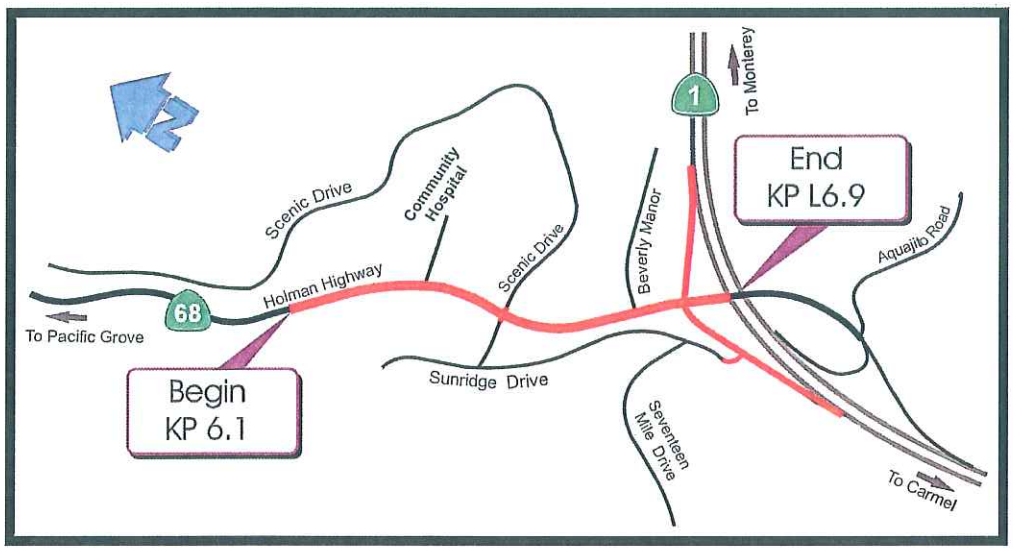
Caltrans Metric

05 – Mon – 68 – KP 6.1/L6.9 (PM 3.8/L4.3)
RU – 06-234 EA 448000
20.xx.075.600 Regional Improvement Program

PROJECT REPORT



On State Route (SR) 68
In Monterey County
From 0.2 km west of Community Hospital of the Monterey Peninsula (CHOMP) Entrance to SR 1/68 Separation

I have reviewed the right of way information contained in this Project Report and the R/W Data Sheet attached hereto, and find the data to be complete, current, and accurate:

SPIROS KARIMBAKAS
CR DIVISION CHIEF – RIGHT OF WAY

APPROVAL RECOMMENDED:

DAVID RASMUSSEN, PROJECT MANAGER

APPROVED BY:

RICHARD L. KRUMHOLZ, DISTRICT 5 DIRECTOR — *DATE* 3/24/09

05 – Mon – 68 – KP 6.1/L6.9 (PM 3.8/L4.3)
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This Project Report has been prepared by Mark Thomas & Co. Inc. under the direction of the following Registered Engineer. The registered Civil Engineer attests to the technical information contained therein and has judged the qualifications of any technical specialists providing engineering data upon which recommendations, conclusions, and decisions are based.

REGISTERED CIVIL ENGINEER

March 3, 2006
DATE

SCH# 2003021151
05-MON-68-KP 6.1/7.1
(PM 3.8/4.4)
EA #05-448000

Widen and improve State Route 68, from SR 1 to approximately 0.2 km (0.1 mile) west of the Community Hospital of Monterey Peninsula

FINAL ENVIRONMENTAL IMPACT REPORT

Submitted Pursuant to: (State) Division 13, California Public Resources Code

State of California
Department of Transportation

In Cooperation with

City of Monterey

3/24/09
Date of Approval

Richard Krumholz
District Director
California Department of Transportation

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1. INTRODUCTION

It is proposed to widen and upgrade 0.8 kilometer of SR 68 (Holman Highway) in the County of Monterey from 0.2 kilometer west of the Community Hospital of Monterey Peninsula (CHOMP) entrance to the SR 1/SR 68 Junction to reduce congestion and delay. Four alternatives were considered ranging from no-build to an ultimate four-lane widening, with total project cost ranging from zero to $21,170,000. Out of the four alternatives considered, the PDT preferred alternative is the Alternative 3 (full four lane facility) with a Ramp Variation A (five legged intersection at the SR 68/SR 1 ramp termini) with a total cost of $21,170,000 (construction cost of $16,729,000, rights of way cost of $227,000 and engineering support cost of $4,214,00). Other alternatives were considered, but deleted from further consideration.

The project is proposed to be funded primarily by private development sources (Pebble Beach Company and CHOMP) and the City of Monterey as the lead agency (City and TAMC RIP Funds). The City of Monterey and the County of Monterey have $1,400,000 in TAMC RIP and City traffic Impact funds towards PA/ED and portion of final PS&E phase of this project. In addition, the City of Monterey has submitted funding requests from TAMC RIP Funds and other federal/state sources for construction. This project has been assigned the Project Development Processing Category 4B because it does not require substantial new right of way and does not substantially increase traffic capacity. See Funding Section for schedule.

2. RECOMMENDATION

It is recommended that the Project using the Preferred Alternative be approved and authorization be granted to proceed with the final design phase.

The City of Monterey and the County of Monterey have been consulted with respect to the recommended plan, and their views have been considered and incorporated. Further, these agencies are in concurrence with the recommended plan. See "Other considerations" Section for cooperative agreement information.

3. BACKGROUND

- **Project History**

This project has a long history dating back to early 1980s. Monterey Peninsula cities in 1981 formed a Holman Highway task force to address access problems to CHOMP and levels of service along SR 68. This task force oversaw the transportation improvements along SR 68 from its terminus at Pacific Grove and SR 1. Its goal, in part, was to enhance the quality of transportation services on SR 68. Many objectives were established, a few of which included installation of a new Spanish Bay Gate, construction of a westbound lane through the CHOMP intersection and the addition of an eastbound lane from the CHOMP entrance to the SR 1 interchange. While some work has been completed other phases of work are incomplete and remain dormant.

The 1993 Regional Transportation Plan, adopted in 1994, recommended the widening of SR 68 to four lanes from 0.2 km (0.1 miles) west of the CHOMP intersection to south of the SR 68 overpass at SR 1. This project is now listed in the 2005 Monterey County Regional Transportation Plan as RTP No. CT017 (SR 68 (Holman Hwy – Access to Community Hospital).

The Project Study Report (PSR) for the proposed highway widening was approved in December 2000 which identified a number of alternatives for consideration, but with a recommendation to proceed with Alternative 4C-1 (three lane widening project). Since the completion of the PSR, there have been two separate development projects within the project limits which have been approved by the City of Monterey and the County of Monterey. These two projects are improvements to the CHOMP (hospital) and to the Pebble Beach Lot Development. As part of their mitigations, CHOMP is required to improve the intersection of SR 68/CHOMP Entrance and Pebble Beach Company is required to improve access to Pebble Beach Main Gate.

Because of these two projects, which overlap this project, the City of Monterey as the implementing agency undertaking the improvements of SR 68 has determined that SR 68 be widened to a full four lane facility in order to meet the projected traffic volumes. Draft Project Report was approved on September 1, 2006, authorizing public circulation of the environmental document.

- **Community Interaction**

Since the approval of PSR in 2000, the City of Monterey initiated a desire to complete this widening project and commenced to seek $16 million for project support and for construction. The City of Monterey, in cooperation with Caltrans, has completed the environmental clearance for this project. The Department of Transportation was the lead agency for CEQA.

The City of Monterey has held numerous discussions with County of Monterey, Pebble Beach Company and CHOMP in regards to moving forward with the widening of SR 68 and the Transportation Agency for Monterey County (TAMC) has adopted the upgrading this corridor as high on their regional improvement project listed as RTP No. CT017. During the course of these meetings, there has been very strong public support for this project.

- **Existing Facility**

SR 68 is a two-lane undivided conventional highway constructed in the early 1940s and currently does not have adequate capacity. It serves as the primary transportation facility between SR 1 and the City of Pacific Grove, Pebble Beach and CHOMP. The SR 1/SR 68 interchange was constructed in early 1970's with access control within the interchange area. SR 68 is part of the California Legal Truck Route.

This portion of conventional highway was upgraded with improved radii and superelevation in the mid 1950s with the posted speed limit of 40 mph (64 kph). The intended design speed within the project limit is 65 kph.

Within the project limits, CHOMP and Beverly Manor Development (also known as Carmel Professional Center) are situated to the north side of SR 68. To the south side of SR 68, single family homes abut to SR 68 with rear yards adjacent to the highway. There are two driveway entrances (CHOMP and Beverly Manor Development) with left turn channelization. CHOMP entrance is signalized. The westerly SR 1/SR 68 ramp configuration is a diamond offramp and onramp.

The cross section for SR 68 consists of two 3.6 m lanes with shoulder widths ranging from 0.6 m to 1.2 m and has swales adjacent to the roadway which convey storm drainage to two cross culverts. The width of existing rights of way varies from 18.3m to 33.5m with the narrowest width occurring just west of Beverly Manor Development Entrance. Access rights have not been acquired west of the SR1/SR68 interchange, however the topography lends itself to limited numbers of access points to the highway along this portion of the corridor.

The southbound offramp is a single lane exit ramp with 1.2m left shoulder, 3.6m travel lane and 2.4m right shoulder and widens to two 3.6m travel lanes with 0.6m left shoulder and 1.0m right shoulder.

The southbound onramp, consisting of 1.2m left shoulder, 3.6m travel lane and 2.4 m right shoulder, begins approximately 80 meters south of the SR 68/offramp intersection. Between SR 68 and the beginning of the southbound onramp is a two-way roadway, consisting of 1.2 m outside shoulder, three 3.6 m travel lane (two lanes in southbound direction and one lane in northbound direction) and 2.4 m outside shoulder. This two-way roadway provides access to Pebble Beach Entrance from southbound Route 1 off ramp, eastbound Route 68 (making right turn), and

westbound Route 68 (making left turn) onto this two-way roadway. The Pebble Beach Entrance forms a "T" intersection with this two-way roadway, allowing eastbound approach to make both left and right turn movements. The two-way roadway and the southbound onramp currently are situated inside Caltrans' access control limits. There is an opening in access control for the Pebble Beach Entrance.

Based on field review and current Pavement Management System Inventory for SR 68, and SR1 on and off ramps, the existing pavement section is satisfactory because it does not show any rutting, pavement cracks or any distress in pavement condition.

Improvements to this portion of SR 68 are constrained by the existing facilities adjacent to the highway. These facilities include the entrance to Pebble Beach 17-Mile Toll Gate, Beverly Manor Development and CHOMP Entrance as well as the existing SR 68/SR 1 Separation Structure.

There are number of deficiencies which include, but not limited to 1) intersection congestions, 2) non-standard shoulders, 3) non-standard curvatures and superelevations, 4) inadequate stopping sight distance, 5) non standard vertical and horizontal clearances at the Scenic Drive Overcrossing, and 6) non-standard ramp configuration.

4. NEED AND PURPOSE

A) Problem, Deficiencies, and Justification

SR 68 experiences congestion (over 2,000 vehicles per hour peak) during the weekday afternoon period from 3pm to 6pm. The occurrence and concentration of rear-end accidents suggests vehicle queuing at all approaches to the signalized intersections. Existing intersections at the SR 68/SR 1 southbound off ramp and Beverly Manor Development are currently at level of service (LOS) "F" for both AM and PM peaks while Route 68/CHOMP and Route 1 SB onramp/Pebble Beach Entrance operates at LOS "B" and "E" respectively during PM peak hour. With the increased traffic, all intersections except CHOMP intersection will become LOS "F" by the design year 2030, while CHOMP intersection will become LOS "C".

The purpose of the project is to relieve existing and future traffic congestion, improve traffic safety and traffic operations, minimize delay of emergency vehicle access to CHOMP and reduce the incentive for bypass traffic through the Skyline Forest neighborhood. It would also result in improved access to the Pebble Beach Entrance, CHOMP and the Beverly Manor Development. This project will improve these intersections to LOS "D" or better for the design year 2030 by adding additional lanes with appropriate channelization and upgraded signal system at the SR 68/SR1 offramp and CHOMP Entrance intersections.

B) Regional and System Planning

- **Identify Systems**

  SR 68 is the primary transportation facility between SR 1 and the City of Pacific Grove, CHOMP, and Pebble Beach Development. SR 68 is on the Interregional Road System (IRRS); however, it is not a focus route.

- **State Planning**

  Transportation Concept Report calls for this portion of SR 68 ultimately to be a four lane facility, while SR 68 between Route 1 and Route 101 is designated to be part of the Freeway and Expressway System. This project is consistent with the District System Management Plan which calls for this portion of SR 68 to be widened to 4 lanes and is a candidate for potential relinquishment.

  The District 5 Section of the State Transportation System Development Plan includes this location within their project list for Monterey County.

  This project is in conformity with the national ambient air quality standards and is consistent with the state ambient air quality standards, thereby being in conformance with the State Implementation Plan for Air Quality.

  This segment of SR 68 is not on the District's bike Plan. However, City of Monterey and County of Monterey has designated SR 68 as one of the primary bike route corridor.

- **Regional Planning**

  Regional transportation plans are maintained by the Transportation Agency for Monterey County (TAMC) and the Association of Monterey Bay Area Governments (AMBAG). These plans include the Regional Transportation Plan (RTP). This project is listed in the 2005 Monterey County Regional Transportation Plan as "constrained" RTP No. CT017.

  TAMC has identified widening the SR 68 (Holman Highway) between SR 1 and CHOMP and improvements to the SR 68/1 ramp intersection as a regional priority for which additional local and state funds are being sought in coordination with the City of Monterey which has assumed role of project sponsor.

- **Local Planning**

  The project area is located adjacent to City of Monterey and in the unincorporated territory of Monterey county and is within the jurisdictional limit of Coastal Commission. Properties north of SR 68 are situated in the City of Monterey. These

properties are in the City's general plan as commercial/hospital designations. Properties south of SR 68 proposed for residential subdivision development are situated in the unincorporated area of Monterey County and are designated as Del Monte Forest Development Area (also known as Pebble Beach Development). Both agencies, along Monterey Transit District, have cooperatively worked and agreed on the expansion of SR 68 to ultimately a four lane facility.

The City of Monterey approved the expansion of CHOMP (Hospital) with the condition that the CHOMP improves the intersection of SR 68 and the CHOMP Entrance. The County of Monterey also approved the expansion of Pebble Beach Development with the condition that the Pebble Beach Company improves the intersection of SR 68/ SR 1 offramp and the southbound onramp. These two projects were approved in 2004 and 2005 respectively and the improvement conditions (project mitigation) which were imposed to the developers are consistent with this project. CHOMP portion of the improvements are currently under construction.

This project is consistent with City of Monterey and County of Monterey non-motorized master plans, the Coastal Zone Plan and the Monterey Air Quality Control Plan.

- **Transit Operator Planning**

The Monterey County Bus Transit Operator (Monterey-Salinas Transit) has been consulted regarding transit operations within the project area. The PDT Preferred Alternative will improve the existing bus stop location at the intersection of SR 68 and Beverly Manor Development.

C) Traffic

- **Current and Forecasted Traffic**

Table 1 summarizes the current levels of service at the intersections in the study limits.

The two-lane cross-section on SR 68 does not accommodate existing traffic demands with signalization. The existing peak hourly traffic volumes exceed 2,000 vehicles per hour. Flow interruptions from traffic signals cause vehicle queues extending, at times, through the project limits. Similarly, the SR 1 southbound off-ramp approach to SR 68 is congested from vehicle queues extending back as far as the ramp gore point.

Table 1
Existing Service Levels

Intersection	Delay (sec/veh)	Level of Service
CHOMP/SR 68	8 (AM) 14 (PM)	A B
Beverly Manor/SR 68	>50 (AM) >50 (PM)	F F
Pebble Beach Entrance/ SR 68 SB onramp	20 (AM) 44 (PM)	C E
Rte 1 SB Ramps/SR 68	>80 (AM) >80 (PM)	F F

Truck classification counts were taken along SR 68. As shown in Table 2, trucks made up less than one percent of the traffic for the PM peak and less than 3% for the AM peak.

Table 2
Peak Hour Truck Traffic

Day/Time Period		Total Trucks	Total Vehicles	Percent Trucks
Monday	7:00 to 9:00 AM	52	2,921	1.78%
	3:00 to 6:00 PM	45	6,034	0.72%
Tuesday	7:00 to 9:00 AM	84	2,959	2.84%
	3:00 to 6:00 PM	42	6,094	0.69%
Wednesday	7:00 to 9:00 AM	70	2,992	2.34%
	3:00 to 6:00 PM	55	6,223	0.88%
Thursday	7:00 to 9:00 AM	58	2,823	2.05%
	3:00 to 6:00 PM	35	6,126	0.57%
Friday	7:00 to 9:00 AM	74	2,823	2.57%
	3:00 to 6:00 PM	27	6,316	0.43%
AM Peak Period Totals		338	14,518	2.3%
PM Peak Period Totals		204	30,793	0.6%

Traffic forecasts represent the year 2030 and show the PM peak hour traffic demand on SR 68 will reach 3,210 vehicles. Forecasts developed by the Holman Highway Task Force for the June 1988 Initial Study for SR 68 estimated PM peak hour traffic demand to reach 3,000 vehicles. The two forecasts are within 7% of each other and were developed independently using land use assumptions relevant at the time.

Traffic is projected to increase by 18% (560 vehicles) to a total peak hourly volume of 3,210 on SR 68 in the project limits through the year 2030. Contributors to the increase in traffic include: complete build-out of the Pebble

Beach Lot Program and the remainder of the Del Monte Forest Development (21%), planned development in the City of Monterey (59%), planned development in the County of Monterey (7%), and planned development in the City of Pacific Grove (13%).

- **Collision Rates**

Collision histories are examined in 3-year periods from 10/1/01 to 9/30/04 based on Caltrans Traffic Accident Surveillance and Analysis System (TASAS) – Transportation Systems Network (TSN) and is presented in Table 3.

Table 3 Accident History for SR 68 and SR 1

Facility	Total Accidents	Fatal	Fatal + Injury	Actual Accident Rate[1]			Statewide Average Accident Rate[1]		
				Total	Fatal	Fatal + Injury	Total	Fatality	Fatal + Injury
SR 68 (2.26-L4.25)	134	2	43	2.46	0.037	0.79	1.55	0.035	0.67
SR 1 (74.56-R75.98	168	0	57	1.83	0.00	0.62	1.16	0.012	0.45

[1] Accident rates presented as accidents per million vehicle miles

Table 3 indicates that there were two traffic-related fatalities on SR 68 and none on SR 1. The accident rates for both SR 68 and SR 1 are above the state average primarily due to frequent queuing occurring on both SR 68 and SR 1.

5. ATERNATIVES

A) Viable Alternatives

- **Proposed Engineering Features**

The PDT preferred alternative is the Alternative 3 (full four lane facility) with a Ramp Variation A (five legged intersection at the SR 68/SR 1 ramp termini) with a design speed for SR 68 at 65 kph (40 mph). This project would widen SR 68 from two lanes to four lanes and is characterized by the addition of one additional lane in each direction. In the westbound direction, two lanes would be carried past the CHOMP Entrance and then merge into and meet the existing one-lane approximately 183 m (600 feet) west of the CHOMP Entrance. In the eastbound direction, the right lane would terminate as a mandatory right turn lane to the Pebble Beach Entrance and the southbound onramp.

More specifically, the following items of work are included:

✓ Traffic signal at the intersection of SR 68 and the SR 1 off and on ramps would be modified. This ramp is characterized as a five-legged intersection that would result in all traffic movements to be brought together at the SR

68/SR 1 southbound ramp intersection, except southbound onto SR 1 from Pebble Beach entrance;

- ✓ Traffic signal at the SR 68/CHOMP Entrance would be modified;
- ✓ The Scenic Drive overcrossing would be replaced with a new bridge;
- ✓ The Beverly Manor Development Entrance would be redesigned to prohibit left turns out of the entrance to eastbound SR 68. Eastbound left turns from SR 68 to the Beverly Manor Development Entrance and right turns in and right turns out of the entrance will be allowed;
- ✓ SR 1 southbound off- and onramps would require widening and installation of retaining walls;
- ✓ The Pebble Beach Entrance would be modified; and
- ✓ Five Retaining walls would be constructed at the edge of right-of-way.

- **Nonstandard Mandatory and Advisory Design Features**

Four non-standard mandatory design features and one advisory design features have been approved as part of the PSR Process for this project. Mike Janzen, HQ Design Reviewer, on January 12, 2006 reviewed two design exception fact sheets approved November 8, 2000 and November 22, 2000 and concurred that they continue to be appropriate for current use. There are no additional outstanding design compliance issues.

These mandatory exceptions include:

1) Horizontal Curve Radii: Curve 2 is an existing curve with radius of 167.64 meters. This radius will be maintained. Curve 3 is a new curve with radius of 167.64 meters, which replaces an existing curve with radius of 144 meters.

2) Superelevation: Curve 1 will maintain the existing superelevation rate of 0.04 and 496 m radius curvature to conform to the existing roadway at the westerly project limits. Curve 2 will maintain existing curvature with a radius of 168 m and will have a superelevation rate of 0.09.

3) Ramp/Local Road Intersection Spacing: The intersection of SR 68, the southbound ramps and the Pebble Beach Entrance will become a five-leg intersection with non-standard distance between the southbound onramp and Pebble Beach Entrance. Additionally, Pebble Beach Entrance intersects the southbound onramp with a right turn only lane. The new configuration improves the two-way traffic condition that exists between SR 68 and the southbound onramp.

4) Access Control: Existing access control is shown on Exhibit "A" to the right. Existing two-way roadway between SR 68 and the southbound onramp is currently inside the State access control area, with an opening allowed for Pebble Beach Entrance.

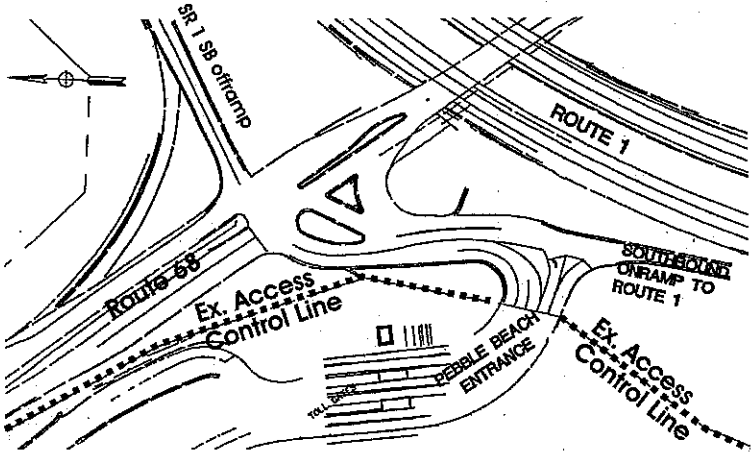


Exhibit A - Existing Access Control

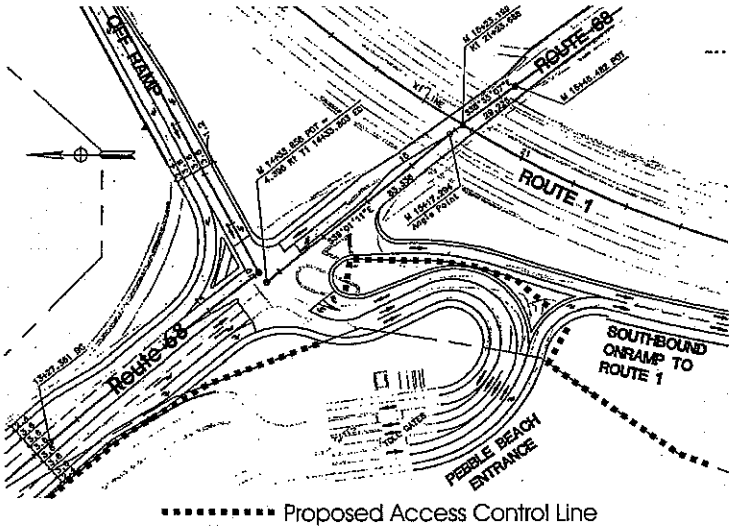


Exhibit B – Proposed Changes to Access Control

Exhibit "B" to the left shows the proposed changes to access control. This will require portion of State right of way to be relinquished to City of Monterey and will require a modification to the freeway agreement. The proposed change in access control will allow modified Pebble Beach Entrance to be outside the access control, with openings to allow entrance and exit connections to State facility.

One non-standard advisory design feature was approved November 2000 which included the inability for California trucks to make the left turn movement from westbound SR 68 to the southbound SR 1 onramp. California trucks and buses will have to continue toward Pacific Grove to seek a return route to SR 1. Appropriate mitigation and signing will be included.

- **Interim Features**

There are no interim improvements proposed within the project limit.

- **High Occupancy Vehicle Lanes**

  SR 68 is not designated as having HOV facility.

- **Ramp Metering**

  Southbound onramp to SR 1 will not be ramp metered.

- **CHP Enforcement Areas**

  CHP enforcement area will not be provided as part of this project.

- **Park and Ride Facilities**

  Park and ride facility is not part of this project.

- **Utility and Other Owner Involvement**

  There is an existing SBC underground facility located within the on ramp shoulder area from SR 68 to SR 1. This facility will remain in place and will require longitudinal encroachment exception. There are no other known utility facilities within SR 68 right of way. With the replacement of Scenic Drive overcrossing, two utilities will need to be relocated. These utilities include the 250 mm County owned water line and PG&E overhead electric pole. Refer to R/W Data Sheet for details.

- **Railroad Involvement**

  There is no railroad within the project limit.

- **Highway Planting**

  Existing trees removed to facilitate construction will be replaced in kind in accordance with the Monterey County – SR 68 Forest Management Plan. The Forest Management Plan requires offsite mitigation site and will be implemented and maintained by the City of Monterey. With the proposed widening, there will be very little area available for planting. As part of the PS&E, highway planting will be provided and includes approximately $300,000 for landscaping within the project limit to enhance/screen retaining wall with groundcovers/vines, where feasible with tree planting as required for tree replacement mitigation and in accordance with Caltrans policy. The City of Monterey will be executing a future cooperative agreement to determine when landscaping will be done and that they will be fiscally responsible to maintain the highway plantings and retaining walls.

- **Erosion Control**

  All graded and disturbed areas will receive erosion control treatment to minimize surface erosion and to comply with Caltrans policy. All graded slopes will be 1:4 or flatter.

- **Noise Barriers**

  No noise barriers are required for environmental mitigation.

- **NonMotorized and Pedestrian Features**

  1. Bicycle Path

     With the widening of SR 68 with a standard 2.4 m shoulder, bicyclist can utilize the widened shoulder for a bikeway. No separate Class I bikeway is proposed as a part of the project.

  2. Pedestrian Walkway

     At the intersection of SR 68 and Beverly Manor Development, there is an existing bus stop which will be relocated and maintained, along with a pedestrian walkway from the Beverly Manor Development to this bus stop. The next bus stop is located inside CHOMP. Therefore, there is not a need to provide for pedestrian connectivity between CHOMP and Beverly Manor Development.

- **Roadway Rehabilitation and Upgrading**

  Based on field review and current Pavement Management System Inventory, SR 68, and SR1 on and off ramps does not need to be rehabilitated. However, because superelevation improvements are required at three locations within the project limit, the entire SR 68 will be resurfaced with a layer of new asphalt concrete pavement. Offramps and onramps are not expected to be rehabilitated.

- **Structure Rehabilitation and Upgrading**

  One structure exists within the project limits. It is the Scenic Drive overcrossing. Since the structure deficiencies are both vertical and horizontal clearances, rehabilitation strategies are inappropriate course of action. This project proposes to replace the structure.

- **Cost Estimates**

The total construction cost of the Proposed Project in 2008 dollars, including the costs of engineering, right-of-way and utility relocation has been estimated to be $21,170,000 and is broken down as follows:

Structures	$ 6,947,000
Roadway	$9,782,000
Total Construction Cost	$ 16,729,000
Engineering & Administration	$ 4,214,000
Right of Way and Utility Costs	$ 227,000
Total Project Cost	$ 21,170,000

Above estimates include contingency. A detailed construction cost estimate is shown on Attachment 5 and has been prepared in accordance with the Preliminary Project Cost Estimating Guidelines.

- **Right of Way Data**

See Attachment 6 for Right of Way Data. In summary, the costs are as follows:

Acquisitions	$ 129,000
Right of Way Support Cost	$ 3,000
Utility Relocation	$ 95,000
Total Right of Way & Utility Cost	$ 227,000

- **Effect of Special Funded Proposal on State Highway**

This is not applicable for this project.

B) Rejected Alternatives

Build Alternative 1 – Three Lane Facility (Eastbound Widening)

Build Alternative 1 is characterized by widening SR 68 from two lanes to three lanes. Widening would consist of the addition of one lane in the eastbound direction from 0.2 km (0.1 mile) west of the CHOMP entrance, east to the SR 68/SR 1 southbound

ramp intersection. This added eastbound lane would terminate as a mandatory right turn lane to the Pebble Beach Main Gate/SR 1 southbound onramp. Retaining walls would be constructed at their ultimate locations to accommodate the four-lane future condition. The estimated cost for this alternative is $4.95 million for construction and $0.24 million for right-of-way, for a total capital cost of $5.19 million.

This alternative was rejected by PDT because this alternative does not meet the project purpose and need for the following reasons:

- LOS for westbound direction (AM peak) will become unacceptable at LOS F.
- The intersection of Beverly Manor Development would not be improved and will remain at LOS F
- The intersection of CHOMP would not be improved and queuing for the westbound will result in the intersection operating at LOS F.
- The Pebble Beach Entrance would not be improved

Build Alternative 2 – Three Lane Facility (Westbound Widening)

Build Alternative 2 would widen SR 68 from two lanes to three lanes and is characterized by the addition of one lane in the westbound direction from the CHOMP entrance east to the SR 68/SR 1 southbound ramp intersection. This added westbound lane would terminate as a mandatory right turn lane to CHOMP. Retaining walls would be constructed at their ultimate locations to accommodate the four-lane future condition. The estimated cost for this alternative is $4.66 million for construction and $0.24 million for right-of-way, for a total capital cost of $4.91 million.

This alternative was rejected by PDT for similar reasons as with Build Alternative 1.

Ramp Variations - Roundabout

This ramp variation is characterized as a roundabout that would result in one-way circular traffic flow at the intersection of SR 68 and the SR 1 on- and offramps. Traffic would enter this circle in a free-flowing movement with yield at the point of entry into the circle. The southbound offramp right turn movement would bypass the roundabout.

Roundabout variation was rejected by PDT because a one lane roundabout could not provide acceptable level of service and a two lane roundabout could not be constructed given the geometric constraints of the two lane structure over SR 1.

Ramp Variation – Collector-Distributor Road

This ramp variation is characterized as a SR 1 Distributor/Collector option that would result in a new SR 1 exit lane dedicated solely to access the Pebble Beach Main Gate. The Distributor/Collector lane would originate at the SR 1 southbound auxiliary lane near the beginning of the exit ramp, and continue under the SR 68 overcrossing, and conform at the Pebble Beach Main Gate entrance. This design variation allows direct, unrestricted access to the Pebble Beach Main Gate entrance from the SR 1 southbound offramp and reduces the volume of traffic traveling through the SR 68/SR 1 southbound ramp intersection.

This variation was evaluated but rejected for the following reasons:

- A collector distributor off of a ramp exit is non standard.
- Two need grade separation structures would be required.
- SR 1 structure would need to be replaced and raised by 1.4 m to provide standard vertical clearance for the grade separation.
- Pebble Beach Entrance Gate would need to be relocated.
- This alternative is cost prohibitive and could not be justified.

6. CONSIDERATIONS REQUIRING DISCUSSION

A) Hazardous Waste

The Initial Site Assessment (ISA) was completed for this project. The ISA identified three known hazardous material sites, four potentially hazardous material locations, four historic hazardous material locations, and one hazardous material observation from the field review. No documented contaminated groundwater plumes are present within or adjacent to the proposed project area. All documented soil contamination has undergone remediation.

Testing for aerial lead deposits was completed January 2008 with some level of ADL presence. This level of ADL presence can be reused within the project site and no offsite disposal of ADL material is required for this project.

B) Value Analysis

No formal value analysis has been performed. The project development team from the preparation of PSR and Draft PR to date have been engaged in informal value analysis, which included selection of type of retaining walls, bridge type and methods for replacement, ramp/intersection geometrics alternatives, and alternative evaluation for environmental mitigation cost and implementation.

C) Resource Conservation

In a typical roadway construction, not many items are salvageable. However, an attempt would be made to place the removed AC pavement from ramps and local streets for use as shoulder backings, base rocks, into the new fills, or to otherwise salvage and reuse the material in some appropriate manner. All salvageable materials, which can be reused, will be reused on this project or salvaged and stockpiled at Caltrans maintenance yard for future reuses.

AC pavement recycling would not be economically feasible due to the relatively small amount of AC to be recycled and the lack of a nearby hot recycling plant.

D) Right of Way Issues

- **Right of Way Required**

  The PDT Preferred Alternative would require approximately 2,600 square meters of new right of way from Pebble Beach Company and CHOMP. Both property owners are in agreement with the proposed rights of way requirements for this project. In addition, there will be a change to access control within the southbound onramp and Pebble Beach Entrance area and a relinquishment of portion of State right of way to City of Monterey.

  Refer to the Right of Way Data Sheet for the PDT Preferred Alternative in the Attachment 6 Section of this Report.

- **Relocation Impact Studies**

  Relocation is not required with the PDT Preferred Alternative.

- **Airspace Lease Areas**

  With the PDT Preferred Alternative, there is insufficient area, either open or under the proposed structure areas which would allow for an opportunity for an airspace lease.

E) Environmental Issues

The DEIR (draft environmental impact report) has been prepared in accordance with Caltrans' environmental procedures in accordance with the State regulations. FEIR has been prepared and Notice of Determination to environmentally clear the project for construction has been filed on _____.

FHWA has concurred that Categorical Exclusion would be the appropriate document to satisfy NEPA requirements. The attached Categorical Exclusion and FEIR are the required environmental documents to be in compliance with NEPA and CEQA requirements. (See Attachment 9).

F) Air Quality Conformity

The SR 68 Widening from the CHOMP Entrance to the SR 1/68 separation is included within the financially constrained action element of the 2005 Monterey Bay Metropolitan Transportation Plan (MTP) prepared by the Association of Monterey Bay Area Governments (AMBAG). Although the Monterey Bay region is no longer subject to findings of air quality conformity with the rescission of the 1-hour federal ozone standard and current attainment of the new federal 8-hour average ozone standard, AMBAG did find the estimated mobile source emissions generated from the 2005 MTP financially constrained action element project list to be conforming to the State Implementation Plan (SIP) for Air Quality. Rescission of the federal 1-hour ozone standard took place on June 15, 2005, subsequent to AMBAG Board of Directors approval of the 2005 MTP yet prior to U.S. Department of Transportation action to approve the 2005 MTP. As such, U.S. DOT accepted the 2005 MTP without comment as no further approval action was required. At this time, future air quality conformity determinations will not be required.

G) Title VI Considerations

The one recreational facility in the area is the 17 Mile Drive within the Pebble Beach Development. It is privately-owned and maintained roadway and recreational facility which provides direct access along the shoreline of the Del Monte Forest area. This 17-Mile Drive also serves local residents and visitors. Motorists, pedestrians, bicyclist and equestrians share the use of this facility.

The Proposed Project provides wider shoulder area, which allows pedestrians and bicyclist a better access and circulation to the 17-Mile Drive.

7. OTHER CONSIDERATIONS

- **Public Hearing Process**

Public hearing was held at the City of Monterey Civic Center on November 20, 2006. All comments received have been addressed and incorporated into FEIR.

- **Permits**

The following permits, approval, and coordination efforts may be required prior to construction of the proposed SR 68 improvements:

Coastal Development Permit - A CDP may be required to comply with the Local Coastal Program. Both CHOMP and Pebble Beach Company have already secured CDP for their respective improvement projects.

Caltrans Construction Encroachment Permits – It is anticipated that Pebble Beach Company will secure separate encroachment permit to construct the southbound onramp modification. It is anticipated that the remaining work to be completed which includes widening of SR 68 to 4 lanes, retaining walls, Scenic Drive bridge replacement. and signal modifications at CHOMP and Pebble Beach/southbound onramp intersections will be constructed with an encroachment permit issued to the City of Monterey.

- **Route Matters**

This project will require a revised freeway agreement for the interchange of SR 68 and SR 1 because of changes to access control and relinquishment of portion of State right of way to City of Monterey.

- **Cooperative Agreement**

A Cooperative Agreement 05-CA-0081 between the State and the City of Monterey has been executed on July 1, 2002 for all capital outlay for this project. The time extension to December 31, 2009 was approved with the Supplemental Cooperative Agreement 05-CA-0081-A/1.

- **Transportation Management Plan**

A Traffic Management Plan has be prepared to address traffic impacts from stage construction, detours and specific traffic handling concerns during construction of this project. The key traffic management elements include:

  - Lane closures will be required for falsework installation and removal, bridge demolition, installation of temporary k-rails and pavement delineation. It is anticipated that these closures would be night time. City of Monterey will grant variance from local noise ordinance for night work.
  - A COZEEP will be required for all lane closures.
  - Changeable message signs will be provided to guide and direct motorists.
  - City will provide public information campaign with local mailing
  - City will establish a telephone hot-line.

The City of Monterey will produce and disseminate press releases and other documents necessary to adequately inform the public concerning the project and its associated traffic impacts. This responsibility includes advance notification to local newspapers, television and radio stations, and emergency response providers. City of Monterey will also submit to Caltrans District 5 Public Information Office, weekly information regarding the daily traffic impacts to State facilities. This information will be included in the Caltrans Weekly Traffic Updates, which is dispersed to all

news media outlets and other interested agencies.

- **Stage Construction**

  This project will include multiple stage construction to facilitate orderly construction implementation as follows:

  - First stage will include removal and replacement of Scenic Drive overcrossing to allow SR 68 to be widened to four lanes.
  - Second stage will include widening for the eastbound direction, which will include retaining walls and the widened pavement section to match existing pavement to allow traffic to be shifted southerly.
  - Third stage will include widening for the westbound direction, which will include retaining walls and the widened pavement section to the ultimate grade.
  - The last stage will include pavement overlays to correct superelevation and to provide final AC lift on SR 68.

- **Graffiti Control**

  Anti-graffiti control features will be incorporated into the design and these features include rough texturing of concrete surfaces (rock texturing), staining or coloring surfaces of concrete and retaining wall with rock finish and earth tone colors, future planting of vines adjacent to retaining walls, etc.

- **Visual/Aesthetic**

  Visual Mitigation shall include the following in accordance with FEIR:

  a) 3:1 tree replacement ratio of all trees six inches DBH or greater. Replacement trees shall be of the same species of the trees removed and not less than five gallons. These plantings do not constitute a replacement or substitution for biological mitigation measures.

  b) Removal permit from City of Monterey of any healthy native trees of six inch DBH or greater

  c) All opportunities for revegetation within the project limits shall be considered including graded areas. Plants shall be native plant species compatible with the adjacent natural vegetation. Where feasible, tree and shrub planting shall be implemented between the retaining wall and property fence on the southside of SR 68 between CHOMP and the Scenic Drive (17-Mile Drive) overcrossing, and between the split retaining wall on Sunridge Drive. In addition screen planting shall be planted to buffer sensitive permanent views where possible outside of the

vehicle recovery zone.

d) All replacement planting shall have a three year Plant Establishment Period.

e) All bridge structures and retaining walls shall include special architectural detail and aesthetic treatments.

f) An Aesthetic Design Advisory Committee shall be established to represent the local and state interests concerning project aesthetics.

- **Biological Mitigation**

This project includes a biological mitigation for the Monterey Pines and shall include the following:

a) A minimum area of 3.86 acres shall be used to compensate for the loss of Monterey Pine forest along Iris Canyon Green Belt

b) Within this area approximately 900 trees (5 to 15 gallon) shall be planted.

c) Of the 900, 130 trees shall be 15 gallon.

8. PROGRAMMING

- **Programming**

The County of Monterey has $95,000 available from the Spanish Bay Mitigation Fund, and $1,000,000 available to be utilized for this project from TAMC RIP Funds (STIP). In addition City has $400,000 available from their traffic impact fee fund.

- **Funding**

It is anticipated that this project may be constructed in phases currently anticipated as follows:

Phase 1 which improves the intersection of SR 68 with CHOMP entrance has been completed by CHOMP.

Phase 2 will be the construction of the southbound onramp and the modification to the Pebble Beach Entrance. This improvement is required as part of the mitigation the Pebble Beach Development Project.

Phase 3 will be the remainder of the project, which the City of Monterey will take the lead and will be the agency responsible for final design and construction.

Approximately $3 million of local funds (Pebble Beach Company, CHOMP, and County traffic mitigation funds) are available to design and construct Phase 1 and Phase 2 of the project.

Construction funding for the Phase 3 for the SR 68 four-lane widening improvement is included in the 2005 Monterey County Regional Transportation Plan as "Constrained Regional Project".

Estimated funding sources for the project are as follows:

Description	Total Cost	State Share (Caltrans Minor A Funds)	STIP (TAMC RIP Funds)	City Share (Funded)	Pebble Beach Share (Funded)	CHOMP (Funded)	City Share (Unfunded)**
Support Costs							
PA/ED	$1,294,000	$0	$400,000	$400,000	$0	$0	$494,000
PS&E	$1,673,000	$0	$600,000	$0	$0	$0	$789,000
R/W	$45,000	$0	$45,000	$0	$0	$0	$0
Construction	$1,247,000	$0	$0	$0	$0	$0	$1,247,000
Subtotal	**$4,214,000**	**$0**	**$1,045,000**	**$400,000**	**$0**	**$0**	**$2,769,000**
Construction Costs							
R/W and Utility	$227,000	$0	$0	$0	$0	$0	$227,000
Construction	$16,729,000	$750,000	$0	$125,000	$1,705,000	$500,000	$13,649,000
Subtotal	**$16,952,000**	**$750,000**	**$0**	**$125,000**	**$1,705,000**	**$500,000**	**$13,872,000**
TOTALS	**$21,170,000**	**$750,000**	**$1,045,000**	**$525,000**	**$1,705,000**	**$500,000**	**$16,645,000**

** **City** Share (Unfunded) is anticipated to include funds from County traffic mitigation, possibly additional TAMC RIP Funds or from future special sales tax measure funds.

- **Schedule**

Milestone	Phases 1 and 2	Phase 3 – 4 lane Widening
Begin PA/ED	Feb 2005	Feb 2005
Approval to Circulate EIR/EA	July 2006	Sept 2006
Final Environmental Clearance	Nov 2006	October 2008
Begin Final PS&E	Sept 2005	October 2008
RTL	Nov 2006	Dec 2009
Begin Construction	March 2007	April 2010
Construction Complete	Dec 2007	Dec 2011

9. REVIEWS

The following people have reviewed this project and their comments have been incorporated:

Mike Janzen, HQ Design Reviewer, on January 12, 2006 reviewed two design exception fact sheets approved November 8, 2000 and November 22, 2000 and concurred that they continue to be appropriate for current use.

