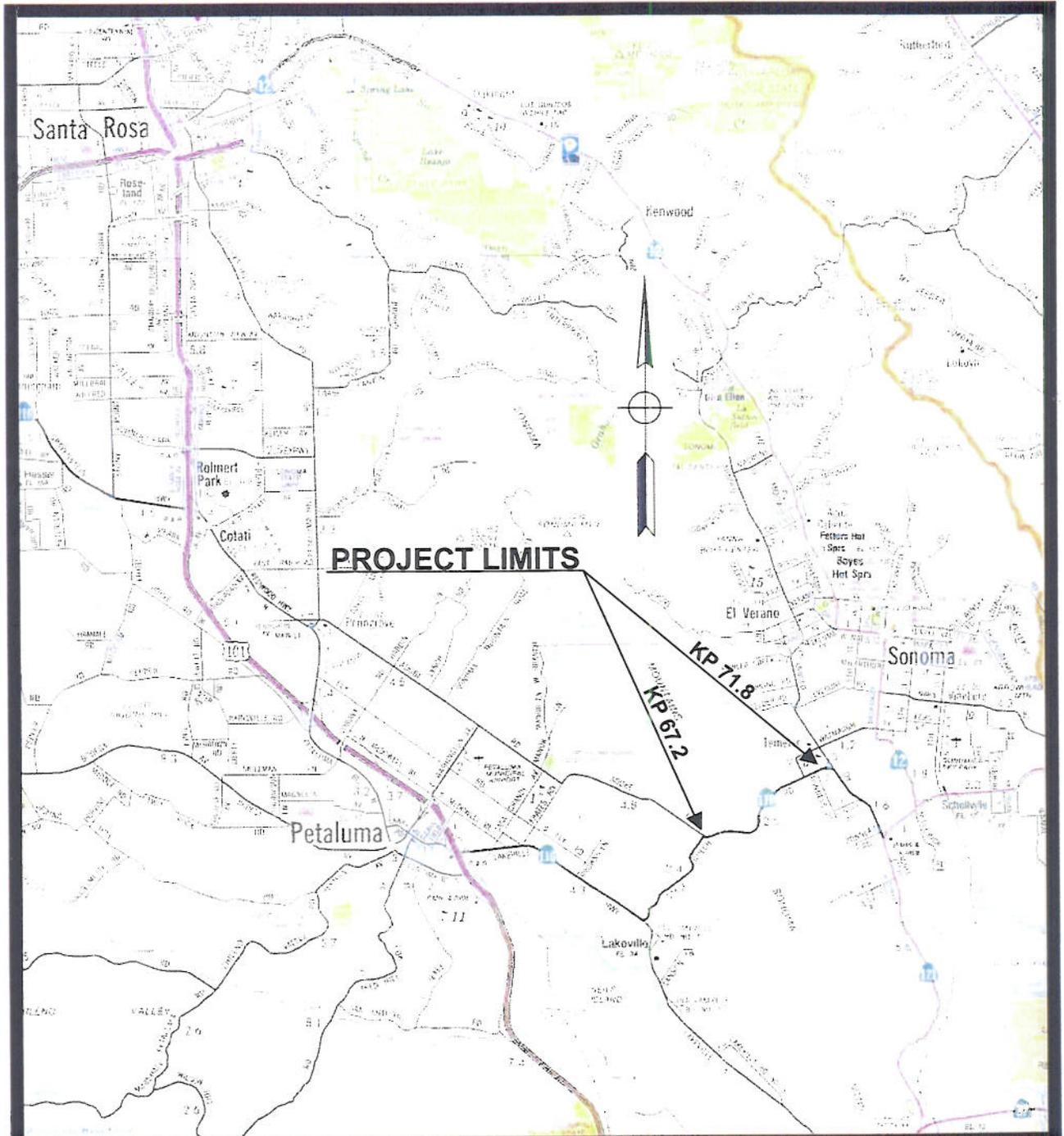
The goal of the project is to improve the safety of Highway 116 at this location. To attain this goal, the project proposes to reduce accident rates along the corridor by improving curve radii and shoulder widths to current design standards, thus providing room for drivers to correct their course. Additionally, the project proposes to improve operation by installing a left turn pocket and improve a non-standard vertical curve at Transfer Station Road (also known as the County Dump Road).

