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Executive Summary

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The Big Sur Coast has never suffered a lack of interest or involvement on the part of responsible, well-informed, highly motivated and vocal stakeholders. In fact the CHMP process was shaped heavily by a number of people who, through passionate articulation of their values, influenced the concept of sharing ownership over decisions and corridor management responsibilities Community members who volunteered their time to participate on the Steering Committee that guided the process included Mary Trotter, Ken Wright, John Harlan, Jeff Norman, Mike Caplin, Lygia Chappelet and Tim Green.

Likewise, in the course of their consistent and dedicated participation in the planning process, agency representatives on the Steering Committee Lois Harter (CA Department of Parks & Recreation), Holly Price (Monterey Bay National Marine Sanctuary) and John Bradford (US Forest Service) shared their knowledge and perspectives in a spirit of cooperation. Lee Otter (CA Coastal Commission) provided special enthusiasm and guidance with his vast professional experience enhanced by his passion for the Big Sur Coast. Participation by many others at various stages of the effort added tremendous value and insight. It is hoped that this document will live up to the dedication and foresight of all stakeholders.

Consultant support provided a critical role in several ways. A team assembled by Parsons Brinckerhoff and managed by Jim Bourgart made this undertaking possible and also brought the talents and dedication of Ben Strumwasser (Public Affairs Management) and Pat Gelb (Parsons Transportation Group) who consistently brought good energy and professional quality to the project.

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The overall undertaking of the Big Sur Coast Highway Management Plan has been a team effort of extraordinary magnitude and owes everything to the commitment and dedication of these people and so many others who have not been named here.

Aileen K. Loe
Project Manager

Steering Committee Ratification
of the
Big Sur Coast Highway Management Plan

The undersigned members of the Big Sur Coast Highway Management Plan (CHMP) Steering Committee hereby acknowledge:

1. Participation in the development and review of the CHMP and associated guidelines for the Highway 1 corridor along the Big Sur Coast between San Carpoforo Creek in San Luis Obispo County and the Carmel River in Monterey County.
2. Broad stakeholder engagement in focused working group sessions that guided development of corridor inventories and technical studies used to support development of the CHMP.
3. Our support for the principles, goals and objectives outlined in the Plan. While such support does not suggest unanimous agreement on all specific management strategies and practices, it does indicate a willingness to work toward collaborative solutions.

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Signatures obtained March 15-March 30, 2004

EXECUTIVE SUMMARY

Whether it's a first time visit or part of a familiar routine, travel along the Big Sur Coast can be a celebrated, awe-inspiring experience. The Big Sur Coast is where Highway 1 traces a narrow ledge along the rugged Santa Lucia Mountains above the Pacific shoreline, leading travelers into a scenic drama that is known around the world. In recognition of its spectacular beauty and other unique qualities, this part of Highway 1 has been designated an All-American Road. This honor is afforded by the National Scenic Byways Program to those few highways in America that are so distinctive as to be considered destinations unto themselves.

Due to the local geology, topography, and climate, the highway along the Big Sur Coast is prone to landslides and rockfalls. Progressive natural changes punctuated by storm-related events impact the highway resulting in service interruptions for repairs and removal of slide material. Keeping the highway safe, reliable, and in good repair is a challenge for the California Department of Transportation. The work required to meet this challenge can sometimes appear to conflict with resource preservation values and the quality of the traveler's experience through the corridor. The reality is that the Department cannot effectively manage the highway corridor alone; collaboration among stakeholders is absolutely necessary.

The Big Sur Coast Highway Management Plan (CHMP) was prepared by Caltrans, with guidance from a 19-member Steering Committee and participation by other stakeholders who shared a vision for the corridor and came together to evaluate problems and craft solutions. Together, they committed to creating a management framework for the continued safe and efficient operation of Route 1 in a manner that preserves, protects and restores the scenic, natural and cultural character and qualities of the highway corridor.

Early scoping for the CHMP identified five key issue areas around which a series of technical working groups were formed: (1) Storm Damage Response and Repair, (2) Maintenance Practices, (3) Scenic & Habitat Conservation, (4) Public Access & Recreation and (5) Plan Implementation.

A major component of the planning effort produced a comprehensive inventory of corridor resources and qualities. Special studies were also commissioned to provide greater insight into the more complex issues, such as landsliding.

The CHMP consists of this Corridor Management Plan (CMP) and a series of Management Guidelines. The CMP summarizes the inventory of corridor resources and qualities, describes the issues and challenges investigated by the five working groups, an action plan for addressing the issues and a framework for implementation. The three guidelines address:

- Corridor Aesthetics
- Landslide Management & Storm Damage Response
- Vegetation Management.

Together these documents provide the framework for ongoing collaboration to meet stakeholders' common vision for the corridor.

CHAPTER 1 INTRODUCTION

The Big Sur Coast Highway Management Plan represents a culmination of efforts that were initiated after a major landslide in 1983 that closed Highway 1 for one year. Renewed focus on the planning effort came in the aftermath of the severe 1998 El Niño storms that brought numerous landslides and related highway closures. Led by the California Department of Transportation (the Department or Caltrans) with funding from the Federal Highway Administration (FHWA), the planning process was undertaken by committed stakeholders supported by agency staff and consultants. This document characterizes the intrinsic qualities important for long-term preservation, summarizes the major issues identified by stakeholders, presents strategies and actions to address the issues, and proposes a structure for implementation.

The study area is a 75-mile stretch of Highway 1 along California's central coast from San Carpoforo Creek, about 15 miles north of San Simeon in San Luis Obispo County, to the Carmel River, just south of the City of Carmel-by-the-Sea in Monterey County (Figure 1). Situated on the steep western slopes of the Santa Lucia Mountains, Highway 1 provides access to a most unforgettable place. For this simple fact in combination with the protections in place with Monterey County's Local Coastal Program, 72-miles of highway within Monterey County was designated an All-American Road in 1996.

Figure 1: Location map for the Big Sur Coast Highway Management Plan.

The All-American Road designation is generally reserved for routes considered destinations in themselves. Its importance to tourism and recreational travel notwithstanding, the corridor also functions as a lifeline for residences and businesses, with very few options for detours or alternate routes. The corridor also threads a landscape that supports some of the most treasured environmental resources in the country.

This designation puts the highway corridor on par with other national treasures along the Big Sur Coast: the waters of Monterey Bay National Marine Sanctuary, the exposed rocks offshore within the California Coastal National Monument and portions of the inland forest of the Ventana and Silver Peak Wilderness Areas. Each of these designations is afforded a degree of honor and protection at the highest levels of government.

1.1 Need & Purpose

Given the climate, geology and topography of the Big Sur Coast, the occurrence of episodic storm-related events is not unexpected. The landscape is undergoing continuous change where natural forces act in opposing directions, both lifting the mountains and wearing them down. Working to keep the road open in this environment is a very practical matter. However, sometimes performing the most basic functions to maintain the highway can appear to be in conflict with resource preservation goals.

Landslides and other storm damage events have affected the highway ever since its completion in 1937. The 1998 storm season was one of the worst in recent history and resulted in unprecedented number of damage locations along the highway. The massive damage required closure of the highway for nearly four months to undertake repairs costing in excess of $30 million.

Figure 2: Removing landslide debris from the highway began even before the original construction was completed.

The need to prepare for future events and minimize the potential damage to the highway would be sufficient justification alone for developing a management plan. However, the task is much more complex than maintaining a ribbon of pavement, since the region is filled with rich and diverse resources, many of which are unique to the corridor.

Keeping the highway in a state of good repair is intensive and ongoing. The efforts are not lost on those who rely on the highway, but some consequences of the work over time have been a source of strain between the Department and important stakeholder groups. Growing concern has been focused on the idea that highway repairs rely on engineering solutions at the expense of the environment and that a progression toward urban-style elements was out of character. Lack of a comprehensive and deliberate approach appropriate to this corridor has been described as leading to a gradual degradation of the Big Sur experience.

Among the most difficult issues faced by the Department in any major storm event is determining how to handle large volumes of earthwork generated by landslides and subsequent highway repair. In times past, material would generally be pushed seaward; this practice has been avoided in response to regulation over potential impacts to the marine environment. In recent years, the disposition of excess material has been addressed on an ad hoc basis. Since earthwork is often the controlling item that drives highway reopening, a plan for dealing with this certainty should be in place in advance of a need. The Department cannot nor should it attempt to solve this situation completely on its own; the Department depends on active participation by others for finding appropriate solutions.

In fulfilling its Strategic Transportation Goals (right), the Department is a steward of state and federal transportation funds and acts with public input on behalf of all travelers. The primary purpose of the Big Sur Coast Highway Management Plan is to establish coordinated management of the Highway 1 corridor, which is the key to preserving, protecting, and restoring the area's unique qualities while ensuring the continued safe and efficient operation of the highway.

Incorporating Strategic Transportation Goals

The California Department of Transportation is responsible for maintenance and operation of Highway 1. The mission of the Department is to improve mobility throughout the State. Five organization-wide strategic goals inspire and focus the actions of its employees towards accomplishing this mission:

Safety—achieving the best safety record in the nation
Reliability—reducing traveler delays due to roadwork and incidents
Performance—delivering record level of transportation system improvements
Flexibility—making transit a more practical travel option
Productivity—improve the efficiency of the transportation system

The Big Sur CHMP embraces all of these goals.

1.2 Defining the Corridor

The 1996 All-American Road designation was limited to the 72-miles of coast within Monterey County; in 2002, the designation was extended south to the City of San Luis Obispo. The most pressing issues for managing Highway 1 along the Big Sur Coast correspond well with geographic rather than political boundaries, hence the focus on the 75-mile stretch of Highway 1 between San Carpoforo Creek in San Luis Obispo County and the Carmel River in Monterey County (Attachment 1).

For many traveling north, the Big Sur Coast begins with the crossing of San Carpoforo Creek where the highway climbs onto the slopes of the Santa Lucia Mountains. This location near Ragged Point, about three miles south of the Monterey county line, is the natural southern boundary for the CHMP.

When southbound travelers leave the Monterey Peninsula and cross the Carmel River, they enter the gateway to El Sur Grande, or "The Big South." Unless a round-trip outing is planned, this crossing signifies a commitment to the duration of a 100-mile journey before a reliable connection could be made to the nearest parallel north-south corridor on Route 101, which runs up the Salinas River Valley.

Figure 3: A majestic view of the corridor looking south from the Coast Gallery (Photo: Dan Priano)

Although these end points are relatively easy to define, a corridor width (an extent east and west of the highway) is not as simple. The need for a variable width corridor was anticipated by FHWA's Byways Program:

> *Some scenic byways programs define the corridor using a standard but arbitrary distance on either side – perhaps 1000 feet or a quarter mile. This technique makes it easy to define the corridor, but its accuracy is low; in some areas with trees or buildings, it may extend for just a few feet; in others, it may extend for miles.*[1]

Accordingly, the definition of the corridor width for the CHMP varies. The highway itself, within an approximate 80-foot wide strip of land controlled by the Department of Transportation, both influences and is influenced by a number of factors that exist beyond the right-of-way. Likewise, the experience of travelling the highway is defined by intrinsic qualities that characterize the area.

Addressing the full range of issues for managing the highway requires looking at areas that correspond to the concern. For example, in consideration of landslides, storm water and debris flow activity that can affect highway reliability, it is necessary to think about the coastal watersheds, which originate on ridges above the highway and continue downslope into the Pacific Ocean. A general conception of the coastal watersheds is the area depicted as the Area of Interest on the map presented in Attachment 1 and provides the regional context for the plan.

In an attempt to characterize the intrinsic qualities of Highway 1 along the Big Sur Coast, resources within areas of different widths have been described. This inventory identifies the qualities that uniquely define the travel experience or otherwise relate to the highway. (See Chapter 3: Setting & Intrinsic Qualities).

[1] FHWA. *Community Guide to Planning and Managing a Scenic Byway* (undated)

The exercise of performing an inventory is distinct from the responsibilities for managing the resources that contribute to the corridor's intrinsic qualities. Management responsibilities derive from specific authority granted by constitutional rights, laws and regulations. Such authority and attendant responsibilities remain with the various regulatory agencies, public and private property owners and managers. No aspect of the CHMP attempts to alter existing authority or these management responsibilities (Section 2.4).

The inventory uses the highway as a common reference point and the widths used to describe the different characteristics are based upon professional judgment or conventions pertaining to each resource. An important experience of traveling the route is, of course, the scenic landscape. Views seen while travelling the highway consist of landscape components such as landform and landcover, which includes water, vegetation and man-made development[2].