10. PROJECT PERSONNEL

The Caltrans District 5 Project Manager for this PR is Tom Houston (805 549-3016). Other Caltrans representation on the PDT consisted of the following members:

John Fouche, Design (805) 549-3330	Paul McClintic, Traffic Ops (805) 549-3473
Dave Murrary, Planning (805) 549-3168	Dennis Reyes, Landscape (805) 549-3509
Lisa Johnson, Env. (805) 542-4759	Mark McCumsey, Reg. Planning (805) 549-3963
Steve Talbert, Traffic Safety (805) 549-3484	Brent Massey, Structures (916) 227-8868
Steve Senet, Permits (805) 549-3206	Pete Rieglehuth, Storm Water (805) 549-3375

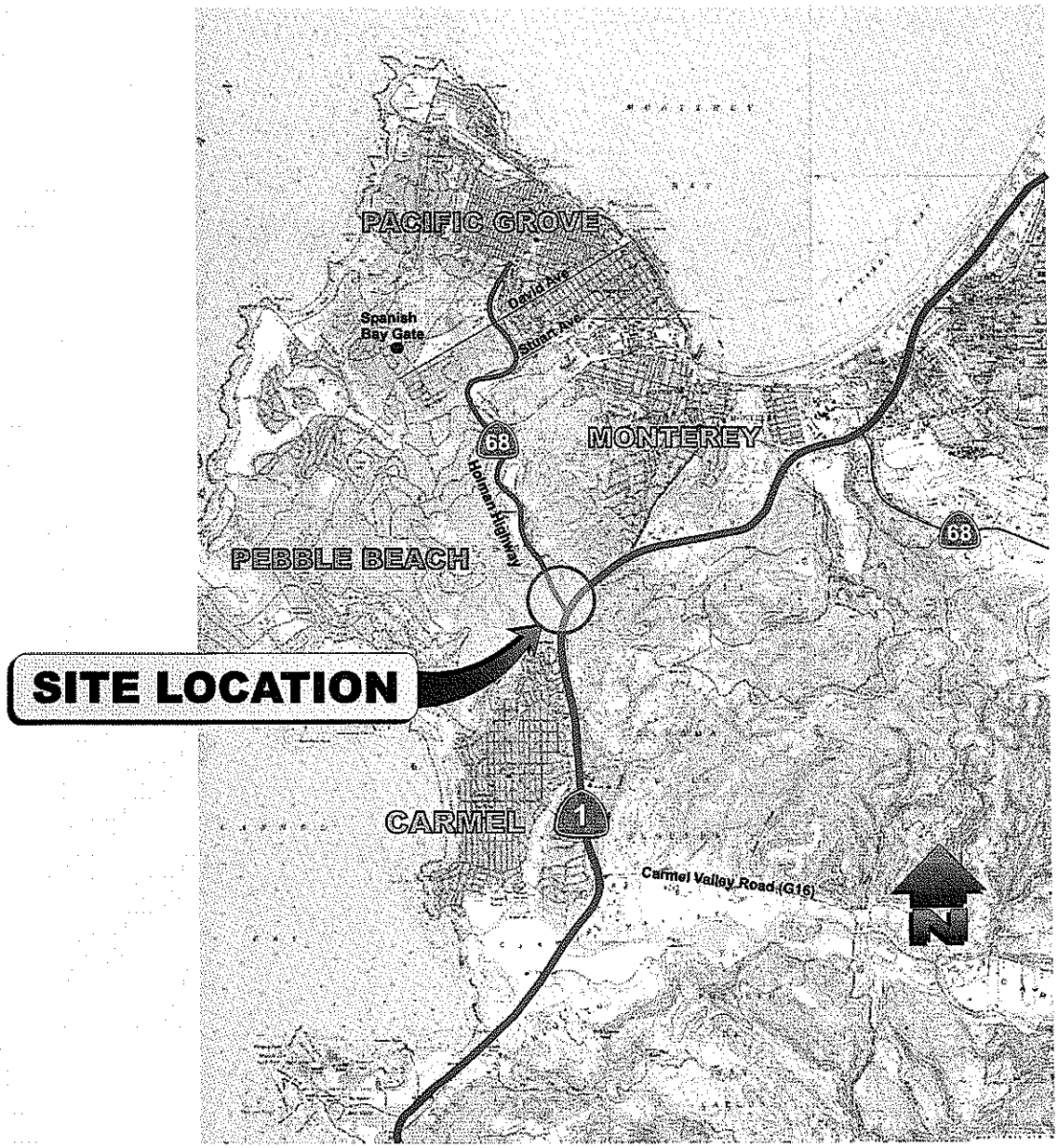
11. LIST OF ATTACHMENTS

1) Location Map
2) Proposed Geometrics
3) Typical Sections
4) APS (Advance Bridge Planning Study)
5) Proposed Project Cost Estimate
6) Right of Way Data Sheet
7) Storm Water Data Report
8) Accident Data – TASAS-TSN
9) Environment Document
10) Traffic Management Plan (TMP)
11) Traffic Report
12) Distribution List

ATTACHMENT A
LOCATION MAP

Route 68 /Holman Highway
In the County of Monterey
MON-05-68
KP 6.1/L6.9 (PM 3.8/L4.3)

LOCATION MAP



Mark Thomas & Company, Inc.
ENGINEERS - PLANNERS - SURVEYORS

ATTACHMENT B
PROPOSED GEOMETRICS

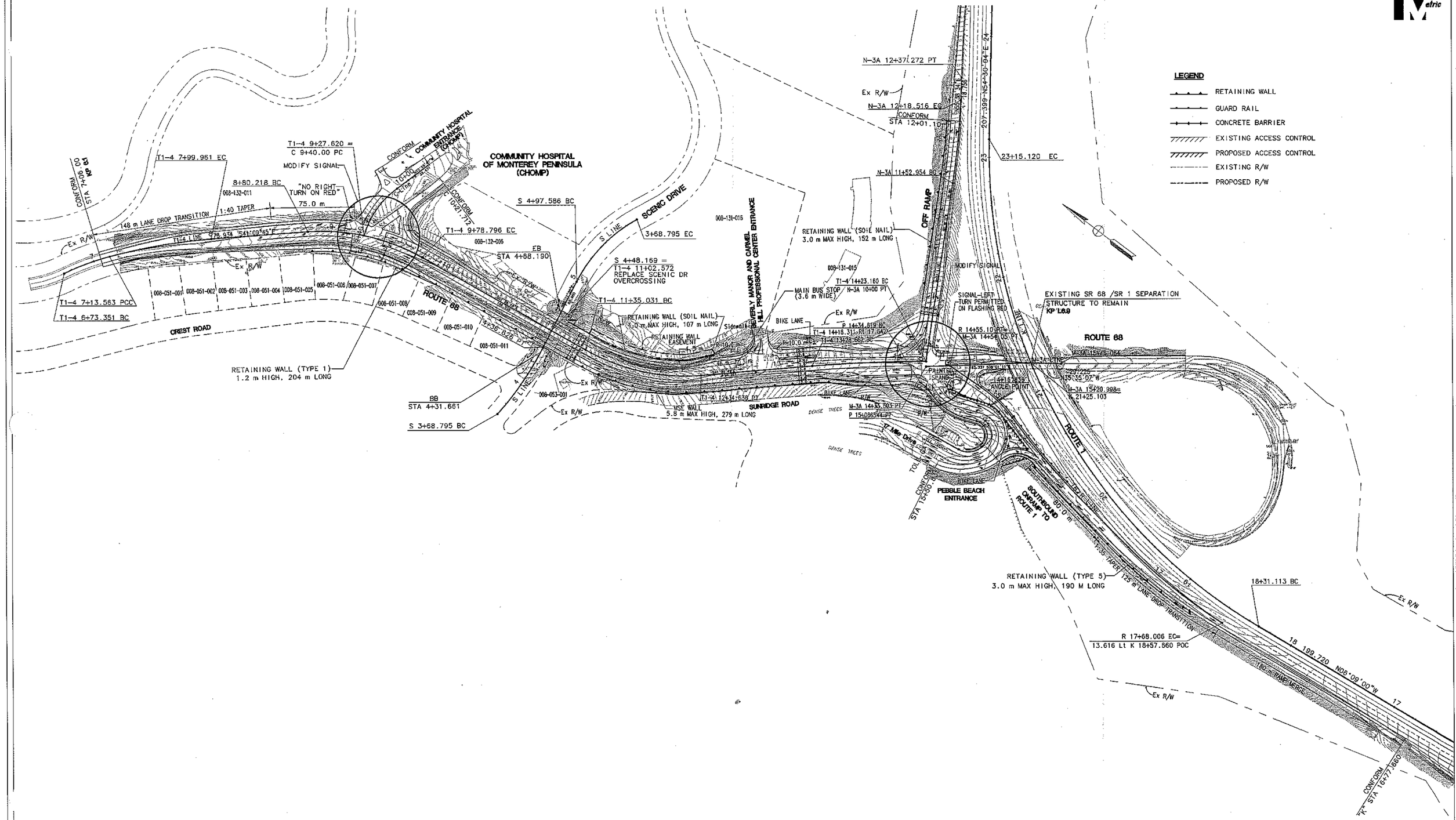


FIGURE 1-3 GEOMETRICS OF THE PROJECT

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

GRAPHIC SCALE
(IN METERS)
20 0 10 20 40 60 80 100

MARK THOMAS & COMPANY, INC.
Providing Engineering, Surveying and Planning Services

UPDATED: 04/24/06

05-MON-68-KP 6.1/L6.9 (PM 3.8/L4.3)
PDT PREFERRED ALTERNATIVE 3A
EA - 448000

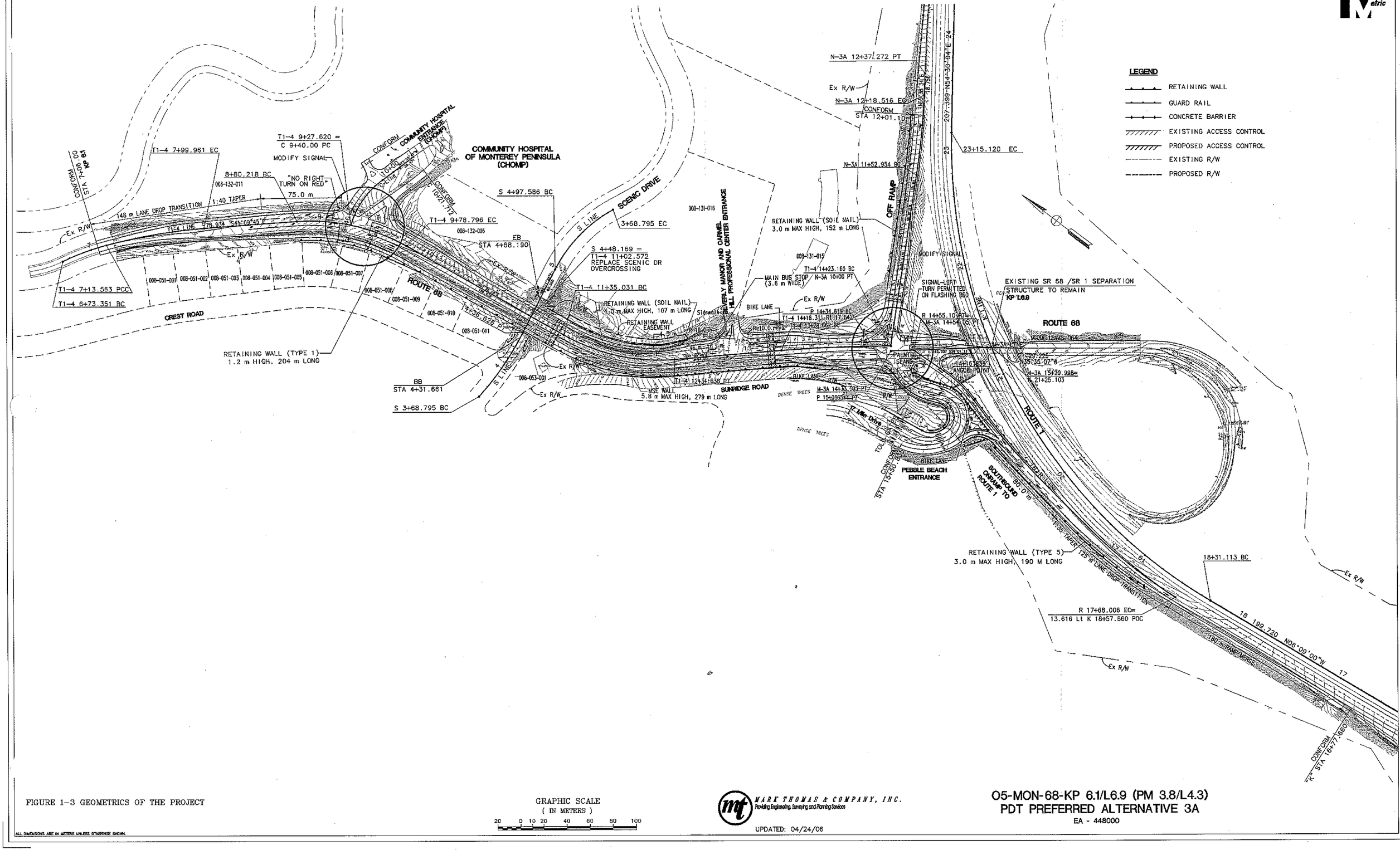


FIGURE 1-3 GEOMETRICS OF THE PROJECT

GRAPHIC SCALE
(IN METERS)
20 0 10 20 40 60 80 100

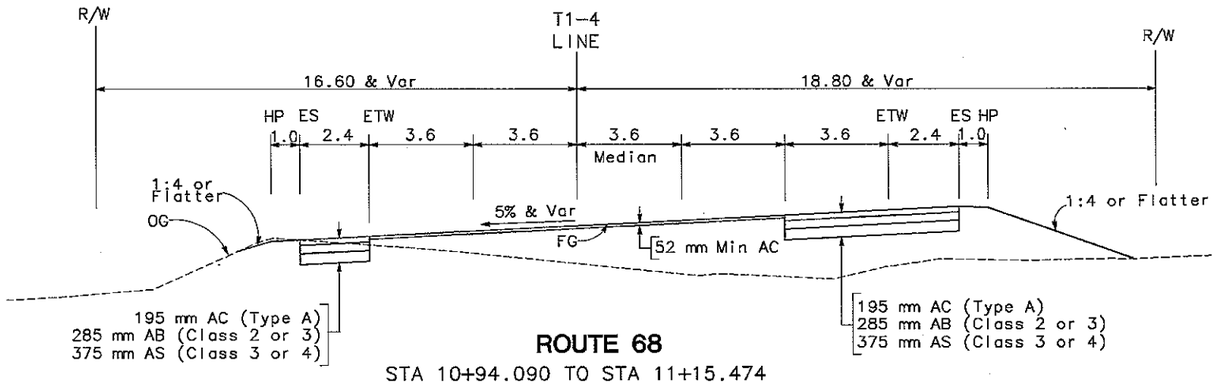
ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

MARK THOMAS & COMPANY, INC.
Providing Engineering, Surveying and Planning Services

UPDATED: 04/24/06

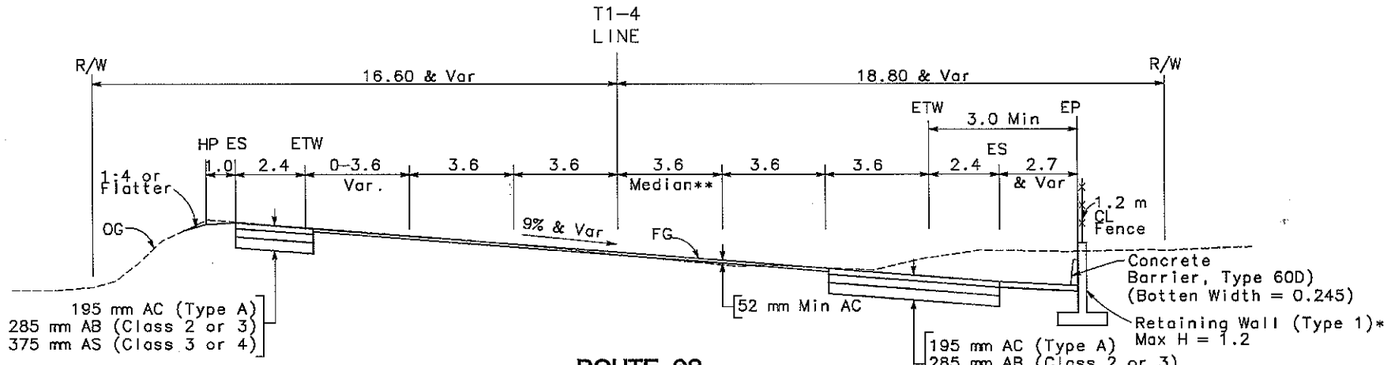
05-MON-68-KP 6.1/L6.9 (PM 3.8/L4.3)
PDT PREFERRED ALTERNATIVE 3A
EA - 448000

ATTACHMENT C
TYPICAL SECTIONS



ROUTE 68

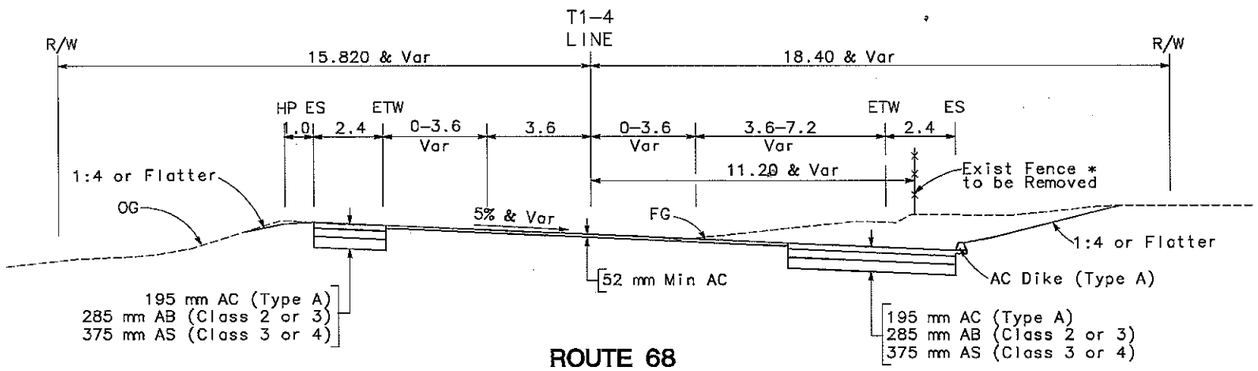
STA 10+94.090 TO STA 11+15.474
(SCENIC DRIVE OVERCROSSING)



ROUTE 68

STA 8+38.106 TO STA 10+94.090

* Retaining Wall starts @ station 8+80.216
** Median starts @ station 9+60.132



ROUTE 68

STA 7+06.00 TO STA 8+38.106

* Fence starts @ station 8+15.082

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

ALL DIMENSIONS ARE IN
METERS UNLESS OTHERWISE SHOWN.

TYPICAL CROSS SECTIONS

NO SCALE

X-1

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	5.1/L6.9		

REGISTERED CIVIL ENGINEER

R.K. TANAKA
No. 23233
Exp. 12/31/09
CIVIL
STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER

PLANS APPROVAL DATE

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

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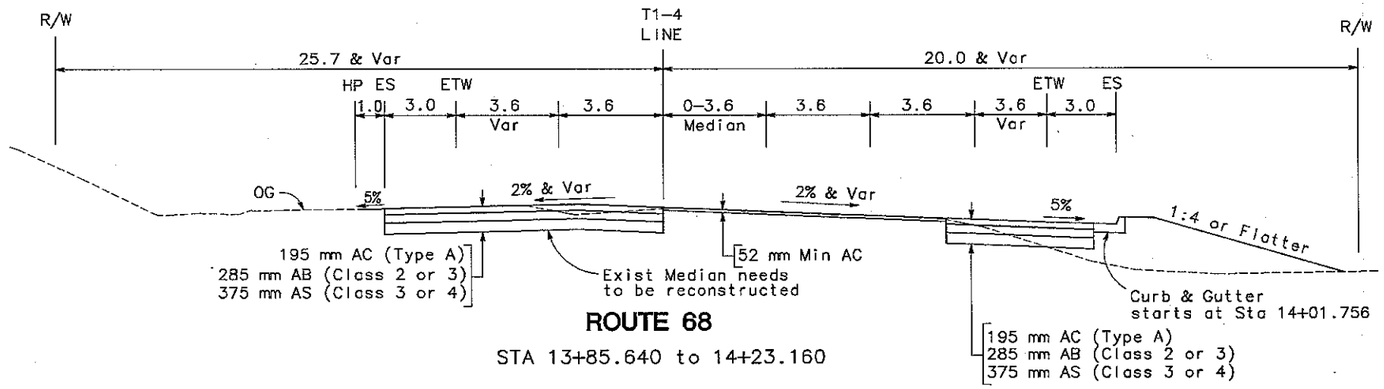
FORM DC-DE-92-PF (REV. 3/88)

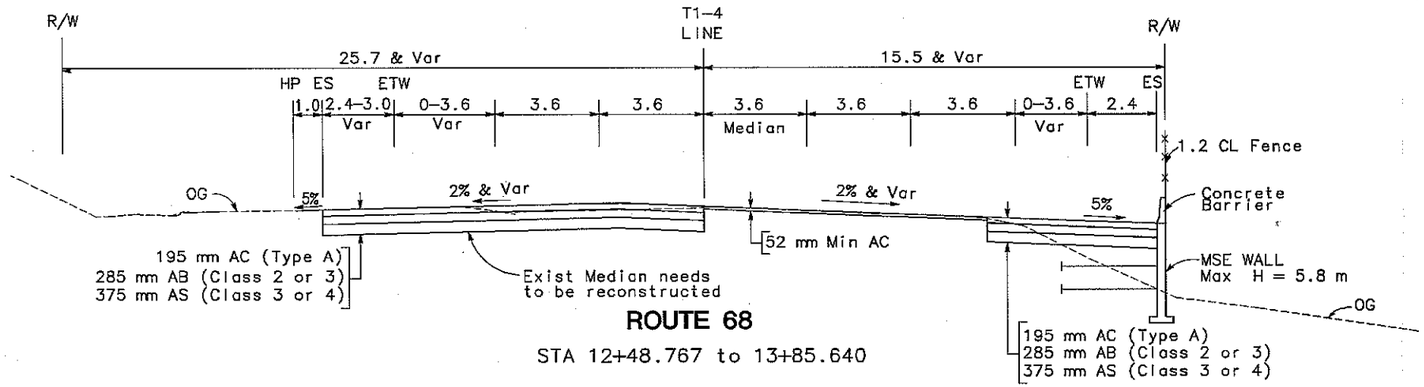
FOR REDUCED PLANS
ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

CU | EA



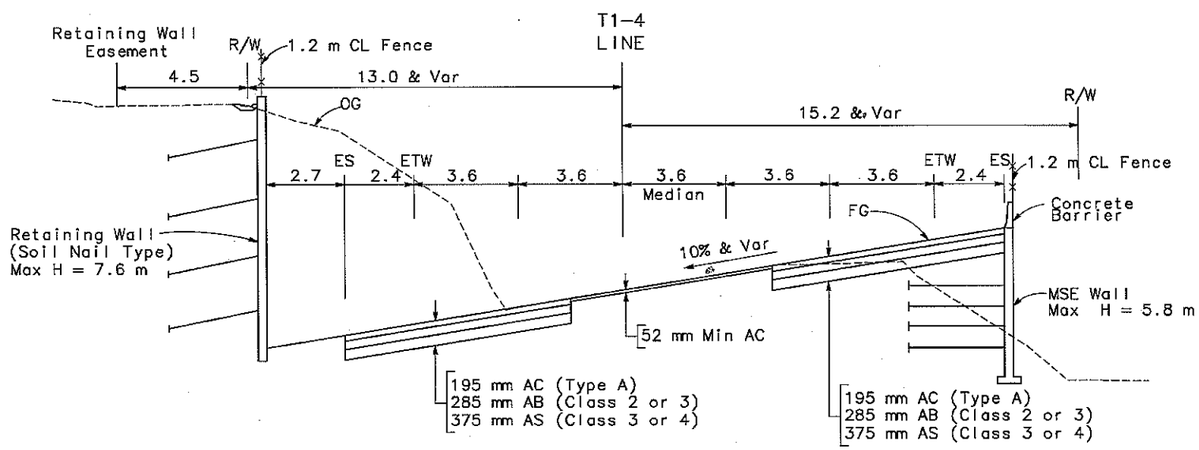
ROUTE 68

STA 13+85.640 to 14+23.160



ROUTE 68

STA 12+48.767 to 13+85.640



ROUTE 68

STA 11+15.474 TO STA 12+48.767

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER

R.K. TANAKA No. 23233 Exp. 12/31/09 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

PLANS APPROVAL DATE

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

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TYPICAL CROSS SECTIONS

NO SCALE

X-2

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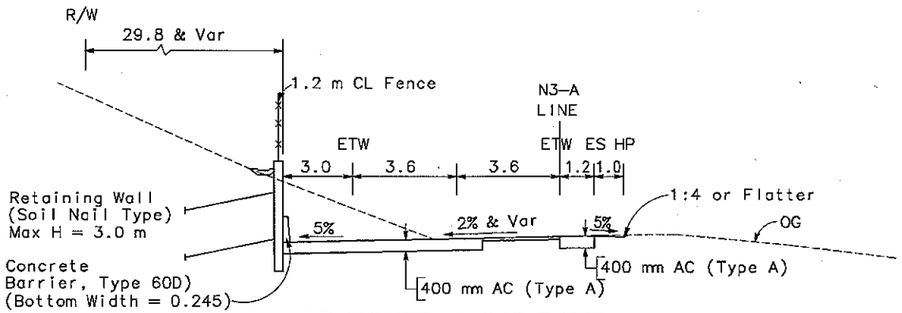
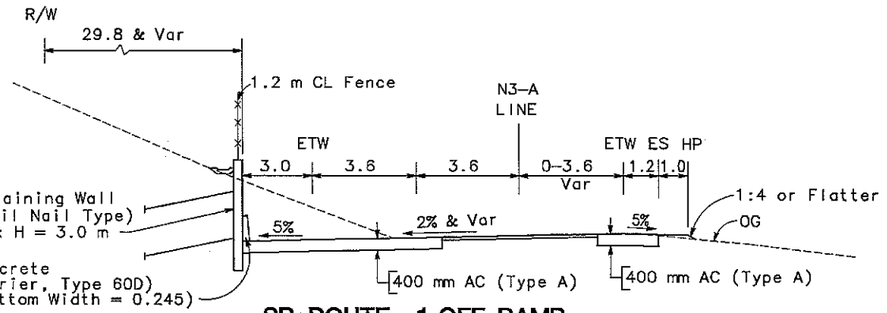
FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

CU | EA



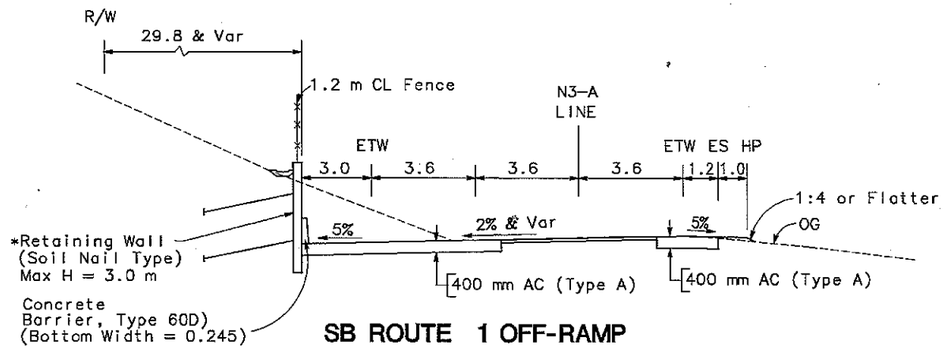
SB ROUTE 1 OFF-RAMP

STA 11+22.893 to 12+01.10



SB ROUTE 1 OFF-RAMP

STA 10+70.701 to 11+22.893



SB ROUTE 1 OFF-RAMP

STA 10+20.00 to 10+70.701

*Retaining Wall starts at Sta 10+49.247

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

TYPICAL CROSS SECTIONS

NO SCALE

X-3

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — R.K. TANAKA — No. 23233 — Exp. 12/31/09 — CIVIL — STATE OF CALIFORNIA

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

DATE	REVISED BY	DATE REVISED

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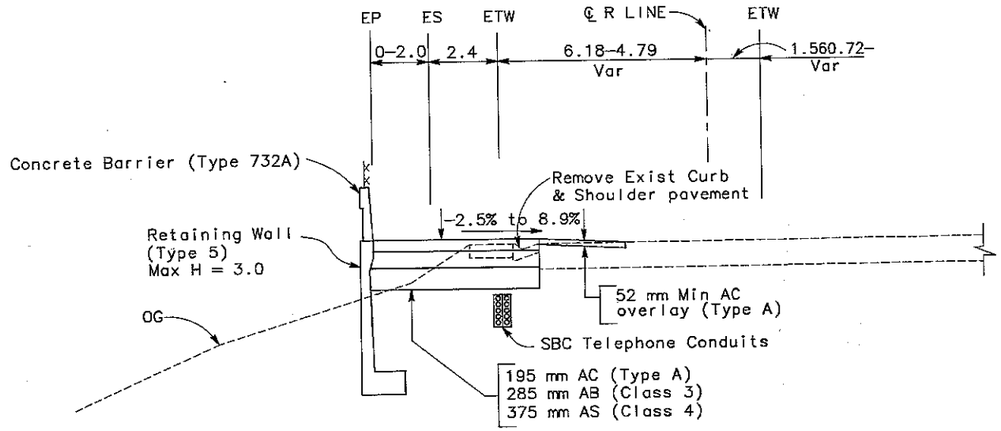
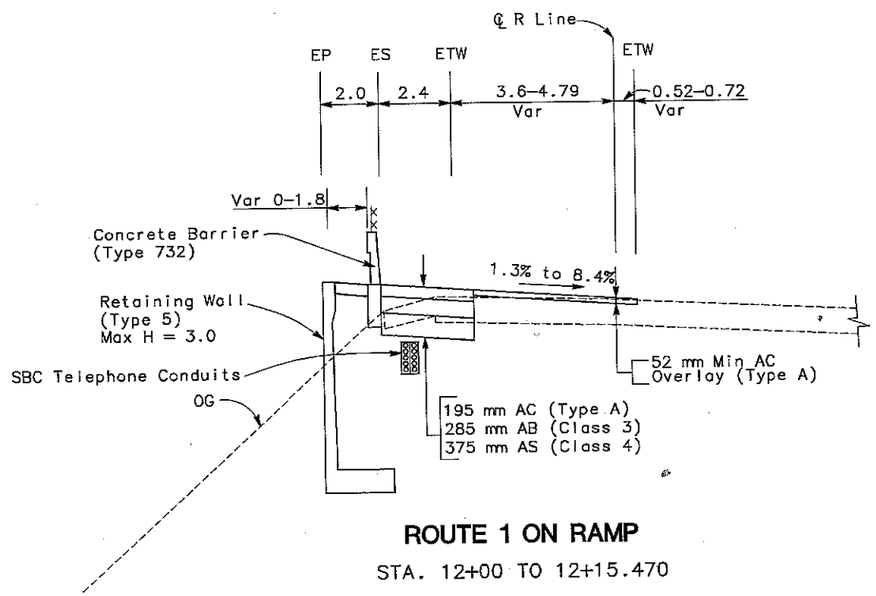


ROUTE 1 ON RAMP

STA. 12+15.470 TO 12+52.657



ROUTE 1 ON RAMP

STA. 12+00 TO 12+15.470

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

TYPICAL CROSS SECTIONS

NO SCALE

X-4

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05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER

R.K. TANAKA
No. 23233
Exp. 12/31/09
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

PLANS APPROVAL DATE

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

DESIGN OVERSIGHT

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION

Caltrans

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DATE | REVISED BY | DATE REVISED

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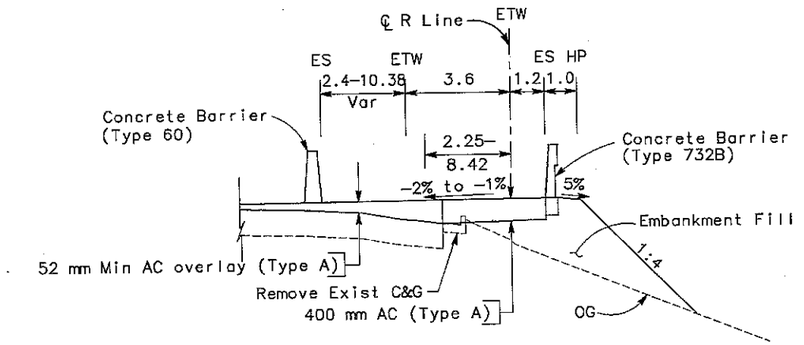
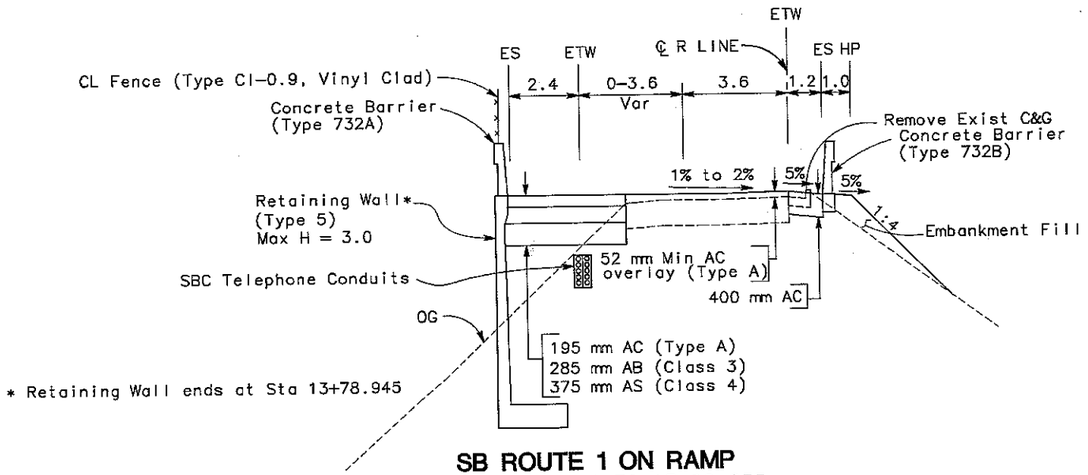
CU | EA

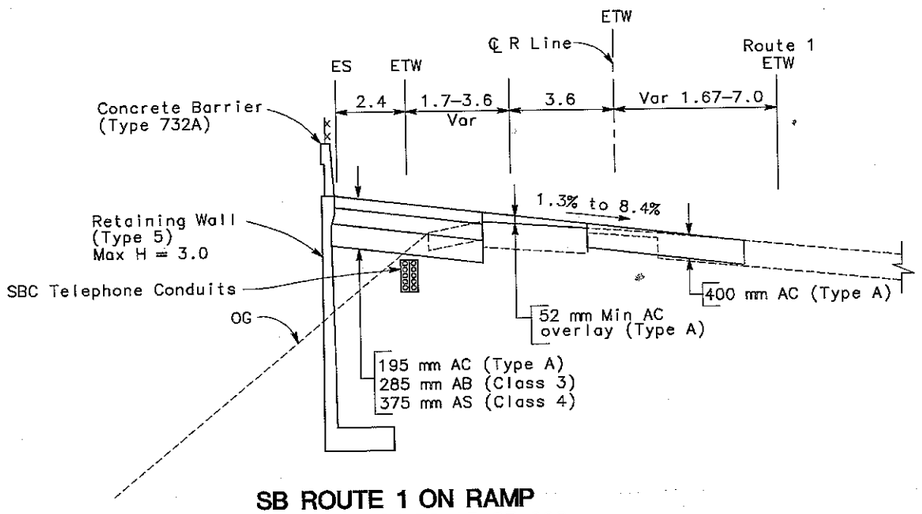
FORM DC-DE-92-PF (REV. 3/88)



SB ROUTE 1 ON RAMP
STA. 13+92.055 TO 14+61.433



SB ROUTE 1 ON RAMP
STA. 13+37.062 TO 13+92.055



SB ROUTE 1 ON RAMP
STA. 12+52.657 TO 13+37.062

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

ALL DIMENSIONS ARE IN
METERS UNLESS OTHERWISE SHOWN.

TYPICAL CROSS SECTIONS

NO SCALE

X-5

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
R.K. TANAKA
No. 23233
Exp 12/31/09
CIVIL
STATE OF CALIFORNIA

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

DATE	REVISED BY	DATE REVISED

CALCULATED/DESIGNED BY

CHECKED BY

DESIGN OVERSIGHT

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION
Caltrans

FOR REDUCED PLANS
ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

CU | EA

FORM DC-DE-92-PF (REV. 3/88)

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER

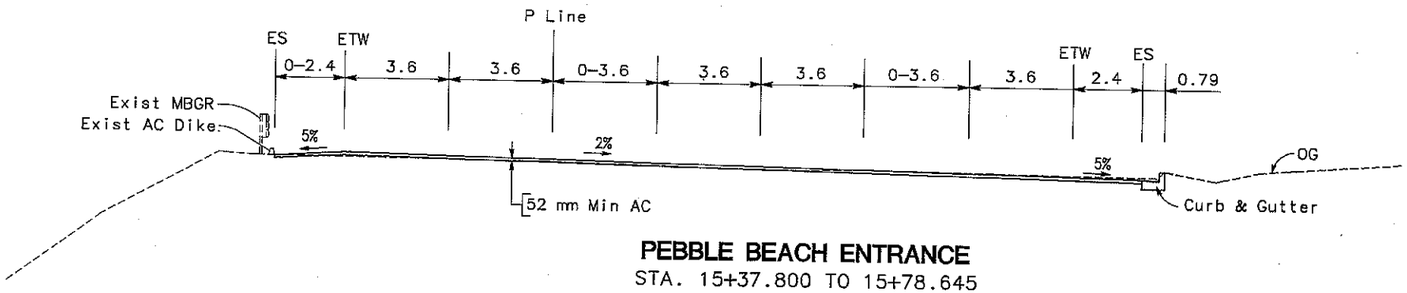
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
R.K. TANAKA
No. 23233
Exp. 12/31/09
CIVIL
STATE OF CALIFORNIA

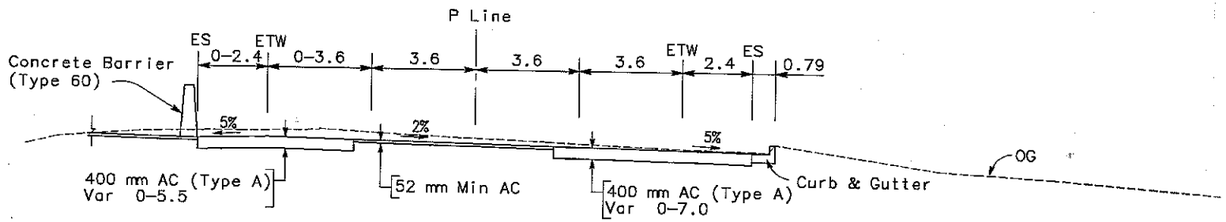
CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

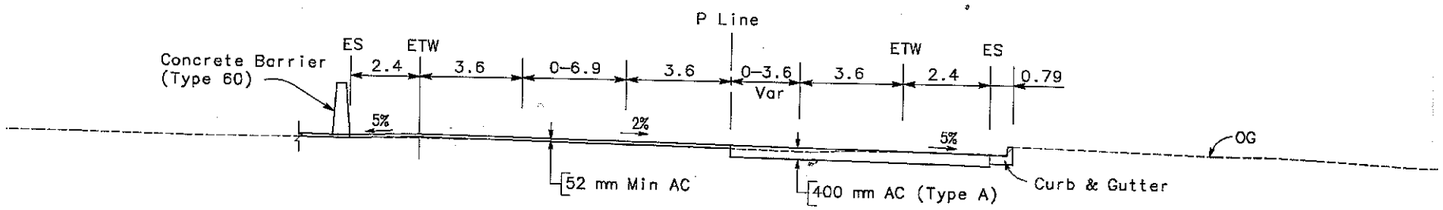
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



PEBBLE BEACH ENTRANCE
STA. 15+37.800 TO 15+78.645



PEBBLE BEACH ENTRANCE
STA. 14+76.119 to 15+37.800



PEBBLE BEACH ENTRANCE
STA. 14+30 TO 14+76.119

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

TYPICAL CROSS SECTIONS
NO SCALE

X-6

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

DATE	REVISED BY	DATE REVISED

CALCULATED/DESIGNED BY

CHECKED BY

DESIGN OVERSIGHT

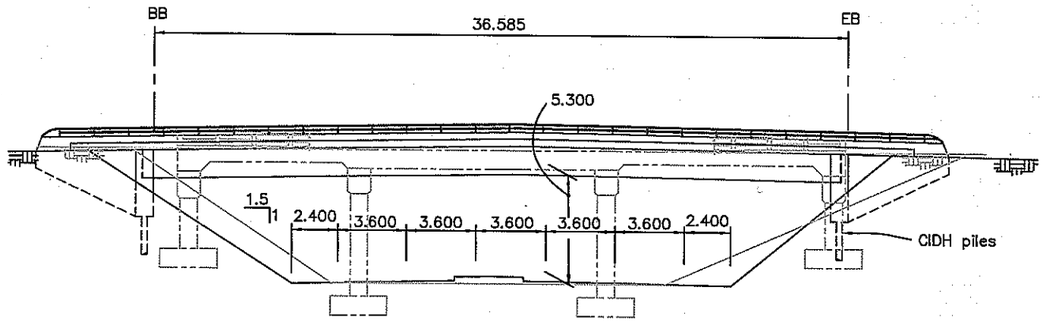
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

FORM DC-DE-92-PF (REV. 3/88)

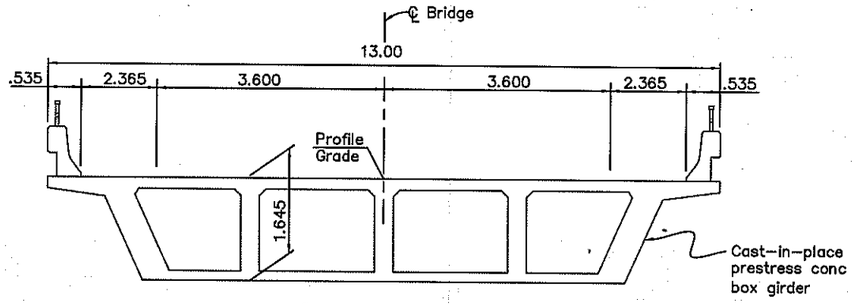
FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

CU	EA

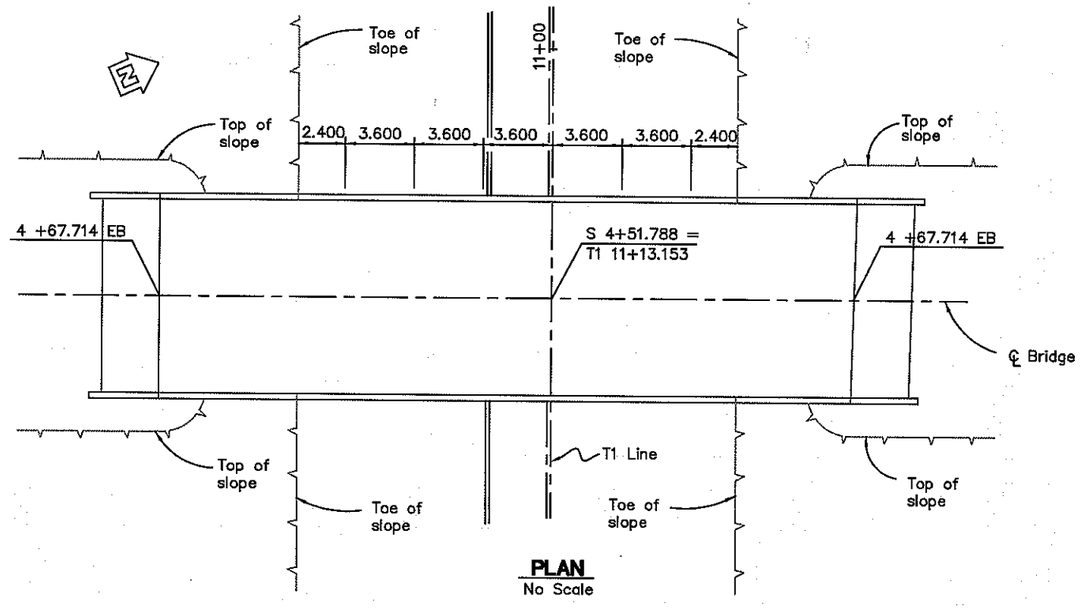
ATTACHMENT D
APS
(ADVANCED BRIDGE PLANNING STUDY)



ELEVATION
No Scale



TYPICAL SECTION
No Scale



PLAN
No Scale

VEHICULAR TRAFFIC

1. ___ New alignment. No traffic at the site.
2. ___ Traffic will be detoured away from the site.
3. ___ Traffic will be carried on the structure, Stage construction will/will not be required.
4. ✓ Traffic will pass under the structure on Highway 68 (Name of St. or Hwy.)

A. ✓ No falsework allowed over traffic.
B. ___ Falsework opening(s) required:

		Temporary Vertical Clearance	Width of Traffic Opening
___	Bnd.		
___	Bnd.		
2	Two-way.	4.573	9.150

C. ___ Temporary traffic lane reduction needed for footing excavation.

Date of Estimate	= 5/10/06
Structure Depth	= 1.646
Length	= 37
Width	= 13
Area	= 466 M²
Cost/sq m including 10% Mobilization & 25% Contingency	= 1,500
Bridge Removal	= 218,000
Total Cost	= 917,000

Caltrans Metric

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER — Po Kang Chan — No. S3112 — Exp. 9/30/01 — STRUCTURAL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

MARK THOMAS & COMPANY, INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

CU
EA

BRIDGE NO. 44-71
KILO POST

PLANNING STUDY
SCENIC DRIVE OVERCROSSING (REPLACEMENT)
ONE SPAN OPTION

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)						SHEET	OF

ATTACHMENT E
PROPOSED PROJECT
COST ESTIMATE

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	05-MON-68
Type of Estimate (Pre-PSR, PSR, PR, etc.):	PR
Program Code:	20.xx.075.600 RIP
KP:	6.1/L6.9
EA:	448000
PP No. :	

Project Description:

Limits: **Widening of Route 68 from Community Hospital of Monterey Peninsula (CHOMP) to Route 1 Interchange in Monterey in Monterey County**
FOUR-LANE FIVE LEGGED ULTIMATE FACILITY

Proposed Improvement (Scope): **Widening of Route 68, Modify Signal, Replace 17 Mile Scenic Drive Overcrossing Bridge, Construction of Retaining Wall, MSE Wall and Living Wall (Sound Wall)**

PROPOSED ALTERNATIVE

(1) Preliminary Engineering/Environmental Phase	$1,294,000
(2) Final Design (10% of Construction)	$1,561,000
(3) Construction Support	$1,247,000
(4) RIGHT OF WAY & UTILITY	$227,000
(5) CONSTRUCTION PHASE	
ROADWAY ITEMS	$9,176,000
STRUCTURE ITEMS	$6,431,000
SUBTOTAL CONSTRUCTION PHASE	$15,607,000
TOTAL ALTERNATIVE COST	$ 19,936,000

Reviewed by Project Engineer	BEN NGUYEN		10/04/07
Approved by Project Manager	Richard K. Tanaka	(408) 453-5373 (Phone)	10/04/07 (Date)

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	
	05-MON-68
KP:	6.1/L6.9
EA:	448000
PP No. :	0

	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Section 1 - Earthwork					
Imported Borrow (Ramp)	1,300	m^3	$51	$66,000	
Roadway Excavation	10,000	m^3	$56	$560,000	
Clearing & Grubbing	1	LS	$280,900	$300,000	
Clearing & Grubbing (Ramp)1	1	LS	$28,100	$30,000	
Develop Water Supply		LS		$0	
				Total Earthwork	$956,000
Section 2 - Structural Section *					
Pavement(Roadway)	7,400	m^2	$112	$829,000	
Pavement(Bikepath)		m^2		$0	
Pavement(Ramp)	2,626	m^2	$112	$294,000	
Overlay	16,900	m^2	$40	$676,000	
Remove Pavement	800	m^2	$34	$27,000	
Pavement(Throwaway)		m^2		$0	
Overlay(Throwaway)		m^2		$0	
Concrete Curb & Gutter		m			
Aggregate Base		m^3		$0	
Aggregate Subbase		m^3		$0	
Permeable Material					
Blanket & Edge Drains		m		$0	
Remove & Replace Berm	750	m	$70	$53,000	
Concrete Median		m^2		$0	
				Total Structural Section	$1,879,000
Section 3 - Drainage					
Box Culvert		m^2		$0	
Project Drainage	1	LS	$281,000	$281,000	
Project Drainage (Ramp)	1	LS	$56,200	$56,200	
Pump Station		EA		$0	
				Total Drainage	$337,200

* Attach sketch showing typical structural section elements of the roadway.
Include (if available) T.I., R-Value, and date when tests were performed

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	
	05-MON-68
KP:	6.1/L6.9
EA:	448000
PP No. :	0

	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Section 4 - Specialty Items					
Ret Walls-Soil Nails		m^2			
Ret Walls Standard (EB)		m^2			
Ret Walls-Standard (Off ramp)		m^2			
Ret Wall-Standard (EB)		m^2			
Ret Wall-Standard (Onramp)		m^2			
Living Wall		m^2			
Median Treatment		m^2			
Median Curb		m^2			
Landscaping/Irrigation					
(normally separate project)	1	LS	$337,000	$337,000	
Erosion Control		LS			
Slope Paving		m^3		$0	
Concrete Barriers	474	m	$300	$142,000	
Environmental Mitigation	1	LS	$168,500	$169,000	
Remove & Replace Curb	880	m	$120	$106,000	
Guardrails	420	m	$200	$84,000	
Relocate Freeway Sign	1	LS	$34,000	$34,000	
SWPPP/Erosion Control	1	LS	$300,000	$300,000	
				Total Specialty Items	$1,172,000
Section 5 - Traffic Items					
Lighting	1	LS	$84,300	$84,000	
Traffic Signals					
Signal Modification	1	LS	$450,000	$450,000	
Permanent Signing	1	LS	$100,000	$100,000	
Traffic Control Systems	1	LS	$300,000	$300,000	
Traffic Control Systems (Ramp)	1	LS	$80,000	$80,000	
Pavement Delineation	1	LS	$40,000	$40,000	
Traffic Management Plan	1	LS	$200,000	$200,000	
Crash Cushions (Ramp)	1	EA	$8,400	$8,000	
Temporary K-rail	2,000	m	$60	$120,000	
Temporary K-rail (Ramp)	450	m	$60	$27,000	
Ramp Meters		EA		$0	
				Total Traffic Items	$1,409,000
				SUBTOTAL SECTIONS 1 - 5:	$5,753,000

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	
	05-MON-68
KP:	6.1/L6.9
EA:	448000
PP No. :	0

					Unit Cost	Section Cost
Section 6 - Minor Items						
Subtotal Sections 1 - 5		$5,753,000	X	10%	$575,300	
					TOTAL MINOR ITEMS:	$575,000
Section 7 - Roadway Mobilization						
Subtotal Sections 1 - 5		$5,753,000				
Minor Items		$575,000				
	Sum	$6,328,000	X	10%	$632,800	
					TOTAL ROADWAY MOBILIZATION	$633,000
Section 8 - Roadway Additions						
Supplemental						
Subtotal Sections 1 - 5		$5,753,000				
Minor Items		$575,000				
	Sum	$6,328,000	X	10%	$632,800	
Contingencies						
Subtotal Sections 1 - 5		$5,753,000				
Minor Items		$575,000				
	Sum	$6,328,000	X	25%	$1,582,000	
					TOTAL ROADWAY ADDITIONS	$2,215,000
					TOTAL ROADWAY ITEMS (Total of Sections 1 - 8)	$9,176,000

Estimate Prepared By:	BEN NGUYEN	(408) 453-5373	10/04/07
	(Print Name)	(Phone)	(Date)

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	
05-MON-68	
KP:	6.1/L6.9
EA:	448000
PP No. :	0

II. STRUCTURES ITEMS	#1	#2	#3	
Bridge Name	Scenic Drive Overpass			
Structure Type	New Precast Concrete			
Width (m) - out to out	13			
Span Length (m)	37			
Total Area (m^2)	466			
Footing Type (pile/spread)				
Cost per Sq. Meter Including: Mobilization: 10% Contingency: 25%	$2,200			
Bridge Removal	$245,000			
Total Cost For Structure	$1,271,000			
			Total Bridge Item	$1,271,000

SPECIALTY RETAINING WALL

	Unit	Quantity	Unit Price	Unit Cost
Retaining Wall (Type 1)	m^2	250	$1,200	$300,000
Retaining Wall (Soil Nail)	m^2	1400	$1,800	$2,520,000
Retaining Wall (MSE Wall)	m^2	1620	$1,000	$1,620,000
Retaining Wall (Type 5)	m^2	600	$1,200	$720,000

Cost per Sq. Meter Including:	Total Specialty Item	$5,160,000
Aesthetics: 10%		
Contingency: 25%	TOTAL STRUCTURES ITEMS	$6,431,000

Estimate Prepared By:	BEN NGUYEN	(408) 453-5373	10/04/07
	(Print Name)	(Phone)	(Date)

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	
	05-MON-68
KP:	6.1/L6.9
EA:	448000
PP No. :	0

III. RIGHT OF WAY

Right-of-Way estimates should consider the probable highest and best use and type and intent of improvements at the time of acquisition. Assume acquisition including utility relocation occurs at the right of way certification milestone as shown in the Funding and Scheduling Section of the PSR. For further guidance see Chapter 1, Caltrans Right of Way Procedural Handbook.

	Current Values	Escalation Rate (%/yr)	Escalated Value *
Acquisition, including excess lands and damages to remainders	$103,000	5.00%	$129,000
Utility Relocation (State Share)	$95,000		$95,000
Clearance / Demolition			$0
RAP			$0
R//W Services - Title and Escrow Fees			$3,000
CONSTRUCTION CONTRACT WORK			$0
Permanent Easement		5.00%	$0
TOTAL RIGHT OF WAY ** (CURRENT VALUE)	$198,000	TOTAL ESCALATED RIGHT OF WAY	$227,000

* - Escalated to assumed year of advertising:

** - Current total value for use on sheet 1 of 6
Beverly Manor R/W Take: 681 m2 @ $150 = $102,150
Beverly Manor Easements: 480 m2 @ $55 = $26,400

Estimate prepared by: BEN NGUYEN (408) 453-5373 10/04/07

ATTACHMENT F
RIGHT OF WAY
DATA SHEET

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY DATA SHEET

(Form #)

EXHIBIT
4-EX-1 (REV 3/2004)

To: Ken Hill

Date 05/03/2006

Dist 5 Co MON Rte 68 P/M (K/P) 3.8/L4.3 (6.1/L6.9)

Attention:

EA 448000

Project Description Route 68 Widening Project in Monterey

Subject: Right of Way Data

Alternate No. N/A

This Alternate meets the criteria for a Design/Build project: Yes [X] No [ ]

1. **Right of Way Cost Estimate:** To be entered into PMCS COST RW1-5 Screens.

		Current Value Future Use	Escalation Rate	Escalated Value
A.	**Total Acquisition Cost** Acquisition, including Excess Lands, Damages, and Goodwill.	$ 103,000	5 %	$ 128,750
	Project Permit Fees.			$ 0
B.	**Utility Relocation** (State Share)	$ 95,000	0 %	$ 95,000
C.	**Relocation Assistance**	$ 0	0 %	$ 0
D.	**Clearance/Demolition**	$ 0	0 %	$ 0
E.	**Title and Escrow**	$ 2,500	5 %	$ 3,000
F.	**Total Estimated Cost**	$ 200,500		$ 226,750
G.	**Construction Contract Work**	$ 0	*(These are construction costs that are to be included in the projects PS&E.)*	

2. **Current Date of Right of Way Certification** March 2008

3. **Parcel Data:** To be entered into PMCS EVNT RW Screen.

Type		Dual/Appr	Utilities	
X			U4-1	2
A	1		-2	0
B			-3	0
C	1		-4	0
D			U5-7	0
E	XXXX		-8	0
F	XXXX		-9	0

Total 2

RR Involvements	
None	X
C&M Agmt	
Svc Contract	
Design	
Const.	
Lic/RE/Clauses	

Misc. R/W Work	
RAP Displ	None
Clear/Demo	None
Const Permits	None
Condemnation	None
Excess	

Areas: R/W 681 sqm No. Excess Parcels 0

Entered PMCS Screens ___/___/___ by _____

Entered AGRE Screen (Railroad data only) ___/___/___ by _____

4. Are there any major items of construction contract work? Yes ☐ No ☒ (If "Yes," explain.)

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.). No right of way required. ☐

The PDT preferred alternative design variation A widens Route 68 on both north and south sides. Rights of way required is from a property zoned PC - Planned Community. This is a residential zoning by the City of Monterey. The property is currently a hospital. No major improvements are affected by the minor acquisition proposed along Route 68. An additional area required for the project is proposed to be exchanged between State and Pebble Beach Company at no expense to the project, through development agreement and State cooperative agreement.

6. Is there an effect on assessed valuation? Yes ☐ Not Significant ☐ No ☒ (If "Yes," explain.)

7. Are utility facilities or rights of way affected?
Yes ☒ No ☐ (If "Yes," attach Utility Information Sheet, Exhibit 4-EX-5.)
The following checked items may seriously impact lead time for utility relocation:
☒ Longitudinal policy conflict(s)
☐ Environmental concerns impacting acquisition of potential easements
☐ Power lines operating in excess of 50 KV and substations
(See attached Exhibit 4-EX-5 for explanation.)