1.1.1.2 Need

There have been six fatal accidents in the three-year period from October 1, 2000 to September 30, 2003 in the project area. Within the last 10 years, at least 13 people have died in traffic accidents along this stretch of road. Causes of accidents have been attributed to alcohol, excessive speed and detrimental weather conditions. Significant accident patterns include head-on collisions and running off the road. Caltrans has determined that this stretch of road has an accident rate higher than the state average for similar state facilities.



<p>STATE OF CALIFORNIA BUSINESS AND TRANSPORTATION AGENCY DEPARTMENT OF TRANSPORTATION - DISTRICT 4</p>	<p>VICINITY MAP STAGE GULCH REALIGNMENT FROM ADOBE ROAD TO 0.1 MILE WEST OF ARNOLD DRIVE</p>
<p>BASE MAP REPRODUCED BY COURTESY OF THE CALIFORNIA STATE AUTOMOBILE ASSOCIATION, COPYRIGHT OWNER.</p>	<p>Highway 116, Sonoma County Kilo Post 67.2/71.8, Post Mile 41.8/44.7 EA (Expenditure Authorization) 283800</p>



<p>STATE OF CALIFORNIA BUSINESS AND TRANSPORTATION AGENCY DEPARTMENT OF TRANSPORTATION - DISTRICT 4</p>	<p><u>LOCATION MAP</u> STAGE GULCH REALIGNMENT FROM ADOBE ROAD TO 0.1 MILE WEST OF ARNOLD DRIVE</p>
<p>BASE MAP REPRODUCED BY COURTESY OF THE CALIFORNIA STATE AUTOMOBILE ASSOCIATION, COPYRIGHT OWNER.</p>	<p>Highway 116, Sonoma County Kilo Post 67.2/71.8, Post Mile 41.8/44.7 EA (Expenditure Authorization) 283800</p>

Interim measures have been implemented in order to try to reduce the accident rate. Such measures include reducing the speed limit to 72 KPH (45 MPH) at selected curve locations, installing flashing beacons, curve warning signs with advisory speeds and chevron signs to warn drivers of upcoming curves, and increasing Highway Patrol surveillance to curtail driving infractions. Even with these interim measures, accidents have continued to occur at a higher than average rate.

1.1.1.3 Traffic Safety Context

Stage Gulch Road was originally constructed in its current alignment by the County of Sonoma Public Works and was added to the State Highway System in 1933. Stage Gulch Road is a two-lane rural highway. In the vicinity of the project, the highway has two 3.0- to 3.7- meter (10- to 12- foot) lanes and 0- to 0.6- meter (0- to 2- foot) shoulders through rolling terrain.

Highway 116 provides access between Petaluma – population 54,548 – and Sonoma – population 9,128 – and is classified as a primary arterial in the Sonoma County General Plan. The Average Annual Daily Traffic (AADT) is 17,700 vehicles per day, with 19,500 vehicles per day during the peak month, including 1,600 vehicles during the peak hour. Weekday AM peak hour is 7:00 AM to 8:00 AM and PM peak hour is 5:00 PM – 6:00 PM, with the heaviest traffic occurring in the evening. The general speed limit is 55 miles per hour (MPH).

The state highway through the project area, identified as a major east-west transportation corridor by the Sonoma County Regional Transportation Plan, carries truck traffic serving the area's light industry. There are many driveways along the corridor, allowing access for residents and workers. Additionally, a winery tasting room is proposed for a location off of Transfer Station Road and is expected to increase traffic ingress and egress at that location. Traffic demand can be high in the summer time due to the proximity of the project area to event locations such as Infineon Raceway and nearby wineries. Travel demand for the entire corridor, however, is not expected to exceed capacity in the next 30 years.