Good examples of the variable widths used to describe resources along the corridor are natural habitats, geology and marine resources. For characterizing natural habitats a description is provided for an area 200-feet on each side of the highway; this 400-foot corridor represents a reasonable width for considering typical influences of the highway on terrestrial habitat. For geology, the scale and context are of a grander magnitude and influence, therefore, landslides are characterized at a one-mile width. The ocean, both by its proximity and its visual dominance along the corridor, is important in defining the travel experience and in influencing the highway and vice versa. While itself at a variable distance from the highway, a description of shoreline resources is important for making informed decisions about managing the highway above. Likewise, each of the resource inventories conducted for the CHMP includes a description of the area evaluated (see Section 3.2 Intrinsic Qualities).

When it comes to management responsibilities, the narrowest conception of the corridor is the state highway right-of-way, which is generally 80-feet wide and controlled by the Department of Transportation. A mosaic of public and private land ownership neighbors the highway right-of-way. Neither the Department nor any of the land management entities whether public or private is free to act completely independently. The purpose in defining the corridor for the CHMP helps describe the qualities and resources that are commonly valued and which require true cooperation among stakeholders to ensure long-range management success.

1.3 Corridor Vision

Highway 1 along the Big Sur Coast provides access to residences, businesses and public facilities along the route and serves as a key transportation corridor between communities and activity centers to the north and south.

> *Management of the corridor recognizes the role of Route 1 in the State Highway system and the importance of maintaining the roadway in good repair.*

[2] FHWA. *Visual Impact Assessments for Highway Projects* 1988

California's Big Sur Coast and the highway that brings people to it are national treasures. Countless travelers cherish memories of their highway experiences: scale-defying views from high above the boundless Pacific Ocean; dark and verdant passages lined with giant redwoods; stops at rustic facilities along the way.

> *The essential corridor experience is safe, human-scale travel to and through the rugged, spectacular beauty of the Big Sur coast.*

Highway 1 along the Big Sur Coast passes through a landscape containing environmental resources of inestimable value.

> *Management activities along the highway corridor are based in the public trust, informed by an understanding of the area's intrinsic qualities, and undertaken in a manner that preserves, maintains and where possible, restores those qualities for all time.*

Figure 4: Giant coastal redwoods of Big Sur lining a passage of the corridor near Captain Cooper School.

1.4 Goal and Objectives

The goal of the Coast Highway Management Plan is to provide a framework for restoring, maintaining and preserving the natural and scenic character of the corridor while continuing to operate the highway in a safe and efficient manner. In a broader context, the plan's development and implementation rely on a collaborative process to build consensus, address needs of multiple stakeholders and allow response to changing needs over time.

The goal of the CHMP is fully consistent with the Department's priorities as stated in Section 167 of the Streets and Highways Code:

1. Operations, maintenance and rehabilitation of facilities
2. Safety improvements
3. Congestion relief
4. Environmental enhancement and mitigation

The Department is acknowledged to have primary expertise, authority and commitment to pursue the first three priorities on behalf of the state's transportation system. While the Department is also fully committed to environmental enhancement and mitigation in fulfilling its mission and has considerable in-house expertise in this area, it recognizes that environmental resource protection is the primary mission other agencies. Therefore

the primary responsibility and authority for resource protection reside with other state and federal agencies. The Department can most effectively fulfill its responsibility for environmental resource protection through a well-established environmental review program for compliance with all applicable laws and regulations.

The Department is fully equipped to operate a safe and efficient highway along the Big Sur Coast. However, the combination of the natural, physical and social environment in this corridor are unique within the state highway system. The Department must rely on partnerships to most effectively operate the highway in a manner that provides the best level of resource protection. The CHMP emphasizes the responsibility to keep the entire experience for the traveler in mind, as well.

The objectives for the CHMP are to:

1. Provide a product that will detail comprehensive and sustainable management strategies. Specific components would include:
    - Proactive strategies for handling recurring events and critical issues such as storm damage repair, vegetation management and aesthetics
    - Protection of sensitive resources
    - Action plan for implementation

2. Provide a process for effective resolution of corridor issues that is
    - Broad-based and accessible
    - Responsive to the needs of diverse stakeholders
    - Effective for increasing awareness and exchanging information
    - Flexible in its ability to accommodate change from new information, conditions, regulations, technology and organizational mandates

3. Provide a call to action to achieve the shared corridor vision:
    - Management strategies and actions for stewardship responsibilities
    - Programmatic-level agreements for environmental streamlining
    - Problem-solving and integrated decision-making

1.5 The Planning Process

In the aftermath of the 1998 El Niño storms, repairs kept the highway closed nearly four months. Although such storm damage was not unprecedented, this event brought a heightened level of anxiety and concern from the community and various agencies.

As the Department considered the scope for an appropriate planning process, several points became apparent.

- Multiple public and regulatory agencies, interest groups, and private parties have real stakes in the maintenance and operation of the highway as well as the continued enjoyment of resources within the corridor. This realization led to creating a stakeholder-based process for the plan's development.

- The highway has two primary functions: (1) it is a component of the California State Highway System, linking multiple points of origin and destination; (2) it provides access to the coast and associated high-value resources (both

private and public), so much so that it is considered a destination experience. Emphasis on one function in isolation would create an imbalance and potentially jeopardize the other. The plan must support a balanced approach to sustaining multiple functions and values of the corridor.

- Achieving balanced decisions can be supported by making agreements in advance about how certain actions will be undertaken as a matter of routine and during emergency conditions. A collaborative decision-making process is needed to guide corridor management.

- Neither the Big Sur Coast, nor the Highway 1 corridor, nor its management context is static. Just as geologic processes continue to shape the landscape, new information drives the regulatory environment. Changing demographics, the economy, and land use along the corridor all influence travel patterns. All of these are dynamic. Likewise, the plan must be flexible, and allow for the need to respond to changing circumstances.

- The Highway 1 corridor threads a patchwork of private and public lands each with specific management objectives. Many organizations rely on adopted management plans and policies to guide their actions. This plan must complement other stakeholder planning efforts and strive for consistency in the context of managing Highway 1.

Figure 5: CHMP Planning Process diagram.

Scoping

Stakeholders were identified and canvassed about their concerns beginning in the summer of 1998 as a structure was created for the development of the CHMP.

After two meetings with key stakeholders, wider public outreach was initiated with a series of Town Hall meetings hosted by locally elected officials in Monterey and San Luis Obispo Counties. These meetings provided the planning team with a set of issues that needed to be addressed, ensured that a full range of interested parties had an opportunity to be involved and identified those who would serve on a Steering Committee to guide the overall planning process. In addition to the meetings, approximately 30 stakeholders were interviewed and over 65 stakeholder organizations were identified and contacted about the endeavor (see Appendix B—Stakeholder List).

In combination, these activities shaped the content and process for developing the plan. This step also enhanced rapport among stakeholders by enabling their direct involvement in defining the issues and laying the foundation for the plan's creation.

Plan Development Structure

This plan was prepared with guidance from a Steering Committee, a series of Working Groups and interested members of the public including property owners and residents. A Caltrans-led planning team facilitated the process.

The Steering Committee was comprised of stakeholders who volunteered during initial outreach. The Committee provided direction to the planning team and the working groups; reviewed products and considered recommendations from the working groups. As they convened regularly throughout the planning process, the group also helped promote interagency coordination and cultivate consensus building.

Steering Committee

- Association of Monterey Bay Area Governments
- Big Sur Chamber of Commerce
- Big Sur Land Use Advisory Committee
- Big Sur Multi-Agency Advisory Council
- California Coastal Commission
- California Department of Parks and Recreation
- California State Assembly, 27th District (Laird)[3]
- California State Senate, 15th District (McPherson)
- California Department of Transportation
- Coast Property Owners Association
- Coast Watch
- Federal Highway Administration
- Monterey Bay National Marine Sanctuary
- Monterey County Planning & Building Department
- Monterey County 5th Supervisorial District
- Monterey County Travel and Tourism Alliance
- South Coast Advisory Committee
- US Congress, 17th District (Farr)
- US Forest Service

Figure 6: The Steering Committee met frequently during the development of the CHMP.

Themes that emerged from the scoping process formed the basis for technical working groups. These groups, listed below, were able to evaluate the various issues in more depth. They evaluated and provided input to special studies and inventories and developed recommendations for proposed solutions.

[3] Assemblyman Laird succeeded Assemblyman Keeley in 2002

- Storm Damage Response and Repair
- Maintenance Practices
- Public Access and Recreation
- Scenic and Habitat Conservation
- Plan Implementation

The planning team included multidisciplinary staff and consultants with expertise in the disciplines of archaeology, biology, civil engineering and design, geology, history, hydrology, landscape architecture, planning, environmental planning, design, maintenance, public participation and community involvement. This team was charged with leading the plan development process, collecting and disseminating information, and providing technical expertise and resources to produce the CHMP.

Public Outreach

Opportunities for public involvement occurred at different stages and in a variety of forums. A total of nine public meetings focussed on the CHMP have been held as follows:

PLANNING PHASE	PUBLIC MEETINGS
Scoping	Town hall meetings (3) in south, central, and north portions of corridor - Fall 1998
Intrinsic Qualities Inventory	Open house in Big Sur (1) - March 2001
Development of Management Strategies	Integrated multi-agency forum in Big Sur (1) - December 2001
Draft CHMP	Open houses (3) in Cambria, Big Sur and Carmel – Summer 2003 during 45-day public review
Final CHMP	Big Sur Multi-Agency Advisory Council meeting – February 2004 during 45 day public review

In addition, three newsletters, a web site, several newspaper accounts, and regular briefings at the Big Sur Multi-Agency Advisory Council provided ongoing opportunities for the public to follow and influence the plan's development.

The Draft CHMP was available for public review and comment for a 45-day review period (July-September, 2003). Ratification of the CHMP by the Steering Committee follows another 45-day public review and discussion at a meeting of the Big Sur Multi-Agency Advisory Council of the Final CHMP in response to comments received on the draft document. A complete summary of the public outreach and involvement process is available separately.

1.6 Fulfilling the Vision

The CHMP is a compilation of the major corridor issues with a corresponding set of strategies and actions. The strategies and actions will guide and inform future decisions

regarding further development and undertakings in the corridor. The CHMP also provides products and tools that will assist ongoing management activities.

The Department is committed to the success of the Big Sur Coast Highway Management Plan. As some recommended actions would require a change in business practice or an augmentation of resources, it will be important to note that budgetary constraints will determine how and when certain functions are carried out. Real success is also dependent upon commitment and participation by all stakeholders. Forming an alliance among key stakeholders and formalizing a structure for continued collaboration is an important step to make things happen and keep actions on track. The Steering Committee has provided the foundation for a lasting organization to oversee plan implementation and provide a forum for considering new information, directions and opportunities.

CHAPTER 2 ELEMENTS OF THE CHMP

The Big Sur Coast Highway Management Plan (CHMP) updates and replaces the 1996 Corridor Management Plan prepared for its All-American Road nomination. The CHMP consists of the following components:

- Corridor Management Plan
- Management Guidelines for
  - Corridor Aesthetics
  - Landslide Management & Storm Damage Response
  - Vegetation Management

2.1 Corridor Management Plan

This primary document provides the foundation for collaborative agreement about protecting important qualities and resources in the corridor while maintaining the highway's essential function as a transportation corridor. The document is organized as follows:

Chapter 1: INTRODUCTION describes the circumstances that gave rise to the CHMP, and presents the vision for the corridor, goals and objectives for the plan, the planning participants and the process used to develop guiding principles and recommendations

Chapter 2: ELEMENTS OF THE CHMP provides an overview of the contents of the document, supporting products and the proposed environmental review components.

Chapter 3: SETTING AND INTRINSIC QUALITIES describes the elements that make the Big Sur Coast a unique and treasured place. This chapter explores the natural and cultural landscape that has shaped the history of human occupation and enjoyment of the place. A summary of the intrinsic qualities provides a more in-depth review of information about the natural, scenic, cultural, historic, and recreational qualities in the corridor.

Chapter 4: ISSUES AND CHALLENGES identifies the major issues and concerns that were identified as part of an initial scoping process. The themes that arose from this process led to the formation of technical working groups to tackle the corresponding issues:

- Storm Damage Response & Repair
- Maintenance Practices
- Scenic & Habitat Conservation
- Public Access and Recreation
- Implementation

Chapter 5: ACTION PLAN describes how the issues can be addressed and is organized into four strategic management areas:

- Managing for Landslides
- Highway Features and Function
- Supporting the Traveler's Experience
- Environmental Stewardship

Chapter 6: IMPLEMENTATION outlines a structure for carrying out the plan and continuing a collaborative process for decision-making.