8. Are Railroad facilities or rights of way affected?
Yes ☐ No ☒ (If "Yes," attach Railroad Information Sheet, Exhibit 4-EX-6.)

9. Were any previously unidentified sites with hazardous waste and/or material found?
Yes ☐ None Evident ☒ (If "Yes," attach memorandum per R/W Manual, Chapter 4, Section 4.01.10.00.)

10. Are RAP displacements required? Yes ☐ No ☒ (If "Yes," provide the following information.)

No. of single family _____ No. of business/nonprofit _____

No. of multi-family _____ No. of farms _____

Based on Draft/Final Relocation Impact Statement/Study dated _____, it is anticipated that sufficient replacement housing (will/will not) be available without Last Resort Housing.

11. Are there Material Borrow and/or Disposal Sites required? Yes ☐ No ☒ (If "Yes," explain.)

12. Are there potential relinquishments and/or abandonments? Yes ☒ No ☐ (If "Yes," explain.)

Due to access control change proposed by the project, portion of State right of way would be required to be relinquished to the local agency.

13. Are there any existing and/or potential airspace sites? Yes ☐ No ☒ (If "Yes," explain.)

14. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if district proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated.)

Based on the R/W requirements on Page 1 of this Data Sheet, R/W will require a lead time of 12 months from the date regular appraisals can begin to project certification.

In any event, RW Maps will require 18 months from Final Maps to project certification.

15. Is it anticipated that Caltrans staff will perform all Right of Way work? Yes ☐ No ☒ (If "No," discuss.)

Right of way work is proposed to be performed by a qualified consultant

Evaluation Prepared By:

Right of Way: Name Larry Castellanos, Associated Right of Way Services, Inc. Date 5/3/06

Railroad: Name N/A Date

Utilities: Name Richard Tejnalza, Mark Thomas & Co., Inc. Date 5/3/06

Recommended for Approval:

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set forth, and I find this Data Sheet complete and current.

District Division Chief/Regional Manager
Right of Way

Date

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

UTILITY INFORMATION SHEET

(Form #)

EXHIBIT
4-EX-5 (REV 3/2004)

1. Name of utility companies involved in project:

   Monterey County Water Line
   SBC Pacbell Telephone

2. Types of facilities and agreements required:

   SBC Pacbell: Longitudinal Encroachment Exception along southbound on ramp

3. Is any facility a longitudinal encroachment in existing or proposed access controlled right of way? Explain.

   SBC Pacbell: Longitudinal Encroachment Exception

   Disposition of longitudinal encroachment(s):
   ☐ Relocation required.
   ☒ Exception to policy needed.
   ☐ Other. Explain.

4. Additional information concerning utility involvements on this project, i.e., long lead time materials, growing or species seasons, customer service seasons (no transmission tower relocations in summer).

   None

5. PMCS Input Information
   Total estimated cost of State's obligation for utility relocation on this project:
   $ 0

   Note: Total estimated cost to include any Department obligation to relocate longitudinal encroachments in access controlled right of way and acquire any necessary utility easements.

Utility Involvements

U4-1	2	U5-7	
-2		-8	
-3		-9	
-4			

Prepared By:

Right of Way Utility Estimator

5/3/06
Date

ATTACHMENT G
STORM WATER
DATA REPORT

Caltrans

Dist-County-Route: 05-MON-68

Post Mile (Kilometer Post) Limits:
6.1/L6.9(3.8/L4.3)

Project Type: Widening

EA: 448000

RU: 111

Program Identification: Private Developer Fund w/ City and County of Monterey STIP and RSRP

Phase: ☐PID ☒PA/ED ☐PS&E

Regional Water Quality Control Board(s): Region 3 – Central Coast

Is the project required to consider incorporating Treatment BMPs? ☒Yes ☐No

If yes, can Treatment BMPs be incorporated into the project? ☒Yes ☐No

If No, a Technical Data Report must be submitted to the RWQCB at least 60 days prior to PS&E Submittal. List submittal date: May 2008

Total Disturbed Soil Area: 1.9 ha (4.77 ac)

Estimated Construction Start Date: 04-2013 Construction Completion Date: 10-2014

Notification of Construction (NOC) Date to be submitted: 03-2013

Notification of ADL reuse (if Yes, provide date) ☐Yes Date: _____ ☐No

Separate Dewatering Permit (if Yes, permit number) ☐Yes Permit #: _____ ☐No

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the data upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

Richard Tanaka *Registered Project Engineer/Landscape Architect* Date

I have reviewed the storm water quality design issues and find this report to be complete, current, and accurate:

Dave Rasmussen *Project Manager* Date

David Perez *Designated Maintenance Representative* Date

Dennis Reeves *Designated Landscape Architect Representative* Date

Marissa Nishikawa *District/Regional SW Coordinator or Designee* Date

Caltrans Metric

Dist-County-Route **05-MON-68**
Kilometer Post (Post Mile)Limits **6.1/L6.9(3.8/L4.3)**
Project Type **Widening**
EA: **448000**
RU: **111**
Program Identification: **Private Developer Fund w/ City & County of Monterey STIP and RSTP**
Phase: PID PA/ED X PS&E

Regional Water Quality Control Board(s): Region 3 – Central Coast Region

Is the project required to consider incorporating Treatment BMPs? Yes X No

If yes, can Treatment BMPs be incorporated into the project? Yes X No

If No, a Technical Data Report must be submitted to the RWQCB at least 30 days prior to Advertisement. List submittal date: _____

Total Disturbed Soil Area: 1.9 ha (4.77 ac)

Estimated: Construction Start Date: 04/2008 Construction Completion Date: 12/2009

Notification of Construction (NOC) Date to be submitted: 03/2008

Notification of ADL reuse (if Yes, provide date) Yes Date _____ No X

Separate Dewatering Permit (if Yes, permit number) Yes Permit # _____ No X

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the data upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

05-10-06
Richard K. Tanaka, Registered Project Engineer *Date*

I have reviewed the storm water quality design issues and find this report to be complete, current, and accurate:

5-25-06
Tom Houston, Project Manager *Date*

6-5-06
Jon Wood, Designated Maintenance Representative *Date*

5/30/06
Dennis Reeves, Designated Landscape Architect Representative *Date*

6/8/06
For Darren Cousineau, District/Regional SW Coordinator or Designee

STAMP
[Required for PS&E only]
Date

STORM WATER DATA INFORMATION

1. Project Description

The City of Monterey proposes to widen and upgrade 0.8 kilometer of Route 68 (Holman Highway) to a four-lane facility in the County of Monterey from 0.2 kilometer west of the Community Hospital of Monterey Peninsula (CHOMP) Entrance to the Route 1/Route 68 Junction. Route 1 southbound off-ramp and southbound on-ramp improvements are also included in the project. The preliminary project cost estimate is about $21.12 million. The project is proposed to be funded primarily by private development sources (Pebble Beach Company and CHOMP) and the City of Monterey as the lead agency (City and TAMC RIP Funds).

More specifically, the following items of work are included:

- ✓ Traffic signals at the intersection of SR 68 and the SR 1 off and on ramps would be modified.
- ✓ Traffic signal at the SR 68/CHOMP Entrance would be modified;
- ✓ The Scenic Drive overcrossing would be replaced with a new bridge;
- ✓ The Beverly Manor Development Entrance would be redesigned to prohibit left turns out of the entrance to eastbound SR 68. Eastbound left turns from SR 68 to the Beverly Manor Development Entrance and right turns in and right turns out of the entrance will be allowed;
- ✓ SR 1 southbound off- and onramps would require widening and installation of retaining walls;
- ✓ The Pebble Beach Entrance would be modified; and
- ✓ The proposed retaining walls (in 5 different areas) would be constructed at the edge of right-of-way.

The total disturbed soil area for this project is 1.9 ha (4.77 ac). The accounted areas are new pavement, clearing and grubbing, retaining wall construction, temporary construction staging areas, contractor's storage yard, haul road and cut and fill limits of the project.

The Project Study Report (PSR) for the proposed highway widening was approved in December 2000. Draft Project Report was approved on September 2006. Since the completion of the PSR and Draft PR, there have been two separate development projects within the project limits which have been approved by the City of Monterey and the County of Monterey. These two projects are improvements to the CHOMP (hospital) and to the Pebble Beach Lot Development. As part of their mitigations, CHOMP is required to improve the intersection of SR 68/CHOMP Entrance and Pebble Beach Company is required to improve access to Pebble Beach Main Gate. CHOMP portion of the work was just completed (February 2008).

It is anticipated that the remaining project will be constructed in two separate phases as follows:

Phase 1 will be the construction of the southbound onramp and the modification to the Pebble

Beach Entrance. This improvement is required as part of the mitigation the Pebble Beach Development Project.

Phase 2 will be the remainder of the project, which the City of Monterey will take the lead and will be the agency responsible for final design and construction.

Construction funding for the SR 68 four-lane widening improvement is included in the 2005 Monterey County Regional Transportation Plan as "Constrained Regional Project".

2. Define Site Data and Storm Water Quality Design Issues (refer to Checklists SW-1, SW-2, and SW-3)

- The Central Coast Regional Water Quality Control Board (CCRWQCB) has jurisdiction over the project limits.
- The closest receiving water within the project limit is the Pacific Ocean. The majority of the runoff from the project site is flowing from east to west toward a 360 mm RCP near the Pebble Beach Entrance gates. This will discharge into the City's drainage system and eventually flow into the Pacific Ocean.
- There is no 303 Listed water body in the vicinity of the project.
- The potential pollutants within the project area include oil, grease, petroleum products, battery acid, metals and other toxic material from cars, bacteria from animal wastes, litter and general debris form traveling public and adjacent properties.
- 401 Certification will be required as a compliance with the Federal permit.
- There are no seasonal construction restrictions. The rainy season has been defined by the Central Coast RWQCB as October 15 through April 15.
- The County of Monterey has an average annual precipitation of 43 inches. In the Southern part of the County, precipitation can get as high as 50 inches per year. Approximately 90 percents of the rainfall occurs between November through April. Measurable precipitation averages 51 days per year, and the average length of the growing season is 235 days.
- The general climate of County of Monterey is characterized as warm, dry summer and cool, moist winter. The average temperature is approximately 56° F.
- The soils in Monterey County vary considerable. There are silicon/quartz deposits along the beaches. To the east of the County toward Salinas, there are alluvial deposits that form some of the finest farmlands in the nation. There are rolling hills that are heavily wooded. The soils in these areas are of sediment origin, but not particularly suited for agriculture. Based on a soil investigation by USR in 2001, there are no active faults within the project limit. The potential for liquefaction and lurch cracking is very low.
- There are no contaminated or hazardous soils within project limits.
- Disturbed area is about 1.9 hectares (4.77 ac). The disturbed area include cut/fill slopes, contractors use area, temporary service roads, and stockpile/borrow areas. The calculated area is approximate.
- The topography of the Monterey County is extremely varied. Elevations range from sea level to 1781 meters (5844 feet) at Junipero Serra Peak, which is about 19 km (12 miles)

inland, in the Santa Lucia range. The County includes the famous Salinas Valley, which is bounded by the Galiban Mountains to the East and the Santa Lucia Mountains to the west. The valley is 13 km to 32 km (10 to 20 miles) wide, 209 km (130 miles) long and has approximately 259,000 hectares (640,000 acres) of broad bottom land. The topography of the site is generally flat trending from North to South. However, the site is situated with high steep hill to the north and low steep terrain to the south.

- Contractor's staging yard and trailer facilities may be located outside of Caltrans' right-of-way. (Contractors yard will be included in SWPPP for project)
- There are slope stabilization concerns in areas where slopes are 1:2 (v:h.)
- Right of way certification will be required due to the right of way acquisition for the widening of the project.
- The project alignment is chosen to maximize the cut and fill balance. Concentrated flows will be collected by culvert systems.
- The land use within project ranges from commercial to residential. To the West of the project, there are the Community Hospital of Monterey Peninsula (CHOMP), and the Beverly Manor Healthcare Center and the Carmel Hill Professional Center. To the east is the Pebble Beach Entrance which is the gateway to the famous Seventeen Mile Drive. Some residential neighborhood are located east of the project and north of the Scenic Drive Overcrossing.

3. Regional Water Quality Control Board Agreements

There are no negotiated understandings or agreements with the Central Coast RWQCB pertaining to this project. The preparation of this SWDR is a specific requirement of the Caltrans NPDES.

4. Describe Proposed Design Pollution Prevention BMPs to be used on the Project.

Downstream Effects Related to Potentially Increased Flow, Checklist DPP-1, Parts 1 and 2

- The project will slightly increase the velocity and volume of flow within the project limits, but should have a negligible effect on downstream flow. Majority of the water will be conveyed by concrete curb and gutter and culvert system through the project site with a maximum velocity of 0.8 m/s during a 25-year storm event. Storm culverts will be fitted with Flared End Sections (FES) and energy dissipation in the form of Rock Slope Protection (RSP) at the outlets to ensure smooth transition and also prevent scour.
- New lined ditches will also be constructed within the project areas to intercept the storm water sheet flowing from the pavement. Ditch slopes will be designed to minimize the velocity of flow to reduce the scour and erosion damages.

Slope/Surface Protection Systems, Checklist DPP-1, Parts 1 and 3

- The project will create several new fill slope surfaces and disturb several existing surfaces. New slope surfaces are proposed at the SB Route 1 on-ramp, SB Route 1 off-ramp, and along some part of Highway 68. In general, the new slopes are 1:4 or flatter.

- Disturbed slopes will be protected with either erosion control Type B or Type C in accordance with the State Standard Specification. The goal during construction will be to implement permanent erosion control measures as soon as possible. Depending on the time of year, these measures can be implemented anytime during construction. A detailed erosion control plans will be prepared at the PS&E phase.
- SSPs 07-390, 20-010. 20-030, 20-040, 20-350 and 72-010 will be included in the project special provision at PS&E phase.
- The estimated existing vegetated surface area within the project limits is about 0.28 ha.
- There is no existing hard surface BMP.
- Approximately more the 460 trees will be removed as part of the construction of this project. Majority of these trees are native Monterey pines. A mitigation plan is currently proposed and the details will be available in the PS&E phase.

Concentrated Flow Conveyance Systems, Checklist DPP-1, Parts 1 and 4

- Generally, the runoff will be conveyed through closed conduits and concrete curbs before discharging into the City's drainage system. However, erosion control measures will be implemented to minimize depositing additional sediment. Roadway facilities are not anticipated to subject to flooding in this project.
- Detailed design of concentrated conveyance systems will be done in the PS&E phase.

Preservation of Existing Vegetation, Checklist DPP-1, Parts 1 and 5

- Based on the preliminary design, the project will involve clearing and grubbing of about 1.57 hectares (3.88 acres).
- Preservation areas will be identified on the contract plans and protected with fence during construction.

5. Describe Proposed Permanent Treatment BMPs to be used on the Project

This project meets the definition of major reconstruction project and the project is also in the urban area subject to a MS4 permit. Therefore, Treatment BMPs would need to be considers for this project (see Evaluation Documentation Form included in Appendix). The Targeted Design Constituent (TDC) will be identified at the PS&E phase and will discuss with the storm water coordinator to select the approved Treatment BMPs.

Treatment BMP Strategy, Checklist T-1

- Existing impervious area is 2.14 hectares (5.29 acres) within the project limits. This project is adding an additional 1.18 hectares (2.92 acres) for a total of 3.32 hectare (8.20 acres) of impervious surface. It is intended to treat 100% of the runoff from this project. A preliminary estimate shows that 61% of the total impervious surface will be treated with the new BMP. The rest of the flow will follow its original drainage pattern. A detail design will be submitted for review at the PS&E phase.

Biofiltration Swales/Strips, Checklist T-1, Parts 1 and 2

- Biofiltration and biostrips will be looked at in the PS&E phase.

Dry Weather Diversion, Checklist T-1, Parts 1 and 3

- Dry weather diversion is not applicable for this project.

Infiltration Devices – Checklist T-1, Parts 1 and 4

- Infiltration basins will be looked at the PS&E phase.

Detention Devices, Checklist T-1, Parts 1 and 5

- Detention basins will be looked at the PS&E phase.

Gross Solids Removal Devices (GSRDs), Checklist T-1, Parts 1 and 6

- GSRDs are not applicable for this project.

Traction Sand Traps, Checklist T-1, Parts 1 and 7

- Traction Sand Traps are not applicable for this project.

Media Filters, Checklist T-1, Parts 1 and 8

- Media Filters will be looked at the PS&E phase.

Multi-Chambered Treatment Trains (MCTTs), Checklist T-1, Parts 1 and 9

- MCTTs are not applicable for this project.

Wet Basins, Checklist T-1, Parts 1 and 10

- Wet Basins are not applicable for this project

6. Describe Proposed Temporary Construction Site BMPs to be used on Project

Temporary construction site BMP such as temporary silt fence, temporary ESA fence, temporary fiber rolls, fiber roll check dams, temporary soil stabilizers, temporary erosion control, temporary construction entrances/exits, temporary construction road, temporary concrete washouts, temporary stockpile covers, temporary creek diversion and temporary drain inlet protection will be incorporated into the design during the PS&E phase. The preliminary cost estimate for the temporary construction site BMP is $150,000 which is 1% of the total construction cost for the project. A more detail cost estimate for temporary BMP will be provided at the PS&E phase.

In addition, measures identified in Caltrans SSP 07-345 such as but not limited to street sweeping, construction waste management, and tracking control will also be included.

Permanent erosion control will be implemented as soon the slopes are complete by incorporating erosion control as separate contract item.

Construction costs for permanent BMPs are included in the Preliminary Project Construction Cost Estimate Summary (PPCE) associated with storm water pollution prevention and treatment. A brief summary is as follows:

Roadway Items

- Section 1: Earthwork
  - Total $484,000

- Section 2: Temporary Construction BMP's
  - Temporary Erosion Control
  - Temporary Drainage Protection
  - Temporary Fiber Roll

  Total $100,000

- Section 3: Drainage
  - Concentrate Flow Conveyance System

  AC dike
  Ditches
  Total $ 80,000

- Section 4: Specialty Items
  - Erosion Control, (Type D)
  - Erosion Control Blanket
  - Slope Protection (Backing No. 2, Method B)
  - Biofiltration Strips/Swales

  Total $50,000

- Section 5: Treatment BMP's
  - Treatment BMP $100,000

TOTAL STORM WATER TREATMENT & PREVENTION: $330,000

7. **Maintenance BMPs (Drain Inlet Stenciling)**

Inlet stenciling will be required by the City of Monterey. The template will be provided by the City of Monterey.

REQUIRED ATTACHMENTS

- Evaluation Documentation Form (EDF)

- Treatment BMP Summary Spreadsheets
- Treatment BMP Consideration
- Attachment A – Location Map
- Attachment B – Project GAD
- Attachment C – Typical Cross Sections
- Attachment D – Rainfall Intensity Duration/Frequency Data Sheet
- Attachment F – Disturbed Soil Area Exhibit

SUPPLEMENTAL ATTACHMENTS

- Storm Water BMP Cost Summary (IN PROGRESS)
- Project Report Cost Estimate
- Checklist SW-1, Site Data Sources
- Checklist SW-2, Storm Water Quality Issues Summary
- Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water BMPs
- Checklists DPP-1, Parts 1–5 (Design Pollution Prevention BMPs)
- Checklists T-1 through Part 10 (Treatment BMPs)

DATE: 05-02-08

See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPS EA: 448000

NO.	CRITERIA	YES	NO	SUPPLEMENTAL INFORMATION FOR EVALUATION
1.	Begin Project Evaluation regarding requirement for consideration of Treatment BMPs	☒		Go to 2
2.	Is this an emergency project?	☐	☒	If **Yes**, go to 11. If **No**, continue to 3.
3.	Have TMDLs OR OTHER Pollution Control Requirements been established for surface waters within the project limits?	☐	☒	If **Yes**, contact the District/Regional NPDES coordinator to discuss the Department's obligations under the TMDL (if Applicable) or Pollution Control Requirements, go to 10 or 4 (as determined by the NPDES Coordinator). _____ *(Dist./Reg. SW Coordinator initials)* If **No**, continue to 4.
4.	Is the project within an urban MS4?	☒	☐	If **Yes**, continue to 5. *City of Monterey MS4* If **No**, go to 11.
5.	Is the project directly or indirectly discharging to surface waters?	☒	☐	If **Yes**, continue to 6. If **No**, go to 11.
6.	Is this a new facility or major reconstruction?	☒	☐	If **Yes**, continue to 8. If **No**, go to 7.
7.	Will there be a change in line/grade or hydraulic capacity?	☐	☐	If **Yes**, continue to 8. If **No**, go to 11.
8.	Is the Disturbed Soil Area (DSA) created by the project greater than or equal to 3.0 acres or does the project result in a net increase of one acre or more of new impervious surface?	☒	☐	If **Yes**, continue to 10. If **No**, go to 9. *1.9 ha*
9.	Is the project part of a Common Plan of Development?	☐	☐	If **Yes**, continue to 10. If **No**, go to 11.
10.	Project is required to consider approved Treatment BMPs.	☒	See Sections 2.4 and either Section 5.5 or 6.5 for BMP Evaluation and Selection Process. Complete Checklist T-1 in this Appendix E.	
11.	Project is not required to consider Treatment BMPs. _____*(Dist./Reg. SW Coord. Initials)* _____*(Project Engineer Initials)* _____ *(Date)*	☐	Document for Project Files by completing this form, and attaching it to the SWDR.	

See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs

Treatment BMP
Summary Spreadsheet

Dist-County-Route:	**05-MON-68**
Kilometer Post (Post Mile) Limits:	**KP 6.1/L6.9 (PM 3.8/L4.3)**
Project Type:	**Widening**
EA:	**05-44800K**
RU:	
Program Identification:	**Private Fund by Pebble Beach Company, and CHOMP. City and County of Monterey's STIP & RSTP**
Phase:	**PA/ED**
Date:	**10/07/05**

Infiltration Basins

District-County-Route: 05-MON-68
EA: 05-44800K

County	Route	Location Post Mile (PM)	Location KiloPost (KP)	Water Quality Volume (Cubic Meters)

This treament will be looked at at PS&E phase

Biofiltration Swales

District-County-Route: 05-MON-68
EA: 05-44800K

County	Route	From Location Post Mile (PM)	To Location Post Mile (PM)	From Location KiloPost (KP)	To Location Post Mile (KP)
		This treament will be looked at at PS&E phase			

DATE: 05-02-08

Project Evaluation Process for the Consideration of Construction Site BMPs EA: 448000

NO.	CRITERIA	YES	NO	SUPPLEMENTAL INFORMATION
1.	Will construction of the project result in areas of disturbed soil as defined by the Project Planning and Design Guide (PPDG)?	☒	☐	If **Yes**, Construction Site BMPs for Soil Stabilization (SS) will be required. Complete CS-1, Part 1. Continue to 2. If **No**, Continue to 3.
2.	Is there a potential for disturbed soil areas within the project to discharge to storm drain inlets, drainage ditches, areas outside the right of way, etc?	☒	☐	If **Yes**, Construction Site BMPs for Sediment Control (SC) will be required. Complete CS-1, Part 2. Continue to 3.
3.	Is there a potential for sediment or construction related materials and wastes to be tracked offsite and deposited on private or public paved roads by construction vehicles and equipment?	☒	☐	If **Yes**, Construction Site BMPs for Tracking Control (TC) will be required. Complete CS-1, Part 3. Continue to 4.
4.	Is there a potential for wind to transport soil and dust offsite during the period of construction?	☒	☐	If **Yes**, Construction Site BMPs for Wind Erosion Control (WE) will be required. Complete CS-1, Part 4. Continue to 5.
5.	Is dewatering anticipated or will construction activities occur within or adjacent to a live channel or stream?	☐	☒	If **Yes**, Construction Site BMPs for Non-Storm Water Management (NS) will be required. Complete CS-1, Part 5. Continue to 6.
6.	Will construction include saw-cutting, grinding, drilling, concrete or mortar mixing, hydro-demolition, blasting, sandblasting, painting, paving, or other activities that produce residues?	☒	☐	If **Yes**, Construction Site BMPs for Non-Storm Water Management (NS) will be required. Complete CS-1, Part 5. Continue to 7.
7.	Are stockpiles of soil, construction related materials, and/or wastes anticipated?	☒	☐	If **Yes**, Construction Site BMPs for Waste Management and Materials Pollution Control (WM) will be required. Complete CS-1, Part 6. Continue to 8.
8.	Is there a potential for construction related materials and wastes to have direct contact with precipitation; storm water run-on, or stormwater runoff; be dispersed by wind; be dumped and/or spilled into storm drain systems?	☒	☐	If **Yes**, Construction Site BMPs for Waste Management and Materials Pollution Control (WM) will be required. Complete CS-1, Part 6. Continue to 9.
9.	End of checklist.	☒	Document for Project Files by completing this form, and attaching it to the SWDR.	

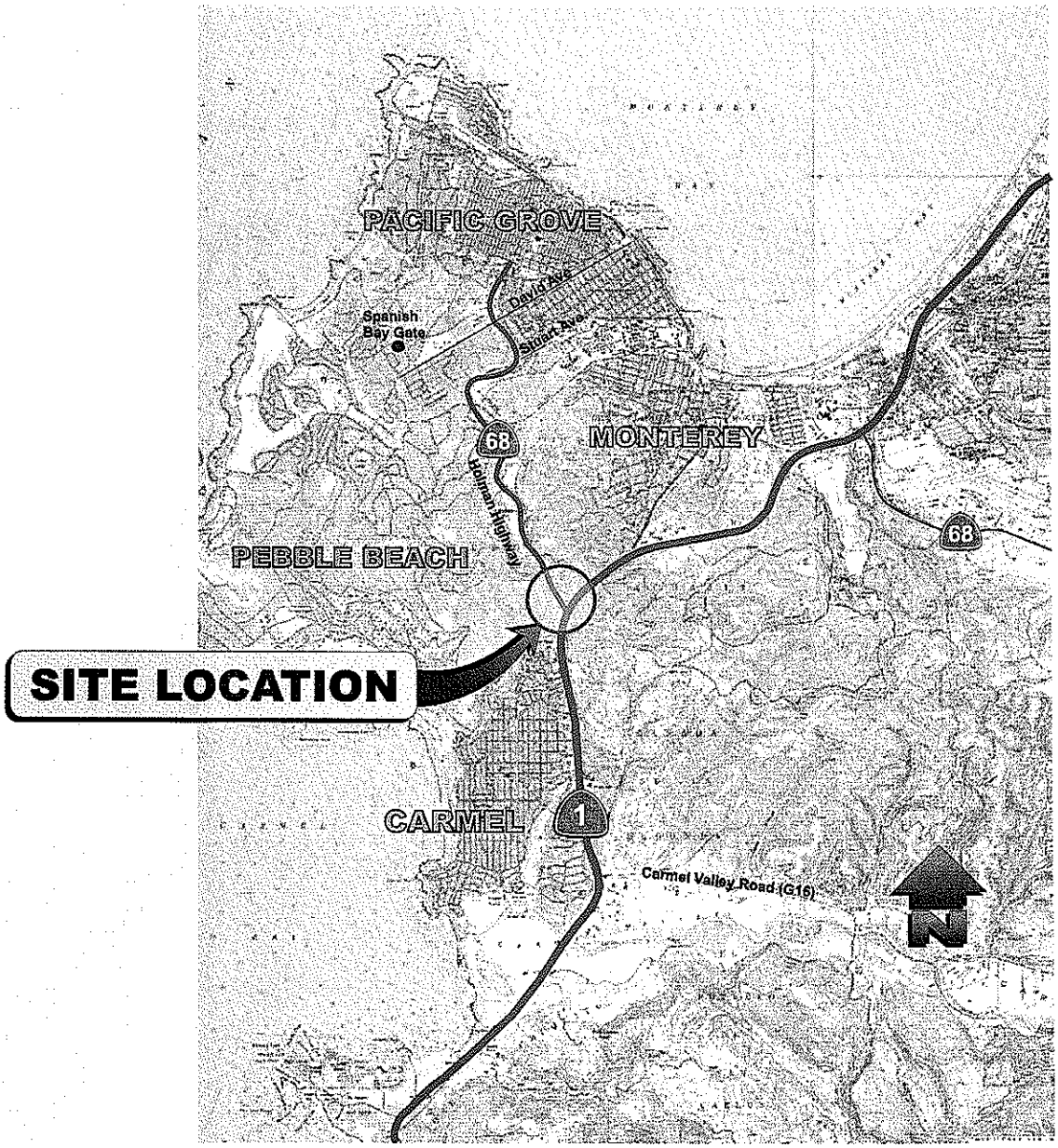
PE to initialize after concurrence with Construction (PS&E only) *Date*

ATTACHMENT A

LOCATION MAP

Route 68 /Holman Highway
In the County of Monterey
MON-05-68
KP 6.1/L6.9 (PM 3.8/L4.3)

LOCATION MAP



Mark Thomas & Company, Inc.
ENGINEERS - PLANNERS - SURVEYORS

ATTACHMENT B

PROJECT GEOMETRICS

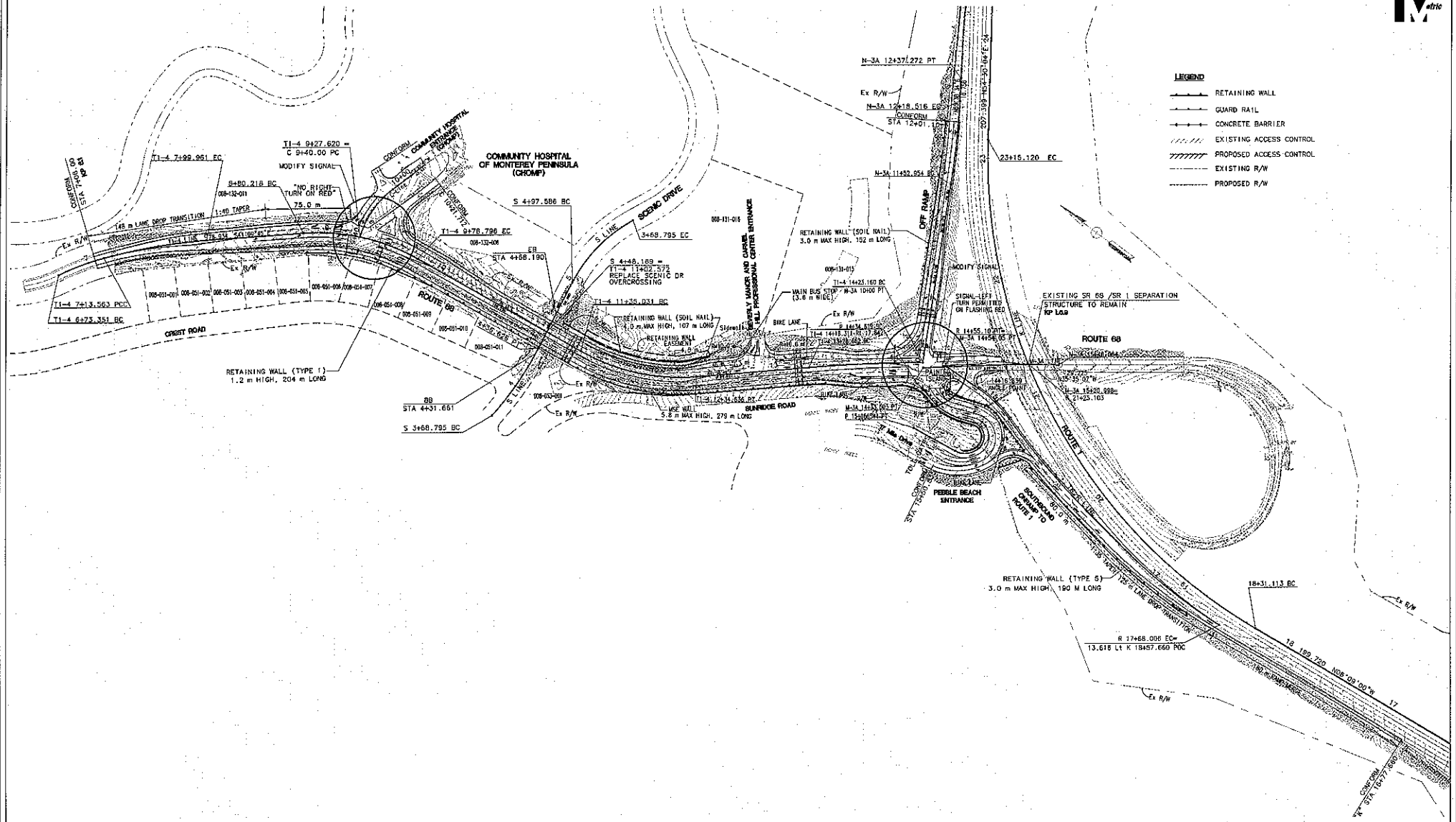


FIGURE 1-3 GEOMETRICS OF THE PROJECT

GRAPHIC SCALE
(IN METERS)
20 0 10 20 40 60 80 100

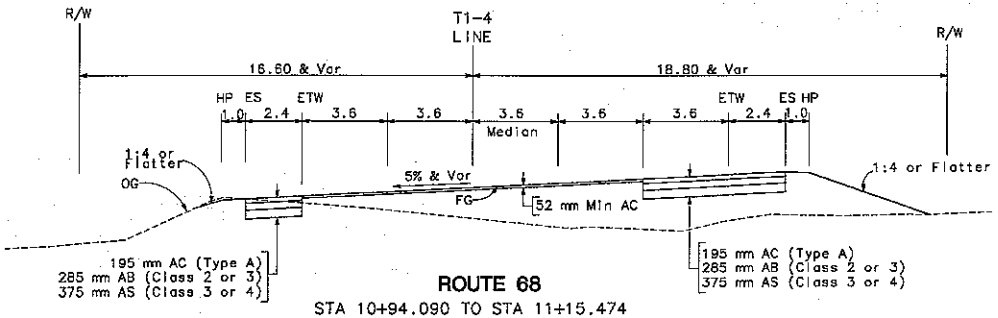
MARK THOMAS & COMPANY, INC.
Roadway Engineering, Surveying and Planning Services

UPDATED: 04/24/06

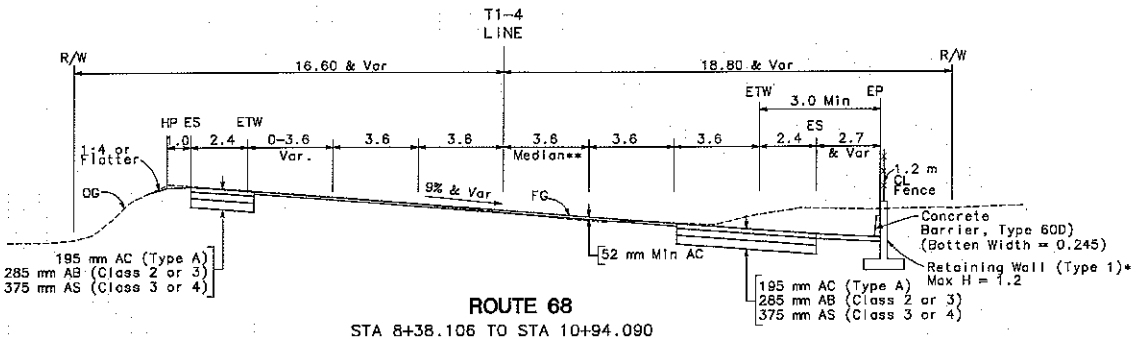
05-MON-68-KP 6.1/L6.9 (PM 3.8/L4.3)
PDT PREFERRED ALTERNATIVE 3A
EA - 446000

ATTACHMENT C

TYPICAL SECTIONS

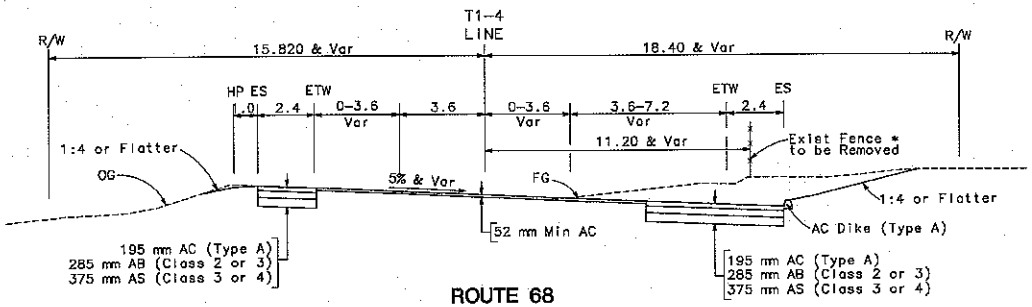


ROUTE 68
STA 10+94.090 TO STA 11+15.474
(SCENIC DRIVE OVERCROSSING)



ROUTE 68
STA 8+38.106 TO STA 10+94.090

* Retaining Wall starts @ station 8+80.216
** Median starts @ station 9+60.132



ROUTE 68
STA 7+06.00 TO STA 8+38.106

* Fence starts @ station 8+15.082

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER — R.K. TANAKA, No. 23233, Exp. 12/31/09, CIVIL, REGISTERED PROFESSIONAL ENGINEER, STATE OF CALIFORNIA

PLANS APPROVAL DATE

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

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TYPICAL CROSS SECTIONS

NO SCALE

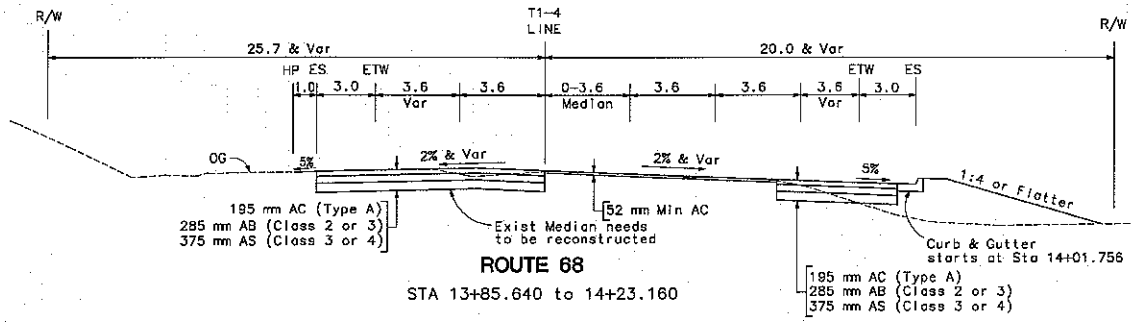
X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — DESIGN OVERSIGHT — CALCULATED/DESIGNED BY — CHECKED BY — DATE REVISED BY — DATE REVISED

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

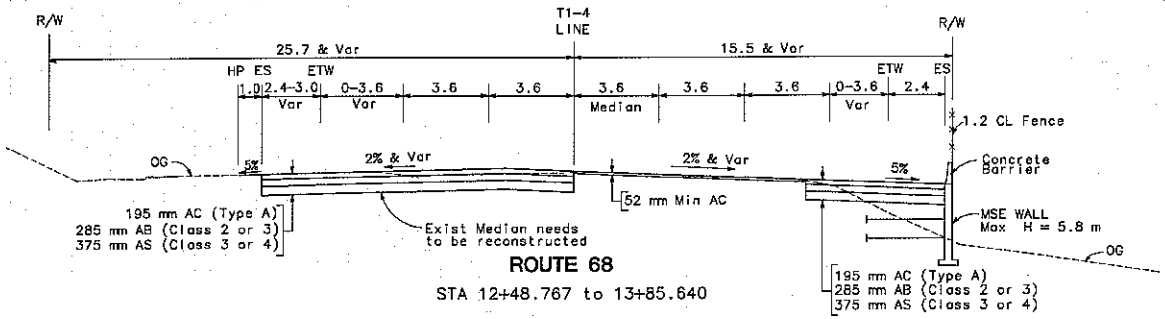
CU | EA

FORM DC-DE-92-PF (REV. 3/99)



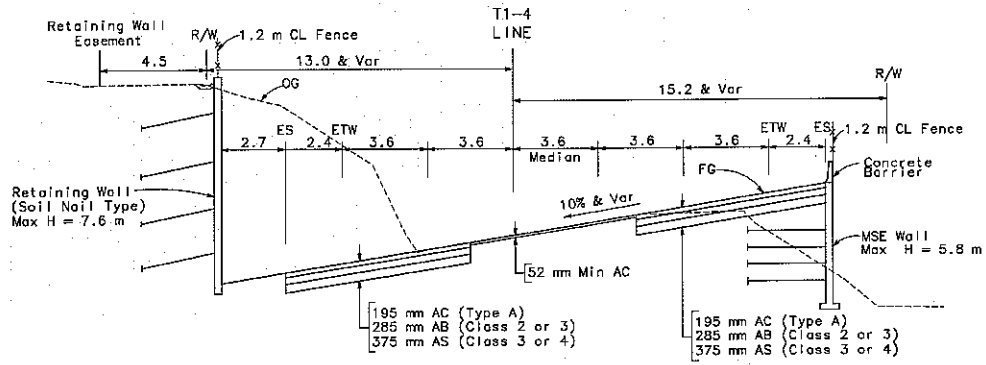
ROUTE 68

STA 13+85.640 to 14+23.160



ROUTE 68

STA 12+48.767 to 13+85.640



ROUTE 68

STA 11+15.474 TO STA 12+48.767

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

TYPICAL CROSS SECTIONS

NO SCALE

X-2

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER

R.K. TANAKA No. 23233 Exp. 12/31/09 CIVIL

REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA

PLANS APPROVAL DATE

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

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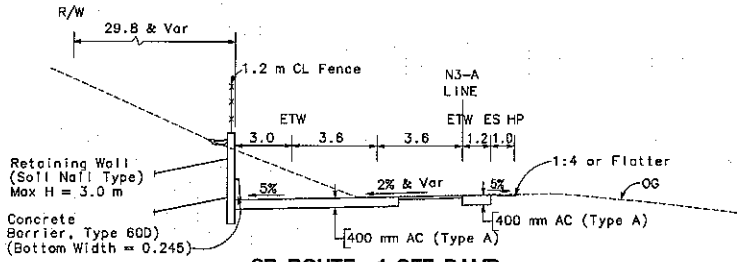
CALCULATED/ DESIGNED BY
CHECKED BY
DATE
REVISED BY
DATE REVISED

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

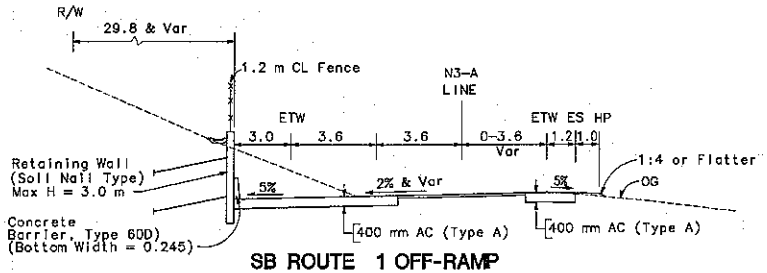
CU EA

FORM DC-DE-82-PF (REV. 3/88)



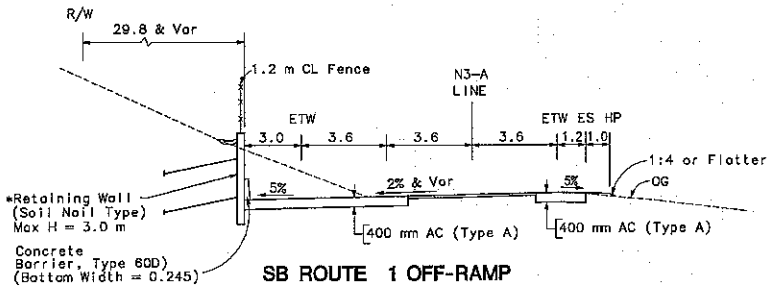
SB ROUTE 1 OFF-RAMP

STA 11+22.893 to 12+01.10



SB ROUTE 1 OFF-RAMP

STA 10+70.701 to 11+22.893



SB ROUTE 1 OFF-RAMP

STA 10+20.00 to 10+70.701

*Retaining Wall starts at Sta 10+49.247

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

TYPICAL CROSS SECTIONS

NO SCALE

X-3

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER

R.K. TANAKA
No. 23233
Exp. 12/31/09
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

PLANS APPROVAL DATE

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

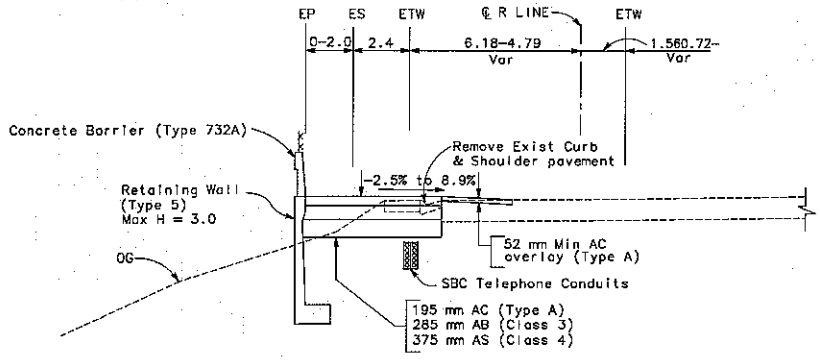
MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION
DESIGN OVERSIGHT
CALCULATED/DESIGNED BY
CHECKED BY
DATE
REVISED BY
DATE REVISED

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

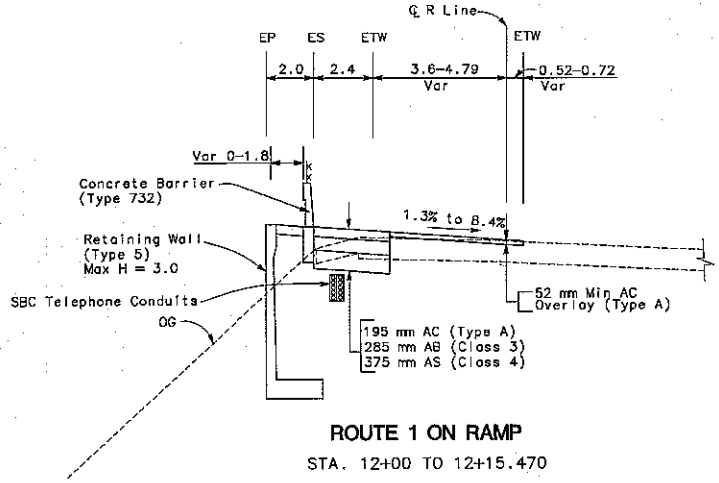
CU EA

FORM DC-DE-02-PF (REV. 3/88)



ROUTE 1 ON RAMP

STA. 12+15.470 TO 12+52.657



ROUTE 1 ON RAMP

STA. 12+00 TO 12+15.470

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

TYPICAL CROSS SECTIONS

NO SCALE

X-4

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER

R.K. TANAKA
No. 23233
Exp. 12/31/09
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

PLANS APPROVAL DATE

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

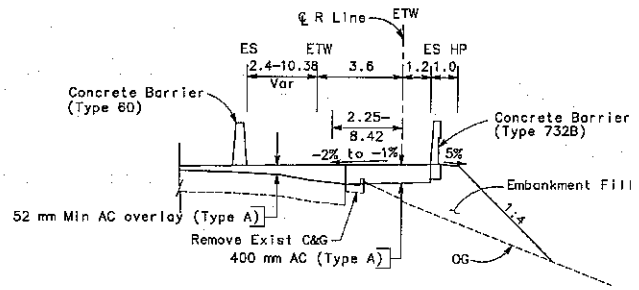
ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN OVERSIGHT
CALCULATED/ DESIGNED BY
CHECKED BY
DATE
REVISED BY
DATE REVISED

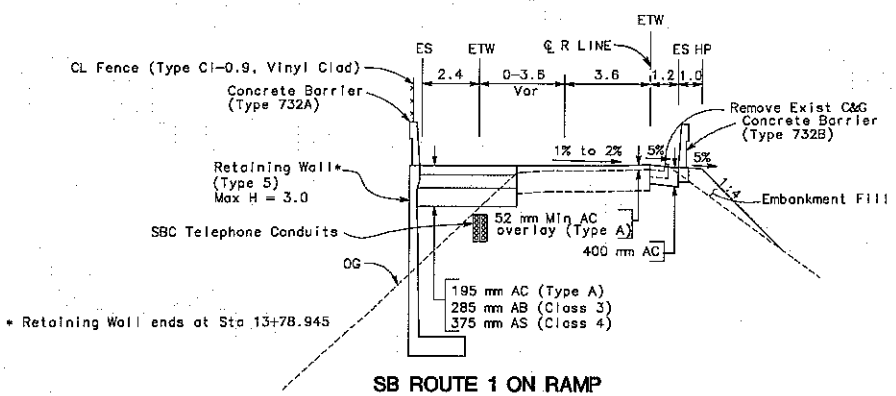
FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

CU | EA

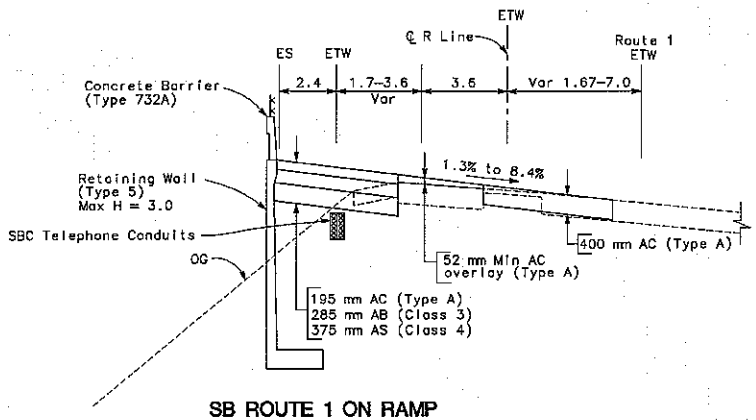
FORM 0C-DE-92-PF (REV. 3/88)



