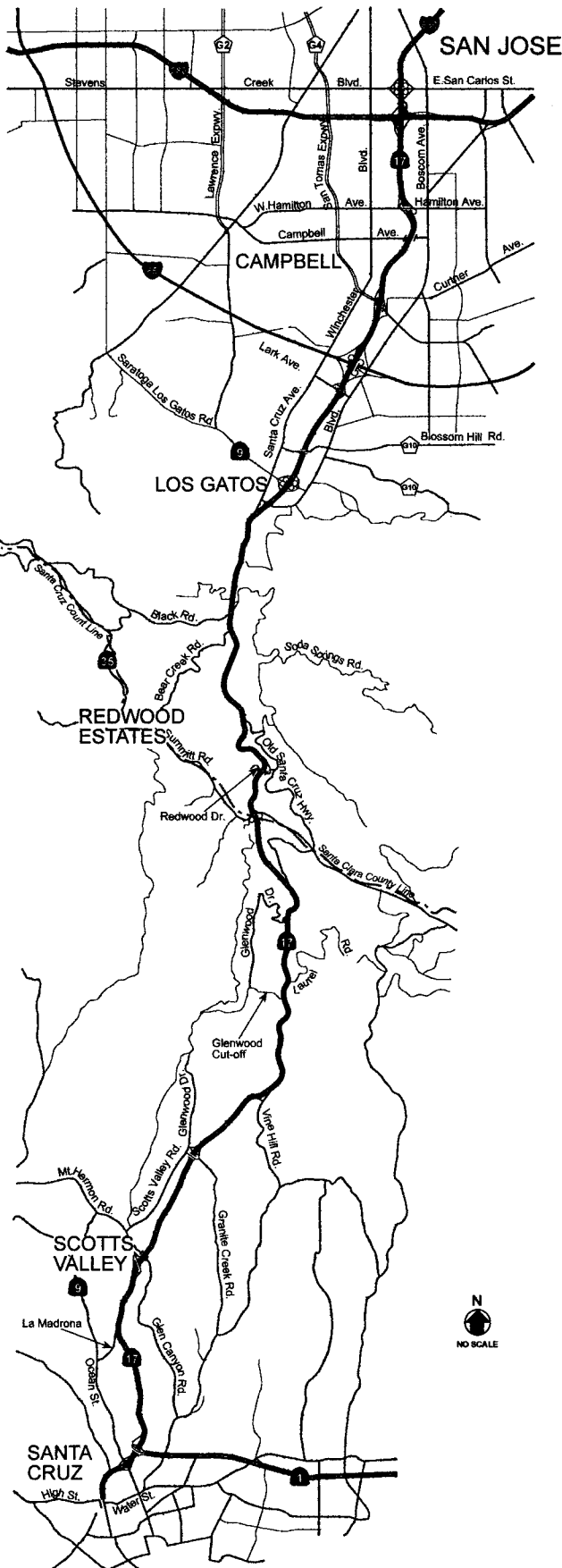




Highway 17 Transportation Improvement Study

FINAL REPORT

Prepared for

SCCRTC
SANTA CRUZ COUNTY REGIONAL
TRANSPORTATION COMMISSION

Prepared by

CCS
PLANNING AND ENGINEERING
INCORPORATED

and

nelson nygaard
consulting associates

May 5, 2000

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**Santa Cruz County Regional Transportation Commission
(SCCRTC)**

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A	Study Participants
B	Caltrans Documentation
	- Safe on 17 Task Force Corridor Assessment
	- Caltrans Status of Minor B Projects
	- Caltrans Highway Safety Improvement Program
C	Highway Operations Issues
D	Marketing
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EXECUTIVE SUMMARY

BACKGROUND INFORMATION

State Highway 17 -- Santa Cruz's famous "over the Hill" highway -- is by far the most direct and shortest route between Santa Cruz County and almost all commuting destinations in Santa Clara, Alameda, Contra Costa and much of San Mateo Counties. In addition, Highway 17 is the primary route of choice between the Santa Clara Valley and the recreational areas of Santa Cruz on summer weekends. Congestion occurs both during weekday commute times and on summer weekends.