2.2 Management Guidelines

A series of management guidelines provide guidance for day-to-day activities to best sustain the corridor intrinsic qualities. These documents are intended to reflect stakeholders' values for how actions are carried out, whether they are roadside treatments, requests for new signs, or proposal to undertake large capital highway improvements .

The Management Guidelines provide:

- Insight to stakeholder values as they relate to corridor management
- A foundation for accountability and the basis for institutionalizing best practices

Best practices are those that benefit from history, experience and the availability of new technology. They also allow for adaptive change as new information becomes available. By attempting to capture such practices, these documents can be used to guide decisions for future actions. The guidelines are intended as a reference for practitioners of various disciplines within Caltrans as well as agency and community stakeholders within the corridor.

The CHMP includes three sets of management guidelines:

- ***Guidelines for Landslide Management & Storm Damage Response*** — Addresses highway corridor management in context of geology as the source of natural instabilities. This includes activities to prevent, anticipate and respond to the effects of landslide-related damage to the highway and to effectively respond to emergency situations created by such events.

- ***Guidelines for Corridor Aesthetics*** — Speaks to managing aspects of the highway and roadside environment in a manner that honors the unique scenic, natural, cultural and historic qualities of the corridor while protecting essential traveler safety.

- ***Guidelines for Vegetation Management*** — Outlines best practices for managing roadside vegetation including weed control and site restoration after disturbance to promote the long-term conservation of native habitats.

2.3 Supporting Products

The CHMP has been developed with the benefit of detailed resource inventories and technical studies conducted for the corridor (Appendix E).

CORRIDOR INVENTORY REPORTS

An in-depth evaluation of the corridor intrinsic qualities was conducted as part of an overall resource inventory. The inventories were conducted at a level of detail that can be used to help determine the potential environmental impacts associated with certain categories of highway activities. The inventory generated a series of reports including:

- Cultural Resources & Qualities
- Natural Environment
- Recreational Qualities and Features
- Historic Resources & Qualities
- Scenic Qualities

SPECIAL TECHNICAL REPORTS

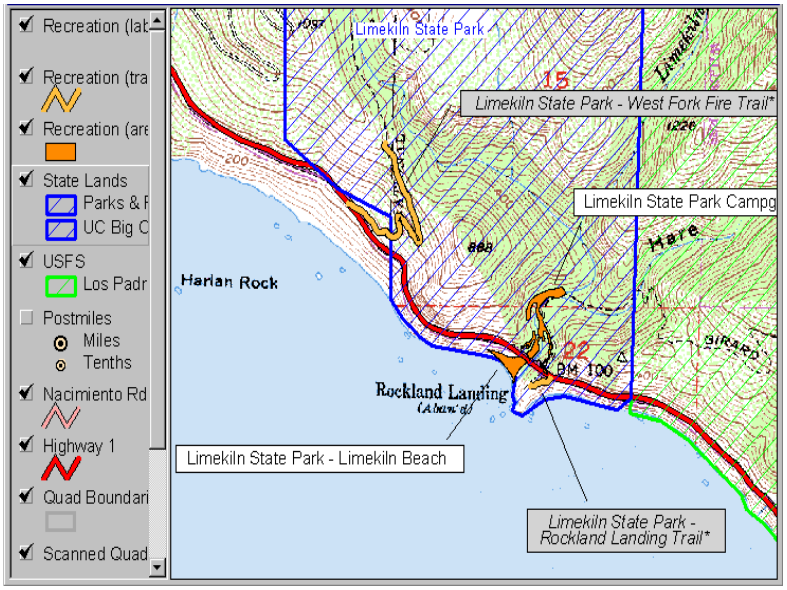
Greater analysis was sought about the geologic factors that influence the overall reliability of the highway. In particular, information was collected about geology and landsliding as well as the conditions of highway facilities that convey surface water. The baseline and historical information capture the complexity of maintaining a highway along the Big Sur Coast. These reports included:

- *Culvert Inventory: Hydrology, Debris Protection, Inspection and Replacement*, Caltrans, District 5 (2001)
- *Estimated Sediment Yield from Coastal Landslides and Active Slope Distribution along the Big Sur Coast*, Hapke, Cheryl (USGS/UCSC), (2003)
- *History of Road Closures*, JRP Historical Consultants, (2001)
- *Landslides in the Highway 1 Corridor: Geology and Slope Stability along the Big Sur Coast*, CA Division of Mines and Geology (2001)
- *Slope Instabilities in the Highway 1 Corridor: Road Condition and Hazard Potential,* Caltrans, District 5 (2000)

GIS DATABASE

A Geographic Information System (GIS) database for the corridor has been assembled for the resource inventory and technical information identified above. This database for the entire corridor is the most comprehensive resource inventory that has ever been compiled for a rural California highway corridor.

This information resource will be widely available and would support decision-making for highway-related activities and coordinated resource management activities along the corridor. For example, the database will facilitate environmental scoping for a site-specific project and it can also provide baseline information about resources that may have been affected by a storm damage project. The availability of this information up front can support a course of action to avoid, minimize or mitigate impacts to these resources from reconstruction activities.



A Geographic Information System (GIS) database allows for spatial information to be stored and displayed against different backdrops and with various layers of data.

The resource inventory for the corridor was collected on aerial photographs and can be displayed with either the digital aerial photography or USGS topographic maps as shown to the left.

Spatial data are configured for viewing in an ArcView GIS application against either aerial photographs or scanned USGS quads as base maps. Tabular data are stored in a Microsoft Access database and are viewable through user-friendly forms. Storing tabular data in Microsoft Access also makes the data accessible to users who do not have ArcView GIS software.

2.4 Authority and Applicability

This Corridor Management Plan (CMP) is prepared under the authority of the National Scenic Byways Program, as a substantive revision and update to the original 1996 plan. The FHWA has established the required components for a CMP (Appendix C) and describes it as follows:

> *The CMP is a written document in which participants lay out the goals, strategies, and responsibilities for conserving and enhancing a scenic byway's most valuable qualities.*

The CHMP, which exists as the combination of this CMP together with the supporting management guidelines, is also consistent with the authority and responsibility of the Department of Transportation to maintain and operate Highway 1. The CHMP has been prepared in the spirit of collaboration with key stakeholders, including representatives of local communities, non-governmental organizations and government agencies.

The CHMP is not a regulatory document, nor intended for use by regulatory agencies for regulatory purposes.[4] The FHWA provided clarification about the nature of CMPs when the San Luis Obispo Council of Governments was developing a plan to support a nomination for Highway 1 south of the Monterey County line (Attachment 2.) There is no intent, either implied or explicit, to change existing lines of authority or the jurisdiction or responsibility of any entity or organization over land use decisions or activities conducted on private or public property. The certified Local Coastal Programs for Monterey and

[4] Note that separate initiatives to achieve environmental streamlining benefits may be pursued, as described in Section 2.6. A project proponent, such as the Department of Transportation, would submit a request to a specific regulatory agency under the provisions allowed by current law.

San Luis Obispo Counties provide the standard of review for development actions where authority has been delegated under the California Coastal Act.

Acknowledging the interaction of decisions and activities beyond the highway right-of-way and Caltrans' direct authority is important to highlight the need for a coordinated effort to achieve the goals of the plan. The need for coordination is compatible with expectations of how public agencies carry out their respective missions, and it appeals to non-governmental entities and members of the community to be solution-oriented.

The preparation of the CHMP was developed not by any mandate, but rather as a good faith effort to address long-standing issues in the corridor that affect a variety of stakeholders. The CHMP speaks to a wide array of activities along the highway. While many of the strategies and actions are mainly the Department's responsibility, success will rely heavily on the willing participation by others. The CHMP does not impose requirements on any organization, agency or individual, rather it sets forward a vision and framework for decision-making that is inclusive and that results in improved interagency coordination and better community involvement.

Actions recommended in the CHMP are based upon general agreement of stakeholder partners regarding ways to preserve and protect the highway, corridor resources, and the visitor experience. As shared ownership over decisions in the corridor is a desired outcome of the planning effort, so will be the responsibility for carrying out the provisions of the CHMP. Full realization of the CHMP's promise will largely depend on the continuing cooperation, voluntary participation, and goodwill of property owners and other stakeholders that have supported the process from the beginning.

In 2002 the All-American Road designation was extended south of the Monterey-San Luis Obispo County line to the San Luis Obispo city limit. This southern area is addressed in a Corridor Management Plan prepared by the San Luis Obispo Council of Governments. Many of the issues addressed in the CHMP, especially those arising from geology and topography, are unique to the Big Sur Coast. The entire All- American Road, however, is a destination route for out-of-area travelers. Because all northbound visitors enter the Big Sur Coast from San Luis Obispo County, and many southbound travelers continue on, it is also important to coordinate across the county boundaries.

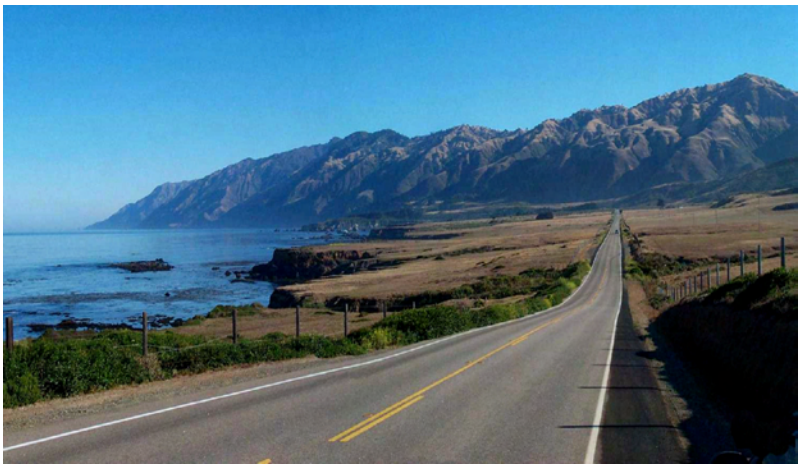


Figure 7: This view from the Hearst Ranch in San Luis Obispo County along the newly designated section of the route highlights the memorable gateway experience as one travels north to reach the Big Sur Coast.

2.5 Environmental Compliance

The CHMP stands on its own as an overall approach for managing the Highway 1 corridor. Individual activities and practices pertaining to the highway are consistent with the Department of Transportation's existing authority and responsibility to maintain and operate the highway. The CHMP does not alter the Department's or any other agency's obligations to comply with state and federal environmental laws and regulations on individual projects or actions. The CHMP is largely a program for environmental stewardship and is suitable for continuing work under the status quo of obligations and responsibilities without an accompanying environmental document.

Corridor Management Plans are not subject to compliance under the National Environmental Policy Act (NEPA). The CHMP is also not subject to review under the California Environmental Quality Act (CEQA).

To the extent that individual actions are discussed to some degree in the CHMP, it is important to note that the context for these may also be within exemptions allowed under CEQA and NEPA when criteria for emergency conditions have been met. Equally important is the fact that such provisions do not release the Department from complying with other regulatory requirements. While some compliance requirements may be waived, more often they are deferred to compliance after-the-fact. Certain actions may still require pre-authorization.

When major work is required either to prevent an imminent failure or re-open the highway after a storm event, agencies may be asked to make decisions under high-pressure circumstances with little information. In the past, mitigation negotiated under these conditions has been costly and inefficient. If prior agreement about impacts and mitigation requirements can be achieved, future decision-making in response to major events can be improved and crisis-driven negotiations avoided. Strengthened relationships with regulatory agencies would benefit from this approach.

Program-level environmental review to address specific types of actions is proposed as a next phase of work under the CHMP to meet its streamlining objectives (Section 2.6). This type of document would evaluate the potential environmental consequences, avoidance and mitigation strategies for categories of activities throughout the corridor. The analysis will rely largely on, but not be limited to, resource information developed with the CHMP. Although future individual actions would still require some level of subsequent environmental review, less overall time should be expended where impacts and mitigation strategies are determined to be consistent with the program-level document. Through this approach, implementation of best practices and mitigation strategies could ultimately achieve greater environmental benefits than project-by-project evaluations.