SB ROUTE 1 ON RAMP
STA. 13+92.055 TO 14+61.433



SB ROUTE 1 ON RAMP
STA. 13+37.062 TO 13+92.055



SB ROUTE 1 ON RAMP
STA. 12+52.657 TO 13+37.062

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER

R.K. TANAKA
No. 23233
Exp. 12/31/09
CIVIL
STATE OF CALIFORNIA

PLANS APPROVAL DATE

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

TYPICAL CROSS SECTIONS

NO SCALE

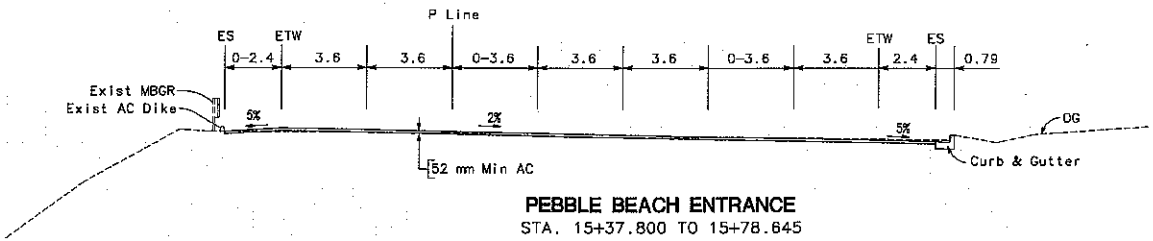
X-5

STATE OF CALIFORNIA – DEPARTMENT OF TRANSPORTATION
DESIGN OVERSIGHT
CALCULATED/DESIGNED BY
CHECKED BY
DATE REVISED BY
DATE

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

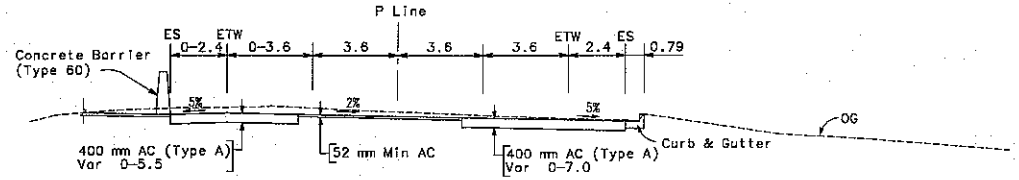
FORM DC-DE-92-PF (REV. 3/88)

CU EA



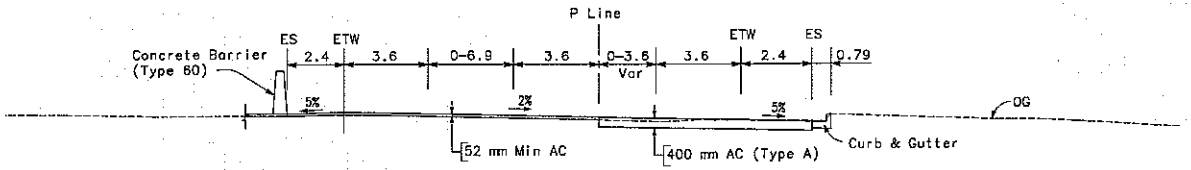
PEBBLE BEACH ENTRANCE

STA. 15+37.800 TO 15+78.645



PEBBLE BEACH ENTRANCE

STA. 14+76.119 to 15+37.800



PEBBLE BEACH ENTRANCE

STA. 14+30 TO 14+76.119

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

TYPICAL CROSS SECTIONS

NO SCALE

X-6

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L6.9		

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

R.K. TANAKA, No. 23233, Exp. 12/31/09, CIVIL, REGISTERED PROFESSIONAL ENGINEER, STATE OF CALIFORNIA

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

DESIGN OVERSIGHT

CALCULATED/ DESIGNED BY

CHECKED BY

DATE REVISED BY

DATE REVISED

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

CU | EA

FORM DC-OE-92-PF (REV. 3/88)

ATTACHMENT D

RAINFALL INTENSITY DURATION/FREQUENCY DATA SHEET

WINIDF v.1 REPORT. 10/7/2005

GENERAL INFORMATION:

Input by: BN
Input Date: 10/7/2020
Project Description: Highway 68 KP6.1 (PM 3.8)

SITE DATA

Latitude: 36.34 deg.
Longitude: 121.54 deg.
Return Period: 25 years

SELECTED STATIONS

Station Name	Station ID	Elev. ft	Lat. deg.	Long. deg.	Dist. miles
ARROYO SECO	D200322000	800	36.2330	121.4830	8.05
SOLEDAD	D208338000	204	36.4330	121.3170	13.97
MT TORO	D205998080	2370	36.5500	121.6330	15.41
LAURELES GRADE	D204836050	1350	36.5500	121.7500	18.63

COMPUTED INTENSITIES (INCHES/HOUR)

Return Period Duration	25-yr	2-yr	10-yr	25-yr	50-yr	100-yr	10,000-yr
5-min	2.411	1.209	2.013	2.423	2.695	2.985	4.702
10-min	1.791	0.898	1.495	1.800	2.002	2.217	3.493
15-min	1.505	0.755	1.256	1.513	1.682	1.863	2.935
30-min	1.118	0.561	0.933	1.124	1.250	1.384	2.181
60-min	0.831	0.417	0.693	0.835	0.928	1.028	1.620
120-min	0.617	0.310	0.515	0.620	0.690	0.764	1.203
4-hr	0.458	0.230	0.383	0.461	0.512	0.568	0.894
8-hr	0.341	0.171	0.284	0.342	0.381	0.422	0.664
16-hr	0.253	0.127	0.211	0.254	0.283	0.313	0.493
24-hr	0.213	0.107	0.177	0.214	0.238	0.263	0.415

OUTPUT COEFFICIENTS

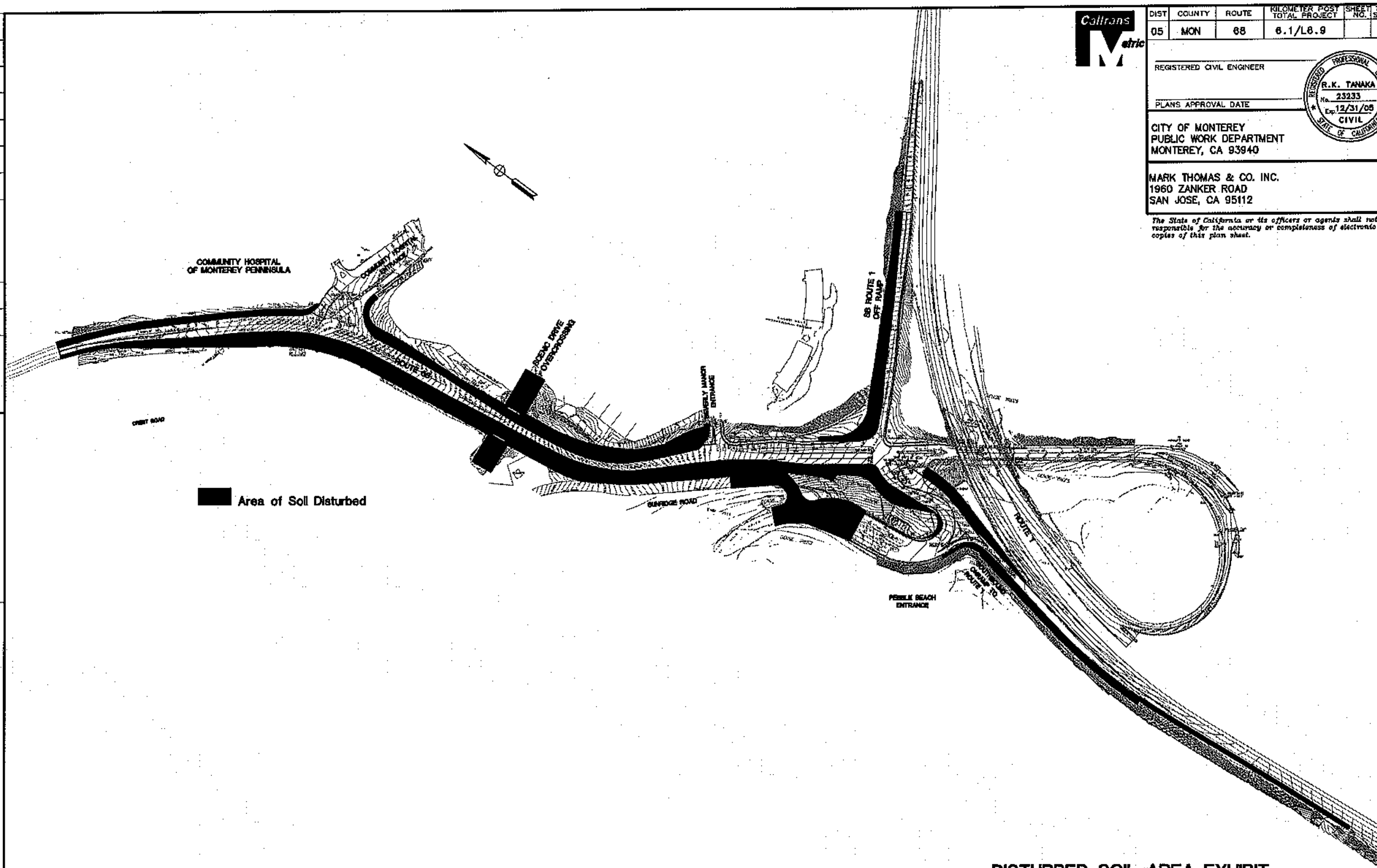
a = 0.8308
b = -0.4288

COMPUTED INTENSITIES (MM/HOUR)

Return Period Duration	**25-yr**	**2-yr**	**10-yr**	**25-yr**	**50-yr**	**100-yr**	**10,000-yr**
5-min	**61.239**	**30.709**	**51.130**	**61.544**	**68.453**	**75.819**	**119.431**
10-min	**45.491**	**22.809**	**37.973**	**45.720**	**50.851**	**56.312**	**88.722**
15-min	**38.227**	**19.177**	**31.902**	**38.430**	**42.723**	**47.320**	**74.549**
30-min	**28.397**	**14.249**	**23.698**	**28.550**	**31.750**	**35.154**	**55.397**
60-min	**21.107**	**10.592**	**17.602**	**21.209**	**23.571**	**26.111**	**41.148**
120-min	**15.672**	**7.874**	**13.081**	**15.748**	**17.526**	**19.406**	**30.556**
4-hr	**11.633**	**5.842**	**9.728**	**11.709**	**13.005**	**14.427**	**22.708**
8-hr	**8.661**	**4.343**	**7.214**	**8.687**	**9.677**	**10.719**	**16.866**
16-hr	**6.426**	**3.226**	**5.359**	**6.452**	**7.188**	**7.950**	**12.522**
24-hr	**5.410**	**2.718**	**4.496**	**5.436**	**6.045**	**6.680**	**10.541**

ATTACHMENT E

SOIL DISTURBED AREA EXHIBIT



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	MON	68	6.1/L8.9		

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER R.K. TANAKA No. 23233 Exp. 12/31/05 CIVIL STATE OF CALIFORNIA

CITY OF MONTEREY
PUBLIC WORK DEPARTMENT
MONTEREY, CA 93940

MARK THOMAS & CO. INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

DISTURBED SOIL AREA EXHIBIT

NO SCALE

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN OVERSIGHT	CALCULATED/ DESIGNED BY		DATE	REVISED BY
Caltrans		CHECKED BY			DATE REVISED

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80 100

CU

EA

FORM DC-DE-92-PF (REV. 3/88)

SUPPLEMENTAL ATTACHMENTS

- Storm Water BMP Cost Summary (In Progress)
- Project Report Cost Estimate
- Checklist SW-1, Site Data Resources
- Checklist SW-2, Storm Water Quality Issues Summary
- Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water BMPs
- Checklists, DPP-1, Part 1-5 (Design Pollution Prevention BMPs)
- Checklists, T-1 Though Part 10 (Treatment BMPs)
- Checklists, CS

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE: 05-MON-68
Type of Estimate (Pre-PSR, PSR, PR, etc.): PR
Program Code: 20.xx.075.600 RIP
KP: 6.1/L6.9
EA: 448000
PP No. :

Project Description:

Limits: **Widening of Route 68 from Community Hospital of Monterey Peninsula (CHOMP) to Route 1 Interchange in Monterey in Monterey County**
FOUR-LANE FIVE LEGGED ULTIMATE FACILITY

Proposed Improvement (Scope): **Widening of Route 68, Modify Signal, Replace 17 Mile Scenic Drive Overcrossing Bridge, Construction of Retaining Wall, MSE Wall and Living Wall (Sound Wall)**

PROPOSED ALTERNATIVE

(1) Preliminary Engineering/Environmental Phase	$1,294,000
(2) Final Design (10% of Construction)	$1,561,000
(3) Construction Support	$1,247,000
(4) RIGHT OF WAY & UTILITY	$227,000
(5) CONSTRUCTION PHASE	
ROADWAY ITEMS	$9,176,000
STRUCTURE ITEMS	$6,431,000
SUBTOTAL CONSTRUCTION PHASE	$15,607,000
TOTAL ALTERNATIVE COST	$ 19,936,000

Reviewed by Project Engineer	BEN NGUYEN	(408) 453-5373	10/04/07
Approved by Project Manager	Richard K. Tanaka	(Phone)	10/04/07 (Date)

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	
	05-MON-68
KP:	6.1/L6.9
EA:	448000
PP No. :	0

	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Section 1 - Earthwork					
Imported Borrow (Ramp)	1,300	m^3	$51	$66,000	
Roadway Excavation	10,000	m^3	$56	$560,000	
Clearing & Grubbing	1	LS	$280,900	$300,000	
Clearing & Grubbing (Ramp)1	1	LS	$28,100	$30,000	
Develop Water Supply		LS		$0	
				Total Earthwork	$956,000
Section 2 - Structural Section *					
Pavement(Roadway)	7,400	m^2	$112	$829,000	
Pavement(Bikepath)		m^2		$0	
Pavement(Ramp)	2,626	m^2	$112	$294,000	
Overlay	16,900	m^2	$40	$676,000	
Remove Pavement	800	m^2	$34	$27,000	
Pavement(Throwaway)		m^2		$0	
Overlay(Throwaway)		m^2		$0	
Concrete Curb & Gutter		m			
Aggregate Base		m^3		$0	
Aggregate Subbase		m^3		$0	
Permeable Material					
Blanket & Edge Drains		m		$0	
Remove & Replace Berm	750	m	$70	$53,000	
Concrete Median		m^2		$0	
				Total Structural Section	$1,879,000
Section 3 - Drainage					
Box Culvert		m^2		$0	
Project Drainage	1	LS	$281,000	$281,000	
Project Drainage (Ramp)	1	LS	$56,200	$56,200	
Pump Station		EA		$0	
				Total Drainage	$337,200

* Attach sketch showing typical structural section elements of the roadway.
Include (if available) T.I., R-Value, and date when tests were performed

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	
	05-MON-68
KP:	6.1/L6.9
EA:	448000
PP No. :	0

	Quantity	Unit	Unit Price	Unit Cost	Section Cost
Section 4 - Specialty Items					
Ret Walls-Soil Nails		m^2			
Ret Walls Standard (EB)		m^2			
Ret Walls-Standard (Off ramp)		m^2			
Ret Wall-Standard (EB)		m^2			
Ret Wall-Standard (Onramp)		m^2			
Living Wall		m^2			
Median Treatment		m^2			
Median Curb		m^2			
Landscaping/Irrigation (normally separate project)	1	LS	$337,000	$337,000	
Erosion Control		LS			
Slope Paving		m^3		$0	
Concrete Barriers	474	m	$300	$142,000	
Environmental Mitigation	1	LS	$168,500	$169,000	
Remove & Replace Curb	880	m	$120	$106,000	
Guardrails	420	m	$200	$84,000	
Relocate Freeway Sign	1	LS	$34,000	$34,000	
WPPP/Erosion Control	1	LS	$300,000	$300,000	
				Total Specialty Items	$1,172,000
Section 5 - Traffic Items					
Lighting	1	LS	$84,300	$84,000	
Traffic Signals					
Signal Modification	1	LS	$450,000	$450,000	
Permanent Signing	1	LS	$100,000	$100,000	
Traffic Control Systems	1	LS	$300,000	$300,000	
Traffic Control Systems (Ramp)	1	LS	$80,000	$80,000	
Pavement Delineation	1	LS	$40,000	$40,000	
Traffic Management Plan	1	LS	$200,000	$200,000	
Crash Cushions (Ramp)	1	EA	$8,400	$8,000	
Temporary K-rail	2,000	m	$60	$120,000	
Temporary K-rail (Ramp)	450	m	$60	$27,000	
Ramp Meters		EA		$0	
				Total Traffic Items	$1,409,000
				SUBTOTAL SECTIONS 1 - 5:	$5,753,000

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	
05-MON-68	
KP:	6.1/L6.9
EA:	448000
PP No. :	0

				Unit Cost	Section Cost
Section 6 - Minor Items					
Subtotal Sections 1 - 5	$5,753,000	X	10%	$575,300	
				TOTAL MINOR ITEMS:	$575,000
Section 7 - Roadway Mobilization					
Subtotal Sections 1 - 5	$5,753,000				
Minor Items	$575,000				
Sum	$6,328,000	X	10%	$632,800	
				TOTAL ROADWAY MOBILIZATION	$633,000
Section 8 - Roadway Additions					
Supplemental					
Subtotal Sections 1 - 5	$5,753,000				
Minor Items	$575,000				
Sum	$6,328,000	X	10%	$632,800	
Contingencies					
Subtotal Sections 1 - 5	$5,753,000				
Minor Items	$575,000				
Sum	$6,328,000	X	25%	$1,582,000	
				TOTAL ROADWAY ADDITIONS	$2,215,000
				TOTAL ROADWAY ITEMS (Total of Sections 1 - 8)	$9,176,000

Estimate Prepared By:	BEN NGUYEN	(408) 453-5373	10/04/07
	(Print Name)	(Phone)	(Date)

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	
05-MON-68	
KP:	6.1/L6.9
EA:	448000
PP No. :	0

II. STRUCTURES ITEMS

	#1	#2	#3
Bridge Name	Scenic Drive Overpass		
Structure Type	New Precast Concrete		
Width (m) - out to out	13		
Span Length (m)	37		
Total Area (m^2)	466		
Footing Type (pile/spread)			
Cost per Sq. Meter Including: Mobilization: 10% Contingency: 25%	$2,200		
Bridge Removal	$245,000		
Total Cost For Structure	$1,271,000		

Total Bridge Item $1,271,000

SPECIALTY RETAINING WALL

	Unit	Quantity	Unit Price	Unit Cost
Retaining Wall (Type 1)	m^2	250	$1,200	$300,000
Retaining Wall (Soil Nail)	m^2	1400	$1,800	$2,520,000
Retaining Wall (MSE Wall)	m^2	1620	$1,000	$1,620,000
Retaining Wall (Type 5)	m^2	600	$1,200	$720,000

Cost per Sq. Meter Including:
Aesthetics: 10%
Contingency: 25%

Total Specialty Item $5,160,000

TOTAL STRUCTURES ITEMS $6,431,000

Estimate Prepared By:	BEN NGUYEN	(408) 453-5373	10/04/07
	(Print Name)	(Phone)	(Date)

PROJECT REPORT COST ESTIMATE SUMMARY

DIST - CO - RTE	
	05-MON-68
KP:	6.1/L6.9
EA:	448000
PP No. :	0

III. RIGHT OF WAY

Right-of-Way estimates should consider the probable highest and best use and type and intent of improvements at the time of acquisition. Assume acquisition including utility relocation occurs at the right of way certification milestone as shown in the Funding and Scheduling Section of the PSR. For further guidance see Chapter 1, Caltrans Right of Way Procedural Handbook.

	Current Values	Escalation Rate (%/yr)	Escalated Value *
Acquisition, including excess lands and damages to remainders	$103,000	5.00%	$129,000
Utility Relocation (State Share)	$95,000		$95,000
Clearance / Demolition			$0
RAP			$0
R/W Services - Title and Escrow Fees			$3,000
CONSTRUCTION CONTRACT WORK			$0
Permanent Easement		5.00%	$0
TOTAL RIGHT OF WAY ** (CURRENT VALUE)	$198,000	TOTAL ESCALATED RIGHT OF WAY	$227,000

* - Escalated to assumed year of advertising:

** - Current total value for use on sheet 1 of 6
Beverly Manor R/W Take: 681 m2 @ $150 = $102,150
Beverly Manor Easements: 480 m2 @ $55 = $26,400

Estimate prepared by: BEN NGUYEN (408) 453-5373 10/04/07

Checklist SW-1, Site Data Sources

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000

RWQCB: REGION 3 CENTRAL COAST

Information for the following data categories should be obtained, reviewed and referenced as necessary throughout the project planning phase. Collect any available documents pertaining to the category and list them and reference your data source. For specific examples of documents within these categories, refer to Section 5.5 of this document. Example categories have been listed below; add additional categories, as needed. Summarize pertinent information in Section 2 of the SWDR.

DATA CATEGORY/SOURCES	Date
Topographic	
• Aerial Planimetric Mapping	Currently available
• Field Topographic Survey (Trees) – Mark Thomas & Company, Inc.	Currently available
• USGS Map	
Hydraulic	
• Drainage Report	In progress
•	
•	
Soils	
• Geotechnical Design Report (Parikh Consultants)	In Progress
•	
•	
Climatic	
• Rain IDF Curve	Currently available
•	
•	
Water Quality	
• Environmental Impact Report (CEQA) and Environmental Assessment (NEPA) (By PAR Environmental Services, Inc)	In Progress
•	
•	
Other Data Categories	
•	
•	
•	
•	
•	
•	

Checklist SW-2, Storm Water Quality Issues Summary

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000
RWQCB: REGION 3 CENTRAL COAST

The following questions provide a guide to collecting critical information relevant to project stormwater quality issues. Complete responses to applicable questions, consulting other Caltrans functional units (Environmental, Landscape Architecture, Maintenance, etc.) and the District/Regional Storm Water Coordinator as necessary. Summarize pertinent responses in Section 2 of the SWDR.

1. Determine the receiving waters that may be affected by the project throughout the project life cycle (i.e., construction, maintenance and operation).	☒Complete	☐NA
2. For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	☐Complete	☒NA
3. Determine if there are any municipal or domestic water supply reservoirs or groundwater percolation facilities within the project limits. Consider appropriate spill contamination and spill prevention control measures for these new areas.	☐Complete	☒NA
4. Determine the RWQCB special requirements, including TMDLs, effluent limits, etc.	☒Complete	☐NA
5. Determine regulatory agencies seasonal construction and construction exclusion dates or restrictions required by federal, state, or local agencies.	☒Complete	☐NA
6. Determine if a 401 certification will be required.	☒Complete	☐NA
7. List rainy season dates. (Oct 15 thru April 15)	☒Complete	☐NA
8. Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	☒Complete	☐NA
9. If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.	☒Complete	☐NA
10. Determine contaminated or hazardous soils within the project area.	☒Complete	☐NA
11. Determine the total disturbed soil area of the project.	☒Complete	☐NA
12. Describe the topography of the project site.	☒Complete	☐NA
13. List any areas outside of the Caltrans right-of-way that will be included in the project (e.g. contractor's staging yard, work from barges, easements for staging, etc.).	☒Complete	☐NA
14. Determine if additional right-of-way acquisition or easements and right-of-entry will be required for design, construction and maintenance of BMPs. If so, how much?	☒Complete	☐NA
15. Determine if a right-of-way certification is required.	☒Complete	☐NA
16. Determine the estimated unit costs for right-of-way should it be needed for Treatment BMPs, stabilized conveyance systems, lay-back slopes, or interception ditches.	☒Complete	☐NA
17. Determine if project area has any slope stabilization concerns.	☒Complete	☐NA
18. Describe the local land use within the project area and adjacent areas.	☒Complete	☐NA
19. Evaluate the presence of dry weather flow.	☒Complete	☐NA

Checklist SW-3, Measures for Avoiding or Reducing Potential Storm Water Impacts

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000
RWQCB: REGION 3 CENTRAL COAST

The PE must confer with other functional units, such as Landscape Architecture, Hydraulics, Environmental, Materials, Construction and Maintenance, as needed to assess these issues. Summarize pertinent responses in Section 2 of the SWDR.

Options for avoiding or reducing potential impacts during project planning include the following:

1.	Can the project be relocated or realigned to avoid/reduce impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?	☒Yes	☐No	☐NA
2.	Can structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?	☐Yes	☐No	☒NA
3.	Can any of the following methods be utilized to minimize erosion from slopes:			
	a. Disturbing existing slopes only when necessary?	☒Yes	☐No	☐NA
	b. Minimizing cut and fill areas to reduce slope lengths?	☒Yes	☐No	☐NA
	c. Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?	☒Yes	☐No	☐NA
	d. Acquiring right-of-way easements (such as grading easements) to reduce steepness of slopes?	☒Yes	☐No	☐NA
	e. Avoiding soils or formations that will be particularly difficult to re-stabilize?	☐Yes	☐No	☒NA
	f. Providing cut and fill slopes flat enough to allow re-vegetation and limit erosion to pre-construction rates?	☒Yes	☐No	☐NA
	g. Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?	☒Yes	☐No	☐NA
	h. Rounding and shaping slopes to reduce concentrated flow?	☒Yes	☐No	☐NA
	i. Collecting concentrated flows in stabilized drains and channels?	☒Yes	☐No	☐NA
4.	Does the project design allow for the ease of maintaining all BMPs?	☒Yes	☐No	
5.	Can the project be scheduled or phased to minimize soil-disturbing work during the rainy season?	☒Yes	☐No	
6.	Can permanent storm water pollution controls such as paved slopes, vegetated slopes, basins, and conveyance systems be installed early in the construction process to provide additional protection and to possibly utilize them in addressing construction storm water impacts?	☒Yes	☐No	☐NA

Design Pollution Prevention BMPs
Checklist DPP-1, Part 1

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000

RWQCB: REGION 3 CENTRAL COAST

Consideration of Design Pollution Prevention BMPs

1. Consideration of Downstream Effects Related to Potentially Increased Flow [to streams or channels]?

(a) Will project increase velocity or volume of downstream flow?	☒Yes	☐No	☐NA
(b) Will the project discharge to unlined channels?	☐Yes	☒No	☐NA
(c) Will project increase potential sediment load of downstream flow?	☐Yes	☒No	☐NA
(d) Will project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability?	☐Yes	☒No	☐NA

If Yes was answered to any of the above questions, consider ***Downstream Effects Related to Potentially Increased Flow***, complete the DPP-1, Part 2 checklist.

2. Slope/Surface Protection Systems

(a) Will project create new slopes or modify existing slopes?	☒Yes	☐No	☐NA

If Yes was answered to the above question, consider ***Slope/Surface Protection Systems***, complete the DPP-1, Part 3 checklist.

3. Concentrated Flow Conveyance Systems

(a) Will the project create or modify ditches, dikes, berms, or swales?	☒Yes	☐No	☐NA
(b) Will project create new slopes or modify existing slopes?	☒Yes	☐No	☐NA
(c) Will it be necessary to direct or intercept surface runoff?	☒Yes	☐No	☐NA
(d) Will cross drains be modified?	☐Yes	☒No	☐NA

If Yes was answered to any of the above questions, consider ***Concentrated Flow Conveyance Systems***; complete the DPP-1, Part 4 checklist.

4. Preservation of Existing Vegetation

a) It is the goal of the Storm Water Program to maximize the protection of desirable existing vegetation to provide erosion and sediment control benefits on all projects. ☒Complete

Consider ***Preservation of Existing Vegetation***, complete the DPP-1, Part 5 checklist.

Design Pollution Prevention BMPs
Checklist DPP-1, Part 2

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000

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Downstream Effects Related to Potentially Increased Flow

1.	Review total paved area and reduce to the maximum extent practicable.	☒Complete
2.	Review channel lining materials and design for stream bank erosion control.	☐Complete
	(a) See Chapters 860 and 870 of the HDM.	☐Complete
	(b) Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.	☐Complete
3.	Include, where appropriate, energy dissipation devices at culvert outlets.	☒Complete
4.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.	☒Complete
5.	Include, if appropriate, peak flow attenuation basins to reduce peak discharges.	☐Complete

Design Pollution Prevention BMPs
Checklist DPP-1, Part 3

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000
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Slope / Surface Protection Systems

What are the proposed areas of cut and fill? (attach plan or map) ☒Complete

Were benches or terraces provided on high cut and fill slopes to reduce concentration of flows? ☒Yes ☐No

Were slopes rounded and/or shaped to reduce concentrated flow? ☒Yes ☐No

Were concentrated flows collected in stabilized drains or channels? ☒Yes ☐No

Are slopes > 1:4 vertical:horizontal (V:H))? ☒Yes ☐No

If Yes, District Landscape Architecture must prepare or approve an erosion control plan.

Are slopes > 1:2 (V:H)? ☐Yes ☒No

If Yes, Geotechnical Services must prepare a Geotechnical Design Report, and the District Landscape Architect should prepare or approve an erosion control plan. Concurrence must be obtained from the District Maintenance Storm Water Coordinator for slopes steeper than 1:2 (V:H).

Estimate the change to the impervious areas that will result from this project. 1.18 ha (2.92 acres) ☒Complete

VEGETATED SURFACES

1. Identify existing vegetation. ☒Complete
2. Evaluate site to determine soil types, appropriate vegetation and planting strategies. ☒Complete
3. How long will it take for permanent vegetation to establish? ☒Complete
4. Minimize overland and concentrated flow depths and velocities. ☒Complete

HARD SURFACES

1. Are hard surfaces required? ☐Yes ☒No

If Yes, document purpose (safety, maintenance, soil stabilization, etc.), types, and general locations of the installations. ☐Complete

Review appropriate SSPs for Vegetated Surface and Hard Surface Protection Systems. ☐Complete

Design Pollution Prevention BMPs
Checklist DPP-1, Part 4

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PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000

RWQCB: REGION 3 CENTRAL COAST

Concentrated Flow Conveyance Systems

Ditches, Berms, Dikes and Swales

1. Consider Ditches, Berms, Dikes, and Swales as per Chapters 813, 836, and 860 of the HDM. ☒Complete
2. Evaluate risks due to erosion, overtopping, flow backups or washout. ☒Complete
3. Consider outlet protection where localized scour is anticipated. ☒Complete
4. Examine the site for run-on from off-site sources. ☒Complete
5. Consider channel lining when velocities exceed scour velocity for soil. ☒Complete

Overside Drains

1. Consider downdrains, as per Index 834.4 of the HDM. ☒Complete
2. Consider paved spillways for side slopes flatter than 1:4 V:H. ☒Complete

Flared Culvert End Sections

1. Consider flared end sections on culvert inlets and outlets as per Chapter 827 of the HDM. ☒Complete

Outlet Protection/Velocity Dissipation Devices

1. Consider outlet protection/velocity dissipation devices at outlets, including cross drains, as per Chapters 827 and 870 of the HDM. ☒Complete

Review appropriate SSPs for Concentrated Flow Conveyance Systems. ☒Complete

Design Pollution Prevention BMPs
Checklist DPP-1, Part 5

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

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RWQCB: REGION 3 CENTRAL COAST

Preservation of Existing Vegetation

1. Review Preservation of Property, Standard Specifications 16.1.01 and 16-1.02 (Clearing and Grubbing) to reduce clearing and grubbing and maximize preservation of existing vegetation. ☒Complete

2. Has all vegetation to be retained been coordinated with Environmental, and identified and defined in the contract plans? ☒Yes ☐No

3. Have steps been taken to minimize disturbed areas, such as locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling? ☒Complete

4. Have impacts to preserved vegetation been considered while work is occurring in disturbed areas? ☒Yes ☐No

5. Are all areas to be preserved delineated on the plans? ☒Yes ☐No

Treatment BMPs

Checklist T-1, Part 1

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000

RWQCB: REGION 3 CENTRAL COAST

Consideration of Treatment BMPs

This checklist is used for projects that require the consideration of Approved Treatment BMPs, as determined from the process described in Section 4 (Project Treatment Consideration) and the Evaluation Documentation Form (EDF). This checklist will be used to determine which Treatment BMPs should be considered for each watershed and sub-watersheds within the project. Supplemental data will be needed to verify siting and design applicability for final incorporation into a project.

Complete this checklist for each phase of the project, when considering Treatment BMPs. Use the responses to the questions as the basis when developing the narrative in Section 5 of the Storm Water Data Report to document that Treatment BMPs have been appropriately considered.

Answer all questions, unless otherwise directed.

1. Dry Weather Flow Diversion

   (a) Are dry weather flows generated by Caltrans anticipated to be persistent? ☐Yes ☒No

   (b) Is a sanitary sewer located on or near the site? ☐Yes ☒No

   (c) Is the connection to the sanitary sewer possible without extraordinary plumbing, features or construction practices? ☐Yes ☒No

   (d) Is the domestic wastewater treatment authority willing to accept flow? ☐Yes ☒No

   If Yes was answered to <u>all</u> of these questions consider Dry Weather Flow Diversion, complete and attach Part 3 of this checklist

2. Is the receiving water on the 303(d) list for litter/trash or has a TMDL been issued for litter/trash? ☐Yes ☒No

   If Yes, consider Gross Solids Removal Devices (GSRDs), complete and attach Part 6 of this checklist. Note: Biofiltration Systems, Infiltration Devices, Detention Devices, Media Filters, MCTTs, and Wet Basins also can capture litter – consult with District/Regional NPDES if these devices should be considered to meet litter/trash TMDL.

3. Is project located in an area (e.g., mountain regions) where traction sand is applied more than twice a year?
   If Yes, consider ***Traction Sand Traps***, complete and attach **Part 7** of this checklist. ☐Yes ☒No

4. (a) Are there local influent limits for infiltration or Basin Plan restrictions or other local agency prohibitions that would restrict the use of the infiltration devices? ☐Yes ☒No

   (b) Would infiltration pose a threat to local groundwater quality as determined by the District/Regional Storm Water Coordinator? ☐Yes ☒No

   If the answer to either part of Question 4 is Yes, then Infiltration Devices are infeasible and the consideration of Infiltration Devices should not be made when completing Questions 5 through 17.

5. (a) Does the project discharge to any 303(d) listed water body? ☐Yes ☒No
   If No, go to Question 17, General Purpose Pollutant Removal

   (b) If Yes, is the identified pollutant(s) considered a Targeted Design Constituent (TDC) (check all that apply):

   ___phosphorus, ___nitrogen, ___total copper, ___dissolved copper,
   ___total lead ___dissolved lead, ___total zinc, ___dissolved zinc,
   ___sediments, ___general metals [unspecified metals].

   (c) If no TDC's are checked above, go to Question 17

   (d) If only one TDC is checked above, continue to Question 6. ☐Complete

   (e) If more than one TDC is checked, contact your District/Regional NPDES Coordinator to determine priority before continuing with this checklist. ☐Complete

6. Consult with the District/Regional Storm Water Coordinator to determine whether Treatment BMP selection will be affected by any existing or future TMDL requirements. ☐Complete

The following questions show the approved Treatment BMPs in order of preference based on load reduction (performance) for the listed constituent and lifetime costs for the device, excluding right-of-way. Note that a line separates Treatment BMPs into groups of approximately equal effectiveness and within each grouping, any of the Treatment BMPs may be selected for placement if meeting site conditions. In the space provided next to the BMP, use Yes or a check mark to indicate a positive response.

If none of the listed Treatment BMPs for a specific constituent of concern (TDC) can be sited, go to Step #17 (General Purpose Pollutant Removal) to determine whether another Treatment BMP can be incorporated into the project.

For the SWDRs developed for the PID and PA/ED phases of a project: **Consider all approved Treatment BMPs listed that can be reasonably incorporated into the project for each TDC.**

For the SWDR developed for the PS&E phase: **Indicate (Yes or check mark) only those BMPs that will be incorporated into the project.**

7. Is phosphorus the TDC? [Use this constituent if "eutrophic" or "nutrients" is the TDC for the water body.] If Yes, consider: ☐Yes ☐No

_____Infiltration Devices
_____Austin Sand Filters

8. Is nitrogen the TDC? If Yes, consider: ☐Yes ☐No

_____Infiltration Devices
_____Austin Sand Filters
_____Delaware Filter
_____Detention Device
_____MCTT

9. Is copper (total) the TDC? If Yes for total Copper, consider: ☐Yes ☐No

_____Infiltration Devices
_____Wet Basins
_____Biofiltration Strips
_____Detention Device
_____Biofiltration Swales
_____Austin Sand Filter
_____Delaware Filter
_____MCTT

10. Is copper (dissolved) the TDC? If Yes for dissolved Copper, consider: ☐Yes ☐No

_____Infiltration Devices
_____Biofiltration Strips
_____Wet Basin
_____Biofiltration Swale

11. Is lead (total) the TDC? If Yes for total Lead, consider: ☐Yes ☐No

_____Infiltration Devices
_____Wet Basin
_____Biofiltration Strips
_____Austin Sand Filter
_____**Delaware Filter**
_____Detention Device
_____Biofiltration Swales
_____MCTT

12. Is lead (dissolved) the TDC? If Yes for dissolved Lead, consider: ☐Yes ☐No

_____Infiltration Devices
_____Biofiltration Strips
_____Wet Basin
_____Detention Device
_____Biofiltration Swales
_____Austin Sand Filter

13. Is zinc (total) the TDC? If Yes for total Zinc, consider: ☐Yes ☐No

____ Infiltration Devices
____ Delaware Filter
____ Wet Basin
____ Biofiltration Strips
____ Biofiltration Swales
____ Austin Sand Filter
____ MCTT
____ Detention Devices

14. Is zinc (dissolved) the TDC? If Yes for dissolved Zinc, consider: ☐Yes ☐No

____ Infiltration Devices
____ Delaware Filter
____ Biofiltration Strip
____ Biofiltration Swale
____ Austin Sand Filter
____ MCTT

15. Is sediment (total suspended solids [TSS]) the TDC? If Yes for TSS, consider: ☐Yes ☐No

____ Infiltration Devices
____ Austin Sand Filter
____ Delaware Filter
____ Wet Basin
____ Detention Device
____ Biofiltration Strip
____ MCTT
____ Biofiltration Swale

16. Are "General Metals" or (unspecified) "Metals" the TDC? If Yes for General Metals, consider: ☐Yes ☐No

____ Infiltration Devices
____ Biofiltration Strips
____ Wet Basin
____ Biofiltration Swale
____ Austin Sand Filter
____ Delaware Filter
____ MCTT

17. General Purpose Pollutant Removal.: When it is determined that there are no TDCs, consider the Treatment BMPs in the order listed below. ☒Yes ☐No

____ Infiltration Devices
__x__ Biofiltration Strips
____ Wet Basin
__x__ Biofiltration Swale
____ Austin Sand Filter
____ Detention Device
____ Delaware Filter
____ MCTT

18. Biofiltration
    (a) Are site conditions and climate favorable to allow suitable vegetation to be established? ☒Yes ☐No

    (b) Have Biofiltration strips and swales been considered to the extent practicable? Note: Biofiltration BMPs should be considered for all projects, even if other Treatment BMPs are placed. ☒Yes ☐No

    If No to (a) or (b), document justification in Section 5 of the SWDR.

19. After completing the above, complete and attach the checklists shown below for every Treatment BMP under consideration ☒Complete

    x Biofiltration Strips and Biofiltration Swales: Checklist T-1, Part 2
    _____ Dry Weather Diversion: Checklist T-1, Part 3
    x Infiltration Devices: Checklist T-1, Part 4
    x Detention Devices: Checklist T-1, Part 5
    _____ GSRDs: Checklist T-1, Part 6
    _____ Traction Sand Traps: Checklist T-1, Part 7
    x Media Filter [Austin Sand Filter and Delaware Filter]: Checklist T-1, Part 8
    _____ Multi-Chambered Treatment Train: Checklist T-1, Part 9
    _____ Wet Basins: Checklist T-1, Part 10

20. (a) Estimate what percentage of WQV/WQF will be treated by the preferred Treatment BMP(s): _____% ☐Complete

    (b) Have Treatment BMPs been considered for use in parallel or series to increase this percentage? ☒Yes ☐No

21. Prepare cost estimate, including right-of-way, for selected Treatment BMPs and include as supplemental information for SWDR approval. ☒Complete

Treatment BMPs

Checklist T-1, Part 2

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000

RWQCB: REGION 3 CENTRAL COAST

Biofiltration Swales / Biofiltration Strips (WILL BE LOOKED AT PS&E PHASE)

Feasibility

1. Do the climate and site conditions allow vegetation to be established? ☒Yes ☐No

2. Are flow velocities < 4 fps (i.e. low enough to prevent scour of the vegetated bioswale as per HDM Table 873.3E)? ☒Yes ☐No

   If No to either question above, Biofiltration Swales and Biofiltration Strips are not feasible.

3. Are Biofiltration Swales proposed at sites where known hazardous soils or contaminated groundwater plumes exist? ☐Yes ☒No
   If Yes, consult with District/Regional NPDES Coordinator about how to proceed.

4. Does adequate area exist within the right-of-way to place biofiltration device(s)? ☐Yes ☒No
   If Yes, continue to the Design Elements section. If No, continue to Question 5.

5. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Biofiltration Devices and how much right-of way would be needed to treat WQF? _____ acres ☐Yes ☒No
   If Yes, continue to Design Elements section. If No, continue to Question 6.

6. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of these Treatment BMPs into the project. ☒Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Has the District Landscape Architect provided vegetation mixes appropriate for climate and location? * ☐Yes ☐No

2. Can the bioswale be designed as a conveyance system under any expected flows > the WQF event, as per HDM Chapter 800? * (e.g. freeboard, minimum slope, etc.) ☐Yes ☐No

3. Can the bioswale be designed as a water quality treatment device under the WQF while meeting the required HRT, depth, and velocity criteria? (Reference Appendix B, Section B.2.3.1)* ☐Yes ☐No

4. Is the maximum length of a biostrip ≤ 300 ft? * ☐Yes ☐No

5. Has the minimum width (in the direction of flow) of the invert of the bioswale received the concurrence of Maintenance? * ☐Yes ☐No

6. Can bioswales be located in natural or low cut sections to reduce maintenance problems caused by animals burrowing through the berm of the swale? ** ☐Yes ☐No

7. Is the biostrip sized as long as possible in the direction of flow? ** ☐Yes ☐No

8. Have Biofiltration Systems been considered for locations upstream of other Treatment BMPs, as part of a treatment train? ** ☐Yes ☐No

Treatment BMPs
Checklist T-1, Part 3

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
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Dry Weather Flow Diversion (NOT APPLICABLE FOR THIS PROJECT)

Feasibility

1. Is dry-weather flow diversion acceptable to a Publicly Owned Treatment Works (POTW)? ☐Yes ☐No
2. Would a connection require ordinary (i.e., not extraordinary) plumbing, features or construction methods to implement? ☐Yes ☐No

   If No to either question above, Dry Weather Flow Diversion is not feasible.

3. Does adequate area exist within the right-of-way to place Dry Weather Flow Diversion devices? ☐Yes ☐No
   If Yes, continue to Design Elements sections. If No, continue to Question 4.
4. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Dry Weather Flow Diversion devices and how much right-of way would be needed? _____ (acres) ☐Yes ☐No
   If Yes, continue to the Design Elements section.

   If No, continue to Question 5.
5. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Does the existing sanitary sewer pipeline have adequate capacity to accept project dry weather flows, or can an upgrade be implemented to handle the anticipated dry weather flows within the project's budget and objectives? * ☐Yes ☐No
2. Can the connection be designed to allow for Maintenance vehicle access? * ☐Yes ☐No
3. Can gate, weir, or valve be designed to stop diversion during storm events? * ☐Yes ☐No
4. Can the inlet be designed to reduce chances of clogging the diversion pipe or channel? * ☐Yes ☐No
5. Can a back flow prevention device be designed to prevent sanitary sewage from entering storm drain? * ☐Yes ☐No

Treatment BMPs
Checklist T-1, Part 4

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

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Infiltration Devices (WILL LOOKED AT PS&E PHASE)

Feasibility

1.	Does local Basin Plan or other local ordinance provide influent limits on quality of water that can be infiltrated, and would infiltration pose a threat to groundwater quality as determined by the District/Regional NPDES Storm Water Coordinator?	☐Yes	☐No
2.	Does infiltration at the site compromise the integrity of any slopes in the area?	☐Yes	☐No
3.	Per survey data or U.S. Geological Survey (USGS) Quad Map, are existing slopes at the proposed device site >15%?	☐Yes	☐No
4.	At the invert, does the soil type classify as NRCS Hydrologic Soil Group (HSG) D, or does the soil have an infiltration rate < 0.5 inches/hr?	☐Yes	☐No
5.	Is site located over a previously identified contaminated groundwater plume?	☐Yes	☐No
	If Yes to any question above, Infiltration Devices are not feasible; stop here and consider other approved Treatment BMPs.		
6.	(a) Does site have groundwater within 10 ft of basin invert?	☐Yes	☐No
	(b) Does site investigation indicate that the infiltration rate is significantly greater than 2.5 inches/hr?	☐Yes	☐No
	If Yes to either part of Question 6, the RWQCB must be consulted, and the RWQCB must conclude that the groundwater quality will not be compromised, before approving the site for infiltration.	☐Yes	☐No
7.	Does adequate area exist within the right-of-way to place Infiltration Device(s)? If Yes, continue to Design Elements sections. If No, continue to Question 8.	☐Yes	☐No
8.	If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Infiltration Devices and how much right-of way would be needed to treat WQV? _____ acres If Yes, continue to Design Elements section. If No, continue to Question 9.	☐Yes	☐No
9.	If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project.	☐Complete	

Design Elements – Infiltration Basin

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1.	Has a detailed investigation been conducted, including subsurface soil investigation, in-hole conductivity testing and groundwater elevation determination? (This report must be completed for PS&E level design.) *	☐Yes	☐No
2.	Has an overflow spillway with scour protection been provided? *	☐Yes	☐No
3.	Is the Infiltration Basin size sufficient to capture the WQV while maintaining a 40-48 hour drawdown time? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet]) *	☐Yes	☐No
4.	Can access be placed to the invert of the Infiltration Basin? *	☐Yes	☐No
5.	Can the Infiltration Basin accommodate the Water Quality freeboard above the WQV elevation (reference Appendix B.1.3.1)? *	☐Yes	☐No
6.	Can the Infiltration Basin be designed with interior side slopes no steeper than 1:4(V:H) (may be 1:3 [V:H] with approval by District Maintenance)? *	☐Yes	☐No
7.	Can vegetation be established in the Infiltration Basin? **	☐Yes	☐No
8.	Can diversion be designed, constructed, and maintained to bypass flows exceeding the WQV? **	☐Yes	☐No
9.	Can a gravity-fed Maintenance/Emergency Drain be placed? **	☐Yes	☐No

Design Elements – Infiltration Trench

* **Required** Design Element – (see definition above)
** **Recommended** Design Element – (see definition above)

1.	Has a detailed investigation been conducted, including subsurface soil investigation, in-hole conductivity testing and groundwater elevation determination? (This report must be completed for PS&E level design.) *	☐Yes	☐No
2.	Is the surrounding soil within Hydrologic Soil Groups (HSG) Types A or B? *	☐Yes	☐No
3.	Is the volume of the Infiltration Trench equal to at least the 2.85x the WQV, while maintaining a drawdown time of ≤ 72 hours? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet], unless the District/Regional NPDES Coordinator will allow a volume between 2,830 ft^3 and 4,356 ft^3 to be considered.) *	☐Yes	☐No
4.	Is the depth of the Infiltration Trench ≤ 13 ft, and is the depth < the width? *	☐Yes	☐No
5.	Can an observation well be placed in the trench? *	☐Yes	☐No
6.	Can access be provided to the Infiltration Trench? *	☐Yes	☐No
7.	Can pretreatment be provided to capture sediment in the runoff (such as using Biofiltration)? *	☐Yes	☐No
8.	Can flow diversion be designed, constructed, and maintained to bypass flows exceeding the Water Quality Event? **	☐Yes	☐No

9. Can a perimeter curb or similar device be provided (to limit wheel loads upon the trench)? ** ☐Yes ☐No

Treatment BMPs
Checklist T-1, Part 5

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000

RWQCB: REGION 3 CENTRAL COAST

Detention Devices (WILL BE LOOKED AT PS&E PHASE)

Feasibility

1. Is there sufficient head to prevent objectionable backwater conditions in the upstream drainage systems? ☐Yes ☐No

2. 2a) Is the volume of the Detention Device equal to at least the WQV? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet]) ☐Yes ☐No

   Only answer (b) if the Detention Device is being used also to capture traction sand.

   2b) Is the total volume of the Detention Device at least equal to the WQV and the anticipated volume of traction sand, while maintaining a minimum 12 inch freeboard (1 ft)? ☐Yes ☐No

3. Is basin invert ≥ 10 ft above seasonally high groundwater or can it be designed with an impermeable liner? (Note: If an impermeable liner is used, the seasonally high groundwater elevation must not encroach within 12 inches of the invert.) ☐Yes ☐No

If No to any question above, then Detention Devices are not feasible.

4. Does adequate area exist within the right-of-way to place Detention Device(s)?

   If Yes, continue to the Design Elements section. If No, continue to Question 5. ☐Yes ☐No

5. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Detention Device(s) and how much right-of way would be needed to treat WQV? _____ acres
   If Yes, continue to the Design Elements section. If No, continue to Question 6. ☐Yes ☐No

6. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1.	Has the geotechnical integrity of the site been evaluated to determine potential impacts to surrounding slopes due to incidental infiltration? If incidental infiltration through the invert of an unlined detention device is a concern, consider using an impermeable liner. *	☐Yes ☐No
2.	Has the location of the Detention Device been evaluated for any effects to the adjacent roadway and subgrade? *	☐Yes ☐No
3.	Can a minimum freeboard of 12 inches be provided above the WQV? *	☐Yes ☐No
4.	Is an overflow outlet provided? *	☐Yes ☐No
5.	Is the drawdown time of the Detention Device within 24 to 72 hours? *	☐Yes ☐No
6.	Is the Detention Device outlet designed to minimize clogging (minimum outlet orifice diameter of 0.5 inches)? *	☐Yes ☐No
7.	Are the inlet and outlet structures designed to prevent scour and re-suspension of settled materials, and to enhance quiescent conditions? *	☐Yes ☐No
8.	Can vegetation be established in an earthen basin at the invert and on the side slopes for erosion control and to minimize re-suspension? Note: Detention Basins may be lined, in which case no vegetation would be required for lined areas. *	☐Yes ☐No
9.	Has sufficient access for Maintenance been provided? *	☐Yes ☐No
10.	Is the side slope 1:4 (V:H) or flatter for interior slopes? ** (Note: Side slopes up to 1:3 (V:H) allowed with approval by District Maintenance.)	☐Yes ☐No
11.	If significant sediment is expected from nearby slopes, can the Detention Device be designed with additional volume equal to the expected annual loading? **	☐Yes ☐No
12.	Is flow path as long as possible (≥ 2:1 length to width ratio at WQV elevation is recommended)? **	☐Yes ☐No

Treatment BMPs
Checklist T-1, Part 6

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000
RWQCB: REGION 3 CENTRAL COAST

Gross Solids Removal Devices (GSRDs) (NOT APPLICABLE FOR THE PROJECT)

Feasibility

1. Is the receiving water body downstream of the tributary area to the proposed GSRD on a 303(d) list or has a TMDL for litter been established? ☐Yes ☐No

2. Are the devices sized for flows generated by the peak drainage facility design event or can peak flow be diverted? ☐Yes ☐No

3. Are the devices sized to contain gross solids (litter and vegetation) for a period of one year? ☐Yes ☐No

4. Is there sufficient access for maintenance and large equipment (vacuum truck)? ☐Yes ☐No

   If No to any question above, then Gross Solids Removal Devices are not feasible. Note that Biofiltration Systems, Infiltration Devices, Detention Devices, Dry Weather Flow Diversion, MCTT, Media Filters, and Wet Basins may be considered for litter capture, but consult with District/Regional NPDES if proposed to meet a TMDL for litter.