1.1.1.4 Existing Facilities

From Adobe Road to Arnold Drive, a distance of approximately 4.7 kilometers (2.9 miles), Stage Gulch Road is an undivided, two-lane rural highway on a typical curving horizontal alignment through rolling terrain. The existing pavement width from centerline to edge of pavement is typically 3.8 to 4.0 meters, yielding 3.6- meter (10 foot-) lanes and 0.2- to 0.4- meter (about 1- foot) shoulders. The highway speed limit is 55 MPH within the project limits except where speed reduction is suggested at selected curves.

From the west end of the project limits, Highway 116 traverses a series of winding horizontal curves whose radii range from 150 meters (500 feet) to 300 meters (1,000 feet). Forty-MPH advisory speed warning signs are posted at smallest radius curves in this segment while other curves are posted at forty-five MPH. The overall segment of Highway 116 has fifty-five MPH speed. The existing shoulder ranges from 0.0 to 0.6 meter (0 - 2 feet), which provides no refuge or emergency parking areas.

Land use in the project area is primarily agricultural, consisting mainly of pastureland, on parcels that range from moderate to large. Other area land uses include the Benedetti turkey farm, located about two kilometers (1.2 miles) northwest of the highway; Stage Gulch Aggregate Quarry, which shares an access road with the transfer station, to the immediate northwest; Sonoma County Refuse Transfer Station at the end of the transfer station access road to the northeast; residential development ("Temelec") off Watmaugh and Arnold Drive in Sonoma to the northeast; and Los Arroyos Golf Course at the eastern end of the project area. The General Plan Land Use Designations for the project location are Land Extensive Agriculture and Diverse Agriculture.

Through the western half of the project, the highway winds through a narrow canyon adjacent to Champlin Creek. The Champlin Creek watershed is the primary source of runoff within the project area. Champlin Creek is a tributary to Rodgers Creek. The confluence of Champlin Creek and Rodgers Creek is located along the southeast edge of the Los Arroyos Golf Course. Rodgers Creek drains into Fowler Creek which is a tributary to Sonoma Creek which empties into San Pablo Bay. One roadside ditch on the western end of the project area drains northwest to Adobe Creek, which is a tributary to the Petaluma River and again, ultimately flows to San Pablo Bay. In the eastern half of the project area, the highway becomes generally straight as the canyon opens out into a valley. Vegetation in the project area consists of pasture land, mixed oak woodland, riparian vegetation along Champlin Creek, and herbaceous annual weeds along the side of the roads and in other disturbed areas.

There are uncontrolled access points along the corridor, allowing ingress and egress for residents in the area.

The Sonoma County General Plan designates Highway 116 eastward from its intersection with Adobe Road as a Primary Arterial road. A Primary Arterial carries large traffic volumes over long distances. The portion of Highway 116 in the project area is a Roadway Improvement Category "A" on the Highway and Transit Plan map of the General Plan Circulation Element. This category means that the intent is to construct safety improvements, curvature reductions, traffic control devices, minor pavement widening, resurfacing, and intersection improvements / turn lanes along the road. The Circulation Element also designates Highway 116 in the project area as an existing intercity transit route for Sonoma County Transit bus.

The Sonoma County General Plan - Open Space Element designates Highway 116 from Petaluma through the project area and past Arnold Drive as a Scenic Highway Corridor. The area adjacent to the south of the project area is included in a Scenic Landscape Unit. Highway 116 through the project area also is designated as a Class III Bikeway in the Open Space Element. The Association of Bay Area Governments (ABAG) identifies the entire length of the project along Stage Gulch Road as part of the San Francisco Bay Trail (classified as "Unimproved Bay Trail (on street) no bike lanes and or sidewalks"). The Sonoma County Transportation Authority Bike Plan 2003 update identifies the length of the project as a Class III bikeway, and proposes it for upgrade to a Class II bikeway. A Class III bikeway is defined in the plan as "providing shared use with pedestrians and motor vehicles" where a Class II bikeway is defined as "providing striped lane for one-way bike travel on a street or highway."