The Department proposes to begin program-level environmental analysis under CEQA to address activities for culvert rehabilitation and replacement. Subsequently, the Department together with FHWA will embark on a program-level analysis under CEQA and NEPA for the larger and more complex issues associated with landslide-related management issues.

2.6 Environmental Streamlining

A desired outcome of the CHMP process is to achieve aspects of environmental streamlining. Streamlining is a national initiative that calls for a coordinated environmental review process to reduce project delays that also protects and enhances environmental quality[5]. Highway repairs necessitated by seasonal storm damage and regular landslide activity recur throughout the corridor and have the potential to impact similar resources. Toward this end, stakeholder agreement about specific management activities, environmental impacts and mitigation/monitoring requirements will be sought.

The following list identifies the environmental laws under which different environmental streamlining initiatives will be sought:

- **Coastal Act:** The California Coastal Act imposes jurisdiction over all highway activities that meet the Act's definition of development. Authority for issuing Coastal Development Permits in the study area is delegated to the counties of Monterey and San Luis Obispo via their respective certified Local Coastal Programs. The environmental analysis described above will be part of the Department's request to the California Coastal Commission for a Public Works Plan (PWP) as an alternative to project-by-project review for coastal development permits. As a pilot effort, the environmental review and proposal for a Public Works Plan is proposed to focus on the culvert rehabilitation and replacement program, a well-defined and relatively uncomplicated set of actions. Assuming success at that scale, a subsequent program-level environmental review would be proposed for the broader range of actions associated with landslides and storm damage response. Subsequently, an amendment to the PWP would be sought to include that set of actions.

- **Federal Clean Water Act (Section 402):** The Department currently discharges storm water from Highway 1 under a statewide National Pollutant Discharge Elimination System (NPDES) permit[6]. This permit regulates storm water discharges from the Department's properties, facilities, and activities (point source discharges), and required the Department to develop a Storm Water Management Plan (SWMP). The SWMP describes the minimum procedures and practices the Department uses to reduce the discharge of pollutants in the discharges from storm drainage systems owned and operated by the Department. Aspects of making a wider range of strategies available for landslide management and storm damage response would require approval under this program.

- **Federal Endangered Species Act (Section 7):** Habitat for the federally listed Smith's blue butterfly is present throughout the corridor. Because of its prevalence and proximity to the highway, almost any ground disturbing activity along the corridor has the potential to affect the species. With very few exceptions, any project along the Big Sur Coast involves at least informal consultation with the US Fish & Wildlife Service (FWS). The Department is currently developing a programmatic Biological Assessment (BA) together

[5] Environmental Streamlining National Memorandum of Understanding, 1999, developed in response to Section 1309 of the Transportation Equity Act for the 21st Century (TEA-21)
[6] Order No. 99006-DWQ issued on July 16, 1999

with the FHWA to consult with FWS on the potential impacts and appropriate mitigation strategies throughout the corridor. It is anticipated that as a result of the consultation process, the FWS would issue a Biological Opinion.

A similar agreement is proposed for a larger geographic area (covering several coastal counties, including the Big Sur Coast) for the California red legged frog. The Department and FHWA anticipate that through the consultation process, the FWS would issue a Biological Opinion. Although occurrences of other threatened and endangered species may be found in conjunction with highway-related activities, they are likely to be rather limited. A majority of the endangered species consultations that could be expected in the corridor would be addressed by these two biological opinions.

The scope of activities for the proposed programmatic BAs will be comprehensive, in contrast to the approach for the environmental document and the PWP, which will focus on a limited scope of actions (i.e., culvert program).

- **National Historic Preservation Act (Section 106):** The Carmel-San Simeon Highway Historic District consists of the remaining features associated with the original highway construction (i.e., concrete arch bridges and rubble masonry features). The rubble masonry culvert headwalls are among the most common of these features encountered with highway projects. Under the current approach, each project involving such a feature requires an individual consultation with the State Historic Preservation Officer (SHPO). To facilitate project delivery, the Department is preparing a Programmatic Agreement (PA) between the Department, FHWA, and SHPO that focuses on the rubble masonry features of the District. The PA would address a range of activities and their potential effects, and outline standard mitigation strategies. As with the agreements proposed under the Section 7 consultation, the description of activities in the PA is comprehensive.

Additional streamlining initiatives for the corridor that may be pursued also include a Regional General Permit under Section 404 of the Clean Water Act from the US Army Corps of Engineers. Further discussions with agencies such as the California Department of Fish & Game and the Monterey Bay National Marine Sanctuary may also result in interagency agreements for certain actions. Likewise, agreements with neighboring landholding agencies such as California Department of Parks & Recreation and the USDA Forest Service may also be considered.

2.7 Funding

The Federal Highway Administration and the California Department of Transportation funded the development of the CHMP with grants from the Scenic Byways Program and the State Planning & Research Program.

2.8 Relationships to other Plans

A number of public agencies with responsibilities along the corridor are in various stages of reviewing and updating their respective management plans. The timing provides a unique opportunity for the plans to be complementary and cohesive.

Agency	Plan Type
CA Coastal Commission	Local Coastal Program Periodic Review (Monterey County)
CA Dept of Parks & Recreation	Pt. Sur State Historical Park General Plan
CA Coastal Conservancy	California Coastal Trail Plan
Monterey County	General Plan Update
Monterey Bay National Marine Sanctuary	Sanctuary Management Plan Review
San Luis Obispo County	North Coast Area Plan (portions)[7]
State Water Resources Control Board (and Regional Water Quality Control Board)	California Ocean Plan (and Central Coast Basin Plan)
USDA Forest Service	Forest Management Plan
U.S. Bureau of Land Management	California Coastal National Monument Management Plan

Each of the plans is being prepared in accordance with the authority and mandate of the respective jurisdiction.

- ***Coastal Planning***

The Coastal Act has the broadest regulatory authority over the Department's actions that constitute development under the Act. Both the General Plan update and the periodic review of the Monterey County Local Coastal Program have implications for development activities on Highway 1. Planning for the California Coastal Trail, an undertaking lead by the California Coastal Conservancy, promotes Coastal Act priorities for public access and will also influence certain highway-related activities.

The CHMP is intended in part to be responsive to the objectives outlined for Highway 1, within the Department's areas of responsibility, as part of the certified Local Coastal Program (LCP) for Monterey County. The CHMP does not alter any lines of authority or jurisdiction set forward by the Coastal Act (Section 2.4); the LCP remains the standard of review for development actions under the Coastal Act where authority has been delegated. New elements may only become a standard of review if adopted into the Local Coastal Program or if approved separately by the state Coastal Commission (at the request of the

Making Connections

Highway 1 provides the first order of public access to the coastline. Management strategies that facilitate access are consistent with the Monterey County Local Coastal Program and the California Coastal Act of 1976.

Opportunities for synergy among plans are evident with the efforts to develop the California Coastal Trail. Along the Big Sur Coast, Highway 1 not only provides essential connections to existing trails but, in some cases, essentially functions as the "trail" itself where off-highway options do not exist along the length of the coast.

Providing for safe non-motorized travel along Highway 1 is an important objective for the CHMP, consistent with the Department's policy.

[7] The northernmost 3-mile section from San Carpoforo Creek to the Monterey County line is not part of the current update process.

Department) as a Public Works Plan for certain development actions (Section 2.6). Pursuit of either of these actions would occur through the public review processes in accordance with the Coastal Act.

The Marine Sanctuaries Protection Act prohibits discharge of material into the ocean that could harm a Sanctuary resource. Highway activities on the steep slopes above the ocean are of concern to the Sanctuary with regard to the potential for impacts to the intertidal and nearshore habitats.

The California Ocean Plan and the Central Coast Basin Plan identified four locations along the Big Sur Coast as Areas of Special Biological Significance (ASBS), now reclassified as State Water Quality Protection Areas (SWQPAs), where discharges are prohibited if they will alter the water quality condition of the area. The four ASBSs in the corridor are shown on the Attachment 1.

The relationship of the highway to the newly designated California Coastal National Monument is primarily one of visual access. However, landslides and related repairs must also consider potential effects to these exposed rocky outcrops.

- ***Public Lands Used for Recreation***

The USDA Forest Service and the California Department of Parks and Recreation own and manage lands adjacent to the highway. Acquisition of public land, through easements or purchase, can be a component of highway repairs in these areas. Highway management practices should be compatible with the objectives of the neighboring public lands.

Collectively, these plans should complement each other. Although each agency has its own mission, opportunities should be sought to assist each other in achieving those missions. The schedule for plan updates provides fortunate opportunities for collaboration.

CHAPTER 3 SETTING & INTRINSIC QUALITIES

The most vivid images of the Big Sur Coast are of steep rocky cliffs with the ocean crashing at the shore. While breathtaking views from the narrow roadway overlooking the ocean may be the most dominant memory for anyone who has experienced the coast, the vast landscape is also abundantly rich with resources.

Professionals such as landscape architects, biologists, historians and archeologists have recognized and evaluated outstanding qualities. While the visitor may use terms such as “stunning” or “dramatic” to describe the corridor, the landscape architect rates the quality of a view, and the biologist notes the range and distribution of plant and animal species. All visitors, whether resident, scientist or distant traveler, invariably conclude there is no other place in the world like Big Sur.

Figure 8: A treasured place: Anyone who has traveled Highway 1 south of the Monterey Peninsula knows its All-American Road designation under the National Scenic Highway Program is well deserved. The highway is a feat of engineering and design, hugging mountain slopes, crossing canyons, and winding high above the spectacular Big Sur coastline.

3.1 Elements of the Setting

Natural features of the corridor such as the geology, climate, streams and wildlife all contribute to the treasure that is Big Sur and have preceded human influence. Other features have been introduced more recently: the highway itself, inns, restaurants, settlements, and recreation facilities. Most of these latter elements of the setting celebrate and bend before the natural elements as they enrich opportunities to enjoy and pass time in the corridor. Each of these elements is manifest in a special way along the Big Sur Coast. [8]

The maps developed for the CHMP reflect the sense of place in which the community identifies itself. The corridor is characterized by a series of thirteen sections

[8] The information in the Geology and Climate sections in this chapter are taken largely from Henson, Paul and Usner, Donald J. *The Natural History of Big Sur.* 1993.

characteristic of the geography[9]. These sections, outlined below in Table 1 are also depicted on the map in Attachment 1.

Corridor Section	Section Boundary Features			
	Begin	**P.M.**	**End**	**P.M.**
Ragged Pt	San Carpoforo Creek	71.4	SLO/MON Co. line	0.0
Gorda Coast	SLO/MON Co. line	0.0	Willow Creek	11.6
Pacific Valley	Willow Creek	11.6	Wild Cattle Creek	17.3
Lucia Coast	Wild Cattle Creek	17.3	Lucia	23.0
Big Creek Coast	Lucia	23.0	Rat Creek	30.8
Esalen Coast	Rat Creek	30.8	JP Burns	35.8
Partington Coast	JP Burns	35.8	Castro Canyon	43.1
Big Sur Valley	Castro Canyon	43.1	Molera	51.2
El Sur Ranch	Molera	51.2	Little Sur River	56.1
Bixby Coast	Little Sur River	56.1	Rocky Creek	60.0
Garrapata Coast	Rocky Creek	60.0	Malpaso Creek	67.8
Carmel Highlands	Malpaso Creek	67.8	Point Lobos	70.4
Point Lobos	Point Lobos	70.4	Carmel River	72.6

Table 1: Corridor sections of Highway 1 along the Big Sur Coast.

3.1.1 Geology

One experiences a sense of isolation on the road's winding course along a narrow shelf high above the ocean with sheer rock walls rising along the inland edge. These steep and slide-prone walls contribute to the remote and wild character of the corridor. The essence of this experience owes to the geology of the Big Sur Coast.

[9] Features are also identified by postmile, abbreviated by P.M. Postmile 0.0 on a State Highway is set at the southern limit of a north/south route (and the western limit an east/west route). The postmile is reset to 0.0 wherever the route crosses into another county. Thus, the beginning limits of the CHMP corridor at San Carpoforo Creek (SLO-1-71.4); the postmiles are reset (MON-1-0.0) about 3-miles to the north where the highway enters Monterey County.

Figure 9: An aerial view above Big Creek provides perspective on the nature of landslides along the corridor. Landslides are part of the natural process that continues to shape the steep coastal landscape between Point Lobos and San Carpoforo Creek.