5. Does adequate area exist within the right-of-way to place Gross Solids Removal Devices?
   If Yes, continue to Design Elements section. If No, continue to Question 6. ☐Yes ☐No

6. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Gross Solids Removal Devices and how much right-of way would be needed? _____ acres
   If Yes, continue to the Design Elements section. If No, continue to Question 7. ☐Yes ☐No

7. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

Design Elements – Linear Radial Device

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Does sufficient hydraulic head exist to place the Linear Radial GSRD? *	☐Yes	☐No
2. Was the litter accumulation rate of 10 ft^3/ac/yr (or a different rate recommended by Maintenance) used to size the device? *	☐Yes	☐No
3. Were the standard detail sheets used for the layout of the devices? ** If No, consult with Headquarters Office of Storm Water Management and District/Regional NPDES.	☐Yes	☐No
4. Is the maximum depth of the storage within 10 ft of the ground surface, or another depth as required by District Maintenance? *	☐Yes	☐No

Design Elements – Inclined Screen

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Does sufficient hydraulic head exist to place the Inclined Screen GSRD? *	☐Yes	☐No
2. Was the litter accumulation rate of 10 ft^3/ac/yr (or a different rate recommended by Maintenance) used to size the device? *	☐Yes	☐No
3. Were the standard details sheets used for the layout of the devices? ** If No, consult with Headquarters Office of Storm Water Management and District NPDES.	☐Yes	☐No
4. Is the maximum depth of the storage within 10 ft of the ground surface, or another depth as required by District Maintenance? *	☐Yes	☐No

Treatment BMPs
Checklist T-1, Part 7

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000
RWQCB: REGION 3 CENTRAL COAST

Traction Sand Traps (NOT APPLICABLE FOR THIS PROJECT)

Feasibility

1. Can a Detention Device be sized to capture the estimated traction sand and the WQV from the tributary area?
   If Yes, then a separate Traction Sand Trap may not be necessary. Coordinate with the District/Regional Storm Water Coordinator and also complete Checklist T-1, Part 5. ☐Yes ☐No

2. Is the Traction Sand Trap proposed for a site where sand or other traction enhancing substances are applied to the roadway at least twice per year? ☐Yes ☐No

3. Is adequate space provided for Maintenance staff and equipment access for annual cleanout? ☐Yes ☐No

4. Has the local RWQCB agreed that the proposed Traction Sand Trap would not be classified as a regulated underground injection well? ☐Yes ☐No

5. If the answer to any one of Questions 2, 3 or 4 is No, then a Traction Sand Trap is not feasible.

6. Does adequate area exist within the right-of-way to place Traction Sand Traps? ☐Yes ☐No
   If Yes, continue to Design Elements section. If No, continue to Question 6.

7. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site Traction Sand Traps and how much right-of way would be needed? _____ acres ☐Yes ☐No
   If Yes, continue to the Design Elements section. If No, continue to Question 7.

8. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Was the local Caltrans Maintenance Station contracted to provide the amount of traction sand used annually at the location? * (Detention Device or CMP type) List application rate reported. _____ yd^3 ☐Yes ☐No

2. Does the Traction Sand Trap have enough volume to store settled sand over the winter using the formula presented in Appendix B, Section B.5? * (Detention Device or CMP type) ☐Yes ☐No

3. Is the invert of the Traction Sand Trap a minimum of 3 ft above seasonally high groundwater? * (CMP type) ☐Yes ☐No

4. Is the maximum depth of the storage within 10 ft of the ground surface, or another depth as required by District Maintenance? * (CMP type) ☐Yes ☐No

5. Has the District/Regional NPDES Storm Water Coordinator been contacted to ensure that the traction sand trap is not classified as a regulated underground injection well? * (CMP type) ☐Yes ☐No

6. Can peak flow be diverted around the device? ** (CMP type) ☐Yes ☐No

7. Within the tributary area, have the unstabilized areas (that would contribute sediment in addition to traction sand) been minimized as much as possible?**(Detention Device or CMP type) ☐Yes ☐No

8. Is 6 inches separation provided between the top of the captured traction sand and the outlet from the device, in order to minimize re-suspension of the solids? ** (CMP type) ☐Yes ☐No

Treatment BMPs
Checklist T-1, Part 8

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000

RWQCB: REGION 3 CENTRAL COAST

Media Filters (WILL BE LOOKED AT PS&E PHASE)

Caltrans has approved two types of Media Filter: Austin Sand Filters and Delaware Filters. Austin Sand filters are typically designed for larger drainage areas, while Delaware Filters are typically designed for smaller drainage areas. The Austin Sand Filter is constructed with an open top and may have a concrete or earthen invert, while the Delaware is always constructed as a vault. See Appendix B, Media Filters, for a further description of Media Filters.

Feasibility – Austin Sand Filter

1. Is the volume of the Austin Sand Filter equal to at least the WQV using a 40 to 48 hour drawdown? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet]) ☐Yes ☐No

2. Is there sufficient hydraulic head to operate the device (minimum 3 ft between the inflow and outflow chambers)? ☐Yes ☐No

3. If initial chamber has an earthen bottom, is initial chamber invert ≥ 3 ft above seasonally high groundwater? ☐Yes ☐No

4. If a vault is used for either chamber, is the level of the concrete base of the vault above seasonally high groundwater or is a special design provided? ☐Yes ☐No

   If No to any question above, then an Austin Sand Filter is not feasible.

5. Does adequate area exist within the right-of-way to place an Austin Sand Filter(s)? ☐Yes ☐No
   If Yes, continue to Design Elements sections. If No, continue to Question 6.

6. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site the device and how much right-of way would be needed to treat WQV? _____ acres ☐Yes ☐No
   If Yes, continue to the Design Elements section.

   If No, continue to Question 7.

7. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐ Complete

   If an Austin Sand Filter meets these feasibility requirements, continue to the Design Elements – Austin Sand Filter below.

Feasibility- Delaware Filter

1. Is the volume of the Delaware Filter equal to at least the WQV using a 40 to 48 hour drawdown? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet], consult with District/Regional NPDES if a lesser volume is under consideration.) ☐Yes ☐No
2. Is there sufficient hydraulic head to operate the device (minimum 3 ft between the inflow and outflow chambers)? ☐Yes ☐No
3. Would a permanent pool of water be allowed by the local vector control agency? ☐Yes ☐No

If No to any question, then a Delaware Filter is not feasible

4. Does adequate area exist within the right-of-way to place a Delaware Filter (s)? If Yes, continue to Design Elements sections. If No, continue to Question 5. ☐Yes ☐No
5. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site the device and how much right-of way would be needed to treat WQV? _____ acres If Yes, continue to the Design Elements section. If No, continue to Question 6. ☐Yes ☐No
6. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐ Complete

   If a Delaware Filter is still under consideration, continue to the Design Elements – Delaware Filter section.

Design Elements – Austin Sand Filter

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Is the drawdown time of the 2nd chamber 24 hours? * ☐Yes ☐No
2. Is access for Maintenance vehicles provided to the Austin Sand Filter? * ☐Yes ☐No
3. Is a bypass/overflow provided for storms > WQV? * ☐Yes ☐No
4. Is the flow path length to width ratio for the sedimentation chamber of the "full" Austin Sand Filter ≥ 2:1? ** ☐Yes ☐No
5. Can pretreatment be provided to capture sediment and litter in the runoff (such as using biofiltration)? ** ☐Yes ☐No
6. Can the Austin Sand Filter be placed using an earthen configuration? ** If No, go to Question 9. ☐Yes ☐No

7. Is the Austin Sand Filter invert separated from the seasonally high groundwater table by ≥ 10 ft? * ☐Yes ☐No
   If No, design with an impermeable liner.
8. Are side slopes of the earthen chamber 1:3 (V:H) or flatter? * ☐Yes ☐No
9. Is maximum depth ≤ 13 ft below ground surface? * ☐Yes ☐No
10. Can the Austin Sand Filter be placed in an offline configuration? ** ☐Yes ☐No

Design Elements – Delaware Filter

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Can the first chamber be sized for the WQV? * ☐Yes ☐No
2. Is the drawdown time of the 2nd chamber between 40 and 48 hours? * ☐Yes ☐No
3. Is access for Maintenance vehicles provided to the Delaware Filter? * ☐Yes ☐No
4. Is a bypass/overflow provided for storms > WQV? ** ☐Yes ☐No
5. Can pretreatment be provided to capture sediment and litter in the runoff (such as using biofiltration)? ** ☐Yes ☐No
6. Can the Delaware Filter be placed in an offline configuration? ** ☐Yes ☐No
7. Is maximum depth ≤ 13 ft below ground surface? *

Treatment BMPs
Checklist T-1, Part 9

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000
RWQCB: REGION 3 CENTRAL COAST

MCTT (Multi-chambered Treatment Train) (WILL BE LOOKED AT PS&E PHASE)

Feasibility

1. Is the proposed location for the MCTT located to serve a "critical source area" (i.e. vehicle service facility, parking area, paved storage area, or fueling station)? ☐Yes ☐No
2. Is the WQV ≥ 4,356 ft³ (0.1 acre-foot)? ☐Yes ☐No
3. Is there sufficient hydraulic head (typically ≥ 6 feet) to operate the device? ☐Yes ☐No
4. Would a permanent pool of water be allowed by the local vector control agency? ☐Yes ☐No
   If No to any question above, then an MCTT is not feasible.
5. Does adequate area exist within the right-of-way to place an MCTT(s)? ☐Yes ☐No
   If Yes, continue to Design Elements sections. If No, continue to Question 6.
6. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site the device and how much right-of way would be needed to treat WQV? _____ acres ☐Yes ☐No
   If Yes, continue to Design Elements section. If No, continue to Question 7.
7. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Is the maximum depth of the 3rd chamber ≤ 13 ft below ground surface and has Maintenance accepted this depth? * ☐Yes ☐No
2. Is the drawdown time in the 3rd chamber between 24 and 48 hours? * ☐Yes ☐No
3. Is access for Maintenance vehicles provided to all chambers of the MCTT? * ☐Yes ☐No
4. Is there sufficient hydraulic head to operate the device? * ☐Yes ☐No
5. Has a bypass/overflow been provided for storms > WQV? * ☐Yes ☐No
6. Can pretreatment be provided to capture sediment and litter in the runoff (such as using biofiltration)? ** ☐Yes ☐No

Treatment BMPs
Checklist T-1, Part 10

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
PM (KP): 6.1/L6.9(3.8/L4.3) EA: 44800
RWQCB: REGIONAL 3 CENTRAL COAST

Wet Basin (NOT APPLICABLE FOR THIS PROJECT)

Feasibility

1. Is the volume of the Wet Basin above the permanent pool equal to at least the WQV using a 24 to 72 hour drawdown (40 to 48 hour drawdown preferred)? (Note: the WQV must be ≥ 4,356 ft^3 [0.1 acre-feet] and the permanent pool must be at least 3x the WQV.) ☐Yes ☐No

2. Is a permanent source of water available in sufficient quantities to maintain the permanent pool for the Wet Basin? ☐Yes ☐No

3. Is proposed site in a location where naturally occurring wetlands do not exist? ☐Yes ☐No

Answer either question 4 or question 5:

4. For Wet Basins with a proposed invert above the seasonally high groundwater, are NRCS Hydrologic Soil Groups [HSG] C and D at the proposed invert elevation, or can an impermeable liner be used? (Note: If an impermeable liner is used, the seasonally high groundwater elevation must not encroach within 12 inches of the invert.) ☐Yes ☐No

5. For Wet Basins with a proposed invert below the groundwater table: Can written approval from the local Regional Water Quality Control Board be obtained to place the Wet Basin in direct hydraulic connectivity to the groundwater? ☐Yes ☐No

6. Is Water Quality freeboard provided ≥ 1 foot? ☐Yes ☐No

7. Is the maximum impoundment volume < 14.75 acre-feet? ☐Yes ☐No

8. Would a permanent pool of water be allowed by the local vector control agency? ☐Yes ☐No

If No to any question above, then a Wet Basin is not feasible.

9. Is the maximum basin width ≤ 49 ft as suggested in Section B.10.2? ☐Yes ☐No

If No, consult with the local vector control agency and District Maintenance.

10. Does adequate area exist within the right-of-way to place a Wet Basin? ☐Yes ☐No

If Yes, continue to Design Elements sections.

If No, continue to Question 10.

11. If adequate area does not exist within right-of-way, can suitable, additional right-of-way be acquired to site the device and how much right-of way would be needed to treat WQV? _____ acres ☐Yes ☐No

12. If Yes, continue to Design Elements section.

    If No, continue to Question 8.

13. If adequate area cannot be obtained, document in Section 5 of the SWDR that the inability to obtain adequate area prevents the incorporation of this Treatment BMP into the project. ☐ Complete

Design Elements

* **Required** Design Element – A "Yes" response to these questions is required to further the consideration of this BMP into the project design. Document a "No" response in Section 5 of the SWDR to describe why this Treatment BMP cannot be included into the project design.

** **Recommended** Design Element – A "Yes" response is preferred for these questions, but not required for incorporation into a project design.

1. Can a controlled outlet and an overflow structure be designed for storm events larger than the Water Quality event? * ☐Yes ☐No
2. Is access for Maintenance vehicles provided? * ☐Yes ☐No
3. Is the drawdown time for the WQV between 24 and 72 hours? * ☐Yes ☐No
4. Has appropriate vegetation been selected for each hydrologic zone? * ☐Yes ☐No
5. Can all design elements required by the local vector control agency be incorporated? * ☐Yes ☐No
6. Has a minimum flow path length-to-width ration of at least 2:1 been provided? ** ☐Yes ☐No
7. Has an upstream bypass been provided for storms > WQV? ** ☐Yes ☐No
8. Can pretreatment be provided to capture sediment and litter in the runoff (such as using biofiltration, or a forebay)? ** ☐Yes ☐No
9. Can public access be restricted using a fence if proposed at locations accessible on foot by the public? ** ☐Yes ☐No
10. Is the maximum depth ≤ 10 ft? * ☐Yes ☐No

Construction Site BMPs
Checklist CS-1, Part 1

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000
RWQCB: REGION 3 CENTRAL COAST

Soil Stabilization (WILL BE LOOKED AT PS&E PHASE)

General Parameters

1. How many rainy seasons are anticipated between beginning and end of construction? _____
2. What is the total disturbed soil area for the project? (ac) _____
   (a) How much of the project DSA consists of slopes 1V:4H or flatter? (ac) _____
   (b) How much of the project DSA consists of 1V:4H < slopes < 1V:2H? (ac) _____
   (c) How much of the project DSA consists of slopes 1V:2H and steeper? (ac) _____
   (d) How much of the project DSA consists of slopes with slope lengths longer then 20 ft? (ac) _____
3. What rainfall area does the project lie within? (Refer to Table 2-1 of the Construction Site Best Management Practices Manual) _____
4. Review the required combination of temporary soil stabilization and temporary sediment controls and barriers for area, slope inclinations, rainy and non-rainy season, and active and non-active disturbed soil areas. (Refer to Tables 2-2, and 2-3 of the Construction Site Best Management Practices Manual for Rainfall Area requirements.) ☐ Complete

Scheduling (SS-1)

5. Does the project have a duration of more then one rainy season and have disturbed soil area in excess of 25 acres? ☐ Yes ☐ No
   (a) Include multiple mobilizations (Move-in/Move-out) as a separate contract bid line item to implement permanent erosion control or revegetation work on slopes that are substantially complete. (Estimate at least 6 mobilizations for each additional rainy season. Designated Construction Representative may suggest an alternate number of mobilizations.) ☐ Complete
   (b) Edit Order of Work specifications for permanent erosion control or revegetation work to be implemented on slopes that are substantially complete. ☐ Complete
   (c) Edit permanent erosion control or revegetation specifications to require seeding and planting work to be performed when optimal. ☐ Complete

Preservation of Existing Vegetation (SS-2)

6. Do Environmentally Sensitive Areas (ESAs) exist within or adjacent to the project limits? (Verify the completion of DPP-1, Part 5) ☐Yes ☐No

   (a) Verify the protection of ESAs through delineation on all project plans. ☐ Complete

   (b) Protect from clearing and grubbing and other construction disturbance by enclosing the ESA perimeter with high visibility plastic fence or other BMP. ☐ Complete

7. Are there areas of existing vegetation (mature trees, native vegetation, landscape planting, etc.) that need not be disturbed by project construction? Will areas designated for proposed treatment BMPs need protection (infiltration characteristics, vegetative cover, etc.)? (Coordinate with District Environmental and Construction to determine limits of work necessary to preserve existing vegetation to the maximum extent practicable.) ☐Yes ☐No

   (a) Designate as outside of limits of work (or designate as ESAs) and show on all project plans. ☐ Complete

   (b) Protect with high visibility plastic fence or other BMP. ☐ Complete

8. If yes for 6, 7, or both, then designate ESA fencing as a separate contract bid line item, *if not already incorporated as part of design pollution prevention work (See DPP-1, Part 5).* ☐ Complete

Slope Protection

9. Provide a soil stabilization BMP(s) appropriate for the DSA, slope steepness, slope length, and soil erodibility. (Consult with District/Regional Landscape Architect.)

   (a) Select SS-3 (Hydraulic Mulch), SS-4 (Hydroseeding), SS-5 (Soil Binders), SS-6 (Straw Mulch), SS-7 (Geotextiles, RECPs, Etc.), SS-8 (Wood Mulching), other BMPs or a combination to cover the DSA throughout the project's rainy season. ☐ Complete

   (b) Increase the quantities by 25% for each additional rainy season. (Designated Construction Representative may suggest an alternate increase.) ☐ Complete

   (c) Designate as a separate contract bid line item. ☐ Complete

Slope Interrupter Devices

10. Provide slope interrupter devices for all slopes with slope lengths equal to or greater than of 20 ft in length. (Consult with District/Regional Landscape Architect and Designated Construction Representative.)

(a) Select SC-5 (Fiber Rolls) or other BMPs to protect slopes throughout the project's rainy season. ☐ Complete

(b) For slope inclination of 1V:4H and flatter, SC-5 (Fiber Rolls) or other BMPs shall be placed along the contour and spaced 20 ft on center. ☐ Complete

(c) For slope inclination between 1V:4H and 1V:2H, SC-5 (Fiber Rolls) or other BMPs shall be placed along the contour and spaced 15 ft on center. ☐ Complete

(d) For slope inclination of 1V:2H and greater, SC-5 (Fiber Rolls) or other BMPs shall be placed along the contour and spaced 10 ft on center. ☐ Complete

(e) Increase the quantities by 25% for each additional rainy season. (Designated Construction Representative may suggest alternate increase.) ☐ Complete

(f) Designate as a separate contract bid line item. ☐ Complete

Channelized Flow

11. Identify locations within the project site where concentrated flow from stormwater runoff can erode areas of soil disturbance. Identify locations of concentrated flow that enters the site from outside of the right-of-way (off-site run-on). ☐ Complete

(a) Utilize SS-7 (Geotextiles, RECPs, etc.), SS-9 (Earth Dikes/Swales, Ditches), SS-10 (Outlet Protection/Velocity Dissipation), SS-11 (Slope Drains), SC-4 (Check Dams), or other BMPs to convey concentrated flows in a non-erosive manner. ☐ Complete

(b) Designate as a separate contract bid line item. ☐ Complete

Construction Site BMPs
Checklist CS-1, Part 2

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

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RWQCB: REGION 3 CENTRAL COAST

Sediment Control (WILL BE LOOKED AT PS&E PHASE)

Perimeter Controls - Run-off Control

1. Is there a potential for sediment laden sheet and concentrated flows to discharge offsite from runoff cleared and grubbed areas, below cut slopes, embankment slopes, etc.? ☐Yes ☐No

   (a) Select linear sediment barrier such as SC-1 (Silt Fence), SC-5 (Fiber Rolls), SC-6 (Gravel Bag Berm), SC-8 (Sand Bag Barrier), SC-9 (Straw Bale Barrier), or a combination to protect wetlands, water courses, roads (paved and unpaved), construction activities, and adjacent properties. (Coordinate with District Construction for selection and preference of linear sediment barrier BMPs.) ☐ Complete

   (b) Increase the quantities by 25% for each additional rainy season. (Designated Construction Representative may suggest an alternate increase.) ☐ Complete

   (c) Designate as a separate contract bid line item. ☐ Complete

Perimeter Controls - Run-on Control

2. Do locations exist where sheet flow upslope of the project site and where concentrated flow upstream of the project site may contact DSA and construction activities? ☐Yes ☐No

   (a) Utilize linear sediment barriers such as SS-9 (Earth Dike/Drainage Swales and Lined Ditches), SC-5 (Fiber Rolls), SC-6 (Gravel Bag Berm), SC-8 (Sand Bag Barrier), SC-9 (Straw Bale Barrier), or other BMPs to convey flows through and/or around the project site. (Coordinate with District Construction for selection and preference of perimeter control BMPs.) ☐ Complete

   (b) Designate as a separate contract bid line item. ☐ Complete

Storm Drain Inlets

3. Do existing or proposed drainage inlets exist within the project limits? ☐Yes ☐No

   (a) Select SC-10 (Storm Drain Inlet Protection) to protect municipal storm drain systems or receiving waters wetlands at each drainage inlet. (Coordinate with District Construction for selection and preference of inlet protection BMPs.) ☐ Complete

   (b) Designate as a separate contract bid line item. ☐ Complete

4. Can existing or proposed drainage inlets utilize an excavated sediment trap as described in SC-10 (Storm Drain Inlet Protection- Type 2)? ☐Yes ☐No

   (a) Include with other types of SC-10 (Storm Drain Inlet Protection). ☐ Complete

Sediment/Desilting Basin (SC-2)

5. Does the project lie within a Rainfall Area where the required combination of temporary soil stabilization and sediment control BMPs includes desilting basins? (Refer to Tables 2-1, 2-2, and 2-3 of the Construction Site Best Management Practices Manual for Rainfall Area requirements.) ☐Yes ☐No

   (a) Consider feasibility for desilting basin allowing for available right-of-way within the project limits, topography, soil type, disturbed soil area within the watershed, and climate conditions. Document if the inclusion of sediment/desilting basins is infeasible. ☐ Complete

   (b) If feasible, design desilting basin(s) per the guidance in SC-2 Sediment/ Desilting Basins of the Construction Site BMP Manual to maximize capture of sediment-laden runoff. ☐ Complete

   Designate as a separate contract bid item. ☐ Complete

6. Will the project benefit from the early implementation of proposed permanent Treatment BMPs? (Coordinate with District Construction.) ☐Yes ☐No

   (a) Edit Order of Work specifications for permanent treatment BMP work to be implemented in a manner that will allow its use as a construction site BMP. ☐ Complete

Sediment Trap (SC-3)

7. Can sediment traps be located to collect channelized runoff from disturbed soil areas prior to discharge? ☐Yes ☐No

   (a) Design sediment traps in accordance with the Construction Site BMP Manual. ☐ Complete

   (b) Designate as a separate contract bid line item. ☐ Complete

Construction Site BMPs
Checklist CS-1, Part 3

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000

RWQCB: REGION 3 CENTRAL COAST

Tracking Controls (WILL BE LOOKED AT PS&E PHASE)

Stabilized Construction Entrance/Exit (TC-1)

1. Are there points of entrance and exit from the project site to paved roads where mud and dirt could be transported offsite by construction equipment? (Coordinate with District Construction for selection and preference of tracking control BMPs.) ☐Yes ☐No

   (a) Identify and designate these entrance/exit points as stabilized construction entrances (TC-1). ☐ Complete

   (b) Designate as a separate contract bid line item. ☐ Complete

Tire/Wheel Wash (TC-3)

2. Are site conditions anticipated that would require additional or modified tracking controls such as entrance/outlet tire wash? (Coordinate with District Construction.) ☐Yes ☐No

   Designate as a separate contract bid line item. ☐ Complete

Stabilized Construction Roadway (TC-2)

3. Are temporary access roads necessary to access remote construction activity locations or to transport materials and equipment? (In addition to controlling dust and sediment tracking, access roads limit impact to sensitive areas by limiting ingress, and provide enhanced bearing capacity.) (Coordinate with District Construction.) ☐Yes ☐No

   (a) Designate these temporary access roads as stabilized construction roadways (TC-2). ☐ Complete

   (b) Designate as a separate contract bid line item. ☐ Complete

Street Sweeping and Vacuuming (SC-7)

9. Is there a potential for tracked sediment or construction related residues to be transported offsite and deposited on public or private roads? (Coordinate with District Construction for preference of including street sweeping and vacuuming with tracking control BMPs.) ☐Yes ☐No

   Designate as a separate contract bid line item. ☐ Complete

Construction Site BMPs
Checklist CS-1, Part 4

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68

PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000

RWQCB: REGION 3 CENTRAL COAST

Wind Erosion Controls (WILL BE LOOKED AT PS&E PHASE)

Wind Erosion Control (WE-1)

1. Is the project located in an area where standard dust control practices in accordance with Standard Specifications, Section 10: Dust Control, are anticipated to be inadequate during construction to prevent the transport of dust offsite by wind? *(Note: Dust control by water truck application is paid for through the various items of work. Dust palliative, if it is included, is paid for as a separate item.)* ☐ Yes ☐ No

   (a) Select SS-3 (Hydraulic Mulch), SS-4 (Hydroseeding), SS-5 (Soil Binders), SS-7 (Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats), SS-8 (Wood Mulching) or a combination to cover the DSA subject to wind erosion year-round, especially when significant wind and dry conditions are anticipated during project construction. (Coordinate with District Construction for selection and preference of wind erosion control BMPs.) ☐ Complete

   (b) Designate as a separate contract bid line item. ☐ Complete

Construction Site BMPs
Checklist CS-1, Part 5

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000
RWQCB: REGION 3 CENTRAL COAST

Non-Storm Water Management (WILL BE LOOKED AT PS&E PHASE)

Temporary Stream Crossing (NS-4) & *Clear Water Diversion* (NS-5)

1. Will construction activities occur within a waterbody or watercourse such as a lake, wetland, or stream? (Coordinate with District Construction for selection and preference for stream crossing and clear water diversion BMPs.) ☐Yes ☐No

   (a) Select from types offered in NS-4 (Temporary Stream Crossing) to provide access through watercourses consistent with permits and agreements.[1] ☐ Complete

   (b) Select from types offered in NS-5 (Clear Water Diversion) to divert watercourse consistent with permits and agreements.[1] ☐ Complete

   (c) Designate as a separate contract bid line item(s). ☐ Complete

Other Non-Storm Water Management BMPs

2. Are construction activities anticipated that will generate wastes or residues with the potential to discharge pollutants? ☐Yes ☐No

   (a) Identify potential pollutants associated with the anticipated construction activity and select the corresponding BMP such as NS-1 (Water Conservation Practices), NS-2 (Dewatering Operations), NS-3 (Paving and Grinding Operations), NS-7 (Potable Water/Irrigation), NS-8 (Vehicle and Equipment Cleaning), NS-9 (Vehicle and Equipment Fueling), NS-10 (Vehicle and Equipment Maintenance), NS-11 (Pile Driving Operations), NS-12 (Concrete Curing), NS-13 (Material and Equipment Use Over Water), NS-14 (Concrete Finishing), and NS-15 (Structure Demolition/Removal Over or Adjacent to Water).[1] ☐ Complete

   (b) Verify that costs for non-storm water management BMPs are identified in the contract documents. Designate BMP as a separate contract bid line item if the requirements in Construction Site Management (SSP 07-346) are anticipated to be inadequate or if requested by Construction. ☐ Complete

1. Coordinate with District Environmental for consistency with US Army Corps of Engineers 404

Construction Site BMPs
Checklist CS-1, Part 6

Prepared by: BN Date: 05-02-08 District-Co-Route: 05-MON-68
PM (KP): 6.1/L6.9(3.8/L4.3) EA: 448000
RWQCB: REGION 3 CENTRAL COAST

Waste Management & Materials Pollution Control (WILL BE LOOKED AT PS&E PHASE)

Concrete Waste Management (WM-8)

1. Does the project include concrete pours or mortar mixing? ☐Yes ☐No

   (a) Select from types offered in WM-8 (Concrete Waste Management) to provide concrete washout facilities. In addition, consider portable concrete washouts and vendor supplied concrete waste management services. (Coordinate with District Construction for selection and preference of waste management and materials pollution control BMPs.) ☐ Complete

   (b) Designate as a separate contract bid line item if the quantity of concrete waste and washout are anticipated to exceed 5.2 yd^3 or if requested by Construction. ☐ Complete

Other Waste Management and Materials Pollution Controls

2. Are construction activities anticipated that will generate wastes or residues with the potential to discharge pollutants? ☐Yes ☐No

   (a) Identify potential pollutants associated with the anticipated construction activity and select the corresponding BMP such as WM-1 (Material Delivery and Storage), WM-2 (Material Use), WM-4 (Spill Prevention and Control), WM-5 (Solid Waste Management), WM-6 (Hazardous Waste Management), WM-7 (Contaminated Soil Management), WM-9 (Sanitary/Septic Waste Management) and WM-10 (Liquid Waste Management) ☐ Complete

   (b) Verify that costs for waste management and materials pollution control BMPs are identified in the contract documents. Designate BMP as a separate contract bid line item if the requirements in Construction Site Management (SSP 07-346) are anticipated to be inadequate or if requested by Construction. ☐ Complete

Temporary Stockpiles (Soil, Materials, and Wastes)

3. Are stockpiles of soil, etc. anticipated during construction? ☐Yes ☐No

   (a) Select WM-3 (Stockpile Management), SS-3 (Hydraulic Mulch), SS-4 (Hydroseeding), SS-5 (Soil Binders), SS-7 (Geotextiles, RECPs etc.), or a combination as appropriate to cover temporary stockpiles of soil, etc. ☐ Complete

(b) Select linear sediment barrier such as SC-1 (Silt Fence), SC-5 (Fiber Rolls), SC-6 (Gravel Bag Berm), SC-8 (Sand Bag Barrier), SC-9 (Straw Bale Barrier), or a combination to encircle temporary stockpiles of soil, etc. (Coordinate with District Construction for selection and preference of BMPs related to stockpiles.) ☐ Complete

(c) Designate as a separate contract bid line item if the requirements in Construction Site management (SSP 07-346) are anticipated to be inadequate or if requested by Construction. ☐ Complete

4. Is there a potential for dust and debris from construction material (fill material, etc.) and waste (concrete, contaminated soil, etc.) stockpiles to be transported offsite by wind? ☐ Yes ☐ No

(a) Select SS-7, temporary cover, plastic sheeting or other BMP to cover stockpiles subject to wind erosion year-round, especially when significant wind and dry conditions are anticipated during project construction. (Coordinate with District Construction for selection and preference of wind erosion control BMPs.) ☐ Complete

(b) Designate as a separate contract bid line item. ☐ Complete

ATTACHMENT H
ACCIDENT DATA
TASAS – TSN

California Department of Transportation

OTM22130

Table B - Selective Accident Rate Calculation

Policy controlling the use of Traffic Accident Surveillance and Analysis System (TASAS) - Transportation Systems Network (TSN) Reports

1. TASAS - TSN has officially replaced the TASAS - "Legacy" database.

2. Reports from TSN are to be used and interpreted by the California Department of Transportation (Caltrans) officials or authorized representative.

3. Electronic versions of these reports may be emailed between Caltrans' employees only using the State computer system.

4. The contents of these reports shall be considered confidential and may be privileged pursuant to 23 U.S.C. Section 409, and are for the sole use of the intended recipient(s). Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message. Do not print, copy or forward.

California Department of Transpor
Table B - Selective Accident Rate Calculation

Location Description	Rate Group (RUS)	No. of Accidents / Significance Tot	Fat	Inj	F+I	Multi Veh	Wet	Dark	Pers Kld Inj	ADT Main X-St	Total MV+ or MVM	Actual Fat	Actual F+I	Average Tot	Average Fat	Average F+I	Average Tot
05 MON 001 074.560 - 05 MON 001 R075.979 1.420 MI 0001-0001 2001-10-01 2004-09-30 *36 mo.*	H NA	168 **H99**	0	57 **H97**	57 **H97**	124	33 **H99**	41	0 93	59.1	91.94	0.000	.62	1.83	0.012	.45	1.16
05 MON 001 074.920 001/NB OFF TO RTE 68W 0002-0001 2001-10-01 2004-09-30 *36 mo.*	R 30 U	7	0	3	3	6	0	1	0 4	6.3	6.9 +	0.000	.43	1.01	0.003	.31	.90
05 MON 001 075.010 001/NB ON FR RTE 68W 0002-0001 2001-10-01 2004-09-30 *36 mo.*	R 24 U	6	0	2	2	6	0	0	0 2	12.7	13.91 +	0.000	.14	.43	0.003	.32	.85
05 MON 001 075.034 001/SB ON FR RTE 68W 0002-0001 2001-10-01 2004-09-30 *36 mo.*	R 78 U	7	0	1	1	6	2 **H90**	3	0 1	7.4	8.15 +	0.000	.12	.86	0.002	.18	.50
05 MON 001 R075.320 001/SB OFF TO RTE 68W 0002-0001 2001-10-01 2004-09-30 *36 mo.*	R 54 U	17	0	3	3	16	2	5	0 3	12.8	14.07 +	0.000	.21	1.21	0.006	.35	.90
05 MON 001 R075.600 001/NBOFF TOMUNRAS/SOLEDA 0002-0001 2001-10-01 2004-09-30 *36 mo.*	R 06 U	10	0	6 **H97**	6 **H95**	2	7 **H99**	4	0 9	9.7	10.63 +	0.000	.56	.94	0.006	.21	.60
05 MON 001 R075.640 001/SBON FR MUNRAS/SOLEDAI 0002-0001 2001-10-01 2004-09-30 *36 mo.*	R 20 U	1	0	0	0	1	0	0	0 0	9.1	9.99 +	0.000	.00	.10	0.003	.22	.60

Accident Rates expressed as: **# of accidents / Million vehicle miles**

+ denotes that **Million Vehicles** (MV) used in accident rates instead (for intersections and ramps).

For Ramps RUS only considers R(Rural) U(Urban)

ATTACHMENT I
ENVIRONMENT DOCUMENT

ATTACHMENT J
TRAFFIC MANAGEMENT PLAN (TMP)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION MANAGEMENT PLAN

State Route 68
Holman Highway (SR 68) Widening and Upgrade
In Monterey County
From CHOMP Entrance to SR 1/68 Separation
EA No. 448000

MARK THOMAS & CO., INC.
1960 ZANKER ROAD
SAN JOSE, CA 95112
MARCH 3, 2006

1.0 PROJECT DESCRIPTION

The City of Monterey proposes to widen and upgrade Route 68 (Holman Highway) from two lanes to four lanes in Monterey County from approximately 0.2 kilometers (0.1 miles west of the Community Hospital of Monterey Peninsula (CHOMP) entrance to the State Route (SR) 1 and Route 68 junction. Improvement to SR 1 southbound off-ramp and on-ramp are also included in the project. If implemented, the project would relieve existing and future traffic congestion, improve traffic safety, improve traffic operations, minimize delay of emergency vehicle access to the hospital, and reduce the incentive for bypass traffic through the Skyline Forest neighborhood. It would also result in improved access to the Pebble Beach entrance, the CHOMP and Beverly Manor Complex. Four alternatives were considered ranging from no-build to an ultimate four-lane widening, with total project cost ranging from zero to $18,539,000. Out of the four alternatives considered, the PDT preferred alternative is the Alternative 3 (full four lane facility) with a Ramp Variation A (five legged intersection at the SR 68/SR 1 ramp termini) with a total cost of $18,459,000 (construction cost of $14,337,000, rights of way cost of $227,000 and engineering support cost of $3,975,000). Other alternatives were considered, but deleted from further consideration.

The project is proposed to be funded primarily by private development sources (Pebble Beach Company and CHOMP) and the City of Monterey as the lead agency (City and TAMC RIP Funds). The City of Monterey and the County of Monterey have $1,400,000 in TAMC RIP and City traffic Impact funds towards PA/ED and portion of final PS&E phase of this project. In addition, the City of Monterey has submitted funding requests from TAMC RIP Funds and other federal/state sources for construction. This project has been assigned the Project Development Processing Category 4B because it does not require substantial new right of way and does not substantially increase traffic capacity.

Improvements to this portion of SR 68 are constrained by the existing facilities adjacent to the highway. These facilities include the entrance to Pebble Beach 17-Mile Toll Gate, Beverly Manor Development and CHOMP Entrance as well as the existing SR 68/SR 1 Separation Structure.

Proposed Engineering Features

The PDT preferred alternative is the Alternative 3 (full four lane facility) with a Ramp Variation A (five legged intersection at the SR 68/SR 1 ramp termini) with a design speed for SR 68 at 60 kph. This project would widen SR 68 from two lanes to four lanes and is characterized by the addition of one additional lane in each direction. In the westbound direction, two lanes would be carried past the CHOMP Entrance and then merge into and meet the existing one-lane approximately 183 m (600 feet) west of the CHOMP Entrance. In the eastbound direction, the right lane would terminate as a mandatory right turn lane to the Pebble Beach Entrance and the southbound onramp.

The work under this contract more specifically includes:

- ✓ Traffic signal at the intersection of SR 68 and the SR 1 off and on ramps would be modified. This ramp is characterized as a five-legged intersection that would result in all traffic movements to be brought together at the SR 68/SR 1 southbound ramp intersection, except southbound onto SR 1 from Pebble Beach entrance;
- ✓ Traffic signal at the SR 68/CHOMP Entrance would be modified;
- ✓ The Scenic Drive overcrossing would be replaced with a new bridge;

- ✓ The Beverly Manor Development Entrance would be redesigned to prohibit left turns out of the entrance to eastbound SR 68. Eastbound left turns from SR 68 to the Beverly Manor Development Entrance and right turns in and right turns out of the entrance will be allowed;
- ✓ SR 1 southbound off- and onramps would require widening and installation of retaining walls;
- ✓ The Pebble Beach Entrance would be modified; and
- ✓ The proposed retaining walls (in 5 different areas) would be constructed at the edge of right-of-way.

The City of Monterey, in cooperation with Caltrans, will complete the environmental clearance for this project. The Department of Transportation will be the lead agency for CEQA. The DEIR/EA (draft environmental impact report/environmental assessment) has been prepared in accordance with Caltrans' environmental procedures, as well as State and federal environmental regulations.

The benefits of the project are to facilitate relieve existing and future traffic congestion, improve traffic safety and traffic operations, minimize delay of emergency vehicle access to CHOMP and reduce the incentive for bypass traffic through the Skyline Forest neighborhood.

2.0 TRANSPORTATION MANAGEMENT PLAN SUMMARY

During the construction of the widening of lanes and other features, lane and ramp closures will be performed in accordance with lane / ramp closure recommendations of the District Highway Operation Branch. No freeway closures are required for the work under this contract.

The Transportation Management Plan (TMP) is a specialized program tailored to prevent and mitigate the impacts of a construction project by applying a variety of techniques including *Motorist Information, Incident Management, Construction Strategies, and Public Information Strategies*. The major objectives of the TMP are to maintain efficient and safe movement of vehicles through the construction zone; and to provide intensive public awareness of potential impacts of widening Route 68 and access disruption to Pebble Beach Development.

The TMP proposes a program of public information, motorist information, and an incident detection and response. The public information program will consist of media notification, telephone hotline, press release, and traveler information system (Internet). The motorist information program will notify drivers of lane / ramp closures and detours using changeable message signs.

TABLE 1
Roles and Responsibilities / Cost Estimate

	Transportation Management Measure	Responsible Agency	Action Required	Cost	Comments
1	COZEEP	CHP City	Increase CHP presence during construction	$25 K	
2	Ground Mounted Signs	City of Monterey	Provide warning information to motorists.	$25 K	Will include in PS&E
3	Changeable Message Signs	Contractor	Install portable CMSs announcing delays, detours, and upcoming construction. Message content and deployment supervised by RE.	$50 K	Will include in PS&E
4	Staging & Detours	Contractor	Establish detour routes, signing.	$15 K	Will include in PS&E
5	Press releases	City of Monterey	Provide project and construction information through media.	--	No additional cost
6	Telephone Hotline	City/Caltrans	Provide construction information to public by TRAVINFO.	--	No additional cost if included under communication strategy for Rte 68 improvement
7	Traveler Information System (optional)	City/Caltrans	Provide real time traffic information on Caltrans' website.	--	No addl. cost if included under comm. strategy for Rte 68 improvement
8	SSP12-220 Damages Clause	Contract Provision	Contractor pays for damages for late lane closure pick up.	--	Included in SSP. No addl. cost to City
Total				**$115 K**	

3.0 TRANSPORTATION MANAGEMENT PLAN STRATEGIES

3.1 Motorist Information

The motorist information system provides advance notice regarding potential delays and/or available detours during construction throughout the project. The strategies include two measures: Changeable Message Signs (CMS), and Ground Mounted Signs.

3.1.1 Changeable Message Signs (CMS)

The function of Changeable Message Signs (CMS) is to alert drivers to changing travel conditions in the construction zone such as congestion and detours and improve their opportunity to change routes or adjust travel plans. CMS's can also be used to announce upcoming lane or ramp closures. Messages should conform to Caltrans guidelines. For example, CMS use should be limited to real-time conditions such as an ongoing lane closures. For advance notice of ramp closures and other events, it is recommended that a standard sign package be used. The Project

Construction Manager (CM) is responsible for monitoring message content and CMS deployment. At least one portable CMS should be utilized for every lane closure or ramp closure. When traffic is detoured, additional CMS's shall be provided.

3.1.2 Ground Mounted Signs

Ground Mounted construction and warning signs provide information about immediate road hazards to motorists. Construction may provide input regarding numbers of signs needed.

3.2 Incident Management

The incident detection and response system is provided by the Construction Zone Enhanced Enforcement Program (COZEEP)

3.2.1 Construction Zone Enhanced Enforcement Program (COZEEP)

The program involves continuous presence of the California Highway Patrol (CHP) in the construction zone, provides enforcement of speed restriction, and faster incident response.

It is recommended that a COZEEP program be established for the entire construction period. During freeway lane closures, CHP officers should be stationed at the beginning of the lane closure. Enhanced enforcement would most likely be used during lane closures but could be invoked at other times at the discretion of the CM. The CM would prepare a contract change order for each event requiring COZEEP. The total COZEEP cost, for each of the lane closures, is $1000/day/unit. The total COZEEP cost, including all lane/ramp closures, will be approximately $30k.

3.3 Construction Strategies

Construction strategies are implemented for projects regardless whether a TMP is prepared. One of the primary considerations in planning and staging construction projects is to minimize the impact of the construction activity on traffic circulation. The manner in which construction is staged is the first strategy employed to minimize disruption to traffic through the construction zone and of adjacent neighborhoods. One key feature of stage construction is scheduling work to minimize impacts to traffic, and another is the provision of alternate routes. These are accomplished by scheduling all work requiring lane closures to off-peak times, typically in the late night and early morning hours and by providing clearly marked detours whenever the Route 68, local streets or ramps are closed. In addition, the construction contracts would prohibit any closures and construction activity during heavy travel periods.

The strategies proposed as part of the TMP supplement measures routinely adhered to during construction. Described here are descriptions of two other construction strategies implemented as part of the TMP that could supplement the project. The measures include a system of controls on contractor operations and efforts to block views of construction activity from passing motorists.

In addition, the project contract general conditions and agreement sections include liquidated damages from contractors if schedule slippage occurs. If project work extends beyond the hours specified in the approved Lane Closure Charts, the general traffic delay caused by the late closure would be extended as would the cost of extending the implementation period of TMP measures.

It is planned that lane or ramp closures will be prohibited during special events at Pebble Beach, such as AT&T Pro-Am event. City will work closely with Pebble Beach Company to minimize disruption.

Other controls on contractor operations to reduce construction-related congestion, like detour management, are written into construction contracts.

3.4 Public Information

3.4.1 Telephone Hotlines

At a minimum, both hot line recordings should include a brief description of on going or imminent construction activity hours of impact and detours.

Telephone information hotline messages should be prepared announcing the following events:

- Start of construction
- Ramp or lane closures
- CHOMP and Pebble Beach Entrance closures
- Major shift in traffic pattern

3.4.2 Traveler Information System (Internet)

The message provided thorough telephone hotlines should be posted on the Caltrans web site, in addition to real time traffic information.

3.4.3 Press Release

Project and construction information will be released to the press through Caltrans Public Information Office.

3.5 Contingency Plan

The contractor will be required to submit a traffic control plan at least a week prior to any lane/ramp closure. The traffic control plan shall contain a detailed contingency plan to ensure opening of the lanes by the designated time. During construction activities requiring lane closures, the contractor shall provide appropriate personnel to monitor activities and make decisions regarding activation of contingency plans. As soon as it becomes evident during any construction activity that it will not be possible to complete that activity and remove the closure at the designated time, that activity shall be halted and postponed until a later date.

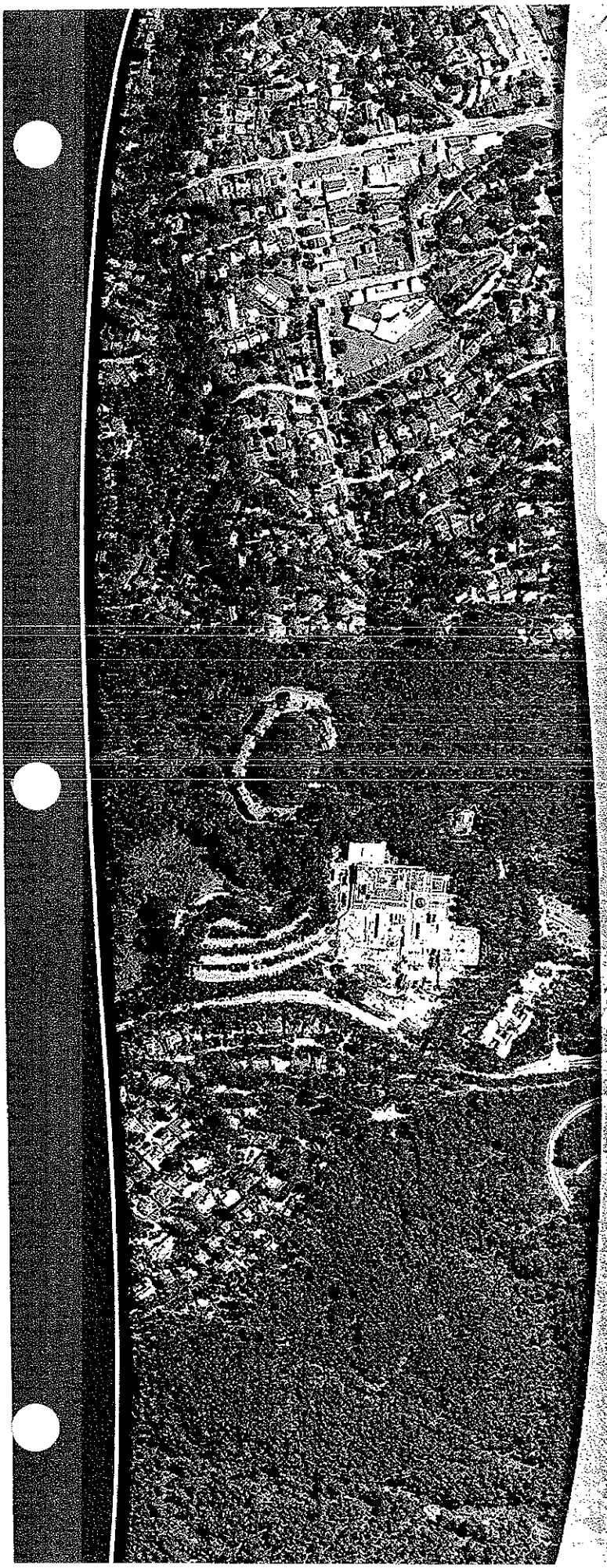
The contingency plan shall identify key operational decision points with a timeline listing the expected completion time of each critical path activity. Clearly defined trigger points shall be identified with each critical path activity to establish when the contingency plan will be activated. The plan will list and describe any and all standby equipment and secondary material suppliers, to be available to complete the operations in the event of equipment failure, unexpected loss of material, or unexpected uselessness of material.

A decision tree with clearly defined lines of communication and authority shall be provided in the contingency plan. The names, telephone numbers and pager numbers of the Contractor's Project Manager, City's Resident Engineer, Caltrans Permit and/or Construction Inspector, CHP Area Commander, and other applicable personnel shall be provided.

Conclusion

The City of Monterey will produce and disseminate press releases and other documents necessary to adequately inform the public concerning the project and its associated traffic impacts. This responsibility includes advance notification to local newspapers, television and radio stations, and emergency response providers. City of Monterey will also submit to Caltrans District 5 Public Information Office, weekly information regarding the daily traffic impacts to State facilities. This information will be included in the Caltrans Weekly Traffic Updates, which is dispersed to all news media outlets and other interested agencies.

ATTACHMENT K
TRAFFIC REPORT



Final Report:

Traffic Operations Analysis Route 68 (Holman Highway)

January 2006

Prepared for:

Mark Thomas & Company, Inc.

1031-1975

Prepared by: Fehr & Peers Transportation Consultants

One Walnut Creek Center
100 Pringle Avenue, Suite 600
Walnut Creek, CA 94596

I. INTRODUCTION

Study Purpose

This report presents the existing and future travel conditions associated with Holman Highway (Route 68) in Monterey, California.

Study Area

The project context area is shown on **Figure 1**, which details the major area roadways and surrounding municipalities and communities.

Holman Highway (Route 68) is located on the Monterey Peninsula in Monterey, California. The municipalities in the area, City of Monterey and City of Pacific Grove, access Route 68. The Del Monte Forest also accesses the highway via gated access roads such as 17 Mile Drive. Land uses accessing Route 68 include commercial and residential in Pacific Grove, residential uses via Skyline Forest Drive and Aguajito Road, commercial uses via the Beverly Manor Development (also known as the Carmel Hill Professional Center or CHPC), and the Community Hospital of the Monterey Peninsula (CHOMP). The major roadways in the study area include Route 68, Route 1, and 17 Mile Drive.