1.2 PROJECT DESCRIPTION

1.2.1 Proposed Project

This project would widen the roadway shoulder in each direction to the mandatory design standard, which is a width of 2.4 m (8 ft). All nonstandard horizontal curves will be increased to a minimum radius of 260 m, the mandatory design standard for the speed of 50 MPH. The roadway just west of Transfer Station Road would be realigned for about 400 meters as an environmentally protective feature. This would avoid adverse impacts to Champlin Creek and allow for environmental restoration, while still providing the safety improvements to the roadway. Several proposed retaining walls would minimize the need to impact oak and riparian woodlands, but would require additional state right-of-way. The proposed project would not increase the capacity of the roadway. Figures A1 through A6 in the Appendix (page 7-1) show the proposed project plans.

The 2.4-meter (8 foot-) shoulder width is a mandatory design standard for new construction and major reconstruction on conventional highways. Design standards are those considered most essential to providing a safe and efficient transportation system. Shoulder widening has been found to significantly reduce run-off-the-road and head-on collisions. Full-width paved shoulders provide an area adjacent to the travel way for drivers to recover an errant vehicle that might otherwise run off the road. In some cases, a driver may overcorrect in order to bring a vehicle that has drifted from the paved roadway, causing the vehicle to cross into the opposing traffic lane. An additional safety benefit of shoulders is the area that is made available outside the travel way for emergency use of a disabled vehicle.

Areas where there is slipout (eroded) pavement, or pavement exhibiting alligator (longitudinal) cracks greater than 100 mm would be dug out and replaced with new structural sections.

Caltrans' Hydraulics Engineer has evaluated and recommended a course of action where drainage improvements would be necessary within the project limits. Seventeen locations of hydrologic improvements or repairs are numbered and shown on project plans (Figures 1A through 1O).

All metal beam guard rail would be upgraded to current standards. Retaining walls would be necessary in some locations to stabilize slopes above and below the roadway after cutting into the slope to accommodate the widening.

1.3 Alternatives

The development of alternatives for the Stage Gulch Road Curve Improvement and Widening Project began with a re-evaluation of a previous project that had been considered in 1990 but never constructed. The previous rehabilitation project concluded that widening the existing highway through the Stage Gulch Road area would be too costly based on environmental impacts, and was not constructed. In the interim, the accident rate along the corridor increased, and Caltrans subsequently determined that safety improvements along the corridor needed to be implemented. Several criteria were considered in development of the current project alternatives, including cost,

feasibility, means of minimizing environmental impacts, and effectiveness at addressing the purpose and need.

Alternatives considered and rejected from further study are as follows:

1. A roadway rehabilitation project along SR 116 was considered in 1990, but the corridor was found to have many environmental resources that could be impacted. At the time a major realignment of Highway 116 to the northwest was considered in order to avoid the environmentally-sensitive creek and canyon area along the existing corridor. This alternative was rejected because of the high cost of acquiring the right of way necessary to implement the construction and because the amount of time it would take to study and construct a new alignment would be prohibitive. Improving safety of the corridor was not a purpose of the project at the time. The major realignment considered in 1990 did not fit the purpose and need of the currently proposed project, and so was not considered for further evaluation.
2. A project to add shoulders and improve curves while minimizing changes to the existing highway was considered. This alternative differs from the currently-proposed project because it does not include the realignment section. This alternative was found to have significant environmental impacts and was dropped from further consideration.

The following alternatives were selected for further detailed study: 1) the No-Build Alternative and 2) the proposed project. The No-Build alternative would not preclude spot improvements or routine maintenance as necessary. If the No-Build alternative were chosen, a pavement overlay currently being incorporated into the proposed project would be constructed by itself. The Department has already determined that the overlay project would not have a significant impact on the environment.