At a very large scale, one can see a marked southeast to northwest trend of the coastline and the Coastal Range of the Santa Lucia Mountains. This pattern continues due east from the coast through the Salinas Valley, Diablo Range, and San Joaquin Valley on to the Sierra Nevada mountains. This is a fundamental consequence of the forms and joining process of the massive Pacific and North American Plates that drifted together tens of millions of years ago.

Other patterns are more accessible to the land traveler: the abrupt rise of the Coastal Range so close to the ocean; spur ridges and ravines running perpendicular from the mountains to the ocean; and variations in the rocks that comprise the cliff walls and land forms along the route. The steep mountains and ridges define the course of the highway as the road wraps around the ridges and spans valleys. The precipitous drop-off from the mountain peaks, the steepest coastal slope in the contiguous states, and the strong perpendicular forms continue into the ocean as deep undersea canyons off shore.

Along the highway, ridges and ravines give way to coastal terraces, gentler slopes separating the mountains and the ocean. In the typical ridge and ravine topography, road cuts reveal a variety of rock types and formations. A highly fractured mixture of rock characterizes the southern part of the coast; the northern section by hard and more resistant blocks of rock.

The Santa Lucia Range is comprised of two primary blocks of rock: the Nacimiento block and the Salinian block. The Nacimiento block is part of the Franciscan complex, an extensive group of rocks found throughout California's coastal areas. This block was formed of sedimentary material joined with and crushed into metamorphosing accretionary wedge material. As a result the sedimentary layers of the Franciscan complex tend to be tilted at all angles that are difficult to differentiate. The metamorphic rock was formed at relatively higher pressure and higher temperatures than Salinian metamorphic rock. As a result, the Nacimiento block is softer, less metamorphosed, and much more prone to erosion than the Salinian block material. The presence of this undifferentiated sedimentary and metamorphic material, known as the "Franciscan melange", is the primary reason the southern parts of the Santa Lucia Range are lower than the Salinian peaks to the north.

Figure 10: *An outcrop of Franciscan sandstone and shale at Alder Creek*

The Salinian block to the north and east of the Nacimiento block is comprised of granitic and relatively hard metamorphic rock. The highway cuts through Salinian rocks especially between Grimes Canyon and Julia Pfeiffer Burns State Park. Granitic formations are especially visible in the coastal coves at Garrapata State Park and Partington Cove. Although Salinian block material is considerably harder, more rugged and crystallized than the Franciscan complex, it does weather, crumble and erode. The northern and eastern portions of the Big Sur coast are subject to both large deep-seated rockslides and shallow debris flows and rock slides.

Both the Nacimiento and the Salinian blocks are covered by sedimentary rocks that accumulated when the bedrock blocks were submerged below the ocean and by more recent surficial deposits, materials that have deposited from up-slope erosion. As a result, neither the Nacimiento nor the Salinian base rocks is easily viewed away from road cuts, canyons and cliffs.

Geologists point out that the form of the Santa Lucia range and coastal area is constantly changing. In the aftermath of a ravaging winter storm it may seem that the rugged mountains are doomed to be worn away as tons of material rush down the mountains to the sea. It is true that the elements wear mountains down. The Santa Lucia mountains are a relatively young, steep and highly erodable range in contemporary times. At the same time, uplift of the mountains from the sea is also occurring. In addition, considerable slide material is re-deposited on the land before reaching the sea. Sediments have accumulated in streams raising original streambeds by hundreds of feet and forming fluvial fan terraces. In addition, the bedrock under some of the marine terraces along the highway is covered by accumulations of sand, cobble and other materials up to 100 feet thick.

3.1.2 Climate

Classified as a Mediterranean climate, the coast is characterized by mild temperatures year-round and dry westerly summer airflow with most rainfall confined to the winter months. The central California coastal region is geographically consistent with Mediterranean climates worldwide[10]. However, one main difference is the giant

[10] Mediterranean climates are found on the west coast of a continent, within approximately 32-40 degrees north or south of the equator.

persistent North Pacific high-pressure system centered offshore to the northeast throughout the summer months and the effects of the ocean itself. The North Pacific high-pressure system deflects summer storms from both the north and south away from the central coast, and is the main reason for the west winds and dry conditions that typify the summers.

Cool Pacific Ocean waters affect inland temperatures and give rise to a characteristic pattern of coastal fog that is most prevalent in the summer months. While the temperature of the ocean water changes very little during the year, it is especially cold during late spring and summer when the North Pacific high is delivering cool waters to the coast. An upwelling of cold waters from the deep submarine canyons that lie offshore cools the water further. In the summer, offshore ocean waters tend to cool a shallow air layer that moves inland to cool the near coastal land. In the winter, the coastal water is warm relative to the landmass and contributes to a warming effect. In this way the coastal waters serve to minimize the variation of seasonal air temperatures on nearby land.

Like the water movement associated with the North Pacific high, the upwelling movement of cold waters from the offshore canyons also peaks during the spring and summer months contributing to the heavier coastal fog during these months. In the normal pattern, fog forms offshore as the cold near-coastal waters cool the sun-warmed surface air. The fog moves onshore in the evening and typically breaks up by late morning. However, fog often lingers all day along the certain parts of the California coast, including Big Sur.

Figure 11: *Typical Big Sur weather pattern creating a fog-shrouded morning drive.*

The basic Mediterranean climate is further modified, and dramatically so, by the Santa Lucia Mountains. Land rises from sea level to heights greater than 5,000 feet in just three to seven miles inland. This foreshortened coastal area west of the peaks captures significant amounts of rain, averaging over 40 inches a year near the coast and rising with elevation to an estimated 90 inches near the mountain crests. Very little rain falls to the east in the rain shadow of the Santa Lucias.

The 40-inch average annual rainfall figure for the length of the coast masks tremendous variations. Some coastal locations, especially where there are wide coastal terraces, average only slightly over 20 inches of rain a year, while locations between Lucia and Big Sur average between 45 and 60 inches. Within a short distance of the coast, highly varied local topographic features can be found: high mountains, low mountains, ravines, canyons and ledges each with its unique exposures to the ocean, breezes and sunlight.

Rainfall also varies greatly from year to year, ranging from near drought in years when the North Pacific high remains into the winter, to the legendary El Niño -driven deluges of winters such as 1982-83 and 1997-98. In 1982-83, 85 inches of rain were recorded in Pfeiffer-Big Sur State Park, while rainfall topped the rain gauge at 178 inches at the 4000-foot high Mining Ridge weather station. Rainfalls also come to Big Sur in storms of widely varying intensities. In the absence of the protective North Pacific high, violent storms that have traveled thousands of miles across the ocean can slam into the coast. These storms may be delivered with extremely high winds and intense, driving rains. Winds in excess of 100 miles per hour have been recorded at Point Sur and nearby ridge tops.

Precipitation also falls in the form of snow on the highest peaks of the mountain range. Accumulated snow typically remains on the mountains for several weeks each winter. The warming effect of the ocean generally precludes snow accumulation or even frost at lower elevations near the coast itself.

Variations in rainfall frequently challenge the capacity of the land to absorb water and the capabilities of highway culverts to convey water.

The summer weather pattern in Big Sur can also include dry lightning. Periodic lightning-caused wildfires have always occurred in Big Sur. Plants that have grown large with heavy winter and springs rains lose their moisture and burn easily in the heat of summer and early fall. In addition, many shrubs contain oils that will fuel fires. Prior to the arrival of Europeans, the native populations set fires selectively to control plant selection and improve production. The earliest American settlers also used small controlled fires to expand grazing and settlement areas. When the U.S. Forest Service took control of all public land after the turn of the 20th century, a policy of strict fire suppression was put into effect. The elimination of controlled burning and suppression of naturally and accidentally begun fires drastically reduced the acreage burned annually for several decades. This resulted in the build up of extremely flammable dead vegetation on the floor of the forest. Accumulated vegetation fueled several huge and intense fires in the 1970s and 1980s. These fires may have affected the character of vegetation in the Santa Lucia range. Wildfires also contribute to massive mudslides and soil erosion when heavy winter rains fall on fire-damaged areas.

3.1.3 Hydrology

While aspects of geology and climate are fairly tangible at any time of the year, the effects of hydrology are not so apparent in fair weather months. The erosive work of surface water is done in the winter months.

Over 90 percent of the annual rainfall in Big Sur falls November through April. Basic hydrologic cycles describe components of rainfall into groundwater recharge, evaporation and runoff. When rainfalls are heavy and temperatures cool, the evaporation rates are insignificant and the capacities of groundwater recharge and surface runoff will be strained.

The potential to accommodate rainfall through infiltration is limited by relatively constant factors (soil porosity and steepness of terrain) and variable factors (rainfall intensity and soil saturation). Upslope from Highway 1, neither soil porosity nor slope steepness favor infiltration. Short intense rainfall here results in heavy run-off with little infiltration. The

worst infiltration problems occur when above average rainfall combines with a sequence of storms that arrive one after another for days or even weeks. In such situations, soils become saturated, giving rise to slides, slip-outs, and debris flows. In places where the soil does stay in place, water may simply pass through the soil. In describing the aftermath of the 1997-98 El Nino storms in Big Sur, a Caltrans maintenance worker described that water seemed to come out of the slopes everywhere he looked.

The natural tendencies of materials covering the Big Sur slopes to erode are greatly magnified in the aftermath of fire. Where vegetation has been badly burned and the roots no longer act to bind the soil, the exposure to sunlight, wind and rain exacerbate the erosive process. A different phenomenon occurs in chaparral areas, where compounds first vaporize from chaparral leaf litter, then condense into a water-repellent cover on the soil. When this soil is undermined by water, slabs of the surface layer are loosened to flow downward.

Complex natural systems of waterways carry rainwater, snowmelt and other loosened material from tall peaks to the ocean. Water initially fills minor drainages from which evaporation or percolation will occur, remaining water spills into intermittent streams that contribute to creeks and larger systems ultimately flowing to the ocean.

In Big Sur, there is insufficient distance from the high mountain peaks to the ocean for a complex network of watercourses to develop. In the aftermath of storms, rapidly falling water simply rushes down rock faces and through the many ravines towards the sea, passing under the Highway 1 via bridges or culverts. In fact, Highway 1 along the Big Sur Coast incorporates a remarkable number of such facilities: 32 bridges and more than 700 culverts within its 75-miles.

While the flow of water to the sea along with rocks, mud and debris is a natural phenomenon in the young Santa Lucia mountain range, the presence of culverts and the highway itself is not. Culverts become clogged or overrun; the highway ledge becomes a place of repose for fallen materials.

3.1.4 Transportation

Construction on the two-lane Carmel-San Simeon Highway was completed in 1937 using work crews augmented by convict labor. Since completion of the road, its use has been highly seasonal, concentrated in the fair summer and fall months. In earlier years, the road was frequently closed through the winter months due to the effects of storm damage and landslides.

The highest percentage of highway trips has always been based in tourism and recreation. In the early years the rugged terrain alone served to deter extensive permanent development. In recent decades as transportation advances have made Big Sur more accessible, land use regulations have been adopted to prevent over-development. The vast majority of land along the corridor remains relatively undisturbed. This land is held in a mosaic of private and public ownership and is unlikely to see significant new development.

More trips along the Big Sur Coast originate in the Monterey Peninsula than in San Luis Obispo County. Trips from the north are easily day return trips with several State Parks and the Big Sur Valley within 26 miles of the Carmel River. There is also more residential development along the northern portion of the corridor (Carmel River to the

Big Sur Valley) than there is to the south. Furthermore, views from the southbound (outside) lane are more spectacular as the traveler's perspective is from the outermost edge of the land looking to the sea.

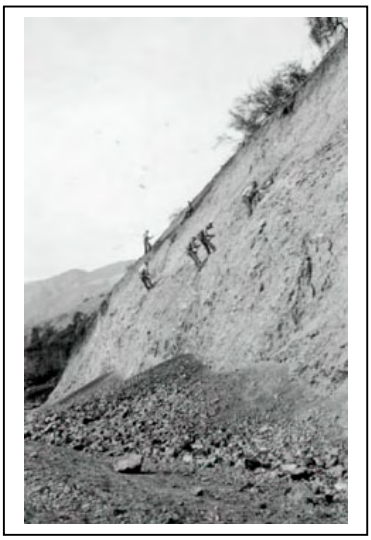


Figure 12: *Convict labor cutting slopes in 1932 during construction of the Carmel-San Simeon Highway.*

For transportation planning and analysis purposes, the Transportation Concept Report (TCR) for Route 1 along the Big Sur Coast has been divided into three segments, one of which has three sub-segments[11]. (See Attachment 1,TCR Segments 11-13). While the volume and mix of vehicles have changed significantly throughout the corridor since the early post-World War II days, rates of change vary considerably by location along the corridor. South of Pfeiffer Big Sur State Park, annual average daily traffic (AADT) is under 3,000 and has increased by less than five percent over the past 10 years. By contrast AADT is more than 4,000 between Big Sur and Malpaso Creek, while north of Malpaso Creek AADT is more than 8,000. In the northernmost 10 miles of the corridor, traffic has increased more than ten percent over the past 10 years. (See Appendix D for traffic analysis assumptions and additional traffic data).