Route 68 (Holman Highway) is a two-lane highway with a posted speed limit of 55 kilometers per hour (kph) or 35 miles per hour (mph). This roadway extends through Pacific Grove and connects to Route 1 with a full-access interchange. Intersections within this study area include the CHOMP and CHPC driveways.

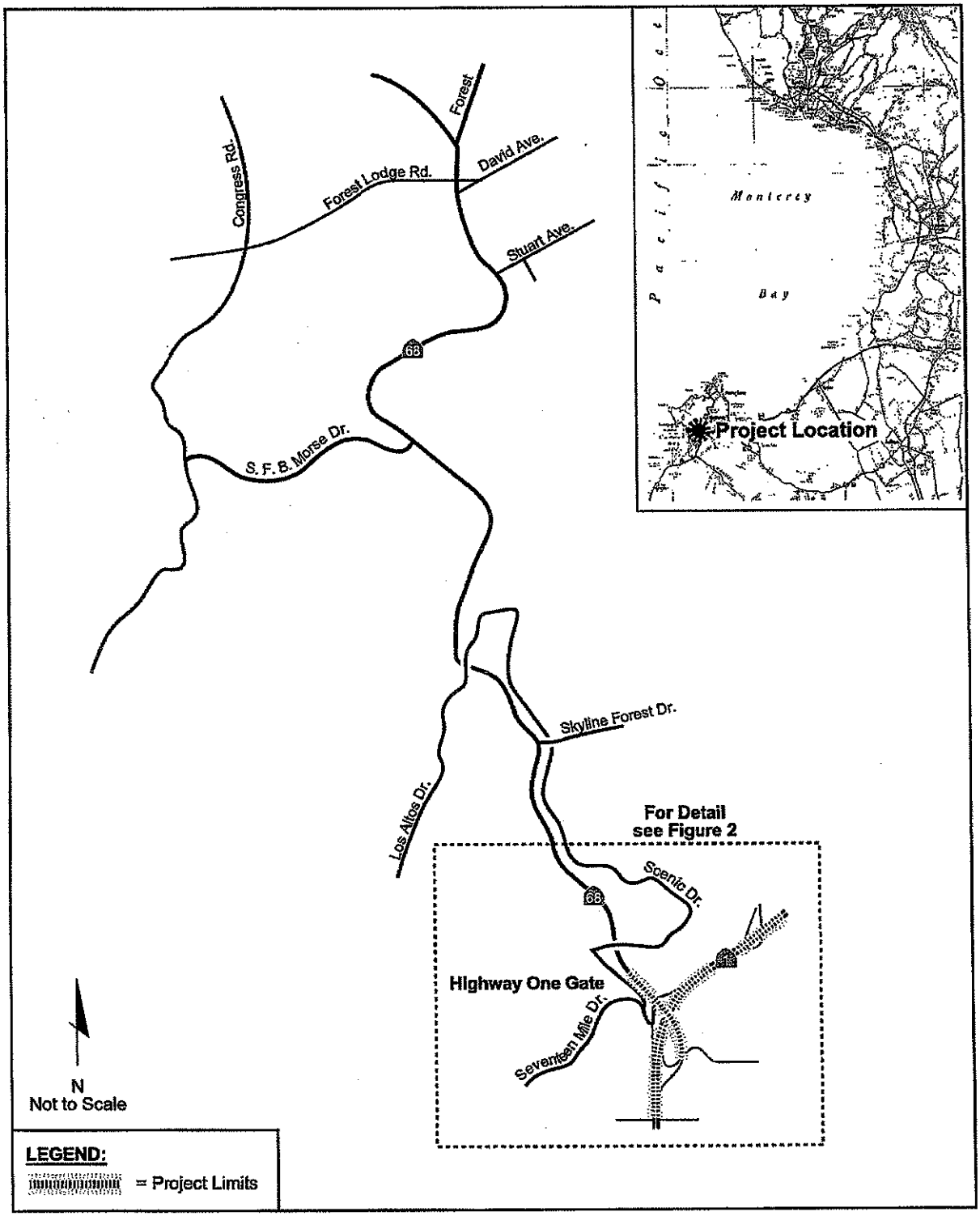
Route 1 is a four-lane conventional highway in Monterey County with a posted speed limit of 90 kph (55 mph). In the study area, grade-separated access is provided via interchanges at Munras Avenue and Route 68. South of the Route 68 interchange, the highway becomes access-controlled with the first signalized intersection at Carpenter Street.

17 Mile Drive is a two-lane collector roadway that provides access to Pebble Beach through a gated access. The posted speed limit for this roadway is 40 kph (25 mph).

This study analyzed four existing intersections. These intersections include:

1. Route 68 / Community Hospital Driveway
2. Route 68 / Carmel Hill Professional Center
3. Route 68 / Route 1 Southbound Off-Ramp
4. Route 1 Southbound On-Ramp / 17 Mile Drive

The existing lane configuration at each intersection is shown on **Figure 2**.



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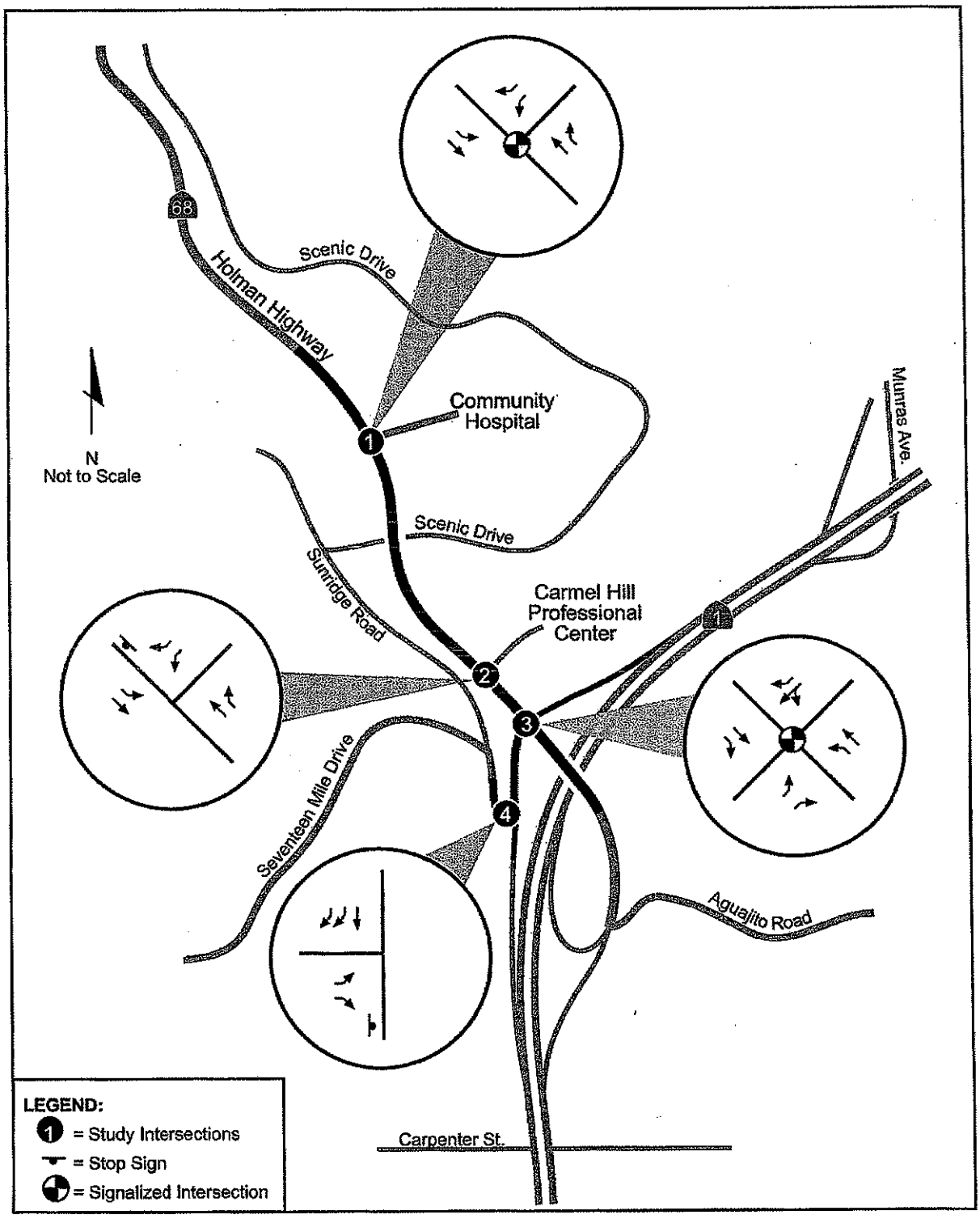
1975-1

PROJECT CONTEXT AREA

FIGURE 1



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EXISTING INTERSECTION LANE CONFIGURATIONS

FIGURE 2

Analysis Methodology

Given the complex nature of the roadway system in the study area, including signalized intersections, unsignalized intersections, freeway ramp junctions, and weave sections, a variety of methodologies are employed in the analysis. A majority of the analysis was conducted using methodologies provided by the 2000 Highway Capacity Manual. However, the weaving analysis was prepared using the Leisch method, as provided for in the Caltrans *Highway Design Manual* (5th Edition), Intersection Operations Methodology.

Level of Service Criteria

Transportation engineers and planners commonly use a grading system called level of service (LOS) to measure and describe the operational status of a local roadway network. LOS is a description of an intersection's operation, ranging from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceed design capacity, resulting in long queues and delays).

Signalized Intersections

At signalized intersections, traffic conditions were evaluated using the Transportation Research Board's *2000 Highway Capacity Manual* methodology. This operation analysis uses various intersection characteristics (i.e., traffic volumes, lane geometry, and signal phasing) to estimate the average control delay experienced by motorists traveling through an intersection. **Table 1** summarizes the relationship between delay and LOS for signalized intersections.

TABLE 1
Signalized Intersection Level of Service Criteria

Level of Service	Description	Average Control Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55.0 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

Unsignalized Intersections

For unsignalized (all-way stop-controlled, side-street stop-controlled, and roundabouts) intersections, the 2000 *Highway Capacity Manual* methodology for unsignalized intersections was utilized. With this methodology, operations are defined by the average control delay per vehicle (measured in seconds) for each stop-controlled movement. This incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. For side-street stop-controlled intersections, the delay is typically represented for each movement from the minor approaches only. The calculated delay for roundabouts includes all of the vehicles entering and exiting the roundabout. **Table 2** summarizes the relationship between delay and LOS for unsignalized intersections.

TABLE 2
Unsignalized Intersection Level of Service Criteria

Level of Service	Description	Average Control Delay (Seconds)
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

Ramp Junction Operations Methodology

The ramp operation analysis was conducted using the 2000 *Highway Capacity Manual* methodology for ramp junctions. This methodology calculates the density of vehicles on the ramp and compares that density against defined standards. Factors that influence the density of vehicles on a ramp include number of lanes on a ramp, number of freeway lanes, ramp speed, number of lanes on the freeway, and the presence or absence of adjacent ramps. The LOS thresholds employed by this method are listed in **Table 3.**

TABLE 3
Level of Service Criteria for Ramp/Freeway Junction Areas

Level of Service	Maximum Density (Passenger Cars/Mile/Lane)
A	10
B	20
C	28
D	35
E	>35
F	Demand Exceeds Flow Limits

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

Weave Section Operations Methodology

The Caltrans *Highway Design Manual (5th Edition)* defines a weaving segment as:

> *A weaving section is a length of one-way roadway where vehicles are crossing paths, changing lanes, or merging with through traffic as they enter or exit a freeway or a collector distributor road.* (Section 504.7)

Route 1 southbound between Munras Avenue and Route 68 has an auxiliary lane that begins at Munras Avenue and ends at Route 68. This section, by definition, is considered a weave area and must be analyzed as a weave section using the methodologies specified in the *Highway Design Manual.*

The *Highway Design Manual* requires weave sections to be analyzed using either the Leisch Method or the Level of Service Method based on the 2000 *Highway Capacity Manual.* The Leisch Method employs a series of nomographs based on calculations developed by Jack Leisch and Associates. The Level of Service D Method estimates a volume-to-capacity ratio for the weave section based on the length of the segment, the conflicting volumes, number of lanes, and the percentage of trucks. According to the *Highway Design Manual*, the Leisch Method is the primary process of analysis and should be employed in all cases, except where weaving volumes exceed 2,500 vehicles per hour. Since weaving volumes measured in the field are less than this threshold, the Leisch Method was employed.

II. EXISTING TRAFFIC OPERATIONS

This chapter addresses the existing roadway system and operating conditions in the study area. This chapter also presents the review of the accident data.

Data Collection

Fehr & Peers collected a variety of traffic data for this analysis including peak hour counts for intersection turning movements, freeway ramps, roadway segments, and truck classifications.

Turning Movement Counts

Turning movement counts were collected at the four intersections for the morning (7:00 to 9:00 AM) and evening (3:00 to 6:30 PM) peak periods. These intersections include:

1. Route 68 / Community Hospital Driveway
2. Route 68 / Carmel Hill Professional Center
3. Route 68 / Route 1 Southbound Off-Ramp
4. Route 1 Southbound On-Ramp / 17 Mile Drive

The calculated peak hour intersection turning movement volumes are shown on **Figure 3**. Detailed traffic count sheets are provided in **Appendix A**.

A review of the traffic count data indicated that the AM peak hour occurred between 8:00 and 9:00 AM with a slight variation at one intersection (i.e., the Route 68/CHOMP driveway peak hour was 7:45 to 8:45 AM). Since the 8:00 to 9:00 AM hour is predominant, this hour was selected as the AM peak hour for all intersections.

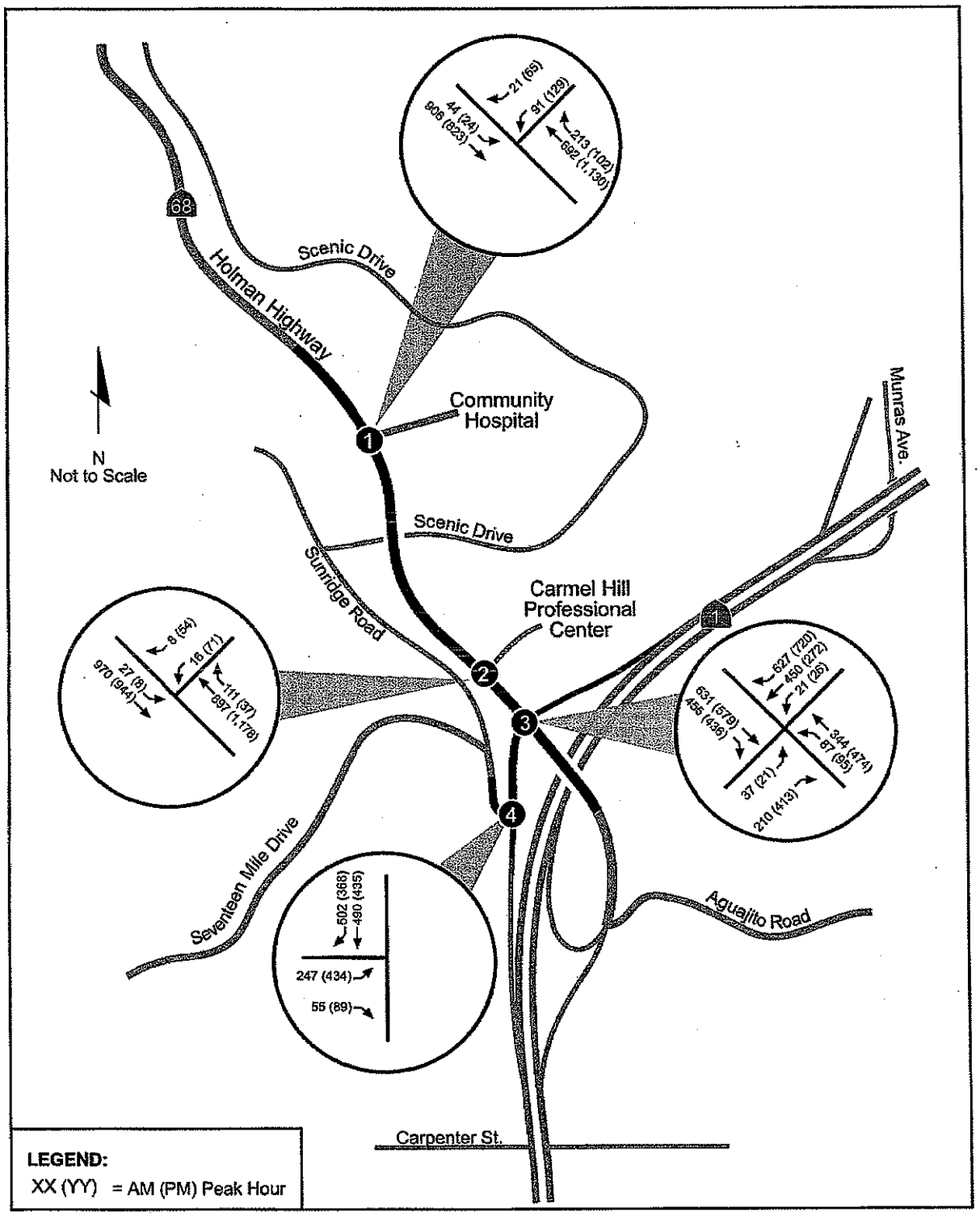
The PM period was not as uniform. Traffic to and from 17 Mile Drive has a peak hour from 3:30 to 4:30 PM. Traffic at the Route 68 intersections with CHOMP and CHPC has a peak hour from 5:00 to 6:00 PM. The Route 68/Route 1 southbound off-ramp intersection has a peak hour beginning at 3:30 PM; the secondary peak hour begins at 5:00 PM and traffic levels are 1 percent less than the primary peak hour. Since the improvement focuses on Route 68, and traffic peaking characteristics for Route 68 occurred at 5:00 PM, the PM peak hour for analysis used was 5:00 to 6:00 PM.

Freeway Ramp Counts

Fehr & Peers collected traffic counts for the Route 1 southbound on-ramp at Munras Avenue. The Route 1 southbound off-ramp and on-ramp to Route 68 were derived from the intersection turning movement counts. These ramp counts are included in **Appendix B.**

Roadway Segment Counts

Roadway segment counts were taken on both Route 68 and Route 1. The roadway segment counts for Route 68 were conducted in July 2003; 24-hour counts were taken for a 7-day period to the west of Skyline Drive. This location was chosen to obtain unconstrained traffic flow (i.e., unimpeded by traffic congestion from the signalized intersection operations). The daily volumes on Route 68 varied from 22,500 on a Sunday to 28,500 on a Friday. The counts for Route 1 were peak period counts that were obtained south of the Route 68 interchange. The roadways segment count data for Route 68 are provided in **Appendix C.**



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EXISTING (2003) INTERSECTION COUNTS

January 2006
1975-3

FIGURE 3

Truck Classification Counts

Fehr & Peers conducted truck classification counts to determine the percentage of trucks on Route 68 in the study area. These classification counts were taken concurrently with the 7-day, 24-hour counts. The data was summarized for the AM peak period (7:00 to 9:00 AM) and the PM peak period (3:00 to 6:30 PM). **Table 4** presents the results of these summaries and indicates that during the AM period, truck traffic represented about 2 percent of total traffic. Trucks represented less than 1 percent of the PM peak period traffic. The classification count data is included in **Appendix D**.

TABLE 4
Peak Hour Percent Trucks - Route 68

Day / Time Period		Total Trucks	Total Vehicles	Percent Trucks
Monday	7:00 to 9:00 AM	52	2,921	1.78%
	3:00 to 6:00 PM	45	6,034	0.72%
Tuesday	7:00 to 9:00 AM	84	2,959	2.84%
	3:00 to 6:00 PM	42	6,094	0.69%
Wednesday	7:00 to 9:00 AM	70	2,992	2.34%
	3:00 to 6:00 PM	55	6,223	0.88%
Thursday	7:00 to 9:00 AM	58	2,823	2.05%
	3:00 to 6:00 PM	35	6,126	0.57%
Friday	7:00 to 9:00 AM	74	2,823	2.57%
	3:00 to 6:00 PM	27	6,316	0.43%
AM Peak Period Totals		**338**	**14,518**	**2.3%**
PM Peak Period Totals		**204**	**30,793**	**0.6%**

Source: Fehr & Peers, April 2005

Operational Analysis

This analysis addressed operations of the intersections, ramp junctions, and weaving sections. **Appendix E** contains the analysis worksheets.

Intersection Operation

Table 5 lists the delay (in seconds) and LOS for each of the four study area intersections. The CHOMP intersection is shown to operate at acceptable levels during both the AM and PM peak hours. Traffic turning left out of the Carmel Hill Professional Center experiences LOS F conditions. Traffic turning left out of 17 Mile Drive experiences LOS E conditions in the PM peak hour and LOS B conditions during the AM peak hour. The Route 68 / Route 1 Southbound Off-Ramp intersection is shown to operate at LOS F during both the AM and PM peak hours.

Queuing was also observed within the Del Monte Forest on 17 Mile Drive. At times, the vehicle queue within the Forest extended back about 150 meters (500 feet). The extent of this vehicle queue was dependent on two factors including the green time effectiveness at the Route 68/Route 1 southbound off-ramp intersection and the aggressiveness of drivers making the left-turn movement from 17 Mile Drive.

Vehicle queues at the Route 1 southbound off-ramp approaching Route 68 were typically about 10 vehicles, except for a short period of time at around 5:30 PM when the right-turning vehicle queue extended back approximately 25 vehicles. This congestion occurred for about 20 minutes before dissipating.

The vehicle queue on westbound Route 68 approaching the CHOMP intersection was generally manageable and extended back at times to the Scenic Drive over-crossing. Similar to the Route 1 southbound off-ramp, vehicle queue congestion increased on westbound Route 68 around 5:30 PM and the resulting vehicle queue extended back beyond the Beverly Manor Development driveway. This condition occurred for about 20 minutes before dissipating.

TABLE 5
Existing (2003) Intersection Delay and Level of Service – AM and PM Peak Hours

Location	Control[1]	Peak Hour	Delay[2]	LOS
Route 68 / Community Hospital Driveway	Signal	AM PM	8 seconds 14 seconds	A B
Route 68 / Carmel Hill Professional Center	SSS	AM PM	>50 seconds >50 seconds	F F
Route 68 / Route 1 SB Off-Ramp	Signal	AM PM	>80 seconds >80 seconds	F F
Route 1 SB On-Ramp / 17 Mile Drive	SSS	AM PM	20 seconds 44 seconds	C E

Notes:
1. Signal = Signalized intersection
   SSS = Side-street stop-controlled intersection
2. For signalized intersections, delay is average control delay for all vehicles based on criteria in the 2000 *Highway Capacity Manual*. For side-street stop-controlled intersections, delay for worst movement calculated using the 2000 *Highway Capacity Manual* methodology.

Source: Fehr & Peers, April 2005

Ramp Junction Operations

The Route 1 southbound on-ramp from Route 68 was determined to have a density of 21-passenger cars/per mile/per lane for both the AM and PM peak hours. This represents a LOS C condition.

Weaving Section

The application of the Leisch Method indicated that the weaving section of Route 1 from Munras Avenue to Route 68 operates at LOS C during both the AM (7:00 to 9:00 AM) and PM (3:00 to 6:30 PM) peak periods.

Accident History

Accident history for Route 68 and Route 1 for the past 36 months for a period between October 1, 2001 and September 30, 2004, was provided by Caltrans from their Traffic Accident Surveillance and Analysis System (TASAS) and is shown in **Table 6**. The TASAS information includes the reported number of accidents in the study area and the number of fatalities and injuries. Caltrans also provided the rate of accidents, injuries, and fatalities for comparable facilities throughout the state. As shown in Table 6, there were 2 fatalities along Route 68 within the past 3 years in the study area. It

should also be noted that the rate of actual accidents was slightly higher than the statewide accidents for both Route 68 and Route 1. Based on our review of conditions in the corridor, the most likely explanation for the higher than average accident rates is the existing queuing and congestion within the corridor. This queuing and congestion increases driver frustration and impatience, which can lead to unsafe vehicle operations. For example, drivers may follow more closely, which can lead to additional rear end accidents. Other drivers, especially those turning from the unsignalized driveway for the Beverly Manor Development, may cause accidents by attempting to turn when insufficient gaps are present.

TABLE 6
Accident History for Route 68 and Route 1

Facility	Total Accidents	Fatal	Fatal + Injury	Actual Accident Rate[1]			Average Accident Rate[1]		
				Total	Fatality	Fatal+ Injury	Total	Fatality	Fatal+ Injury
Route 68	134	2	43	2.46	0.04	0.79	1.55	0.03	0.67
Route 1	168	0	57	1.83	0.00	0.62	1.16	0.01	0.45

Notes:
1. Accident rates presented as accidents per million vehicle miles

Source: Caltrans District 5 TASAS Data

III. TRAFFIC FORECASTS

FORECAST METHODOLOGY

Prior to preparing the travel forecasts, Fehr & Peers identified potential sources for traffic forecasts. This research indicated that a regional travel model, developed by the Association of Monterey Bay Area Governments (AMBAG), was available for use in this study. AMBAG representatives provided the model to Fehr & Peers in May 2003. The AMBAG model has versions for 2000, 2010, 2020, and 2025.

This research also identified two traffic studies for development proposals with direct access to Route 68:

- *Community Hospital of the Monterey Peninsula Master Plan (2001)*
- *Transportation Analysis for the Del Monte Forest Preservation and Development Plan (2002)*

Fehr & Peers also determined there would be no additional development at the Carmel Hill Professional Center, which is located in the project study area.

Regional travel demand models (such as the AMBAG model) are often employed to develop future forecasts for roadway improvement projects. Regional models are best employed to predict volumes on major roadways including arterials, expressways, and freeways. However, regional models often lack the specificity to accurately predict individual intersection turning movements or traffic volumes on minor roadways including driveways and neighborhood roadways.

Fehr & Peers employed the AMBAG model to develop traffic forecasts for State Route 1 (Route 1) and Route 68 within the study area. These two facilities provide regional access to the study area. The study area also includes 17 Mile Drive (a local roadway), and two driveways (one to the Community Hospital and one to the Carmel Hill Professional Center). Development-specific traffic studies were employed to develop forecasts to/from these secondary facilities. **Table 7** indicates the source for developing the traffic forecasts.

TABLE 7
Traffic Forecasting Sources

Roadway	Source of Future Traffic Volumes
Route 1	AMBAG Traffic Model Growth Rates (2000-2025)
Route 68	AMBAG Traffic Model Growth Rates (2000-2025)
Community Hospital Driveway	*Community Hospital of the Monterey Peninsula Master Plan (2001)*
Carmel Hill Professional Center Driveway	No growth anticipated, existing volumes maintained
17 Mile Drive	*Transportation Analysis for the Del Monte Forest Preservation and Development Plan (December 2002)*

Source: Fehr & Peers, April 2005

AMBAG Model Land Use Data Update

Prior to employing the AMBAG model, Fehr & Peers reviewed the land use data contained in the model. As part of the review process, Fehr & Peers coordinated the land use review with AMBAG representatives. Land uses in several traffic analysis zones in Pacific Grove, Monterey, and Pebble Beach were inconsistent from one forecast year to the next. Additionally, the land uses indicated an apparent population and employment reduction of about 10 percent between 2000 and 2025 in the City of Pacific Grove.

Fehr & Peers coordinated with AMBAG representatives on August 7, 2003 to adjust the land use characteristics to better reflect growth in the vicinity of the roadway improvement project. Changes made to the AMBAG model were provided by AMBAG. Adjustments within Pebble Beach were also made to be consistent with the *Transportation Analysis for the Del Monte Forest Preservation and Development Plan* (2002), which reflects build-out development in the Del Monte Forest. **Table 8** presents the general land use characteristics for the four communities (Monterey, Pacific Grove, Carmel and Pebble Beach) immediately adjacent to the study area.

TABLE 8
AMBAG Land Use Totals

Community	Population		Employment	
	2000	2025	2000	2025
Carmel	10,938	11,662	6,468	7,695
Pebble Beach	7,811	8,670	4,526	4,821
Pacific Grove	17,510	18,084	8,566	9,290
Monterey	20,644	22,965	22,882	28,767
Total	***56,903***	***61,381***	***42,442***	***50,573***

Source: AMBAG Model, Fehr & Peers, April 2005

As indicated in **Table 8**, land uses in the study area reflect gradual growth in population and employment. **Table 9** illustrates the cumulative growth in population and employment for each community. The annualized growth rate calculated from the cumulative growth is also provided. Between 2000 and 2025, the employment growth is expected to be about 0.7 percent per year with the greatest growth occurring in Monterey. Population growth is expected to occur at 0.3 percent per year with Monterey experiencing the majority of the growth. **Appendix F** provides a zone-by-zone breakdown of the anticipated growth in the immediate vicinity of the study area.

TABLE 9
Cumulative Population and Employment Growth

Community	Population Growth		Employment Growth	
	2000 to 2025	Yearly Rate	2000 to 2025	Yearly Rate
Carmel	6.62%	0.26%	18.97%	0.70%
Pebble Beach	11.00%	0.42%	6.52%	0.25%
Pacific Grove	3.28%	0.13%	8.45%	0.33%
Monterey	11.24%	0.43%	25.72%	0.92%
Total	***7.87%***	***0.30%***	***19.16%***	***0.70%***

Source: AMBAG Model, Fehr & Peers, April 2005

Roadway Network Update

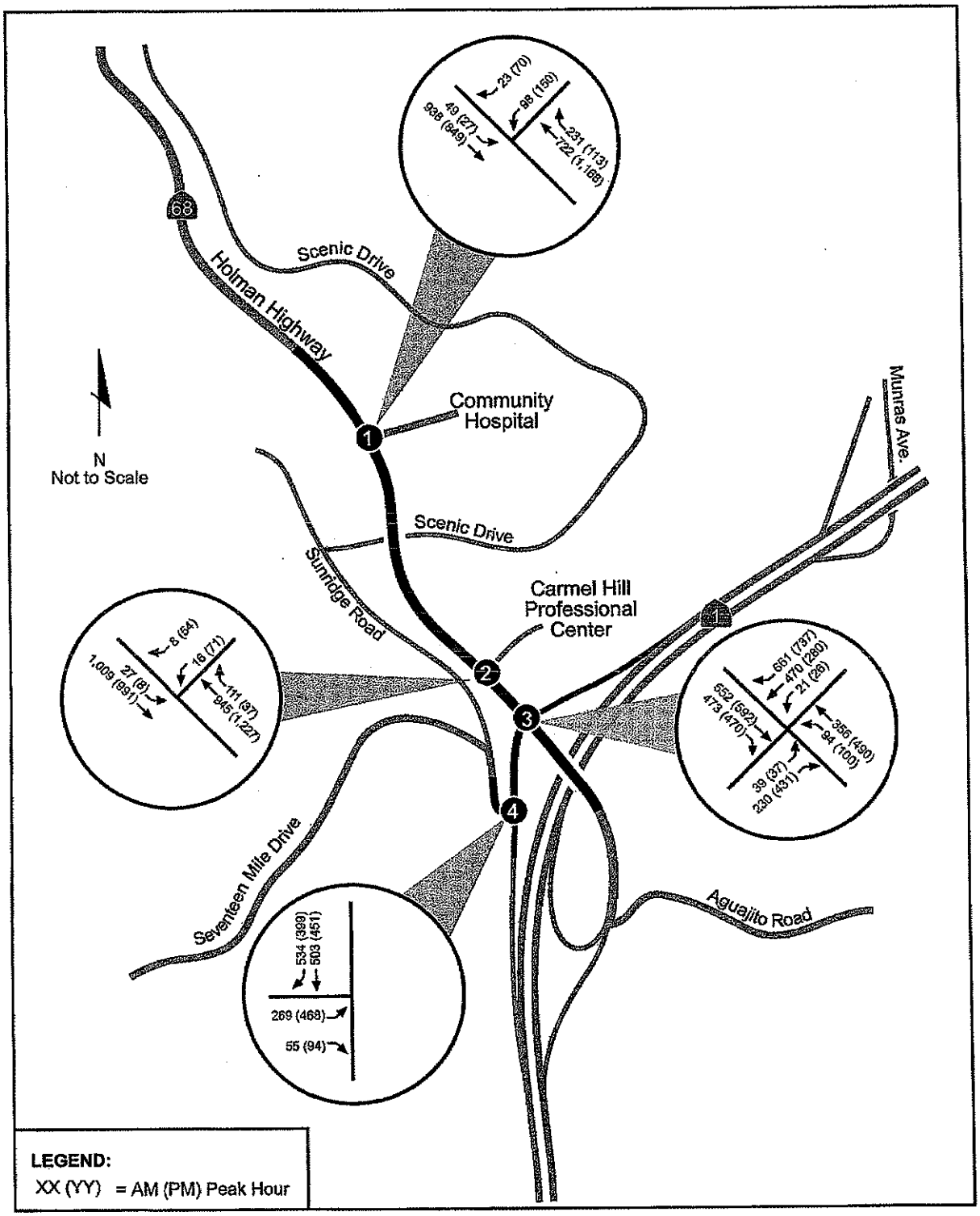
Following the land use update, Fehr & Peers reviewed the roadway networks in the existing and future year AMBAG models. This review indicated that the roadway network was generally accurate with the exception of the roadway system through the Presidio of Monterey. Within the last 1 to 2 years, roads traversing the Presidio have been closed to general traffic. The AMBAG model roadway network did not include this information. Fehr & Peers determined that general traffic flow should be prohibited from two roadways (Rifle Range Road and Stillwell Road) that traverse the Presidio. The AMBAG model road network was updated to reflect this existing condition.

Traffic Forecasting Procedures

After updating the land use and roadway networks for the existing and future AMBAG models, Fehr & Peers determined the daily growth rate along Route 1 and Route 68 by comparing the 2000 and 2025 traffic volumes. **Appendix G** provides the model plots used as the basis for determining regional traffic growth within the study area. Comparing the forecasts indicated that growth through the Route 1 and Route 68 corridors was minimal with growth rates generally at about 0.5 percent per year for Route 68 and 1 percent per year for Route 1. Total growth through the corridors from 2003 to 2010 was about 3.5 percent on Route 68 and approximately 7 percent on Route 1. Growth rates from 2003 to 2030 were about 14 percent on Route 68 and 31 percent on Route 1. The resulting traffic growth through the Route 68 and Route 1 corridors was balanced at the ramp junctions to reflect existing traffic distribution characteristics and the growth rate differences between Route 68 and Route 1.

Additional traffic was manually added to the traffic forecasts to reflect two specific development projects expected to be constructed and have direct access to the study corridor. As previously discussed, the model is not intended to determine traffic forecasts for minor road facilities and driveways. Thus, to accurately account for the Community Hospital and Del Monte Forest Master Plans, specific turning movement data associated with these two projects was obtained from the *Community Hospital of the Monterey Peninsula Master Plan (2001)* and the *Transportation Analysis for the Del Monte Forest Preservation and Development Plan (2002)*. The traffic assignments associated with these two projects was summed with the traffic forecasts associated with the through traffic growth within the study area.

The traffic volumes resulting from this forecasting procedure are shown on **Figures 4A-4C** and **Figures 5A-5C**. These figures differ based on their treatment of access restrictions at the Carmel Hill Professional Center. Figures 4A and 5A assume that there are no access restrictions at the CHPC driveway. Figures 4B, 4C, 5B, and 5C, assume that there will be access restrictions at the CHPC driveway with traffic diverted to the CHOMP intersection. These figures assume that traffic from the CHPC driveway make a u-turn at the CHOMP intersection or turn right into CHOMP and then turn left back out onto Route 68.



Holman Highway

2010 FORECAST TRAFFIC VOLUMES
NO ACCESS RESTRICTION

FIGURE 4A

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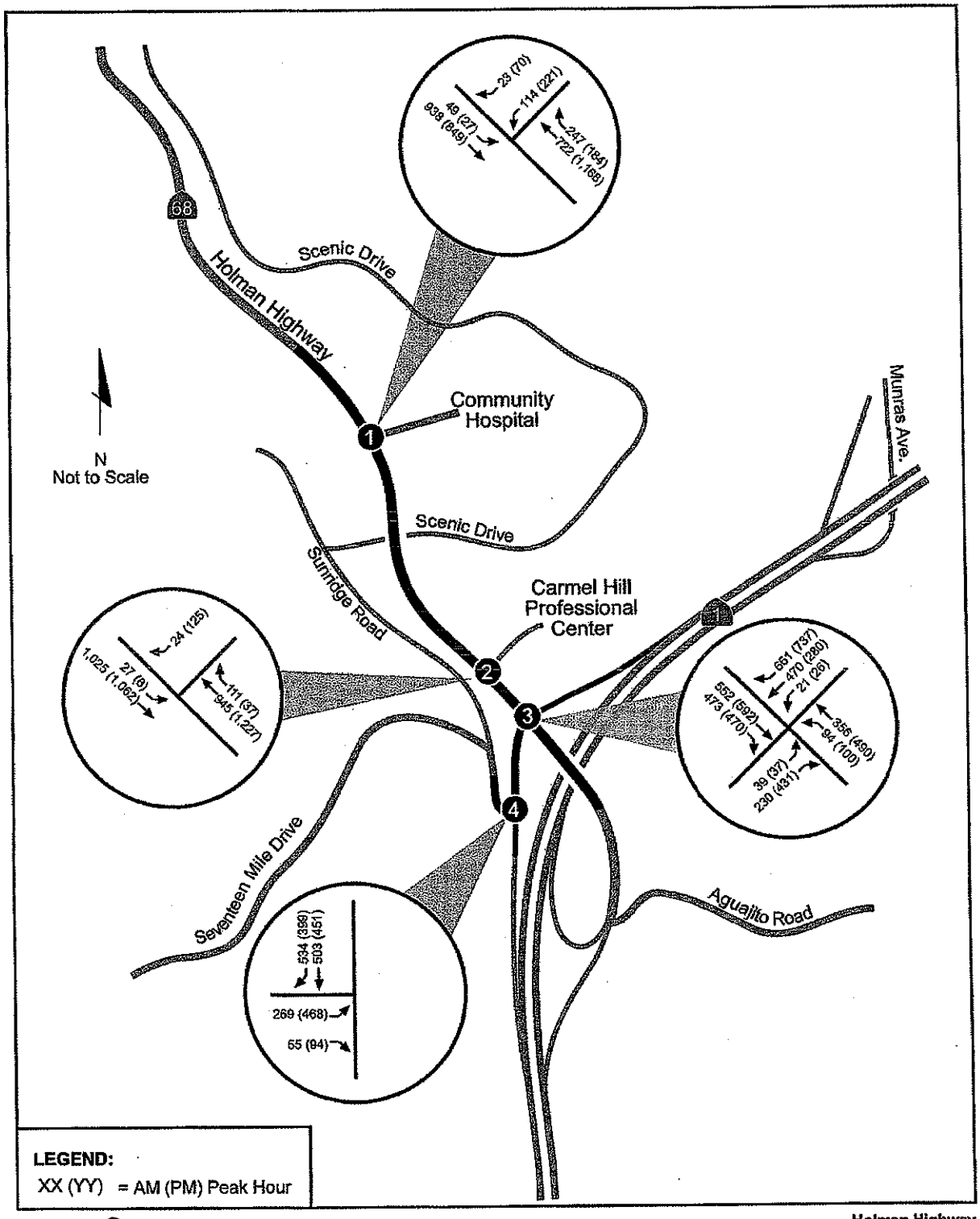
January 2006
1975-4A



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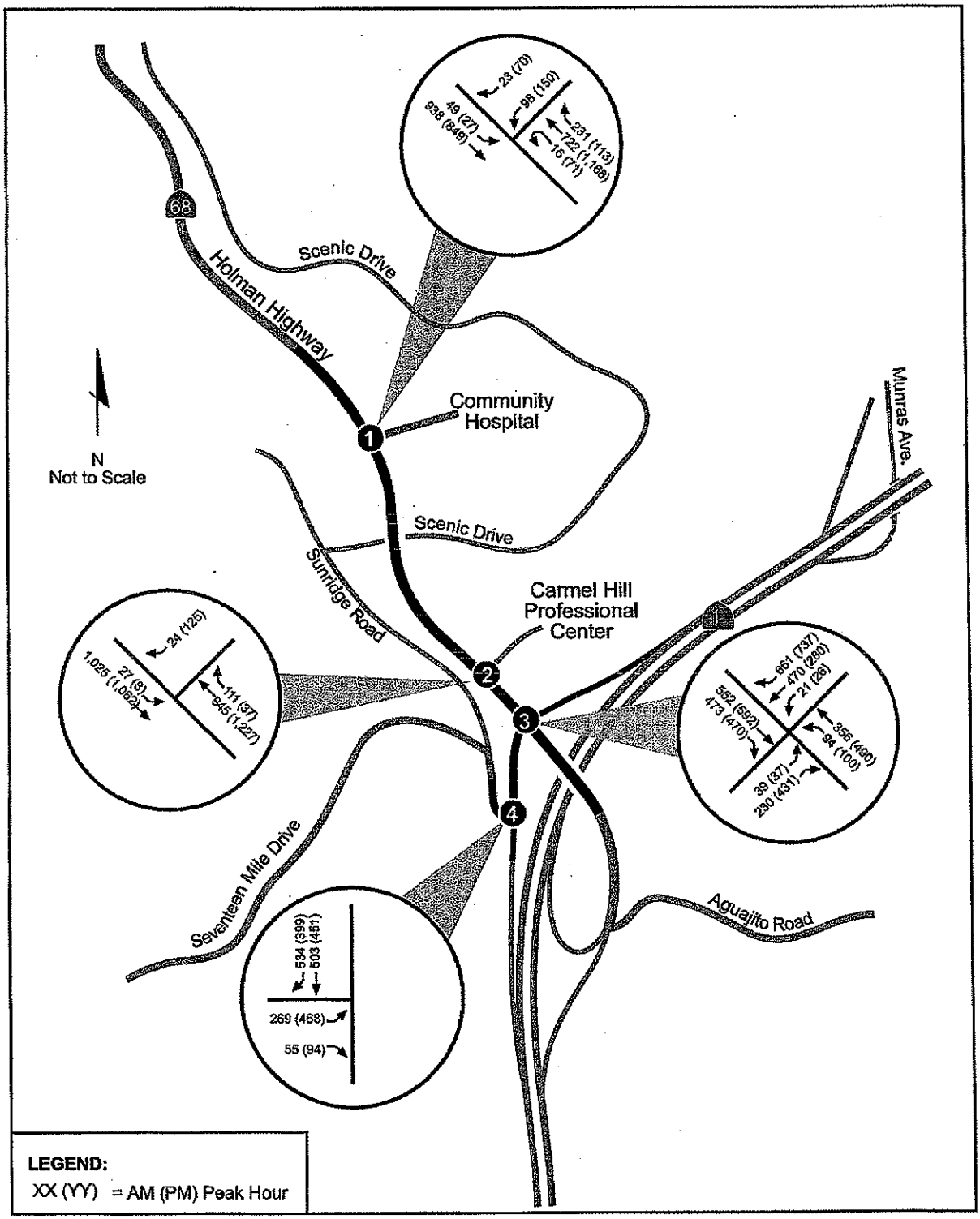
2010 FORECAST TRAFFIC VOLUMES ACCESS RESTRICTION - RIGHT TURN IN, LEFT TURN OUT AT CHOMP

January 2006
1975-4B

FIGURE 4B



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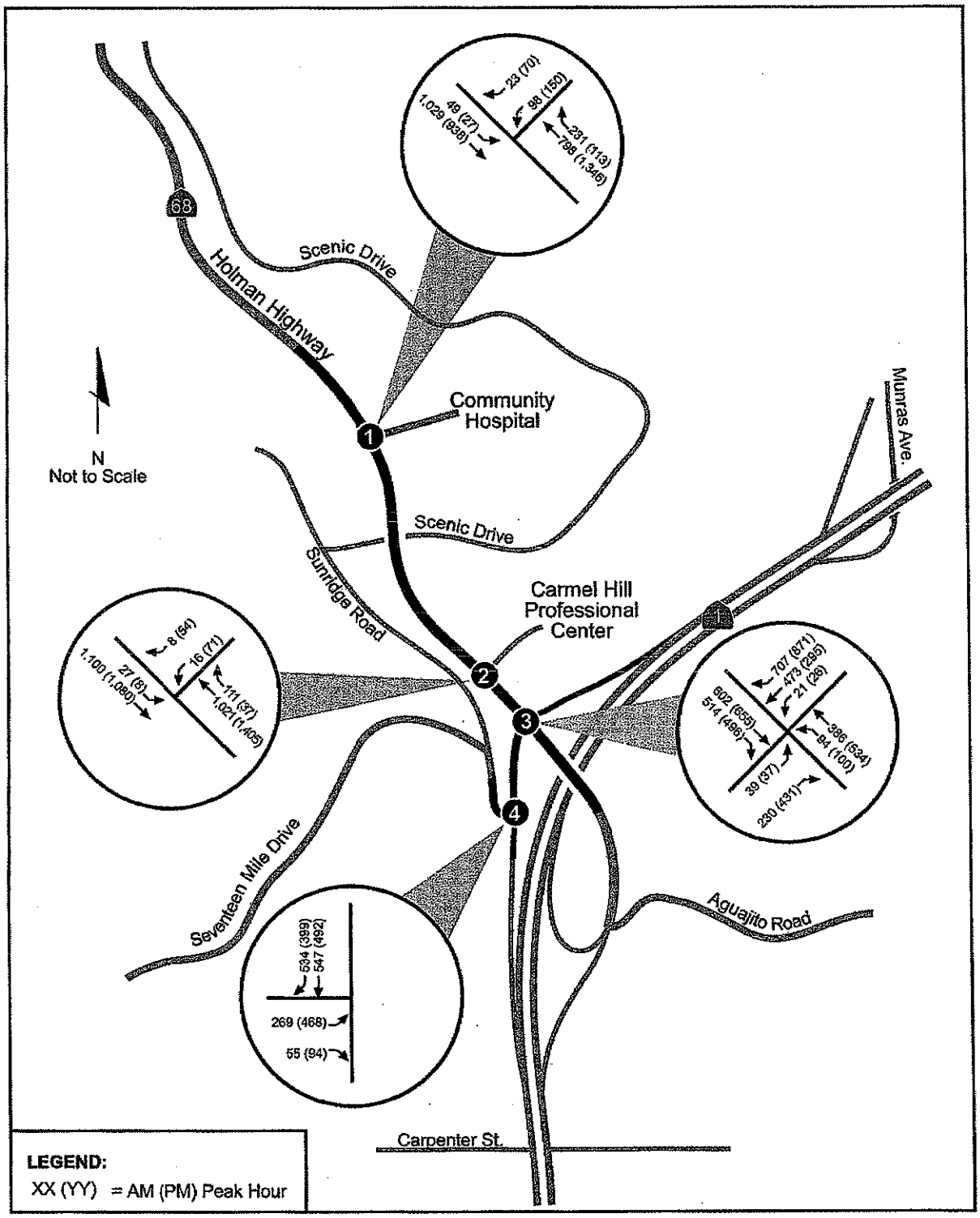
January 2006
1975-4C

2010 FORECAST TRAFFIC VOLUMES
ACCESS RESTRICTION - U-TURN AT CHOMP

FIGURE 4C



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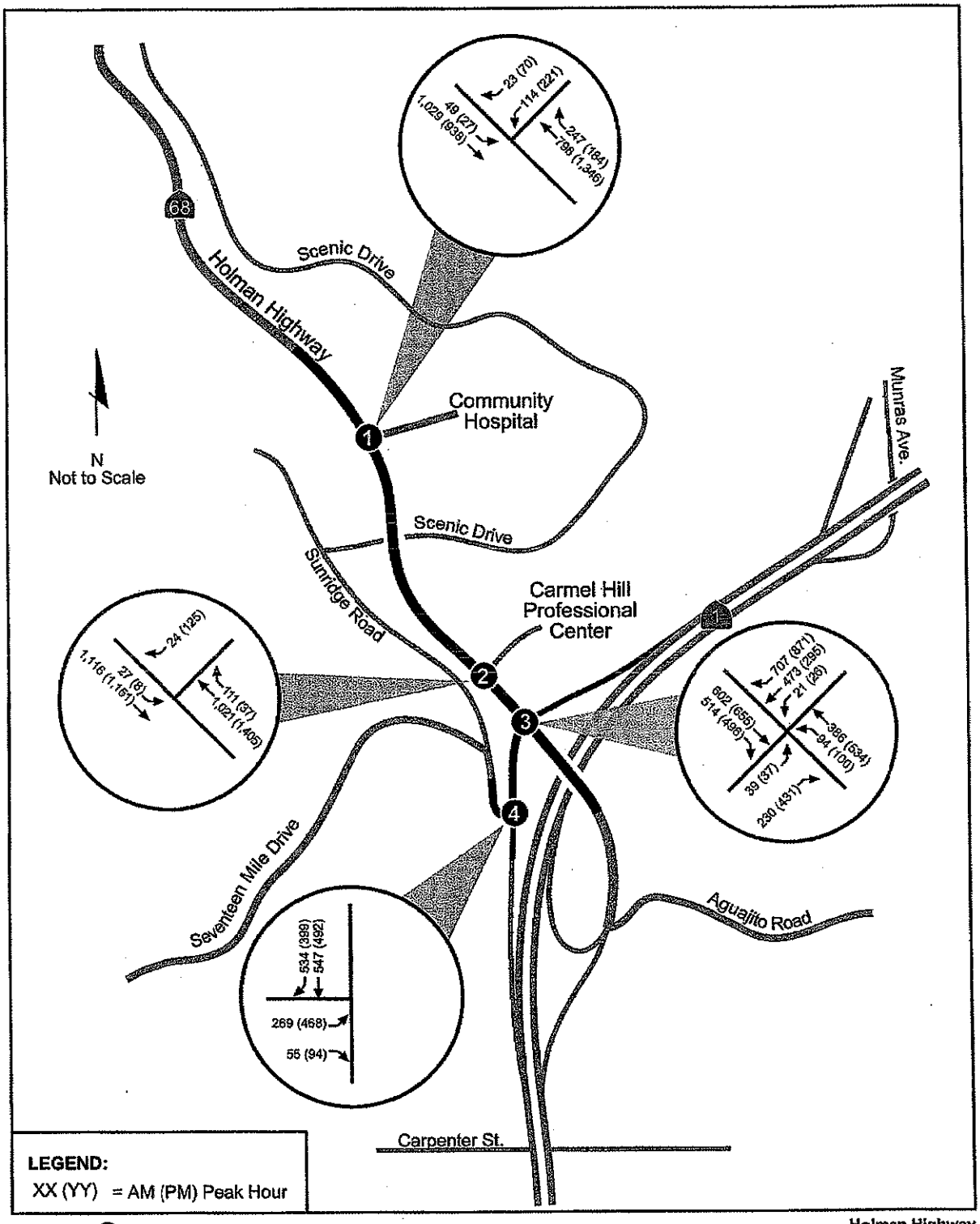
January 2006
1975-5A

2030 FORECAST TRAFFIC VOLUMES
NO ACCESS RESTRICTION

FIGURE 5A



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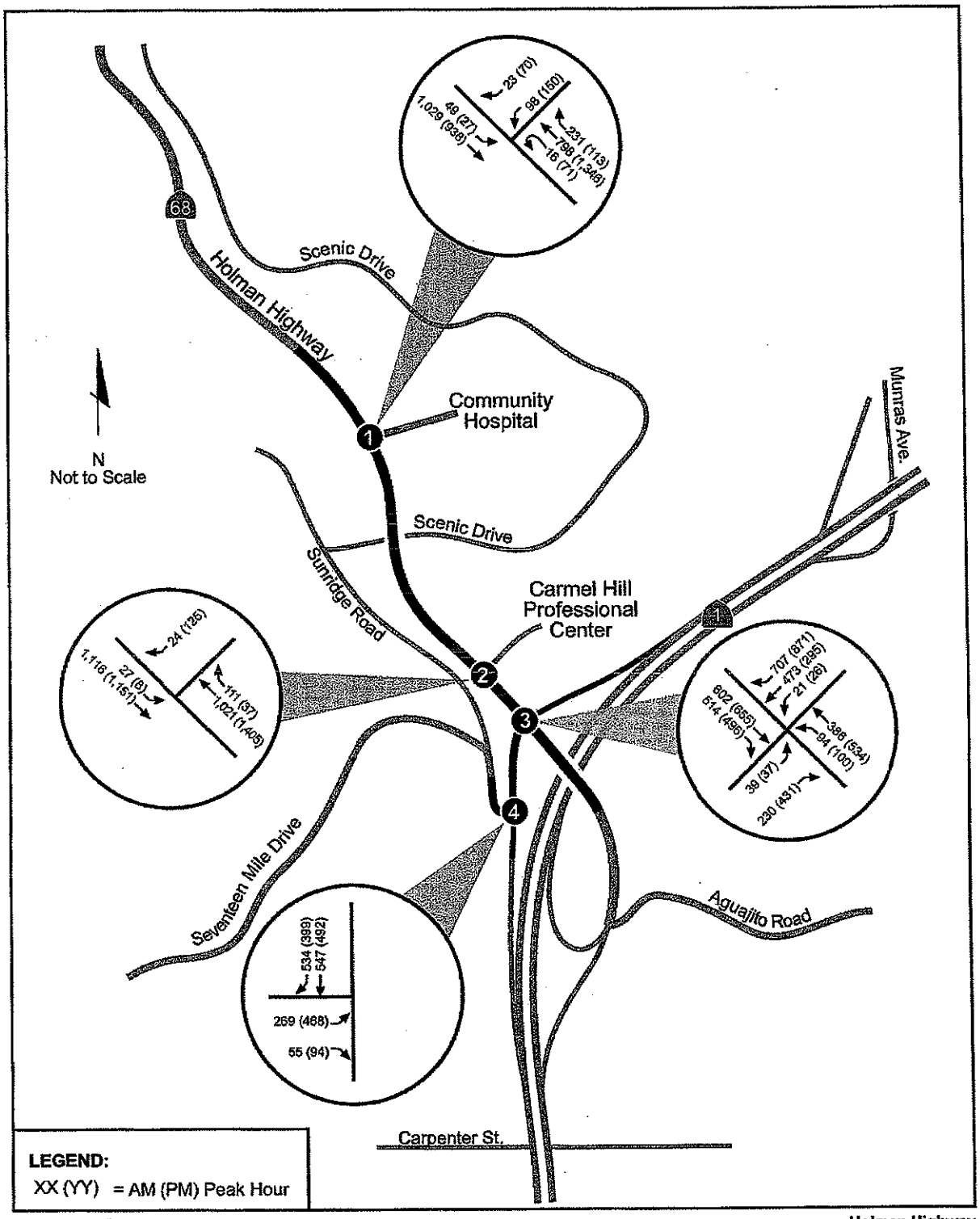
2030 FORECAST TRAFFIC VOLUMES ACCESS RESTRICTION - RIGHT TURN IN, LEFT TURN OUT AT CHOMP

January 2006
1975-5B

FIGURE 5B



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2030 FORECAST TRAFFIC VOLUMES
ACCESS RESTRICTION - U-TURN AT CHOMP

FIGURE 5C

January 2006
1975-5C

IV. YEAR 2010 AND 2030 NO BUILD TRAFFIC OPERATIONS

This chapter presents the results of the operations analysis under the No Build Condition. Calculation worksheets are provided in **Appendix H**.