This winding, four-lane road has steep sections, frequent road crossings, and substandard median shoulders and outside shoulders for most of its length. In addition to the challenging roadway configuration, weather-related conditions such as thick fog, heavy rains and mudslides affect roadway operations.

Reconstruction of the highway to meet current standards would be both exorbitantly expensive and environmentally destructive. Thus, over the past two decades, the Santa Cruz County Regional Transportation Commission (SCCRTC) has consistently opted to keep Highway 17 a four-lane highway, targeting funds for safety and operational improvements. In the late 1980s and again last year, SCCRTC worked with Caltrans and the California Highway Patrol (CHP) to identify low cost safety and operational improvements and to implement a safety campaign for Highway 17. Median barriers, acceleration/deceleration lanes, motorist call boxes and changeable message signs are improvements that have been installed over the past decade.

The Highway 17 Express Bus service was initiated after the 1989 Loma Prieta earthquake in response to an emergency need for transit over the Hill while Highway 17 was being repaired. This joint project of the Santa Cruz Metropolitan Transit District (SCMTD) and the Santa Clara Valley Transportation Authority (VTA) has been a success since its inception. Nine transit coaches were acquired with Federal Emergency Management Agency (FEMA) funding and were therefore not subject to various contractual and statutory limitations affecting transit vehicles

purchased through conventional Federal Transit Administration (FTA) transit operator sources. During the course of this study, SCMTD, the Santa Cruz County bus operator, agreed to take over the day-to-day operations of the service using its drivers and facilities, thereby achieving the most important goal of this study – how to *continue* the existing service. VTA transit is participating in the funding and oversight of the service through a Joint Powers Authority arrangement with SCMTD. With the continued operation of the existing Highway 17 Express Bus service secured, this Highway 17 Transportation Improvement Study focused on *optimizing and expanding* the Highway 17 Express Bus service.

PURPOSE OF THE STUDY

In response to the need for safety and reliability improvements in this corridor, the *Highway 17 Transportation Improvement Study* was conducted to provide SCCRTC, VTA, and SCMTD with a review of available data, past studies and proposals, and to recommend safety and efficiency improvement projects with the following two main objectives:

- 1) Recommend steps to *optimize* the Highway 17 Express Bus service reliability.
- 2) *Expand* Highway 17 Express Bus ridership in the corridor in order to reduce vehicle trips, miles traveled, and emissions.

Recognizing that the roadway and traffic conditions along Highway 17 affect the operation of the Highway 17 Express Bus service, an additional objective was to recommend safety and operational improvements to add reliability, speed and functionality to the project corridor to benefit both the patrons of the Highway 17 Express Bus service and the motorists traveling along this route.

STUDY PROCESS

A Technical Advisory Committee (TAC) was established to aid in the completion of this study. The TAC consisted of representatives from SCCRTC, SCMTD, VTA, Caltrans Districts 4 and 5, the Monterey Bay Unified Air Pollution Control District (MBUAPCD), the City of Scotts Valley, the Metropolitan Transportation Commission (MTC), the Association of Monterey Bay Area Governments (AMBAG), and the California Highway Patrol (CHP). The TAC provided input, review and guidance in the development of this study. A full listing of study participants is shown in Appendix A.

The TAC coordinated with the *Safe on 17 Task Force*, a task force spearheaded by the California Highway Patrol that emphasizes safety improvements along Highway 17. The *Safe on 17 Task Force* provided input/responses to suggestions, logs of programmed projects and recently completed improvements, and information from the ongoing Accident Surveillance System, as part of the California Highway Safety Improvement Program.

TRANSIT IMPROVEMENT RECOMMENDATIONS

The original focus of the transit portion of this study was intended to be in three key areas:

- 1) Explore means to continue operating the Highway 17 Express Bus service beyond the expiration of the service contract with Discovery Charters in June of 1999.
- 2) Explore changes to optimize the existing service using current resources.
- 3) Describe the potential to expand service in the corridor, including reaching out to new markets.

The first issue became moot during the course of the study when METRO and VTA formed a Joint Powers Authority to jointly oversee the service, with METRO operating it with its own drivers and vehicles. The JPA agreement establishes a Service Review Committee to set budgets, policy, and fares, and to explore service augmentations, new routes, vehicle funding, procurement and other issues that arise. This arrangement has been extremely successful to date.