Interestingly, over the past 20 years the rate of traffic growth in the Big Sur area of Highway 1 has been only half the statewide average for this type of road. Growth here has also exhibited only half the rate experienced along Route 101, the closest parallel route on the state highway system. The current capacity of Highway 1 through Big Sur is 1600 vehicles per lane per hour. Current peak hour volumes are in the 620-740 range and are projected to remain below capacity through the year 2025 planning horizon.

Level of service (LOS) measures how the route operates during peak hour traffic. Level of service summarizes the effects of speed, travel time, traffic interruptions, freedom to maneuver and other factors. On a two-lane highway such as Route 1, the primary

[11] The route segments are generally defined by major features such as county lines, major changes in ADT, grades/terrain, or function. Sub-segments are bounded by lesser features such as intersections that provide opportunities to enter or exit the route and thereby affect travel patterns.

measures of service quality (LOS) are percent time-spent-following[12] and average travel speed. A central portion of the highway corridor (sub-section 12B, between Castro Canyon, P.M. 43.1, and Andrew Molera State Park, P.M. 51) currently operates at LOS D (unstable flow where passing becomes extremely difficult).

Ordinarily, LOS C is the target level of service for a two-lane rural highway. Typically, measures to reach this level might include additional capacity (travel lanes), turn lanes and/or passing lanes. As stipulated by the California Coastal Act, Highway 1 along the rural Big Sur Coast is to remain a two-lane facility. Policies that discourage expansion of the roadway are based upon an appreciation for the scenic and recreational qualities of the route and a belief that the highway should be subordinate to the wild and natural character of the land. It is thought that a widened highway would diminish the sense of escape from urban patterns so strongly associated with the coast highway.

The transportation concept for the Big Sur Coast Highway provides for a 32-foot paved width consisting of two 12-foot lanes with 4-foot paved shoulders. The actual paved width is variable, ranging in just a few locations from as narrow as 20 feet (10-foot travel lanes with no paved shoulders) to as wide as 40-feet (12-lanes and 8-foot shoulders). Over the majority of the route, however, the existing width varies between 24-26 feet (11-foot lanes with 0-2 foot shoulders). A consistent paved width, including adequate shoulders, is desirable from an operational viewpoint.

Regarding traffic mix, past studies have indicated that fewer than 10% of peak season highway users reside or work in the corridor. The Monterey County Big Sur Coast Land Use Plan states that recreation-oriented traffic is estimated to comprise 95% of all trips during the peak summer months and that driving for pleasure accounts for most of the recreational trips that originate outside the corridor.[13] That the vast majority of peak season highway users are non-resident visitors is widely accepted even though no current origin-destination data are available. The vehicle mix includes passenger cars, recreational vehicles (some with trailers), tour buses, motorcycles and bicycles. This portion of the highway is an Advisory Route for trucks, meaning that travel is not advised if the distance from kingpin to rear axle exceeds 30 feet. Buses are limited to 40 feet in length. Slow moving vehicles with drivers who are unfamiliar with the road share the road with local residents and delivery trucks whose drivers may be more focused on their destinations than on the views. In a 1990 survey of visitors identified through license plate records, four percent of the respondents indicated they had unintentionally driven to the area or taken the route with the assumption that it would be faster than an inland route (Appendix I). [14]

For at least the past 40 years, Monterey County and the Department of Transportation have considered ways to accommodate increasing traffic and the variety of users without widening the highway or impacting the intrinsic qualities of the corridor. Several measures were evaluated for the Big Sur Transportation Management Study whose results were published by the Department in 1990. Many of these measures have been implemented; others have been reevaluated for the CHMP.

[12] This measure relates to travel speed differentials (slow-moving vehicles in stream), opportunities for slow-moving vehicles to pull off the road and passing opportunity limitations related to sight distance, density of access points (intersections and driveways), and volume of oncoming traffic.
[13] Big Sur Land Use Plan (1985), Monterey County.
[14] The Big Sur Transportation Management Study (November 1990), Caltrans District 5.

Strategies to reduce demand may include providing additional transit. Monterey-Salinas Transit provides twice daily bus service between sites on the Monterey Peninsula and Andrew Molera State Park and the Nepenthe Restaurant complex in Big Sur. This tourist-oriented service is normally operated in the summer months beginning Memorial Day weekend in late May through Labor Day weekend in early September[15]. There is no community-sponsored transit service for the many service workers employed within the corridor. Advances in new technology, known as Intelligent Transportation Systems, also carry the potential for applications on the Big Sur Coast. Options include changeable message signs that are locally controlled[16], closed circuit television for monitoring traffic and road conditions from afar, highway advisory radio, and smart call boxes.

Optimizing the route's ability to maintain consistent flow of traffic while accommodating slow-moving vehicles and providing access to features along the route requires prudent application of operational features. Turnouts, pullouts[17] and left turn lanes are present in the corridor. In the late 1980s, the Department proposed a series of turnouts along the corridor[18]. After strong opposition to the proposal north of Big Sur, turnouts were only south of Torre Canyon (P.M. 40.0). Another factor affecting traffic flow is vehicles entering and exiting the highway (i.e., driveways and intersections). The Big Sur Valley area in particular (Sub-segment 12b) also includes a concentration of driveway intersections for commercial, recreational and residential property access.

The most readily available method for improving the operations within the corridor, especially from Big Sur north, would be adding turnouts and left-turn lanes where warranted, and managing access points by minimizing or consolidating driveway connections where possible. Passing lanes could also be considered at some point in the future as demands on the facility increase.

Safety improvements are addressed as needs are identified based on site-specific documentation. Examples of such improvements might also include left-turn lanes, shoulder widening or improved sight distance around a curve.

Highway 1 along the Big Sur Coast is also part of the Pacific Coast Bike Route and sees hardy cyclists regularly. For the most part, bicycle trips are recreational in nature and do not serve as functional substitutes for motorized travel (i.e., commuting). The highway is a Class III bicycle route meaning that cyclists share the road with vehicles and do not have designated bike lanes. Cyclists must ride as far to the right of the road as is safe.

While 4-foot wide paved shoulders exist along some portions of the route, in many locations the area available for the roadbed is so narrow that achieving continuous paved 4-foot paved shoulders would require substantial landform alteration in some areas. Additional paved shoulder segments would be added opportunistically, that is

[15] Additional bus service is provided in association with the Big Sur International Marathon on race day, which usually falls on the last Sunday in April.
[16] The control center for District 5 is the Traffic Management Center (TMC) in San Luis Obispo.
[17] A turnout is an operational feature of the highway consisting of a paved or unpaved area beyond the highway shoulder where slower moving vehicles can safely move completely off the traveled way and allow following vehicles to pass. For purposes of the CHMP a pullout is defined as a non-designated paved or unpaved area beyond the shoulder that can serve as slow-vehicle turnouts or allow for parking near scenic views or trailheads.
[18] This proposal was made partly in response to additional barrier striping (no passing) in compliance with federal safety requirements.

proposed in combination with other proposed capital improvement projects. Meanwhile, touring cyclists of all levels of ability travel Route 1 for the challenge and the beauty of the surroundings.

Pedestrians also travel along the highway, with areas of heavier demand in the vicinity of commercial and recreational centers such as the Big Sur Valley, Esalen and Garrapata State Park.

While consistent paved shoulders would generally improve conditions for motorized and non-motorized travelers alike, implementing such an improvement on an incremental basis is unlikely to change the transportation demand by motorists, cyclists, or pedestrians.

Figure 13: Cycling the Big Sur section of the Pacific Coast Bike Route.

3.1.5 Land Use & Socio-Economics

The socio-cultural landscape of Big Sur today has its roots in history, which is described in the Intrinsic Qualities section later in this chapter. Notably, completion of the highway itself triggered development of more substantial tourist-oriented facilities than existed earlier. Unlike newly accessible areas in a more hospitable topography, however, nothing resembling an urban settlement pattern with a full complement of goods and services has developed here. For the most part, today's land use pattern is not very different in type or intensity from what was there a decade or so after the highway was completed. However, the newer facilities—both commercial establishments and private residences—tend to be larger and more luxurious than those from earlier years.

The corridor lies within three local planning areas. The southernmost three miles (San Carpoforo Creek to the Monterey County line) are within in San Luis Obispo County. Land use in this area is subject to policies of the San Luis Obispo County Local Coastal Program and the North Coast Area Plan. The Monterey County portion of the corridor is subject to policies of the Monterey County Local Coastal Program in addition to specific policies of two planning areas: Big Sur and Carmel Coastal. Sixty-eight miles of the 75-mile corridor are within the Big Sur area. Policies for all three planning areas support preservation of the incomparable scenic value of the area and the way-of life that is cherished by local residents.

Land use designations are predominantly Rural Lands or Public Lands. Rural Land uses provide for farming or grazing, tourist facilities and private residences. Rural Lands policies provide for minor expansions to the several clusters of commercial development along the corridor that are designated as Rural Commercial Centers. These centers

include the well-known places where both historic and more recently developed tourist facilities are located, including: Big Sur Valley, Lucia, Gorda and Pacific Valley, as well as Rocky Point Restaurant, Big Sur Inn and the Coast Gallery.

Public Lands include the Los Padres National Forest and units of the California State Park System including Limekiln, Julia Pfeiffer Burns, Pfeiffer Big Sur, Andrew Molera and Garrapata State Parks and Pt. Lobos State Reserve. The University of California's Big Creek Reserve and numerous smaller state facilities including John Little State Reserve, Point Sur State Historical Park and Carmel River State Beach are also located along the route. These holdings provide important open space and recreational opportunities and areas for resource protection.

Figure 14: *Garrapata State Park*

The role of land use planning has largely been to ensure that development that does occur is harmonious with the area and that both resource protection and community preferences are reflected in policy. Most of the more recent residential development has occurred in portions of the corridor area closer to existing urban areas to the north. Since the 1970s state and federal agencies and non-profit organizations have acquired large blocks of land throughout the corridor, while implementation of coastal policies have sharply limited the level of new development in the viewshed.

Physical constraints combined with strong preservation values have resulted in a natural brake on development; the region is remote, which discourages settlement by those more accustomed to modern conveniences. Two small public schools have operated in the corridor for several decades with stable enrollment. The Pacific Valley School provides K-12 instruction for a current enrollment of 25 students in a single facility school district. Approximately 75 students are currently enrolled in Captain Cooper Elementary School serving families in the Big Sur Valley area. Children who reside north of Palo Colorado Canyon attend the Carmel River School. Students attending Carmel Middle School who live north of Dolan Canyon travel up to 44 miles each way; those attending Carmel High School commute a slightly shorter distance to Carmel-by-the-Sea.

The population of Monterey County grew dramatically in the 1990's and a 35% increase is projected by the year 2020. Proportional growth is not expected for Big Sur. The estimated population along the Big Sur Coast in 1990 was 1391 and it is projected to

increase at a rate of only 13 persons per year, reaching about 1592 by 2006.[19] The population of Big Sur is expected to remain relatively stable into the near future.

Throughout history, residents of Big Sur have been described as hardy, independent people who value their privacy. This description is based in local lore and inference from the rugged isolated setting in which they live rather than in primary data. Independent, privacy-loving people do not court publicity or pollsters.

The resident population includes innkeepers, business proprietors, ranchers and their employees; government employees (and their families) with state parks, the national forest and highway maintenance. Other residents, who may be less visible on a day-to-day basis include writers, artists and notable persons. In recent years, rising real estate prices in some locations have presented a kind of "means test" for those who have found inspiration in the rugged isolation of Big Sur (and to other would-be residents as well). In the early and mid-20th century, writers, artists and musicians could live in simple dwellings in the Big Sur area before achieving commercial success. In some areas of Big Sur that tradition continues, but in others rising prices make purchasing a home an expensive proposition.