Intersection Operations

The signalized intersections in the project study area were analyzed using the same methodologies as employed in analysis of the existing conditions. These methodologies are provided in the 2000 *Highway Capacity Manual* and address both signalized and unsignalized intersections. Unsignalized intersections include stop-sign controlled locations.

Table 10 lists the delay (in seconds) and LOS for each of the four study area intersections in Year 2010. Conditions are expected to operate similar to existing traffic conditions The CHOMP intersection is shown to operate at acceptable levels during both the AM and PM peak hours. Traffic turning left out of the Carmel Hill Professional Center will experience LOS F conditions. Traffic turning left out of 17 Mile Drive experiences LOS E conditions in the PM peak hour and LOS C conditions during the AM peak hour. The Route 68 / Route 1 Southbound Off-Ramp intersection is shown to operate at LOS F during both the AM and PM peak hours.

TABLE 10
Year 2010 Intersection Delay and Level of Service – AM and PM Peak Hours

Location	Control[1]	Peak Hour	Delay[2]	LOS
Route 68 / Community Hospital Driveway	Signal	AM PM	9 seconds[3] 17 seconds[3]	A[3] B[3]
Route 68 / Carmel Hill Professional Center	SSS	AM PM	>50 seconds >50 seconds	F F
Route 68 / Route 1 SB Off-Ramp	Signal	AM PM	>80 seconds >80 seconds	F F
Route 1 SB On-Ramp / 17 Mile Drive	SSS	AM PM	19 seconds 45 seconds	C E

Notes:
1. Signal = Signalized intersection, SSS = Side-street stop-controlled intersection
2. For signalized intersections, delay is average control delay for all vehicles based on criteria in the 2000 *Highway Capacity Manual*. For side-street stop-controlled intersections, delay for worst movement calculated using the 2000 *Highway Capacity Manual* methodology.
3. Intersection would be impacted by the eastbound queue at the Route 68 / Route 1 SB Off-Ramp

Source: Fehr & Peers, April 2005

Queuing was calculated in Year 2010. On 17 Mile Drive the vehicle queue within the Forest extends back about 180 meters (600 feet). Vehicle queues at the Route 1 southbound off-ramp approaching Route 68 are expected to extend back about 180 meters (600 feet) during the AM peak hour and 240 meters (800 feet) during the PM peak hour. The Route 1 southbound off-ramp is about 400 meters (1,300 feet) long consisting of 160 meters (530 feet) for deceleration (at 100 kph or 60 mph design speed) and 240 meters (770 feet) for vehicle queue. The 240 meter (800 foot) PM peak hour vehicle queue begins to extend into the deceleration area for traffic exiting Route 1. This condition occurs because of the high volume of traffic turning right from the southbound off-ramp to go west toward Pacific Grove.

Queuing on Route 68 (eastbound) is expected to extend from the Route 1 intersection back through the CHOMP signalized intersection, thereby adversely impacting intersection operations at CHOMP. This condition is expected to occur during both the AM and PM peak hours. Vehicle queues on Route 68 (westbound) are manageable at the Route 1 intersection; however, PM peak hour queues at the CHOMP intersection are expected to extend back to the Route 1 intersection.

Table 11 lists delay (in seconds) and LOS for each study area intersection in Year 2030. Intersection service levels are expected to be similar to Year 2010. Vehicle queues are expected to increase, further impacting traffic flow on Route 68 and onto Route 1. The most significant difference between Year 2010 and 2030 is the vehicle queue on the Route 1 southbound off-ramp approaching Route 68. The PM peak hour queue is expected to increase from about 240 meters (800 feet) in Year 2010 to about 370 meters (1,200 feet) in Year 2030. The Route 1 southbound off-ramp is 400 meters (1,300 feet) indicating that the expected queue will extend through much of the off-ramp deceleration area adversely impacting Route 1 (southbound) traffic flow. This worsening condition (from 2010 to 2030) is associated with expected traffic growth in Pacific Grove and other areas served by Route 68 west of the study area.

TABLE 11
Year 2030 Intersection Delay and Level of Service – AM and PM Peak Hours

Location	Control[1]	Peak Hour	Delay[2]	LOS
Route 68 / Community Hospital Driveway	Signal	AM PM	10 seconds[3] 26 seconds[3]	B[3] C[3]
Route 68 / Carmel Hill Professional Center	SSS	AM PM	>50 seconds >50 seconds	F F
Route 68 / Route 1 SB Off-Ramp	Signal	AM PM	>80 seconds >80 seconds	F F
Route 1 SB On-Ramp / 17 Mile Drive	SSS	AM PM	21 seconds >50 seconds	C F

Notes:
1. Signal = Signalized intersection, SSS = Side-street stop-controlled intersection
2. For signalized intersections, delay is average control delay for all vehicles based on criteria in the 2000 *Highway Capacity Manual*. For side-street stop-controlled intersections, delay for worst movement calculated using the 2000 *Highway Capacity Manual* methodology.
3. Intersection would be impacted by the eastbound queue at the Route 68 / Route 1 SB Off-Ramp

Source: Fehr & Peers, April 2005

Ramp Operations

The Route 1 southbound on-ramp from Route 68 was determined to have a density of 23-passenger cars/per mile/per lane for both the AM and PM peak hours in Year 2010. In Year 2030 traffic conditions during the AM peak hour would remain at LOS C but the density would increase to 27 while the PM peak hour density would increase to 28, resulting in an LOS D condition.

Weave Operations

The application of the Leisch Method indicated that the weaving section of Route 1 from Munras Avenue to Route 68 operates at LOS C during the AM peak hour in 2010 and LOS D in Year 2030. PM peak hour operations would be LOS D in Year 2010 and LOS E in Year 2030.

V. BUILD ALTERNATIVES

Given the constraints in the study area, which include limited right-of-way, existing travel patterns, and the need to maintain access to Route 1, there are a limited number of alternative improvements that can be made to Route 68 between Route 1 and CHOMP. The improvement options include:

- Widening Route 68 westbound
- Widening Route 68 eastbound
- Widening Route 68 westbound & eastbound
- Reconfiguring existing intersections
- Converting an existing signalized intersection into a roundabout
- Restricting access at the Beverly Manor Development
- Constructing a direct connector from Route 1 Southbound to Pebble Beach at 17 Mile Drive

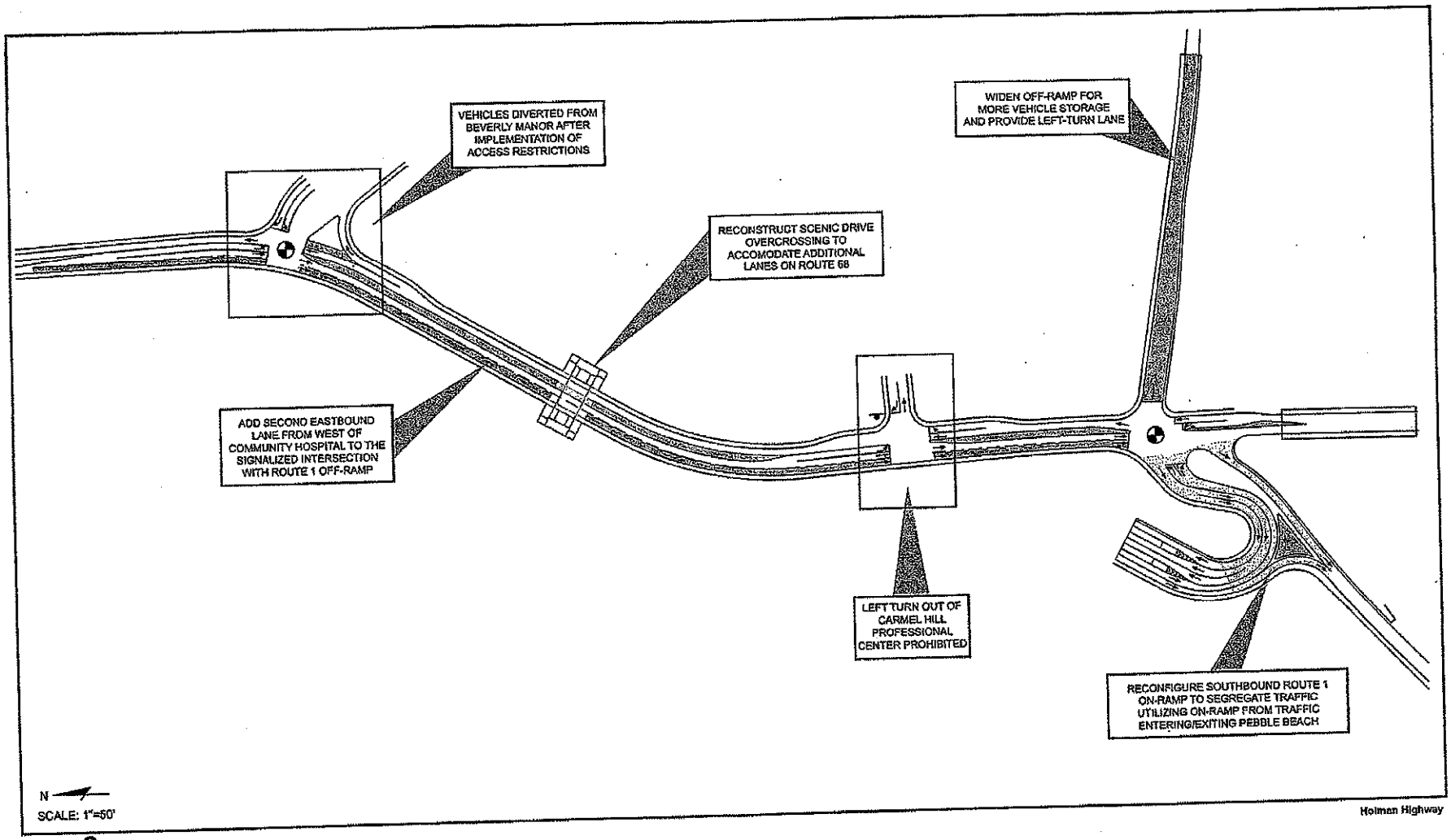
The alternative improvements for Route 68 between Route 1 and CHOMP include various combinations of these options. There are three general build alternatives and each includes several sub-alternatives. In general, all three build alternatives include 1) widening the Route 1 southbound off-ramp at Route 68 to provide separate right, through, and left turn lanes; 2) reconstructing the Scenic Drive overcrossing; 3) eliminating the stop-controlled intersection of 17 Mile Drive at the Route 1 southbound on-ramp; 4) constructing a 17 Mile Drive merge to the Route 1 southbound on-ramp; and 5) reconstructing the Route 1 southbound on-ramp merge. The three primary build alternatives include:

- Alternative 1- Adding an eastbound lane on Route 68
- Alternative 2- Adding a westbound lane on Route 68
- Alternative 3- Adding both an eastbound and a westbound lane on Route 68

The sub-alternatives include:

- Alternative A – Reconfigure the Route 1 / Route 68 / 17 Mile Drive intersections into a single signalized intersection
- Alternative B - Reconfigure the Route 1 / Route 68 / 17 Mile Drive intersections into a single lane roundabout intersection
- Alternative C – Construct a direct connector between Route 1 southbound and 17 Mile Drive

Figures 6 through 19 illustrate the alternatives studied. **Table 12** summarizes the variations between each alternative.