For the purposes of making service optimization and expansion suggestions, the Study Team analyzed a variety of existing data sources, interviewed agency staff and conducted several reconnaissance trips during the course of the analysis. Based on an analysis of the existing data, the following key recommendations merit further discussion (by the new Service Review Committee established by VTA and METRO for operating the Highway 17 Express Bus service under the new Joint Powers Authority) or investigation:

- Maintain existing service
- Consider adding new service to connect with Metro Center
- Consider incremental improvements to existing services
- Continue to explore reverse commute potential
- Begin planning for new service south of Soquel
- Continue to implement incremental capital improvements
- Avoid any increase in transit travel time
- Consider breaking service into different routes
- Continue to review and refine interconnectivity with other services
- Continue to promote vanpools and subscription bus services
- Consider weekend service in corridor

Highway Operations and Capital Improvements

Regardless of whether the existing Highway 17 Express Bus service is continued, optimized, or expanded, transit services are dependent on the reliability of travel conditions along the Highway 17 corridor. During peak periods, in the peak direction, drivers (both automobile and bus drivers) experience intermittent delays, often 10-20 minutes in length, for a trip of about 20 miles between Santa Cruz and Los Gatos. North of Los Gatos, routine congestion can add another 5-10 minutes to the travel time between Los Gatos and San Jose.

The primary cause of delays on the Highway 17 Corridor is traffic incidents rather than recurrent congestion. Though protected from head-on collisions by a nearly continuous concrete median barrier, the corridor's curves, insufficient superelevation, dips, steep grades and other geometric conditions are associated with localized accident rates. Along some of the mountainous portions of Highway 17, travel lanes are not the standard width for new facilities. The existing lane width in these areas is 11.5 feet, while the current standard for basic lane width is 3.6 meters or 11.8 feet. Accidents, stalls and breakdowns in segments without shoulders or pullouts quickly create long queues and subsequent slowdowns lasting long afterwards.

Highway 17 is a four-lane facility through the study area. Because of right-of-way constraints and the mountainous terrain, widening Highway 17 would be costly and environmentally prohibitive. Therefore, there is no effective way to significantly increase vehicle capacity on this roadway. Additionally, highway operational problems, including high numbers of accidents and road closures, affect the reliability of the Highway 17 Express Bus service, and general travel along the corridor. These problems are largely attributed to three factors:

- Excessive speed for geometric condition
- Excessive speed for weather conditions
- Congestion at bottlenecks

The recommended highway operations and capital improvements for Highway 17 focus on a system-wide approach consisting of the following four major implementation programs:

- Speeding Prevention and Enforcement
- Safety Improvements
- Incident Prevention and Management
- Geometric Improvements

Some of the options for improvement are programmatic and apply to the study area as a whole. Others are project-specific and localized. Caltrans should conduct a consolidated study to define improvement projects along the Highway 17 Corridor. The consolidated study should further evaluate the options recommended in this Study and those arising from the *Safe on 17 Task Force*. An overall corridor study can best evaluate the feasibility (both engineering and environmental), the potential benefits, impacts and costs for the localized spots and for the corridor as a whole. Such a study would position many of the recommended improvement options for funding.

CONCLUSION

Implementing the improvements recommended in this study will require a cooperative effort of all the member agencies of the TAC. Lead agencies, as suggested in Section 6 of this report, should continue seeking funding sources to finance the recommended improvement options. Caltrans Districts 4 and 5, SCCRTC, SCMTD, VTA and the new joint VTA/METRO Service Review Committee should continue monitoring evaluation measures, such as the ones listed below, to determine the effectiveness of the recommended improvement options for the project corridor:

- Accident and incidents by location, type, and rate
- Overall travel time and congestion levels experienced by motorists and transit passengers
- Total transit ridership and cost per passenger ride
- Person throughput of the corridor
- Auto occupancy rates

While it may not be possible to achieve a significant increase in the motor vehicle capacity of the corridor, this study reaches two positive conclusions: 1) there is the potential to improve the reliability of travel on Highway 17 for all users by reducing accidents and incidents; and 2) there are cost-effective measures to improve the efficiency of the corridor by continuing to encourage vanpools, subscription bus and additional express bus services in the corridor.