There has always been a wide range of income and means among area residents. Many employees of the tourist industry and government employees still reside in Big Sur, although an acute shortage of affordable housing has made long-range commuters of many such workers. For the most part, common bonds of place and willingness to come together in emergencies have bridged status differences among residents. A brief exception to this occurred in the 1960s and 70s when throngs of young people descended on Big Sur, fleeing what they viewed as a stifling standardized, commercial popular culture; it became characterized as the "hippie invasion".

In time, Big Sur returned to its quieter ways. In contrast to the landless youth of the later sixties, the founders of Esalen Institute in 1962 created a center for alternative education and transformational practices that has grown and matured and still thrives in Big Sur. In its early days, the therapies practiced at Esalen were considered radical. More recently Esalen has been referred to as a "polished academy," regarded as a good neighbor by the tourist-oriented commercial establishments in the area.

Growth and development in Monterey County and throughout the state may affect the region with a rise in traffic levels. Some perceive continued acquisition of private land for public and quasi-public purposes as a threat to the future well being of the area. Given various constraints and the community's protective spirit, however, the area's basic economy -- tourism, recreation and ranching -- is not expected to change appreciably.

3.2 Intrinsic Qualities

The National Scenic Byways Program defines "intrinsic qualities" as highway corridor features that are unique, irreplaceable, distinctly characteristic of an area, or the most outstanding examples of their kind. There are six categories of intrinsic qualities: archeological, cultural, historic, natural, recreational, and scenic.

[19] Monterey County census tract 115

In 1996 the All-American Road designation for this corridor recognized four categories upon which the nomination was based: scenic, natural, recreational and historic. It is worth noting, however, that valuable archeological and cultural resources are also found here. For purposes of the Byways Program, recognized intrinsic qualities are those that travelers are able to see or have direct contact with physical evidence. As such, although the quality of archaeological resources is high, a byway would not be recognized for this without tangible evidence to the traveler of its presence.

The Big Sur Coast Highway Management Plan seeks to preserve, protect and, where possible, restore all of the area's important and highly valued qualities while ensuring the continued safe and efficient operation of the highway. Along the Big Sur coast, more than four qualities are acknowledged as integral aspects of the corridor experience. An important component of the CHMP is the detailed inventory, research and evaluation of resources in all six categories of intrinsic qualities identified in the Scenic Byways Program.

What follows is an overview of each inventory component, each documented in individual reports (Appendix E) with relevant data captured in a GIS database. The descriptions of features and resources along the corridor are presented from the perspective of the northbound traveler. This convention follows the established postmile numbering system of the Department of Transportation, where miles increase in a northbound direction. However, based on traffic volumes and anecdotal evidence, the predominant direction of travel is north to south.

3.2.1 Scenic Qualities

Scenic quality is the heightened visual experience derived from the view of natural and man-made elements of the visual environment of the scenic byway corridor.

The Big Sur Coast is among the most scenic areas in the world. Its natural beauty and visual dimensions have inspired artists of all kinds since the early days of California history. Completion of the San Simeon-Carmel Highway in 1937 allowed people a first-hand experience of the awe-inspiring views along the corridor.

Figure 15: This striking view looking south near Julia Pfeiffer Burns State Park highlights several national treasures: the waters of the Monterey Bay National Marine Sanctuary, the exposed offshore rock pinnacles of the California Coastal National Monument and views toward the Ventana Wilderness Area.

On the broadest level, the corridor is broken into three sections: south, central and north. Borrowing from the FHWA methodology to more fully describe visual quality, the corridor was analyzed according to the following elements: viewsheds, landscape units, major view locations, and intrinsic scenic features[20].

> **Viewsheds** denote the visual "envelope" that a person can see from a specific point and are generally quite large, encompass many different visual elements and landscapes, and are often defined by topographic features.
>
> **Landscape Units** are distinct segments of the project corridor that exhibit a consistent or cohesive visual character primarily based on vegetation, topographic and man-made elements.
>
> **View Locations** are pull-outs and vista points along Highway 1 that are clearly evident to the traveler as providing a place to safely stop and experience a unique or long-range view of the coast.
>
> **Intrinsic Scenic Features** are features visible from the Highway that define the visual experience and character of this portion of the Central California Coast. Intrinsic features are either unique or vivid (or both), and, therefore, memorable.

The experience of travelling the corridor is felt primarily through a combined effect of scenic elements viewed from the highway, which create a lasting impression. Therefore, the inventory of scenic qualities focused on those elements that are clearly visible and evident from the perspective of the highway traveler. The analysis also characterizes features that detract from overall visual quality.

South Coast

The southern Big Sur Coast presents a consistently natural and rugged scenic quality. There is very little evidence of residential development and commercial development is focused on the businesses at Lucia and Gorda. Individual view locations are few but more formalized in relation to the northern portion of the corridor. Intrinsic scenic features are natural phenomena as Square Black Rock offshore, the promontory at Cape San Martin, and the steep canyon at Redwood Gulch.

Evidence of landsliding is prominent here and is most visible near the area of Rain Rocks, between Limekiln Creek and Lucia, where recent repair activities to keep the highway open are evident. Along this stretch of the coast detractors from visual quality include non-native pampas grass invasion, earthen berms and material stockpiles, and metal guardrails. Construction work in this area influences the overall visual quality. At most view locations on this part of the coast, large berms of landslide debris, rocks and soil detract from the larger visual experience.

Big Sur Valley

The Big Sur Valley provides a very different visual experience from the rest of Highway 1. Views are more intimate and rustic in character. The landscape is more closed-in because of the dense forests, buildings and steep hillsides that line the roadway. Just past the Nepenthe Restaurant, the highway drops into the forested Big Sur Valley out of view of the ocean. To the east is the Ventana Wilderness with its steep, rugged and

[20] Corridor Intrinsic Qualities Inventory: Scenic Qualities (February 2002). Public Affairs Management

rural terrain. The Big Sur River meanders through this valley as it flows to the Pacific Ocean at Andrew Molera State Park at the northern extent of the valley.

As the highway travels north it transitions from the forested valley of the Big Sur River to a broad coastal plain covered with chaparral and grasses. This portion of the coast has few view locations, but a wealth of intrinsic features such as the Captain Cooper Redwoods, the rustic river resorts, Post Homestead, and Pfeiffer-Big Sur meadow. The primary elements that detract from this rustic aesthetic are power poles, signage and parking lots.

North Coast

The northern Big Sur Coast is more heavily traveled owing to its proximity to the communities on the Monterey Peninsula, themselves important travel destinations. This portion of the coast presents the most dramatic changes in scenic quality. Traveling south there is a progression from the urbanized areas near Carmel Valley to agricultural activities near the Carmel River; beyond the river, views of Monastery Beach and Pt. Lobos State Reserve precede the busy residential community of the Carmel Highlands. South of Malpaso Creek, residential development drops off and the dramatic coastal views open up, most prominently near Garrapata State Park.

Viewing opportunities are numerous along this portion of the highway. Some of the pullouts are paved, such as at Hurricane Point and Little Sur River; others with dramatic views remain unpaved, such as the pullouts near Granite Canyon and Garrapata Creek. Most of the view locations are intact with few detracting elements. While nearshore scenes unmistakably dominate the memorable views from the highway, individual intrinsic scenic features here include man-made elements such as the Carmelite Monastery, the cabin at Notley's Landing, and Bixby Creek Bridge.

The pressures of development are more evident along this portion of the coast. Overhead utility lines, development, road cuts and access roads all detract from the overall visual quality. An unfortunate result of screening views of development from the highway is that in some cases more distant views of the landscape and the ocean are also blocked. As noted in the Scenic Qualities Inventory, new development presents a continuing challenge to both the County and residents who wish to preserve the quality of the views from Highway 1.

3.2.2 Natural Environment

Natural quality applies to those features of the visual environment that are in a relatively undisturbed state.

Under the Byways program, consideration for natural quality, in addition to scenic quality, means that the resources must be representative, unique, irreplaceable or distinctly characteristic of the area. The natural resources must be visible from the roadway and be relatively undisturbed by human activity.

Terrestrial Resources

A characterization of the natural environment was made with the primary purpose to identify and map areas in direct proximity to the highway. The inventory characterizes a

400-foot wide corridor using photo interpretation and field observations focused on the immediate 80-feet, roughly coinciding with the highway right-of-way.[21]

Surveys sought to primarily characterize the terrestrial environment for vegetation communities, potential jurisdictional waters (wetlands and watercourses), potential wildlife corridors, potentially suitable habitat for special-status species, and the degree of exotic plant invasion. The survey also estimated identified the presence of seacliff buckwheat, the host plant for Smith's blue butterfly, a federally listed endangered species.

Biotic communities include groupings of plant and animal species that live within similar conditions including geology and soils, climate, exposure and moisture. Biotic communities found along the Big Sur coast range from Northern coastal bluff scrub (containing low-growing shrubs on rocky, poorly developed soils) to Riverine (lining the banks of rivers and streams, providing resources for a large assemblage of wildlife species.) The primary biotic communities in the corridor are:

- California bay forest
- Central coastal scrub
- Central coast cottonwood-sycamore riparian forest
- Central coast riparian scrub
- Central dune scrub
- Central maritime chaparral
- Coast live oak forest
- Coastal sage-chaparral scrub
- Coastal terrace prairie
- Intertidal
- Monterey cypress forest
- Monterey pine forest
- Non-native grassland
- Northern coastal bluff scrub
- Northern foredune
- Riverine
- Ruderal/disturbed
- Upland redwood forest
- Windrow

Areas that would likely fall under the purview of the US Army Corps of Engineers or the California Department of Fish & Game were termed "potential jurisdictional areas". Indicators included presence of water, channel incision, and presence of hydrophytic (water loving) vegetation. Surveys conducted in the summer of 2000 noted over 350 of these features, which included small ephemeral drainages, streams and creeks, rivers, seeps and springs, ponds and wetlands.

The following information was used to assess the potential for wildlife corridors along the highway: drainages lined with substantial vegetative cover, presence of possible game trails, and roadkill "hot spots"[22]. Each aquatic feature within the corridor study area was evaluated for its potential to support anadromous fish. Riparian corridors represented the majority of potential wildlife corridors identified during the field review.

Potentially suitable habitat for special-status species is defined as areas where the species is known or has the potential to exist based on range and presence of habitat or

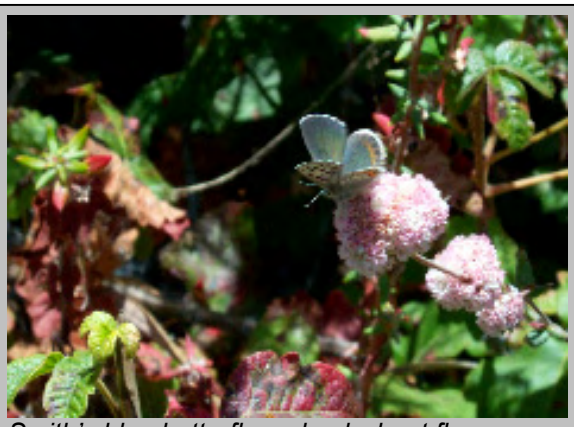
[21] Corridor Intrinsic Qualities Inventory: Natural Qualities (December 2001), Parsons Transportation Group

[22] Dr. John Smiley, reserve manager for the U.C. Big Creek Ecological Reserve, conducted a volunteer survey for roadkill to help generate information that could be used to identify patterns or trends of animal crossings along the highway. Complete results of this study are available at http://www.redshift.com/~bigcreek/roads/roadkill_survey/index.html

important elements. A number of special-status species have the potential to occur within the corridor; these include but are not limited to, Smith's blue butterfly, steelhead, California red-legged frog, two-striped garter snake, California condor, Southern California rufous-crowned sparrow, Little Sur manzanita, Hutchinson's larkspur and Monterey pine.

Habitat for the Smith's blue butterfly is prevalent along much of the highway corridor. The principal host plant for this federally listed species, Seacliff buckwheat, is found among several of the native plant communities. The relative densities of buckwheat were estimated during the surveys. The buckwheat is commonly associated with central coast scrub and coastal sage chaparral plant communities and is found growing on road cuts and ruderal/disturbed areas.

Among the biggest threats to the natural environment within the corridor is the spread of exotic plant species, since the most invasive of these disrupt natural plant communities and destroy habitats. Exotic species identified during the survey included: pampas grass, kikuyu grass, ice plant, sticky eupatorium, French broom, Italian thistle, Cape ivy, mustard and fennel. Overall, the degree of exotic plant invasion is concentrated along the highway; beyond that, invasion is evident at disturbed and developed areas.