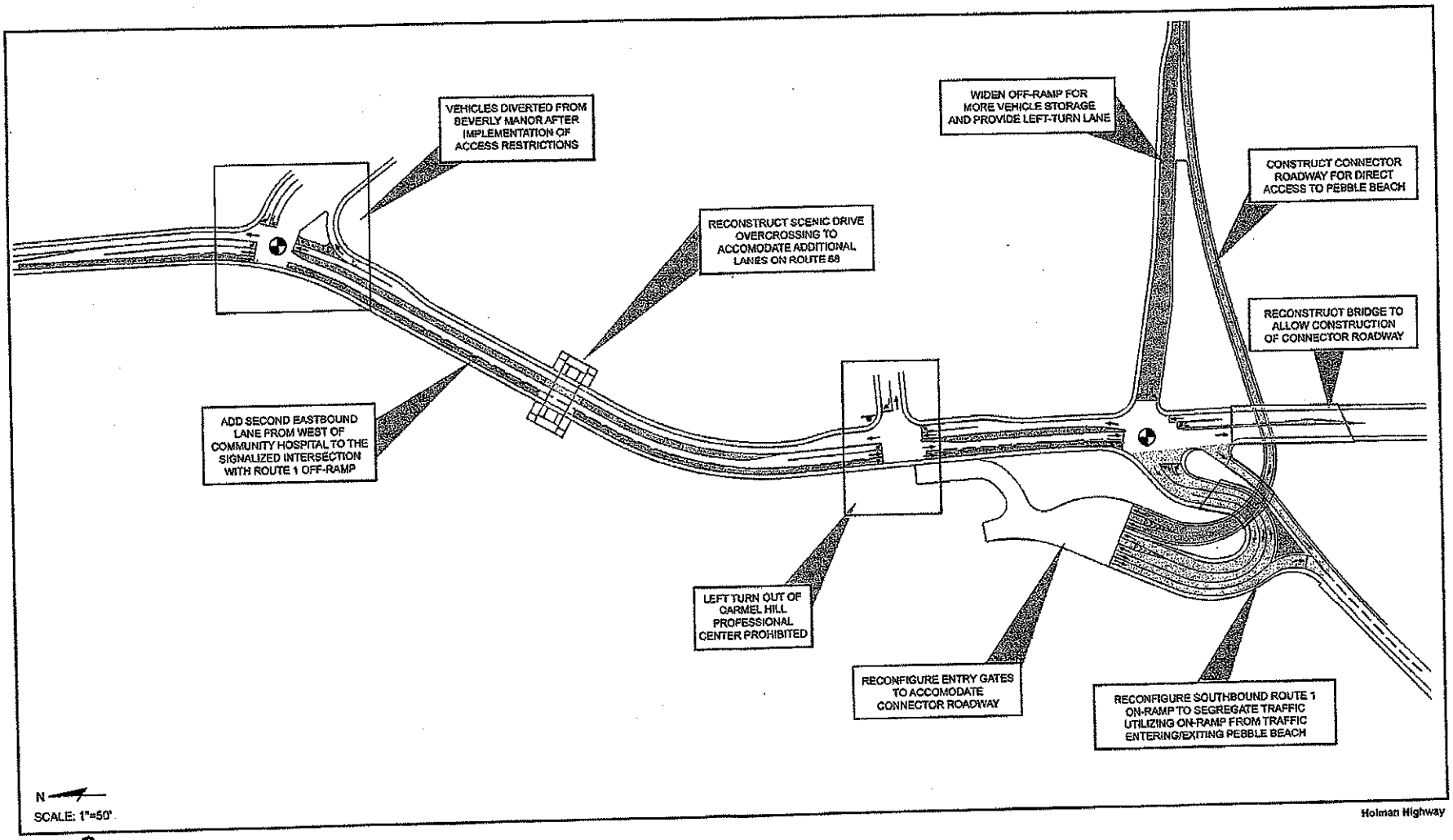


FEHR & PEERS
TRANSPORTATION CONSULTANTS

BUILD ALTERNATIVE 1A

FIGURE 6

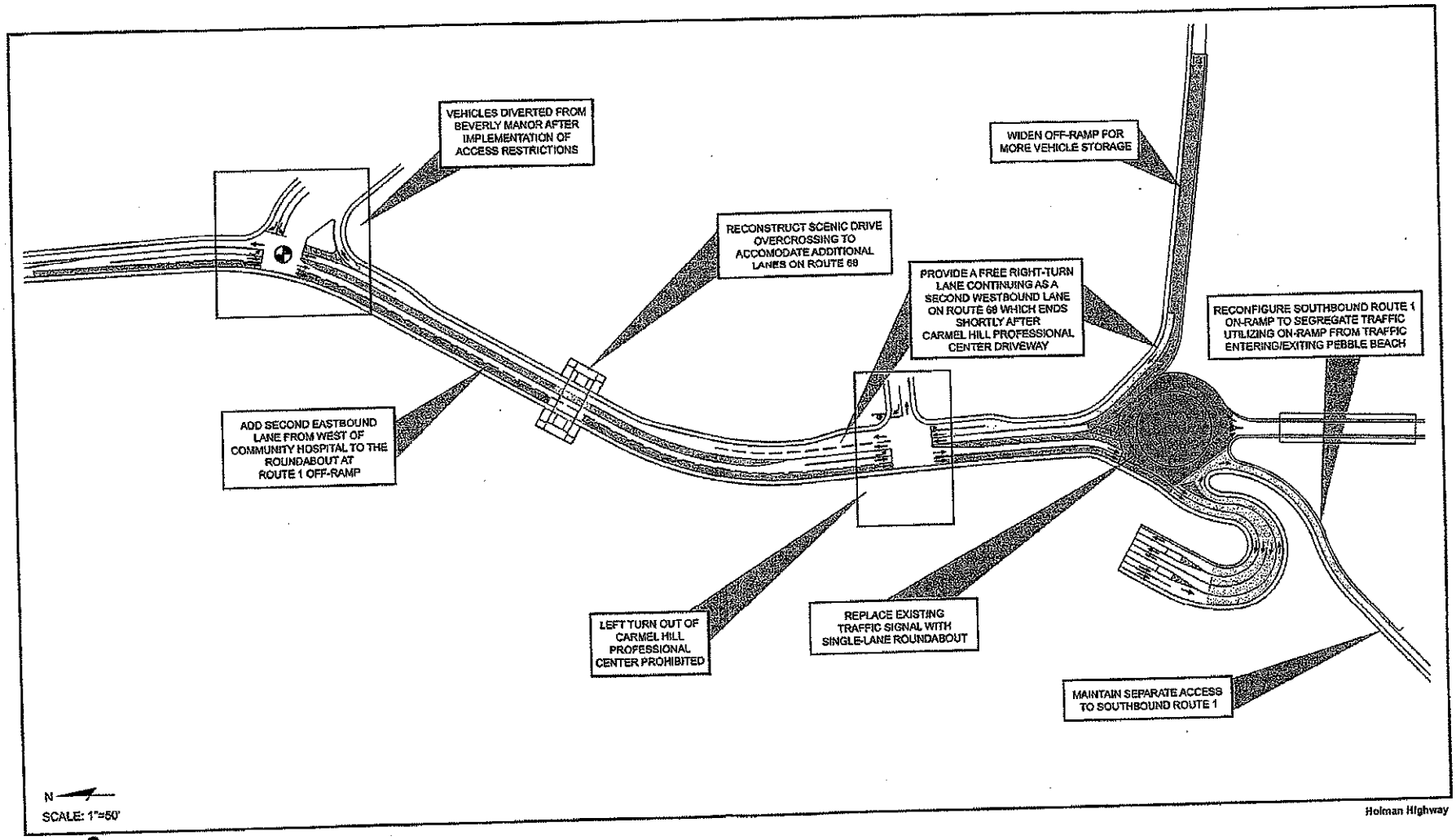
January 2006
1975-8



FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2006
1975-7

BUILD ALTERNATIVE 1AC
FIGURE 7

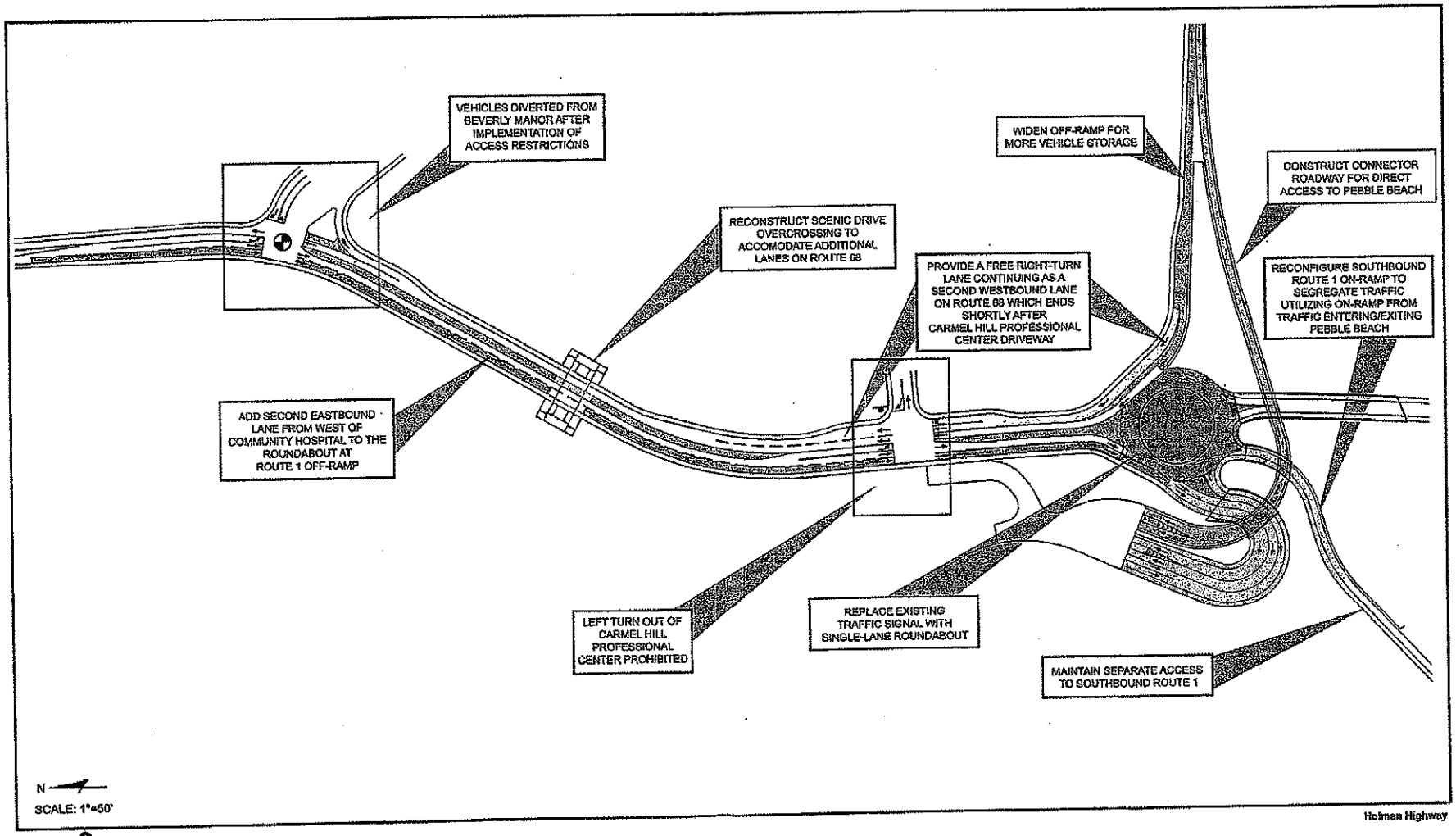


FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2009
1975-8

BUILD ALTERNATIVE 1B

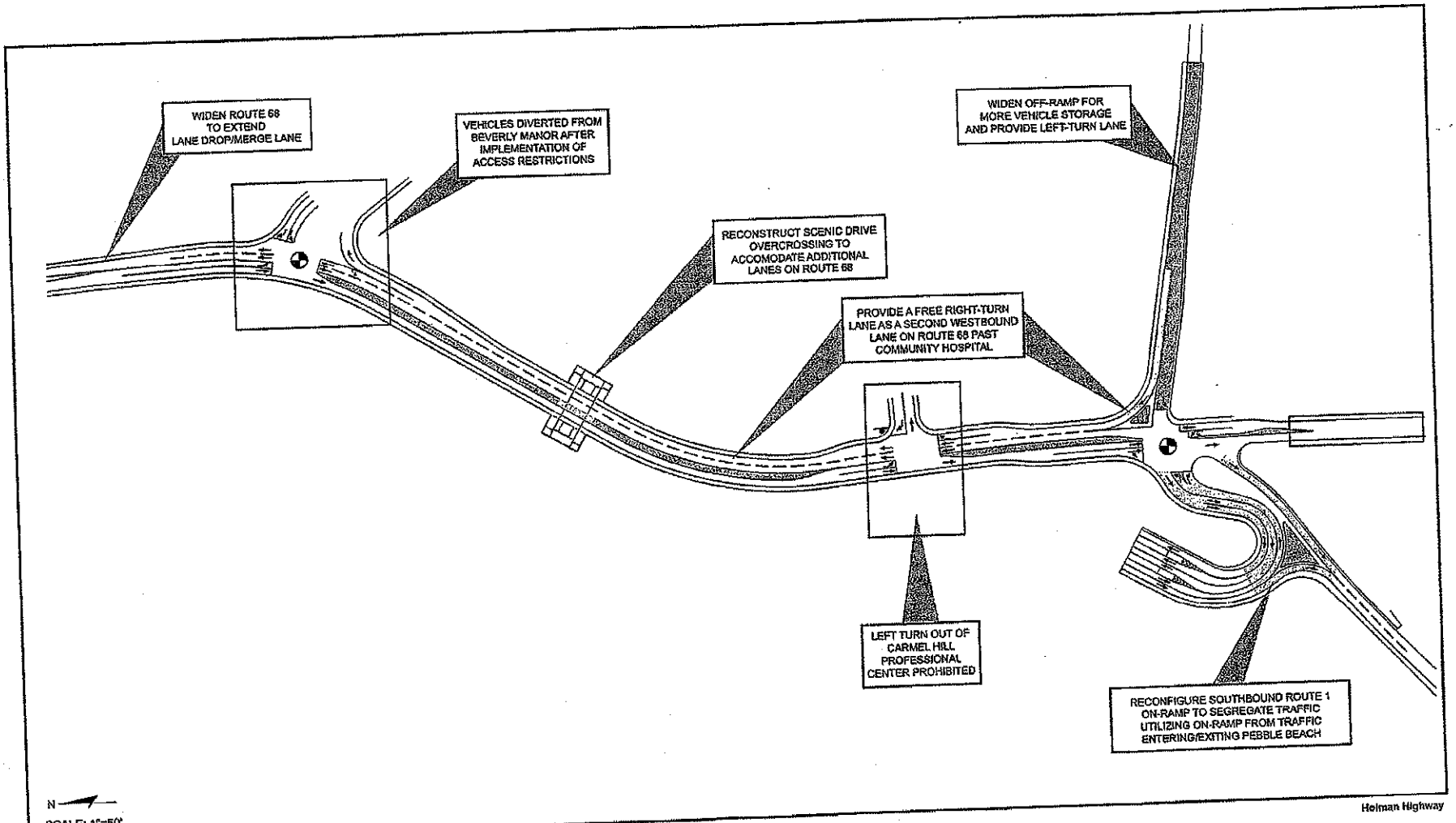
FIGURE 8



FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2009
1975-9

BUILD ALTERNATIVE 1BC
FIGURE 9

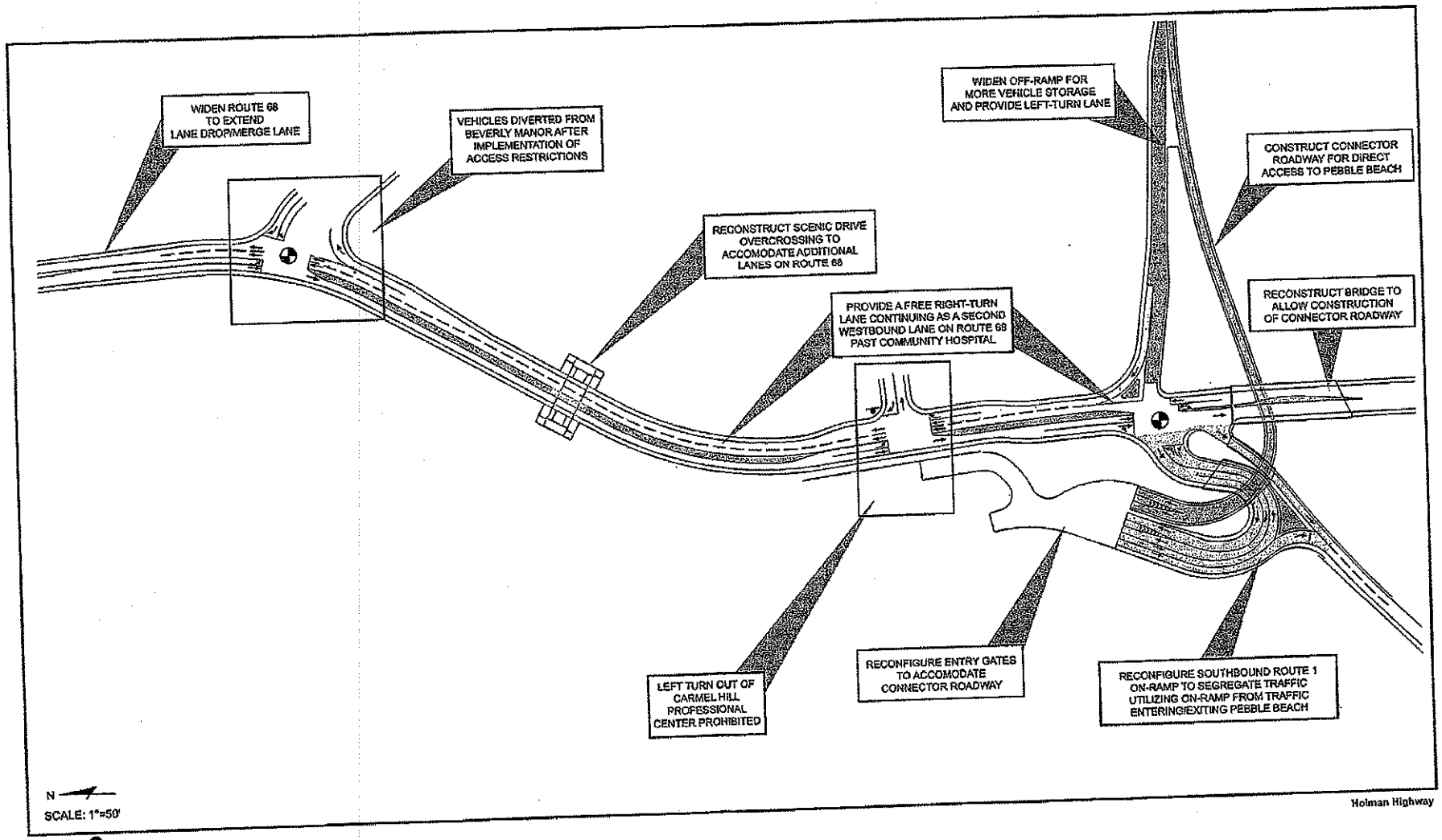


FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2006
1975-19

BUILD ALTERNATIVE 2A

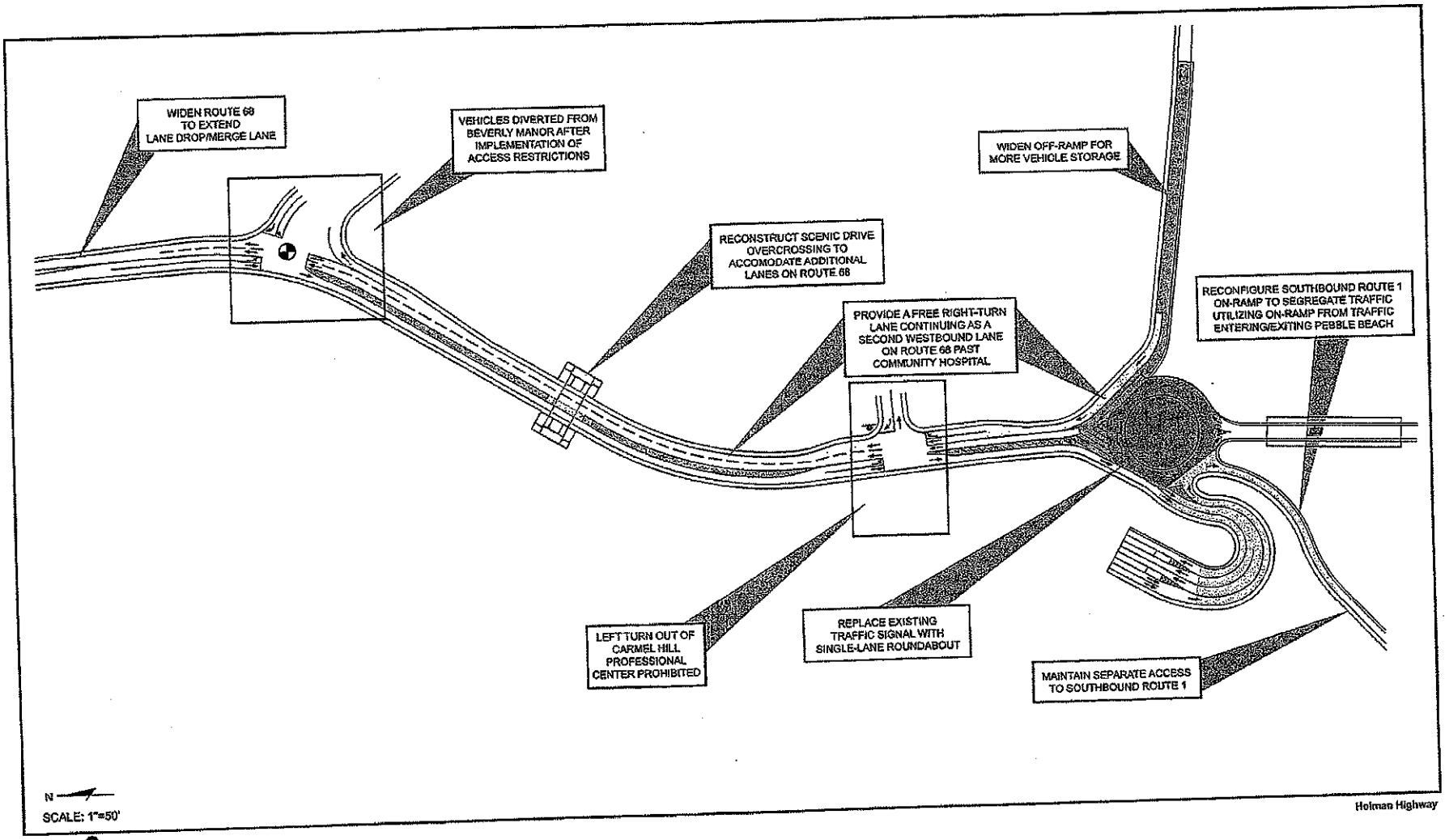
FIGURE 10



FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2009
1975-11

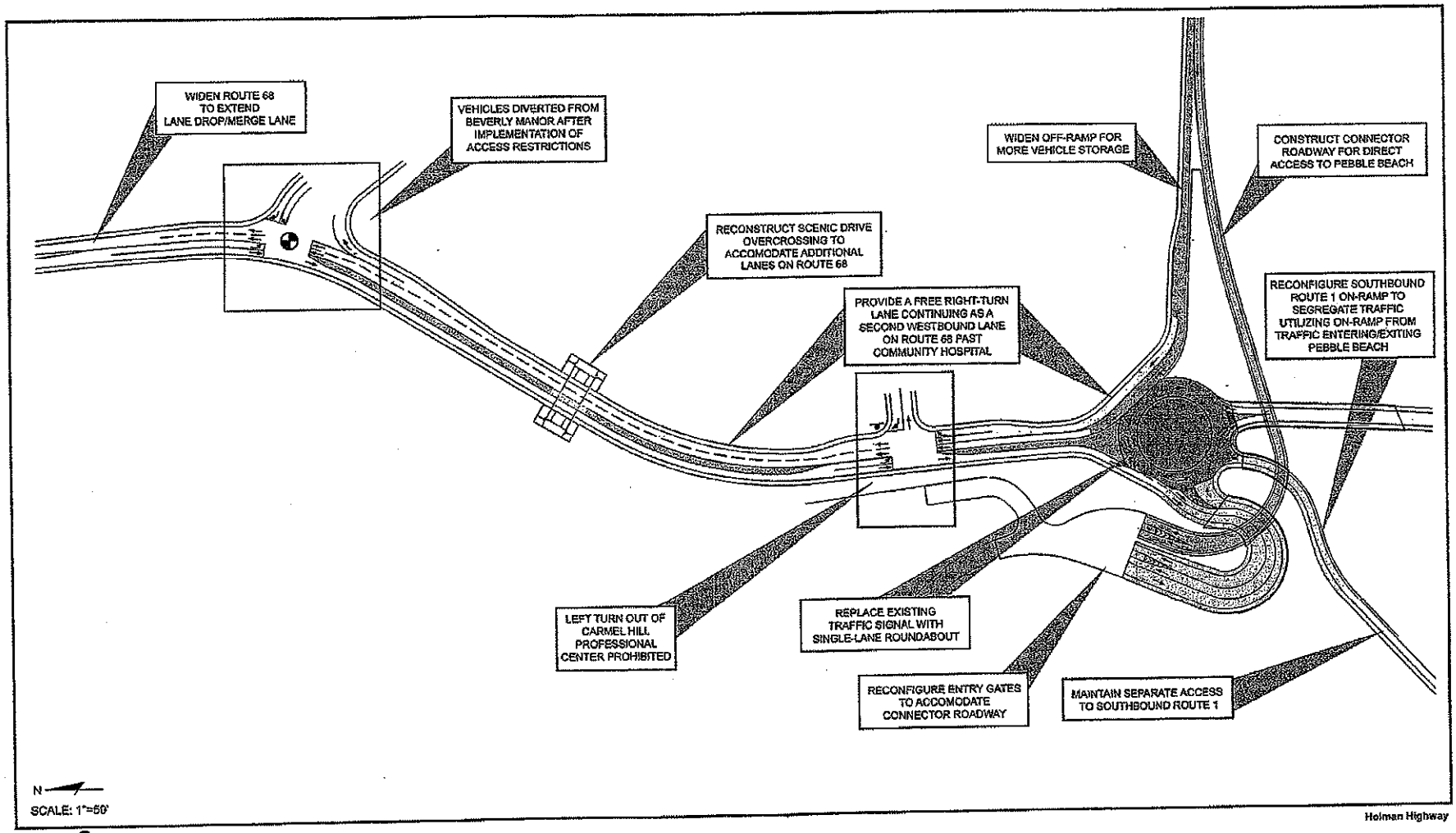
BUILD ALTERNATIVE 2AC
FIGURE 11



FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2005
1975-12

BUILD ALTERNATIVE 2B
FIGURE 12

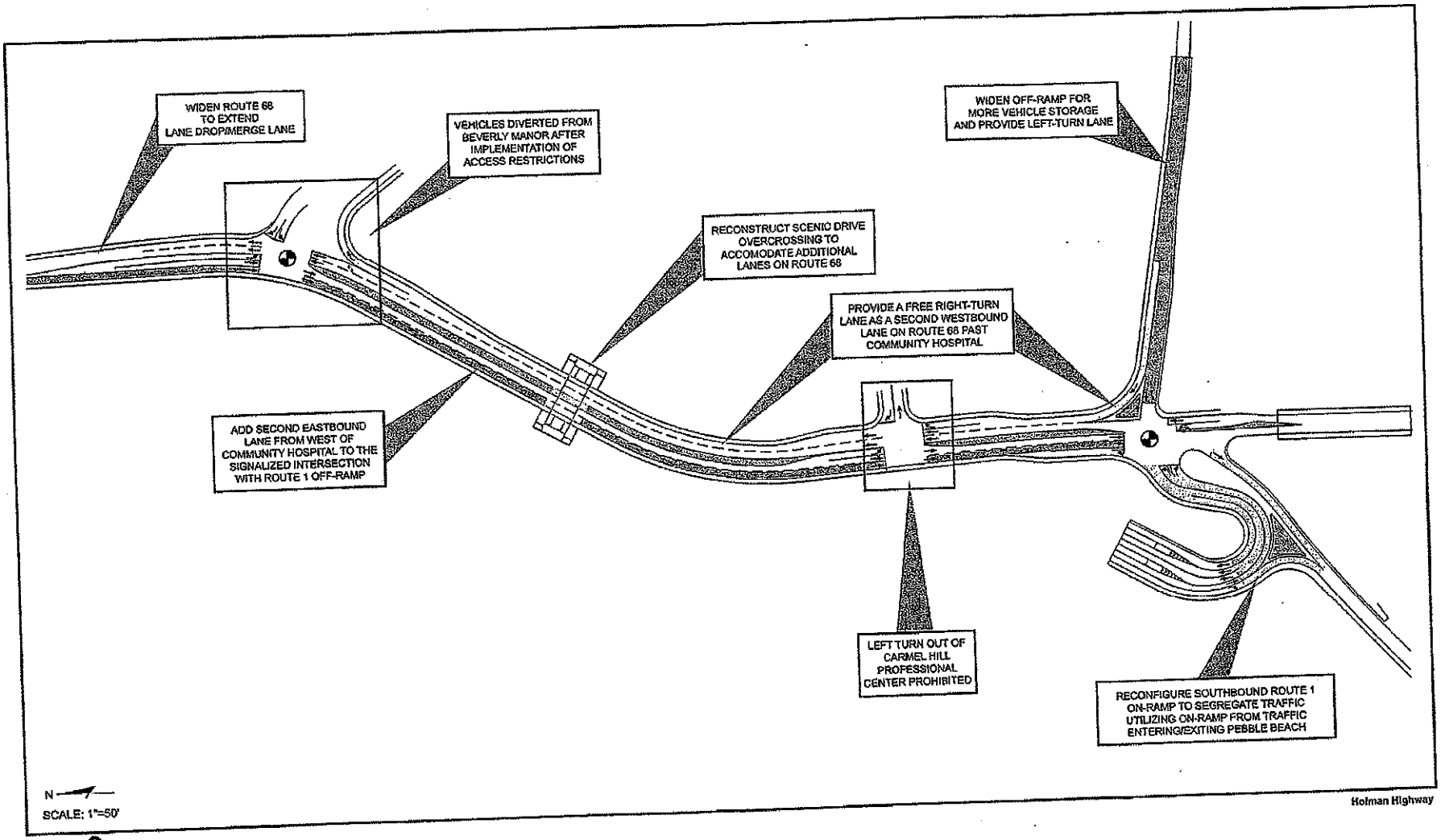


FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2006
1975-13

ALTERNATIVE 2BC

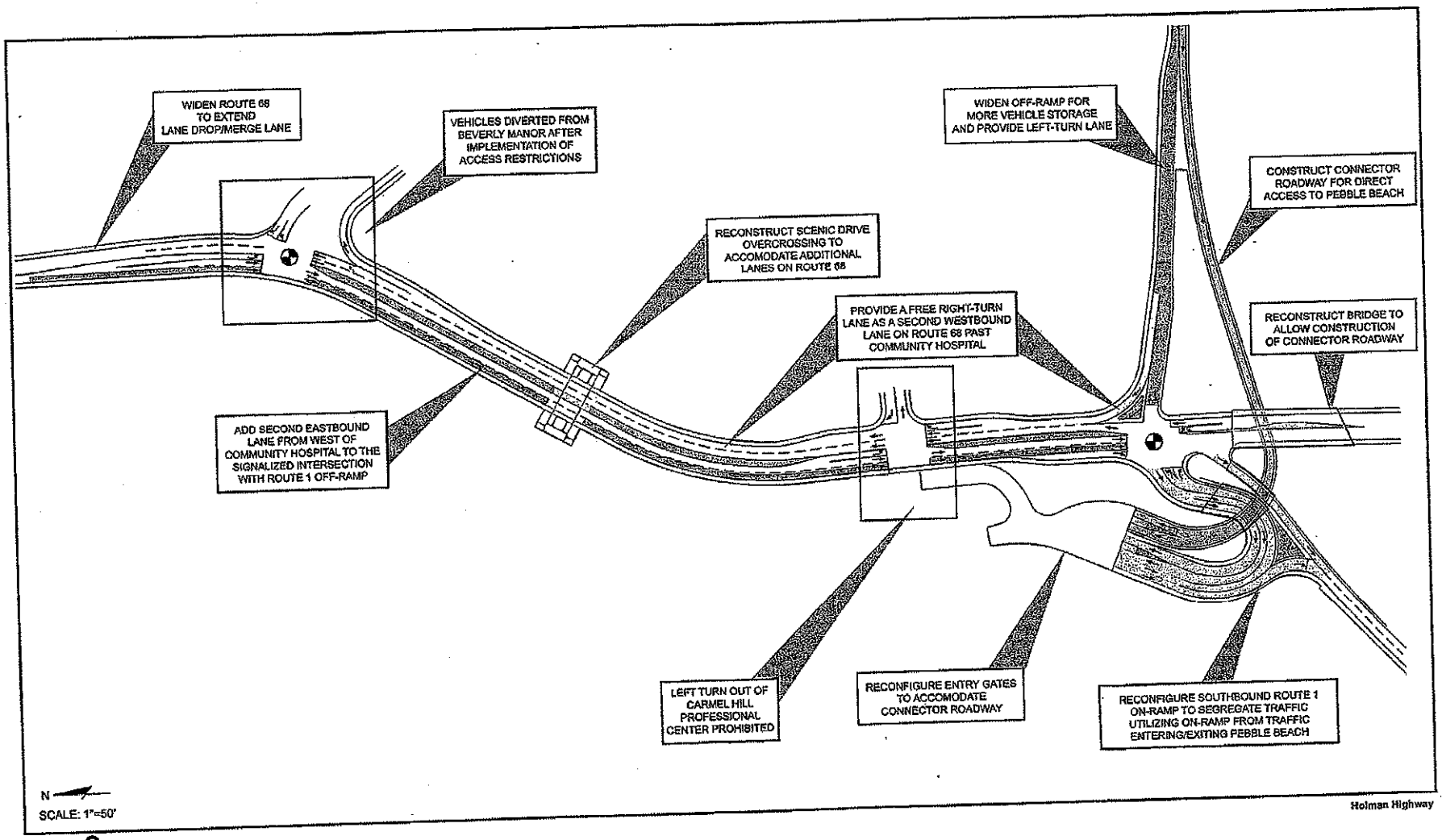
FIGURE 13



FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2006
1975-116

BUILD ALTERNATIVE 3A
FIGURE 14

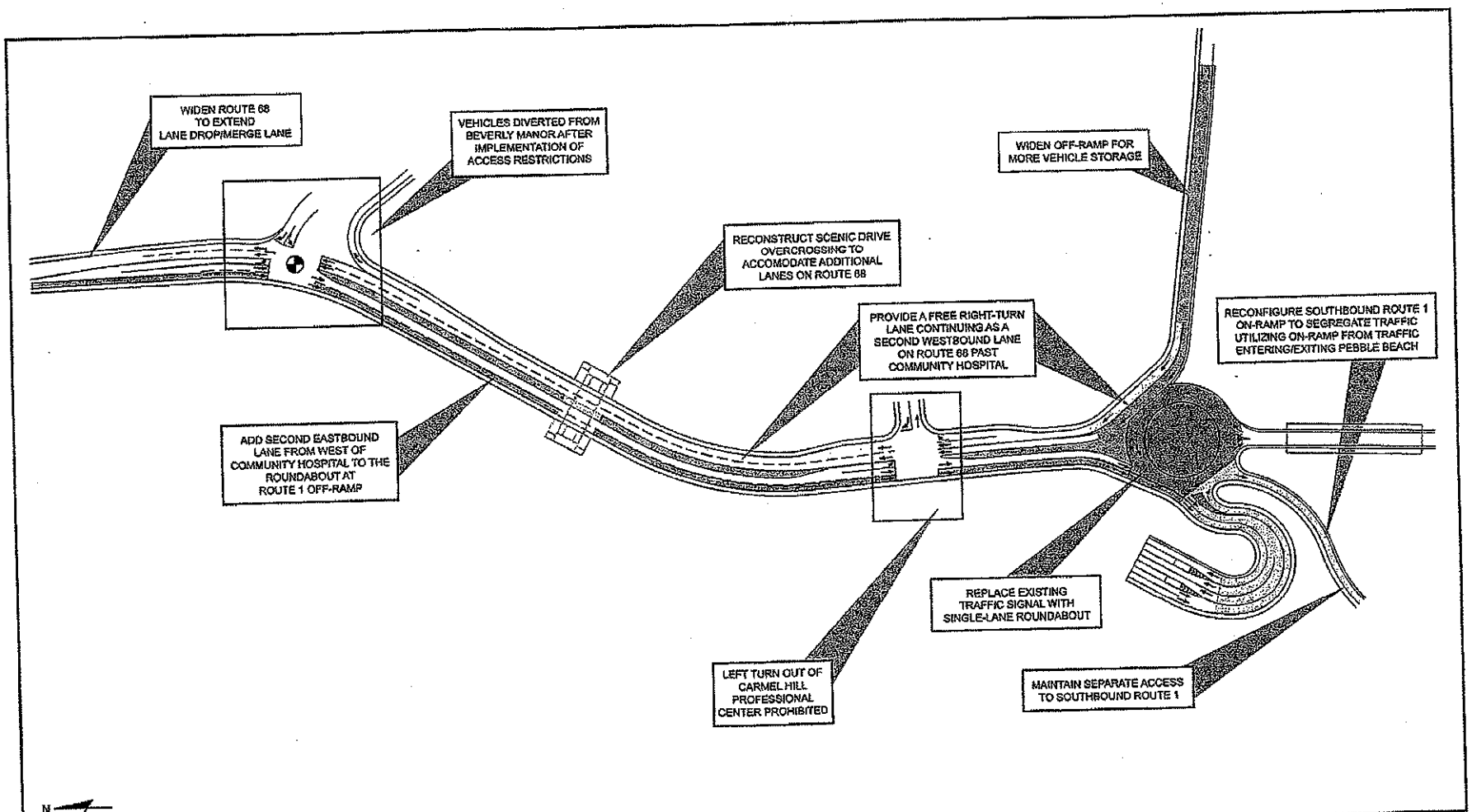


FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2006
1979-15

BUILD ALTERNATIVE 3AC

FIGURE 15

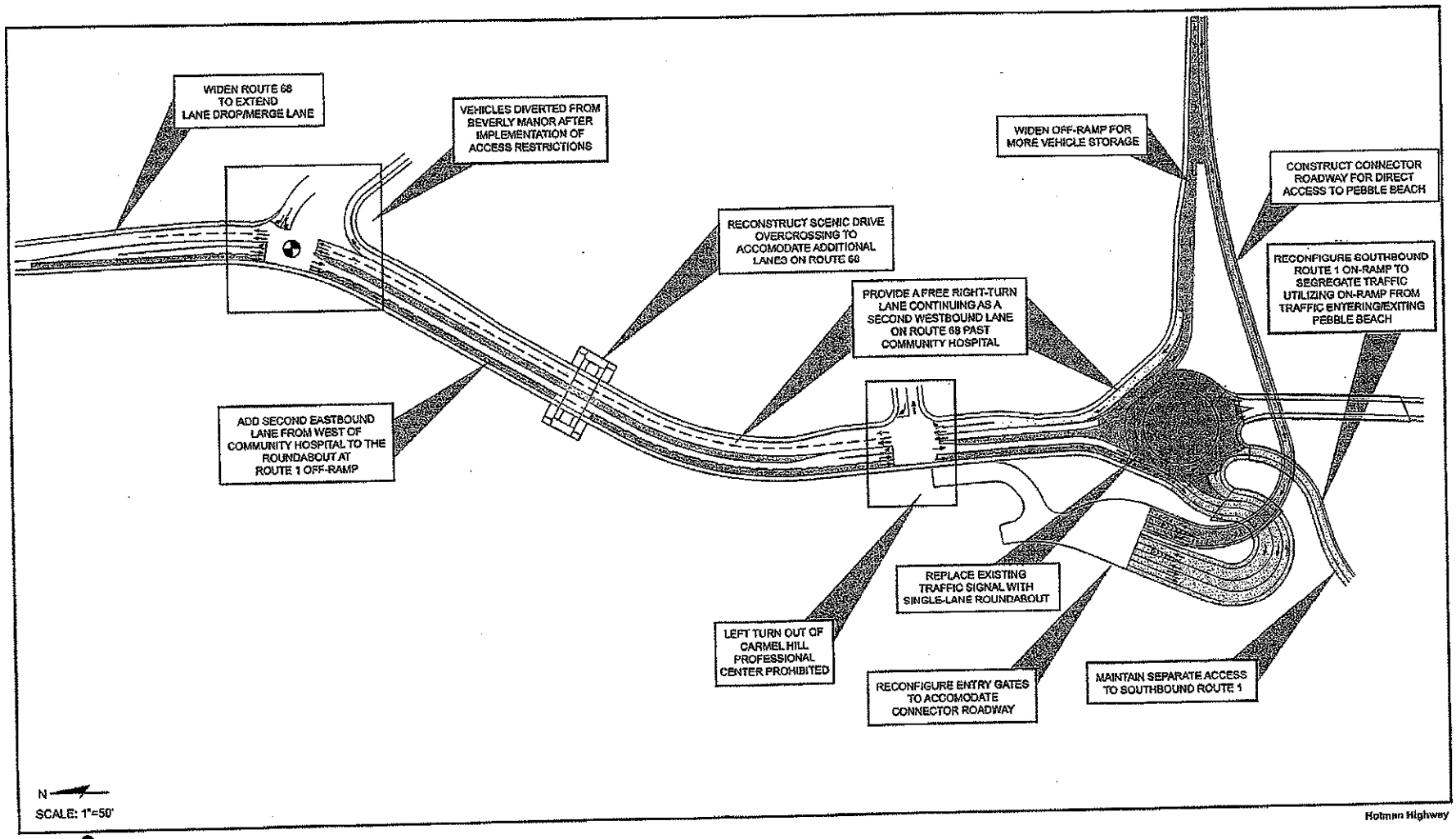


FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2006
1975-16

BUILD ALTERNATIVE 3B

FIGURE 16



FEHR & PEERS
TRANSPORTATION CONSULTANTS

January 2008
1975-17

BUILD ALTERNATIVE 3BC

FIGURE 17

TABLE 12
Summary of Route 68 Build Alternatives

	Alternatives											
Improvement Option	**1A**	**1AC**	**1B**	**1BC**	**2A**	**2AC**	**2B**	**2BC**	**3A**	**3AC**	**3B**	**3BC**
Add one lane EB on Route 68 between the Route 1 and CHOMP intersections	✓	✓	✓	✓					✓	✓	✓	✓
Add one lane WB on Route 68 between the Route 1 and CHOMP intersections					✓	✓	✓	✓	✓	✓	✓	✓
Reconfigure Route 68 / Route 1 / 17 Mile Drive intersections into a single signalized intersection	✓	✓			✓	✓			✓	✓		
Eliminate the 17 Mile Drive stop-controlled intersection with the Route 1 southbound on-ramp	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Reconfigure Route 68 / Route 1 / 17 Mile Drive intersections into a single lane roundabout intersection			✓	✓			✓	✓			✓	✓
Restrict Access at Beverly Manor Development Driveway with Route 68	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Construct a direct connector between Route 1 southbound and 17 Mile Drive		✓		✓		✓		✓		✓		✓

Source: Fehr & Peers, April 2005

VI. 2010 AND 2030 BUILD ALTERNATIVES TRAFFIC OPERATIONS

This chapter discusses the traffic operations analysis for Years 2010 and 2030 under the Alternatives 1A, 1AC, 1B, and 1BC, Alternatives 2A, 2AC, 2B, and 2BC, and Alternatives 3A, 3AC, 3B, and 3BC scenarios. This chapter reports the intersection operations, weave operations, ramp merge operations and queue characteristics for the AM and PM peak hours. **Appendix I** contains the analysis worksheets for the 2010 and 2030 build alternatives. **Appendix J** contains the queue analysis worksheets.

Intersection Operations

The signalized intersections in the project study area were analyzed using the same methodologies employed in analysis of the existing conditions. These methodologies are provided in the 2000 *Highway Capacity Manual* and address both signalized and unsignalized intersections. Unsignalized intersections include both stop-sign controlled locations and roundabouts. The following tables summarize the intersection and queue characteristics for the no build and build alternatives.

Table 13 – Year 2010 Intersection Delay and Level of Service – AM Peak Hour
Table 14 – Year 2010 Intersection Delay and Level of Service – PM Peak Hour
Table 15 – Year 2030 Intersection Delay and Level of Service – AM Peak Hour
Table 16 – Year 2030 Intersection Delay and Level of Service – PM Peak Hour
Table 17 – Year 2010 95% Queue Characteristics – AM Peak Hour
Table 18 – Year 2010 95% Queue Characteristics – PM Peak Hour
Table 19 – Year 2030 95% Queue Characteristics – AM Peak Hour
Table 20 – Year 2030 95% Queue Characteristics – PM Peak Hour

The **Route 1 Southbound On-Ramp / 17 Mile Drive** intersection is eliminated with each build alternative as 17 Mile Drive is separated from the Route 1 southbound on-ramp.

2010 Intersection Operations

As **Tables 13** (2010 AM) and **14** (2010 PM) indicate, several of the alternatives improve operations at the study intersections as compared to the No Project condition in 2010. The Route 1 southbound on-ramp intersection with 17 Mile Drive is eliminated under all build alternatives by separating the 17 Mile Drive and Route 1 southbound on-ramp traffic. **Table 17** and **Table 18** indicate vehicle queues for the year 2010 AM and PM peak hours, respectively.

The **Route 68 / Carmel Hill Professional Center** will benefit from implementing access restrictions as proposed by the City of Monterey. These access restrictions would limit vehicles turning left from the Beverly Manor Development onto Route 68, traveling towards Route 1. If these access restrictions are not implemented, the intersection would likely operate at LOS F. The role of these access restrictions is discussed further in subsequent sections of the report.

The **Route 68 / Community Hospital** intersection is expected to operate at acceptable levels under all study scenarios if evaluated in isolation from the adjacent intersections on Route 68. Congestion on Route 68 at the Community Hospital intersection is caused by insufficient intersection capacity at the Route 1 southbound ramp intersection with Route 68.

AM and PM peak hour queuing on Route 68 (eastbound) is expected to extend from the Route 1 intersection back through the Community Hospital signalized intersection with all build alternatives that incorporate a roundabout at the Route 68 / Route 1 southbound off-ramp intersection (1B, 2B, 3B). The congestion and resulting queuing occurs because of the roundabout capacity breakdown for Route 68 (eastbound) traffic conflicting both with traffic exiting Route 1 southbound and proceeding toward 17 Mile Drive and with traffic exiting from 17 Mile Drive and continuing east to Route 1 (northbound). The combined volumes of these three movements exceed design capacity for the roundabout. The roundabout alternatives (1BC, 2BC, 3BC) that incorporate a direct connector from Route 1 southbound to 17 Mile drive, bypassing the roundabout, would resolve AM and PM peak hour queue congestion for Route 68 (eastbound) traffic at the Community Hospital intersection.

The **Route 68 / Route 1 Southbound Off-Ramp / 17 Mile Drive** intersection is expected to improve for all build alternatives during the AM peak hour with the exception of the roundabout alternatives (1B, 2B, 3B). These alternatives, like the no project alternative, would result in unacceptable LOS F delays for the AM peak hour. Queue congestion for Route 68 (eastbound) would extend back through the Community Hospital intersection with the roundabout alternatives (1B, 2B, 3B). AM peak hour LOS for the remaining alternatives (1A, 1AC, 1BC, 2A, 2AC, 2BC, 3A, 3AC, 3BC) would be at acceptable levels and queue congestion would not adversely impact adjacent intersections or ramps.

PM peak hour intersection operations would be LOS F for the no build alternative and the three roundabout alternatives (1B, 2B, 3B). Queuing for Route 68 (eastbound) would extend back through Community Hospital with each of the identified alternatives. Acceptable LOS D operations and queuing would occur with the roundabout alternatives (1BC, 2BC, 3BC), which include the collector road between Route 1 (southbound) and 17 Mile Drive, bypassing the roundabout.

PM peak hour intersection operations would also be LOS F for build alternatives (1A, 1AC), which incorporates a second eastbound lane on Route 68. The poor intersection operations occur because of inadequate vehicle capacity for the Route 1 southbound off-ramp at Route 68. Queuing at the off-ramp is expected to extend back to within 20 meters (70 feet) of the off-ramp deceleration area. As with the no build alternative, this condition occurs because of the high traffic volumes turning right from the southbound off-ramp to go west toward Pacific Grove.

The remaining alternatives (2A, 2AC, 3A, 3AC) are expected to operate at acceptable levels and intersection queues are not expected to have adverse impacts on adjacent intersections or ramps.

2030 Intersection Operations

As **Tables 15** (2030 AM) and **16** (2030 PM) indicate, several of the alternatives improve operations at the study intersections as compared to the No Project condition in 2030. The Route 1 southbound on-ramp intersection with 17 Mile Drive is eliminated under all build alternatives by separating the 17 Mile Drive and Route 1 southbound on-ramp traffic. **Table 19** and **Table 20** indicate vehicle queues for the year 2030 AM and PM peak hours, respectively.

The **Route 68 / Carmel Hill Professional Center** will benefit from implementing access restrictions as proposed by the City of Monterey. These access restrictions would limit vehicles turning left from the Beverly Manor Development onto Route 68, traveling toward Route 1. If these access restrictions are not implemented, the intersection would likely operate at LOS F. The role of these access restrictions is discussed further in subsequent sections of the report.

The **Route 68 / Community Hospital** intersection is expected to operate at acceptable levels under all study scenarios if evaluated in isolation from the adjacent intersections on Route 68. Congestion on Route 68 at the Community Hospital intersection is caused by insufficient intersection capacity at the Route 1 southbound ramp intersection with Route 68.

AM and PM peak hour queuing on Route 68 (eastbound) is expected to extend from the Route 1 intersection back through the Community Hospital signalized intersection with all build alternatives that incorporate a roundabout at the Route 68 / Route 1 southbound off-ramp intersection (1B, 2B, 3B). The congestion and resulting queuing occurs because of the roundabout capacity breakdown for Route 68 (eastbound) traffic conflicting both with traffic exiting Route 1 southbound and proceeding toward 17 Mile Drive and with traffic exiting from 17 Mile Drive and continuing east to Route 1 (northbound). The combined volumes of these three movements exceed design capacity for the roundabout. The roundabout alternatives (1BC, 2BC, 3BC) that incorporate a direct connector from Route 1 southbound to 17 Mile drive, bypassing the roundabout, would also result in unacceptable traffic congestion and vehicle queues. Route 68 (eastbound) vehicle queues would extend back through the Community Hospital intersection during both the AM and PM peak hours.

The **Route 68 / Route 1 Southbound Off-Ramp / 17 Mile Drive** AM and PM peak hour intersection operations would be LOS F for the no build alternative, the three roundabout alternatives (1B, 2B, 3B), and the three roundabout alternatives (1BC, 2BC, 3BC) that include the collector road between Route 1 (southbound) and 17 Mile Drive, bypassing the roundabout. Queuing for Route 68 (eastbound) would extend back through Community Hospital with each of the identified alternatives.

PM peak hour intersection operations would also be LOS F for build alternatives (1A, 1AC), which incorporates a second eastbound lane on Route 68. The poor intersection operations occur because of inadequate vehicle capacity for the Route 1 southbound off-ramp at Route 68. Queuing at the off-ramp is expected to exceed the available vehicle storage and extend into the off-ramp deceleration area. As with the no build alternative, this condition occurs because of the high traffic volumes turning right from the southbound off-ramp to go west toward Pacific Grove.

The remaining alternatives (2A, 2AC, 3A, 3AC) are expected to operate at acceptable levels and intersection queues are not expected to have adverse impacts on adjacent intersections or ramps.

Supplemental Dual-Lane Roundabout Analysis

After concluding that the implementation of a single-lane roundabout would result in significant delay and queuing on Route 68, a supplemental operational analysis of a dual-lane roundabout was conducted. This operational analysis from the FHWA roundabout manual entitled *Roundabouts: An Informational Guide* (2000) calculates LOS and queuing by considering traffic volumes and capacities. The analysis concluded that a dual-lane roundabout, characterized by two circulating lanes with two eastbound entering lanes, would operate at an acceptable level with all build alternatives in 2010 and 2030.

The Route 68 / Route 1 Southbound Off-Ramp would operate at LOS B during both the AM and PM peak hours in Year 2030. Queue congestion would be limited to about 45 meters (150 feet) for each approach to the roundabout. The analysis does not address design considerations affecting the use of the roundabout. Design considerations such as entry; circulatory and exit speed; directional signage; vehicle path characteristics; vehicle path overlap consideration; large vehicle accommodation; sight distance; and accommodations for alternate transportation modes (transit,

bicycles, and pedestrians) are addressed in geometric assessment reports to be independently prepared.

Beverly Manor Development (Carmel Hill Professional Center) Access Considerations

Per Rich Deal at the City of Monterey, left-turn restrictions at the Route 68 / Carmel Hill Professional Center intersection will be implemented in the future (e-mail from Richard Tanaka at Mark Thomas & Company dated 1/16/2006). This intersection currently operates as a side-street stop with access provided by all turn movements. With the existing traffic levels and queue congestion on Route 68, vehicles exiting the Carmel Hill Professional Center experience substantial delay. The City of Monterey has proposed restricting access to eliminate the left turn movement out of the Carmel Hill Professional Center. The remaining movements would be allowed under this proposal.

The restricted left turn traffic would be required to make a right turn onto Route 68 (westbound), proceed to the Community Hospital signalized intersection and either make a u-turn on Route 68 or turnaround within the Community Hospital and re-enter Route 68 via the Community Hospital signalized intersection. Currently there is insufficient area for a vehicle to make a u-turn on Route 68 (westbound). The u-turn maneuver would require installation of a left-turn pocket on Route 68 (westbound) at the Community Hospital intersection. In addition, two eastbound lanes would be required along with sufficient shoulder to accommodate the u-turn maneuver.

Traffic operations at the Route 68 / Carmel Hill Professional Center intersection would improve to LOS B and LOS C if the left turn exiting the professional center is prohibited. The diverted left turn traffic would have a marginal negative impact on signal operations at the Route 68 / Community Hospital intersection. The traffic analysis results reflect the restriction of this movement, as represented in **Tables 13-16**. The LOS at the Route 68 / Community Hospital intersection would generally be LOS A (u-turn movement) to LOS B (vehicles enter driveway and then exit).

Ramp Operations

The Route 1 southbound on-ramp from Route 68 was determined to have a density of 23-passenger cars/per mile/per lane for both the AM and PM peak hours in Year 2010. In Year 2030 traffic conditions during the AM peak hour would remain at LOS C but the density would increase to 27 while the PM peak hour density would increase to 28, resulting in an LOS D condition. These service levels remain the same whether or not the build alternatives are constructed.

Weave Operations

The application of the Leisch Method indicated that the weaving section of Route 1 from Munras Avenue to Route 68 operates at LOS C during the AM peak hour in 2010 and LOS D in Year 2030. PM peak hour operations would be LOS D in Year 2010 and LOS E in Year 2030. These service levels remain the same whether or not the build alternatives are constructed.

Free Right Movement from Route 1 to Route 68

A number of the alternatives propose a free right connector which would provide access to Route 68 for southbound traffic on Route 1. According to Caltrans, such a connector was removed. Based on anecdotal evidence, this connector operated at a high design speed due to a large radius (45 meters or 150 feet) and was deemed "unsafe." The new connector is designed much differently, with a low

speed design and a limited turn radius. The connector is proposed to have a 15 meter (45 feet) radius, which would limit speeds. We anticipate that this reduced radius, as compared to the previous free right connector, will lead to improved operations over the previous facility.

TABLE 13
Year 2010 Intersection Delay and Level of Service – AM Peak Hour

Scenario	SR 68 / Community Hospital Driveway[6]			SR 68 / Beverly Manor Development[6]			SR 68 / SR 1 SB Off-Ramp			SR 1 SB On-Ramp/17 Mile Drive		
	Control	Delay[1]	LOS	Control	Delay[1]	LOS	Control	Delay[1]	LOS	Control	Delay[1]	LOS
Existing	Signal	8[2]	A[2]	Unsignalized[3]	>50	F	Signal	>80	F	Side Street Stop[4]	20	C
No Project	Signal	9[2]	A[2]	Unsignalized[3]	>50	F	Signal	>80	F	Side Street Stop[4]	19	C
1A	Signal	8	A	Unsignalized[3]	22	C	Signal	52	D	[5]	N/A	N/A
1AC	Signal	8	A	Unsignalized[3]	22	C	Signal	48	D	[5]	N/A	N/A
1B	Signal	8[2]	A[2]	Unsignalized[3]	22	C	Roundabout	>50	F	[5]	N/A	N/A
1BC	Signal	8	A	Unsignalized[3]	22	C	Roundabout	27	D	[5]	N/A	N/A
2A	Signal	8	A	Unsignalized[3]	12	B	Signal	47	D	[5]	N/A	N/A
2AC	Signal	8	A	Unsignalized[3]	12	B	Signal	24	C	[5]	N/A	N/A
2B	Signal	8[2]	A[2]	Unsignalized[3]	12	B	Roundabout	>50	F	[5]	N/A	N/A
2BC	Signal	8[2]	A	Unsignalized[3]	12	B	Roundabout	25	D	[5]	N/A	N/A
3A	Signal	8	A	Unsignalized[3]	12	B	Signal	26	C	[5]	N/A	N/A
3AC	Signal	7	A	Unsignalized[3]	12	B	Signal	14	B	[5]	N/A	N/A
3B	Signal	8[2]	A[2]	Unsignalized[3]	12	B	Roundabout	>50	F	[5]	N/A	N/A
3BC	Signal	7	A	Unsignalized[3]	12	B	Roundabout	27	D	[5]	N/A	N/A

Notes:
1. For signalized intersections, delay is average control delay for all vehicles based on criteria in the 2000 Highway Capacity Manual. For side-street stop-controlled intersections, delay for worst movement calculated using the 2000 Highway Capacity Manual methodology.
2. Intersection is impacted by the eastbound queue at SR 68 / SR 1 SB Off-Ramp.
3. For all improvement scenarios (1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, 3BC), southbound left-turns from the SR 68/Carmel Hill Professional Center are prohibited. Vehicles are redirected to the SR 68/Community Hospital Driveway.
4. Intersection currently operates as side street stop sign-controlled intersection. Intersection would continue to operate as so under No Project Condition. All alternative improvement scenarios (1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, 3BC) include reconfiguration of this intersection to remove traffic control from side street movements and separation of on-ramp traffic from side street traffic at current intersection location.
5. As specified in Note #4, intersection will be eliminated under Alternatives 1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, and 3BC. No LOS or delay can be calculated.

Source: Fehr & Peers, January 2006

TABLE 14
Year 2010 Intersection Delay and Level of Service – PM Peak Hour

Scenario	SR 68 / Community Hospital Driveway[6]			SR 68 / Beverly Manor Development[6]			SR 68 / SR 1 SB Off-Ramp			SR 1 SB On-Ramp/17 Mile Drive		
	Control	Delay[1]	LOS	Control	Delay[1]	LOS	Control	Delay[1]	LOS	Control	Delay[1]	LOS
Existing	Signal	14[2]	B[2]	**Unsignalized[3]**	**>50**	**F**	Signal	**>80**	**F**	Side Street Stop[4]	**44**	**E**
No Project	Signal	17[2]	B[2]	**Unsignalized[3]**	**>50**	**F**	Signal	**>80**	**F**	Side Street Stop[4]	**45**	**E**
1A	Signal	19	B	**Unsignalized[3]**	**>50**	**F**	Signal	**>80**	**F**	[5]	N/A	N/A
1AC	Signal	19	B	**Unsignalized[3]**	**>50**	**F**	Signal	**>80**	**F**	[5]	N/A	N/A
1B	Signal	19[2]	B[2]	**Unsignalized[3]**	**>50**	**F**	Roundabout	**>50**	**F**	[5]	N/A	N/A
1BC	Signal	19	B	**Unsignalized[3]**	**>50**	**F**	Roundabout	32	D	[5]	N/A	N/A
2A	Signal	11	B	Unsignalized[3]	17	C	Signal	45	D	[5]	N/A	N/A
2AC	Signal	11	B	Unsignalized[3]	17	C	Signal	43	D	[5]	N/A	N/A
2B	Signal	11[2]	B[2]	Unsignalized[3]	17	C	Roundabout	**>50**	**F**	[5]	N/A	N/A
2BC	Signal	11	B	Unsignalized[3]	17	C	Roundabout	32	D	[5]	N/A	N/A
3A	Signal	11	B	Unsignalized[3]	17	C	Signal	24	C	[5]	N/A	N/A
3AC	Signal	12	B	Unsignalized[3]	17	C	Signal	22	C	[5]	N/A	N/A
3B	Signal	11[2]	B[2]	Unsignalized[3]	17	C	Roundabout	**>50**	**F**	[5]	N/A	N/A
3BC	Signal	12	B	Unsignalized[3]	17	C	Roundabout	32	D	[5]	N/A	N/A

Notes:
1. For signalized intersections, delay is average control delay for all vehicles based on criteria in the 2000 Highway Capacity Manual. For side-street stop-controlled intersections, delay for worst movement calculated using the 2000 Highway Capacity Manual methodology.
2. Intersection is impacted by the eastbound queue at SR 68 / SR 1 SB Off-Ramp.
3. For all improvement scenarios (1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, 3BC), southbound left-turns from the SR 68/Carmel Hill Professional Center are prohibited. Vehicles are redirected to the SR 68/Community Hospital Driveway.
4. Intersection currently operates as side street stop sign-controlled intersection. Intersection would continue to operate as so under No Project Condition. All alternative improvement scenarios (1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, 3BC) include reconfiguration of this intersection to remove traffic control from side street movements and separation of on-ramp traffic from side street traffic at current intersection location.
5. As specified in Note #4, intersection will be eliminated under Alternatives 1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, and 3BC. No LOS or delay can be calculated.

Source: Fehr & Peers, April 2005

TABLE 15
Year 2030 Intersection Delay and Level of Service – AM Peak Hour

Scenario	SR 68 / Community Hospital Driveway[6]			SR 68 / Beverly Manor Development[6]			SR 68 / SR 1 SB Off-Ramp			SR 1 SB On-Ramp/17 Mile Drive		
	Control	Delay[1]	LOS	Control	Delay[1]	LOS	Control	Delay[1]	LOS	Control	Delay[1]	LOS
Existing	Signal	8[2]	A[2]	**Unsignalized[3]**	**>50**	**F**	Signal	**>80**	**F**	**Unsignalized[4]**	20	C
No Project	Signal	10[2]	B[2]	**Unsignalized[3]**	**>50**	**F**	Signal	**>80**	**F**	**Unsignalized[4]**	21	C
1A	Signal	9	A	Unsignalized[3]	24	C	Signal	**>80**	**F**	[5]	N/A	N/A
1AC	Signal	9	A	Unsignalized[3]	24	C	Signal	**59**	**E**	[5]	N/A	N/A
1B	Signal	9[2]	A[2]	Unsignalized[3]	24	C	Roundabout	**>50**	**F**	[5]	N/A	N/A
1BC	Signal	9[2]	A[2]	Unsignalized[3]	24	C	Roundabout	**>50**	**F**	[5]	N/A	N/A
2A	Signal	9	A	Unsignalized[3]	13	B	Signal	54	D	[5]	N/A	N/A
2AC	Signal	9	A	Unsignalized[3]	13	B	Signal	32	C	[5]	N/A	N/A
2B	Signal	9[2]	A[2]	Unsignalized[3]	13	B	Roundabout	**>50**	**F**	[5]	N/A	N/A
2BC	Signal	9[2]	A[2]	Unsignalized[3]	13	B	Roundabout	**>50**	**F**	[5]	N/A	N/A
3A	Signal	8	A	Unsignalized[3]	13	B	Signal	27	C	[5]	N/A	N/A
3AC	Signal	7	A	Unsignalized[3]	13	B	Signal	14	B	[5]	N/A	N/A
3B	Signal	8[2]	A[2]	Unsignalized[3]	13	B	Roundabout	**>50**	**F**	[5]	N/A	N/A
3BC	Signal	7[2]	A[2]	Unsignalized[3]	13	B	Roundabout	**>50**	**F**	[5]	N/A	N/A

Notes:
1. For signalized intersections, delay is average control delay for all vehicles based on criteria in the 2000 Highway Capacity Manual. For side-street stop-controlled intersections, delay for worst movement calculated using the 2000 Highway Capacity Manual methodology.
2. Intersection is impacted by the eastbound queue at SR 68 / SR 1 SB Off-Ramp.
3. For all improvement scenarios (1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, 3BC), southbound left-turns from the SR 68/Carmel Hill Professional Center are prohibited. Vehicles are redirected to the SR 68/Community Hospital Driveway.
4. Intersection currently operates as side street stop sign-controlled intersection. Intersection would continue to operate as so under No Project Condition. All alternative improvement scenarios (1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, 3BC) include reconfiguration of this intersection to remove traffic control from side street movements and separation of on-ramp traffic from side street traffic at current intersection location.
5. As specified in Note #4, intersection will be eliminated under Alternatives 1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, and 3BC. No LOS or delay can be calculated.

Source: Fehr & Peers, April 2005

TABLE 16
Year 2030 Intersection Delay and Level of Service – PM Peak Hour

Scenario	SR 68 / Community Hospital Driveway			SR 68 / Beverly Manor Development			SR 68 / SR 1 SB Off-Ramp			SR 1 SB On-Ramp/17 Mile Drive		
	Control	Delay[1]	LOS	Control	Delay[1]	LOS	Control	Delay[1]	LOS	Control	Delay[1]	LOS
Existing	Signal	14[2]	B[2]	**Unsignalized[3]**	**>50**	**F**	Signal	**>80**	**F**	**Unsignalized[4]**	**44**	**E**
No Project	Signal	28[2]	C[2]	**Unsignalized[3]**	**>50**	**F**	Signal	**>80**	**F**	**Unsignalized[4]**	**>50**	**F**
1A	Signal	28	C	**Unsignalized[3]**	**>50**	**F**	Signal	**76**	**E**	[5]	N/A	N/A
1AC	Signal	30	C	**Unsignalized[3]**	**>50**	**F**	Signal	**>80**	**F**	[5]	N/A	N/A
1B	Signal	30[2]	C[2]	**Unsignalized[3]**	**>50**	**F**	Roundabout	**>50**	**F**	[5]	N/A	N/A
1BC	Signal	30[2]	C[2]	**Unsignalized[3]**	**>50**	**F**	Roundabout	**>50**	**F**	[5]	N/A	N/A
2A	Signal	12	B	Unsignalized[3]	20	C	Signal	49	D	[5]	N/A	N/A
2AC	Signal	12	B	Unsignalized[3]	20	C	Signal	45	D	[5]	N/A	N/A
2B	Signal	12[2]	B[2]	Unsignalized[3]	20	C	Roundabout	**>50**	F	[5]	N/A	N/A
2BC	Signal	12[2]	B[2]	Unsignalized[3]	20	C	Roundabout	**>50**	F	[5]	N/A	N/A
3A	Signal	12	A	Unsignalized[3]	20	C	Signal	26	C	[5]	N/A	N/A
3AC	Signal	12	A	Unsignalized[3]	20	C	Signal	23	C	[5]	N/A	N/A
3B	Signal	8[2]	A[2]	Unsignalized[3]	20	C	Roundabout	**>50**	F	[5]	N/A	N/A
3BC	Signal	8[2]	A[2]	Unsignalized[3]	20	C	Roundabout	**>50**	F	[5]	N/A	N/A

Notes:
1. For signalized intersections, delay is average control delay for all vehicles based on criteria in the 2000 Highway Capacity Manual. For side-street stop-controlled intersections, delay for worst movement calculated using the 2000 Highway Capacity Manual methodology.
2. Intersection is impacted by the eastbound queue at SR 68 / SR 1 SB Off-Ramp.
3. For all improvement scenarios (1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, 3BC), southbound left-turns from the SR 68/Carmel Hill Professional Center are prohibited. Vehicles are redirected to the SR 68/Community Hospital Driveway.
4. Intersection currently operates as side street stop sign-controlled intersection. Intersection would continue to operate as so under No Project Condition. All alternative improvement scenarios (1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, 3BC) include reconfiguration of this intersection to remove traffic control from side street movements and separation of on-ramp traffic from side street traffic at current intersection location.
5. As specified in Note #4, intersection will be eliminated under Alternatives 1A, 1AC, 1B, 1BC, 2A, 2AC, 2B, 2BC, 3A, 3AC, 3B, and 3BC. No LOS or delay can be calculated.

Source: Fehr & Peers, April 2005

TABLE 17
Year 2010 95% Queue Characteristic – AM Peak Hour

Scenario	SR 68 / Community Hospital Driveway			SR 68 / Beverly Manor Development			SR 68 / SR 1 SB Off-Ramp			
	Southbound	Westbound	Eastbound	Southbound	Westbound	Eastbound	Eastbound	Westbound	Northbound	Southbound
No Project	30 (100)	120 (400)	120 (400)	N/A	N/A	N/A	300 (1,000)[1]	120 (400)	30 (100)[4]	180 (600)
1A	30 (100)	90 (300)	60 (200)	N/A	N/A	N/A	210 (700)[2]	120 (400)	90 (300)	120 (400)
1AC	30 (100)	90 (300)	60 (200)	N/A	N/A	N/A	180 (600)	90 (300)	60 (200)	150 (500)
1B	30 (100)	90 (300)	60 (200)	N/A	N/A	N/A	820 (2,700)[1,3]	30 (100)	30 (100)	30 (100)
1BC	30 (100)	90 (300)	60 (200)	N/A	N/A	N/A	210 (700)[2,3]	30 (100)	30 (100)	0
2A	30 (100)	30 (100)	90 (300)	N/A	N/A	N/A	180 (600)[2]	60 (200)	60 (200)	150 (500)
2AC	30 (100)	30 (100)	90 (300)	N/A	N/A	N/A	180 (600)[2]	60 (200)	60 (200)	30 (100)
2B	30 (100)	30 (100)	90 (300)	N/A	N/A	N/A	820 (2,700)[1,3]	30 (100)	30 (100)	30 (100)
2BC	30 (100)	30 (100)	90 (300)	N/A	N/A	N/A	210 (700)[2,3]	30 (100)	30 (100)	0
3A	30 (100)	30 (100)	60 (200)	N/A	N/A	N/A	150 (500)[2]	60 (200)	60 (200)	120 (400)
3AC	30 (100)	30 (100)	60 (200)	N/A	N/A	N/A	60 (200)	30 (100)	60 (200)	30 (100)
3B	30 (100)	30 (100)	60 (200)	N/A	N/A	N/A	820 (2,700)[1,3]	30 (100)	30 (100)	30 (100)
3BC	30 (100)	30 (100)	60 (200)	N/A	N/A	N/A	210 (700)[2,3]	30 (100)	30 (100)	0

Distances provided as meters (feet)

Notes:

1. Eastbound queue on this approach will extend beyond the intersection of SR 68 / Community Hospital Driveway.
2. Eastbound queue on this approach will extend beyond the intersection of SR 68 / Carmel Hill Professional Center.
3. Queuing on roundabout based on calculations derived from information provided in Federal Highway Administration document entitled *Roundabouts: An Informational Guide (FHWA, 2000).*
4. Reported value reflects extent of queue along 17 Mile Drive under No Project Condition.

Source: Fehr & Peers, April 2005

TABLE 18
Year 2010 95% Queue Characteristic – PM Peak Hour

Scenario	SR 68 / Community Hospital Driveway			SR 68 / Beverly Manor Development			SR 68 / SR 1 SB Off-Ramp			
	Southbound	Westbound	Eastbound	Southbound	Westbound	Eastbound	Eastbound	Westbound	Northbound	Southbound
No Project	60 (200)	400 (1,400)[1]	120 (400)	N/A	N/A	N/A	330 (1,100)[2]	180 (600)	120 (400)[5]	240 (800)[6]
1A	60 (200)	300 (1,000)	60 (200)	N/A	N/A	N/A	210 (700)[3]	150 (500)	150 (500)	210 (700)[6]
1AC	60 (200)	300 (1,000)	60 (200)	N/A	N/A	N/A	210 (700)[3]	180 (600)	150 (500)	210 (700)[6]
1B	60 (200)	300 (1,000)	60 (200)	N/A	N/A	N/A	580 (1,900)[2,4]	30 (100)	60 (200)	30 (100)
1BC	60 (200)	300 (1,000)	60 (200)	N/A	N/A	N/A	240 (800)[2,4]	30 (100)	60 (200)	0
2A	60 (200)	60 (200)	90 (300)	N/A	N/A	N/A	210 (700)[3]	120 (400)	150 (500)	90 (300)
2AC	60 (200)	60 (200)	90 (300)	N/A	N/A	N/A	210 (700)[3]	120 (400)	150 (500)	30 (100)
2B	30 (100)	60 (200)	90 (300)	N/A	N/A	N/A	580 (1,900)[2,4]	30 (100)	60 (200)	30 (100)
2BC	30 (100)	60 (200)	90 (300)	N/A	N/A	N/A	240 (800)[2,4]	30 (100)	60 (200)	0
3A	60 (200)	30 (100)	60 (200)	N/A	N/A	N/A	90 (300)[3]	90 (300)	150 (500)	60 (200)
3AC	60 (200)	30 (100)	60 (200)	N/A	N/A	N/A	90 (300)[3]	90 (300)	150 (500)	30 (100)
3B	60 (200)	30 (100)	30 (100)	N/A	N/A	N/A	580 (1,900)[2,4]	30 (100)	60 (200)	30 (100)
3BC	60 (200)	30 (100)	30 (100)	N/A	N/A	N/A	240 (800)[2,4]	30 (100)	60 (200)	0

Distances provided as meters (feet)

Notes:

1. Westbound queue will extend into the intersection of SR 68 / SR 1 SB Off-Ramp.
2. Eastbound queue on this approach will extend beyond the intersection of SR 68 / Community Hospital Driveway.
3. Eastbound queue on this approach will extend beyond the intersection of SR 68 / Carmel Hill Professional Center.
4. Queuing on roundabout based on calculations derived from information provided in Federal Highway Administration document entitled *Roundabouts: An Informational Guide (FHWA, 2000).*
5. Reported value reflects extent of queue along 17 Mile Drive under No Project Condition.
6. Southbound queue will extend back into deceleration area for traffic exiting mainline SR 1. Deceleration area is based on length needed for a vehicle traveling 55 miles per hour to reach a complete stop (Table 405.2B of the *Caltrans Highway Design Manual*, 5th Edition).

Source: Fehr & Peers, April 2005

TABLE 19
Year 2030 95% Queue Characteristic – AM Peak Hour

Scenario	SR 68 / Community Hospital Driveway			SR 68 / Beverly Manor Development			SR 68 / SR 1 SB Off-Ramp			
	Southbound	Westbound	Eastbound	Southbound	Westbound	Eastbound	Eastbound	Westbound	Northbound	Southbound
No Project	30 (100)	150 (5000	150 (5000	N/A	N/A	N/A	340 (1,100)[1]	120 (400)	60 (200)[4]	180 (600)
1A	30 (100)	120 (400)	60 (200)	N/A	N/A	N/A	240 (800)[2]	120 (400)	90 (300)	150 (500)
1AC	30 (100)	120 (400)	60 (200)	N/A	N/A	N/A	210 (700)	120 (400)	90 (300)	150 (500)
1B	30 (100)	120 (400)	60 (200)	N/A	N/A	N/A	1,160 (3,800)[1,3]	30 (100)	30 (100)	30 (100)
1BC	30 (100)	120 (400)	60 (200)	N/A	N/A	N/A	400 (1,300)[1,3]	30 (100)	30 (100)	0
2A	30 (100)	30 (100)	120 (400)	N/A	N/A	N/A	210 (700)[2]	90 (300)	90 (300)	210 (700)
2AC	30 (100)	30 (100)	120 (400)	N/A	N/A	N/A	180 (600)[2]	60 (200)	60 (200)	30 (100)
2B	30 (100)	30 (100)	120 (400)	N/A	N/A	N/A	1,160 (3,800)[1,3]	30 (100)	30 (100)	30 (100)
2BC	30 (100)	30 (100)	120 (400)	N/A	N/A	N/A	400 (1,300)[1,3]	30 (100)	30 (100)	0
3A	30 (100)	30 (100)	60 (200)	N/A	N/A	N/A	180 (600)[2]	90 (300)	60 (200)	150 (500)
3AC	30 (100)	30 (100)	60 (200)	N/A	N/A	N/A	60 (200)	60 (200)	60 (200)	30 (100)
3B	30 (100)	30 (100)	30 (100)	N/A	N/A	N/A	1,160 (3,800)[1,3]	30 (100)	30 (100)	30 (100)
3BC	30 (100)	30 (100)	30 (100)	N/A	N/A	N/A	400 (1,300)[1,3]	30 (100)	30 (100)	0

Distances provided as meters (feet)

Notes:

1. Eastbound queue on this approach will extend beyond the intersection of SR 68 / Community Hospital Driveway.
2. Eastbound queue on this approach will extend beyond the intersection of SR 68 / Carmel Hill Professional Center.
3. Queuing on roundabout based on calculations derived from information provided in Federal Highway Administration document entitled *Roundabouts: An Informational Guide (FHWA, 2000).*
4. Reported value reflects extent of queue along 17 Mile Drive under No Project Condition.

Source: Fehr & Peers, April 2005

TABLE 20
Year 2030 95% Queue Characteristic – PM Peak Hour

Scenario	SR 68 / Community Hospital Driveway			SR 68 / Beverly Manor Development			SR 68 / SR 1 SB Off-Ramp			
	Southbound	Westbound	Eastbound	Southbound	Westbound	Eastbound	Eastbound	Westbound	Northbound	Southbound
No Project	60 (200)	510 (1,700)[1]	150 (500)	N/A	N/A	N/A	370 (1,200)[2]	210(700)	120 (400)[5]	370 (1,200)[6]
1A	60 (200)	430 (1,400)[1]	60 (200)	N/A	N/A	N/A	210 (700)[3]	180(600)	180(600)	270 (900)[6]
1AC	60 (200)	430 (1,400)[1]	60 (200)	N/A	N/A	N/A	240 (800)[3]	180(600)	150 (500)	270 (900)[6]
1B	60 (200)	430 (1,400)[1]	60 (200)	N/A	N/A	N/A	880 (2,900)[2,4]	30 (100)	90 (300)	30 (100)
1BC	60 (200)	430 (1,400)[1]	60 (200)	N/A	N/A	N/A	430 (1,400)[2,4]	30 (100)	90 (300)	0
2A	60 (200)	90 (300)	90 (300)	N/A	N/A	N/A	240 (800)[3]	120 (400)	150 (500)	90 (300)
2AC	60 (200)	90 (300)	90 (300)	N/A	N/A	N/A	240 (800)[3]	120 (400)	150 (500)	30 (100)
2B	60 (200)	90 (300)	90 (300)	N/A	N/A	N/A	880 (2,900)[2,4]	30 (100)	90 (300)	30 (100)
2BC	60 (200)	90 (300)	90 (300)	N/A	N/A	N/A	430 (1,400)[2,4]	30 (100)	90 (300)	0
3A	60 (200)	60 (200)	60 (200)	N/A	N/A	N/A	90 (300)[3]	120 (400)	150 (500)	90 (300)
3AC	60 (200)	60 (200)	60 (200)	N/A	N/A	N/A	90 (300)[3]	120 (400)	150 (500)	30 (100)
3B	60 (200)	60 (200)	60 (200)	N/A	N/A	N/A	880 (2,900)[2,4]	30 (100)	90(300)	30 (100)
3BC	60 (200)	60 (200)	60 (200)	N/A	N/A	N/A	430 (1,400)[2,4]	30 (100)	90(300)	0

Distances provided as meters (feet)

Notes:

1. Westbound queue will extend into the intersection of SR 68 / SR 1 SB Off-Ramp.
2. Eastbound queue on this approach will extend beyond the intersection of SR 68 / Community Hospital Driveway.
3. Eastbound queue on this approach will extend beyond the intersection of SR 68 / Carmel Hill Professional Center.
4. Queuing on roundabout based on calculations derived from information provided in Federal Highway Administration document entitled *Roundabouts: An Informational Guide (FHWA, 2000)*.
5. Reported value reflects extent of queue along 17 Mile Drive under No Project Condition.
6. Southbound queue will extend back into deceleration area for traffic exiting mainline SR 1. Deceleration area is based on length needed for a vehicle traveling 55 miles per hour to reach a complete stop (Table 405.2B of the *Caltrans Highway Design Manual*, 5th Edition).

Source: Fehr & Peers, April 2005

VII. CONCLUSIONS

All build alternatives with the roundabout are expected to fail at the **Route 68 / Route 1 Southbound Off-Ramp / 17 Mile Drive** intersection by Year 2030 whether or not the direct connector between Route 1 (southbound) and 17 Mile Drive bypassing the roundabout is provided. The roundabout capacity breakdown occurs because of the combination of Route 68 (eastbound) traffic and the traffic exiting 17 Mile Drive toward Route 1 (northbound). The resulting queue congestion at the roundabout intersection would extend back beyond the **Route 68 / Community Hospital** intersection resulting in unacceptable operations. Fehr & Peers also performed a supplemental roundabout analysis to determine if a dual-lane roundabout would operate at an acceptable level. This supplemental operational analysis, based on a volume-to-capacity ratio methodology provided by FHWA, indicates that a dual-lane roundabout would operate at an acceptable LOS with minimal queuing.

Traffic operations at the **Route 68 / Carmel Hill Professional Center** would be LOS F because of the lack of a traffic signal at this intersection. If the access restrictions proposed by the City of Monterey are implemented at this intersection, the LOS will be C or better since left turns out of this driveway would be prohibited.

Intersection operations in Year 2030 with Alternative 1A and 1AC, incorporating a second eastbound lane on Route 68, fail with LOS E or F at the **Route 68 / Route 1 Southbound Off-Ramp / 17 Mile Drive.** Queue congestion in Year 2030 with these alternatives is manageable during the AM peak hour. Expected PM peak hour queues would extend down the Route 1 southbound off-ramp and into the deceleration area for traffic exiting Route 1 (southbound) to the Route 1 southbound off-ramp. As with the no build alternative, this condition occurs because of the high traffic volumes turning right from the southbound off-ramp to go west toward Pacific Grove. Traffic operations at the **Route 68 / Carmel Hill Professional Center** would be LOS F because of the lack of a traffic signal at this intersection. If the access restrictions proposed by the City of Monterey are implemented at this intersection, the LOS will be C or better since left turns out of this driveway would be prohibited.

Alternative 2A and 2AC incorporate a second westbound lane on Route 68. The 2AC alternative also incorporates the direct connector between Route 1 (southbound) and 17 Mile Drive bypassing Route 68 intersections. The **Route 68 / Route 1 Southbound Off-Ramp / 17 Mile Drive** intersection would operate at acceptable levels (LOS C or D) in Year 2030 during both the AM and PM peak hours. Queue congestion in Year 2030 would be manageable by not extending back through the Community Hospital intersection. Nor would the queue on the Route 1 southbound off-ramp extend into the deceleration area. Traffic operations at the **Route 68 / Carmel Hill Professional Center** would be LOS F because of the lack of a traffic signal at this intersection. If the access restrictions proposed by the City of Monterey are implemented at this intersection, the LOS will be C or better since left turns out of this driveway would be prohibited.

LOS and queuing analysis indicates that build Alternative 3A and 3AC provide the greatest benefit to traffic operations. All intersections are expected to operate at acceptable levels and queue congestion is manageable for both alternatives. Alternative 3A would result in LOS C during the AM peak hour and LOS D during the PM peak hour. AM and PM peak hour operations with 3AC would be LOS C. If the access restrictions proposed by the City of Monterey are implemented at this intersection, the LOS will be C or better since left turns out of this driveway would be prohibited.

The **Route 1 Southbound On-Ramp** merge from Route 68 was determined to operate at LOS C during the AM peak hour and LOS D during the PM peak hour. The service levels remain the same in Year 2030 whether or not the build alternatives are constructed.

The application of the Leisch Method indicated that the **weaving section of Route 1 from Munras Avenue to Route 68** operates at LOS D in Year 2030 for the AM peak hour. PM peak hour operations would be LOS E in Year 2030 for the no-build and build alternatives. The LOS E PM peak hour weave condition occurs because of the high traffic volumes exiting Route 1 (southbound) and proceeding to Pacific Grove via Route 68 (westbound).