Smith's blue butterfly on buckwheat flower (photo Dave Hacker).

The federally endangered Smith's blue butterfly depends on seacliff buckwheat for its entire lifecycle. This plant is found among several coastal scrub plant communities and is widespread throughout the corridor. Highway management activities must be undertaken with care to avoid impacts to the buttterfly and its habitat.

Marine Resources

The majority of the coastline along the corridor is rocky and fronted by rock bluffs of varying heights. Cobble and sand beaches are generally limited to areas south of promontories or near the mouths of streams, indicating that the prevailing nearshore currents are from north to south. The prevailing surface currents correspond to the predominant northwesterly wind direction.

This stretch of shoreline and offshore marine environment teems with life. The huge variety of marine life-forms along the Big Sur coast may result from its location in a broad transitional boundary between two ecological ocean provinces: the warm Californian Province to the south and the cool Oregonian Province to the north. Many plant and animal species appear to reach their distributional limits near this boundary. The transitional area may also include species that are restricted to the transitional zone.

The entire coastline is included in both the Monterey Bay National Marine Sanctuary and the California Sea Otter State Game Refuge. The rocky substrate allows kelp to attach in the nearshore. Kelp beds ranging from 10 to 100 feet deep are relatively continuous along the rocky coastline. The intertidal zone along the coast includes specially adapted microenvironments characterized by their exposure, depth, light, surface, rock type, and

wave action. Depending on the micro-climatic conditions, a variety of small invertebrates including abalone, crabs, sponges, barnacles, starfish, sea urchins, mussels, clams, chitons, limpets and snails contend for space in this zone. Both red and black abalones are present in rocky intertidal and shallow subtidal areas. Large numbers of fish species including recovering stocks of boccacio and canary rockfish also inhabit these nutrient rich waters.

Seabird nesting areas are found at multiple sites atop rocks and in ledges along the corridor, with concentrations at Lopez Point, Cape San Martin, and Soberanes Point. The endangered brown pelican, snowy plover and common mure are among the seabirds that find homes along this coast. The beach at Point Sur provides critical habitat for the Western Snowy Plover as well as haul out areas for a variety of marine mammals. The threatened southern sea otter, California sea lion and northern elephant seal depend on the nearshore and coastal environments for both foraging and reproduction. Rivers and streams flow into the ocean at intervals along the entire corridor, blending coastal and riparian habitats. Several such as the Big Sur River and Sycamore Creek support anadromous fish species such as steelhead trout.

In the context of the CHMP, the sensitive marine environment directly down slope of the highway, is much more than a visual resource. Rocks, earth and debris have fallen down the steep sides of the Santa Lucia Mountains to the sea for thousands of years. The construction, operation, and maintenance of Highway 1 on a ledge above the sea may have altered the nature of the flow of material to the sea in ways that are not fully understood.

Figure 16: *Intertidal zones immediately below Highway 1 may be colonized by algae, kelp and mussels. (Photo: Tenera Environmental)*

In addition to the protection afforded by the designation of a National Marine Sanctuary, the State Water Resources Control Board (SWRCB) has designated Areas of Special Biological Significance (ASBS)[23] along the Big Sur Coast (Attachment 1). These are the Ocean Area Surrounding the Mouth of Salmon Creek, Julia Pfeiffer Burns Underwater Park, Point Lobos Ecological Reserve, and Carmel Bay. Marine resources in each of the four ASBSs except the Mouth of Salmon River have been documented and described in reconnaissance survey reports based in part upon direct observations, photography, and

[23] Now reclassified as State Water Quality Protection Areas (SWQPAs). An SWQPA is defined as "a nonterrestrial marine or estuarine area designated to protect marine species or biological communities from an undesirable alteration in natural water quality, including, but not limited to areas of special biological significance that have been designated by the State Water Resources Control Board through its water quality control planning process."

specimens collected by underwater divers.[24] These reports describe topographic and geomorphic characteristics as well as subtidal and intertidal biota and ecological considerations of the subject ASBS.

The Mouth of Salmon Creek is the southernmost and most recently designated of the ASBSs along the Big Sur corridor. This area includes approximately 1,458 acres along 3.4 miles of rugged and steep coastline centered at approximately PM 2.5 on Route 1 in Monterey County. Two perennial creeks, Soda Springs Creek and Salmon Creek, convey drainage from large wilderness watersheds in to the ASBS.

Julia Pfeiffer Burns Underwater Park has a surface area of 1,743 acres with approximately 3.7 miles of coastline centered below approximately PM 35.6 on Route 1. The California Department of Fish and Game has also recognized the unique subtidal diversity of this ASBS by including the area in the State Park System. The Park includes sand habitats, gravel and cobble habitats, and boulder and bedrock habitats. The most diverse biotas in the Park are associated with the boulder and bedrock habitats. Here giant kelps form surface rafts for sea otters and shade canopies under which a variety of sessile invertebrates and rockfishes thrive.

Point Lobos Ecological Reserve includes approximately 691 acres and 9.4 miles of coastline wrapped around the landform of Point Lobos. The center of this area lies west of PM 70.5 on the highway. The rocky coast of the intertidal area of the ASBS includes a diversity of habitats including pocket beaches, exposed or protected rocky areas, tidepools and sheer cliffs. In addition to a variety of invertebrates, marine mammals including sea lions, harbor seals and sea otters are present at various times of year.

The Carmel Bay ASBS includes 6.7 miles of coastline and a 1,584-acre surface area, inside a line from Granite Point north to Pescadero Point. The Carmel River, which is the northern project area limit, flows into the southern portion of Carmel Bay. Therefore, only a portion of this ASBS lies adjacent to the project area. The Carmel Bay coastline is characterized by alternating high rocky cliffs and points, sandstone areas and extensive granitic sand beaches. One of these beaches is located in the project area: Carmel River State Beach, also known as Monastery Beach. Brown and black-turban snails and other small mollusks are found along the beach. Granite-walled Carmel Canyon, which dominates the submarine area of Carmel Bay, originates about ¼ mile from shore near Monastery Beach. The canyon reaches a depth of 1,200 feet a mile offshore. Carmel Canyon is known to host a number of corals, starfish, mollusks and sponges. Invertebrates including mussels, goose barnacles, periwinkles and rocky shore crab are present near in the rocky intertidal area off Granite Point.

[24] California Marine Waters Areas of Special Biological Significance Reconnaissance Survey Report (CMWASBSRSR): Julia Pfeiffer Burns Underwater Park, October 1980; CMWASBSRSR: Point Lobos Ecological Reserve, April 1979; CMWASBSRSR: Carmel Bay, April 1979.

3.2.3 Recreational Features & Qualities

Recreational quality involves outdoor recreational activities directly associated with and dependent upon the natural and cultural elements of the corridor's landscape.

Topography constrains recreational opportunities, which are concentrated along or at least depend directly on highway access. Landforms conducive to recreational uses are rare commodities: sandy beaches, broad coastal terraces, rolling open terrain and gentle shoreline slopes. Even access for touring visitors is limited by the narrow, winding roadway and lack of public side roads off the highway. The result is a dispersed arrangement of recreational areas that provide unique, site-specific recreational opportunities along the corridor. The inventory has identified major features such as parks and ancillary features such as trails and access points that occur along the highway.[25]

Recreation activities generally fall within one of three themes: touring; educational and contemplative; active sports. The primary recreational use of the highway is for sightseeing or destination travel, either by motor vehicle or—to a lesser degree, but highly acclaimed—by bicycle. In addition to touring, other popular recreation activities include educational and contemplative pursuits and destinations such as retreats, nature preserves, and individual explorations. The corridor also provides exciting and challenging opportunities for active sports such as water sports, hiking, and bicycling.

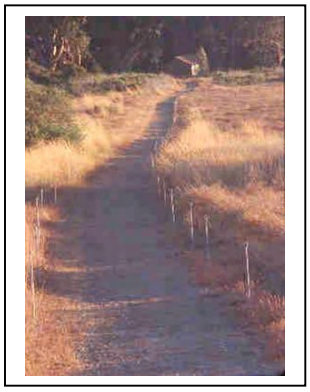


Figure 17: *Hiking trail leading into a Eucalyptus grove at Andrew Molera State Park*.

<u>Touring</u>
While touring the coast, the experience is ever changing, from the remote and wild southern and central sections to the gradually more gentle and civilized northern section. The coastal landscape offers a rich visual display of form and character from precipitous mountains and ravines to forested river valleys, coastal plains and beaches. Nestled into this landscape are numerous formal and informal touring attractions, from vista points, to public lands and private resorts. Although complete service facilities are limited, traveling this section of highway is a reasonable day tour by vehicle.

[25] Corridor Intrinsic Qualities Inventory: Recreational Qualities (May 2002), Patillo & Garrett Associates

Touring the coast is best accommodated by traveling from north to south, as this allows the best windshield survey of the setting and direct and safe access to most of the vista and access points along the shoreline side of the highway.

Touring highlights include the visitor developments with lodging near the small settlements along the corridor. Camping is available throughout the central and southern coast areas and numerous private campgrounds in the Big Sur Valley area.

Units of the State Parks system attract large numbers of visitors for a variety of activities ranging from cultural tours and whale watching to hiking, scuba diving and camping. Of the units along the corridor, Pfeiffer Big Sur State Park is the most heavily visited; attendance there exceeded 394,000 in the 12 months preceding February 2003, while visitation at Julia Pfeiffer Burns saw nearly 145,000 people in the same period.

Hearst Castle, a State Park unit located at San Simeon, some 13 miles south of San Carpoforo Creek, receives more than twice the volume of visitors as any park along the corridor. In recent years, between 700,000 and 900,000 tour tickets have been sold annually. The Hearst Castle marketing office reports that the majority of its visitors are Californians and come from Southern California. The marketing office has not conducted origin/destination studies that would reveal the number of Castle visitors who arrive or depart via the Big Sur corridor.

Educational and Contemplative

Educational and contemplative opportunities are abundant along the route, although formal, publicly accessible facilities are rare. Each cove, bluff, trail and view to the water offers a unique place to investigate the richness of Big Sur. The ocean is a source of inspiration and offers many opportunities for marine study, inquiry and observation. In the north, the Point Lobos Reserve is considered the crown jewel, providing extensive preserved marine and upland ecosystems. Areas dedicated to the study of natural systems, such as the Southern Redwood Botanical Area and Big Creek Reserve, provide restricted use areas for scientists and students. At present there are no substantial visitor centers or interpretive centers in or along the highway right-of-way.

Two prominent formal educational and contemplative facilities are the Esalen Institute and the New Camaldoli Hermitage. Esalen provides a range of programs and sessions in alternative education, transformation practices, and restorative experiences along with soothing hot springs. Lucia's New Camaldoli Hermitage, run by a group of Camaldolese Monks, offers retreats to the public by reservation and a small shop for tourists.

Active Sports

The rugged character of the landscape has influenced and limited the growth of active sport recreation within the region. Yet there are numerous active recreation opportunities for novices and seasoned enthusiasts alike. In the southern and central sections, the Los Padres National Forest encompasses the majority of the inland property along the coast, and the coastline itself from just south of Lucia to the San Luis Obispo County line. The proximity of the National Forest to the coast south of Lucia provides for a rich assortment of shoreline and inland trails and public use recreational features, such as beaches for surfing, diving, and fishing.

North of Lucia, where the boundary of the Los Padres Forest recedes from the coastline and the highway, private land ownership restricts access to areas off the highway. As

the highway travels north, there are several large tracts of state lands, either Reserves or Parks, which provide shoreline access for active sports pursuits.

Trails are most common in the south and central sections and are predominantly restricted to hikers and equestrians. Along the length of the coast, a vision to provide a continuous trail link is being explored for the California Coastal Trail (CCT). To complete the trail route, several sections of the CCT will necessarily coincide with sections of the highway as a connector between actual trail segments. Inland from the highway, a large portion of the Los Padres National Forest is designated wilderness (Ventana or Silver Peak), which precludes the use of any form of mechanized travel, including bicycling and hang gliding. As a result, mountain biking trails are limited throughout the coast and cyclists typically follow graded dirt roads, the Nacimiento-Fergusson Road or the highway.

Along the length of the highway, serious and enthusiastic road cyclists make good use of this section of the Pacific Coast Bike Route. Both day trips and overnight tours are common, some as part of organized supported rides and other independent riders alone or in small groups.

3.2.4 Historic Resources & Qualities

Historic quality encompasses legacies of the past that are distinctly associated with physical elements of the landscape, whether natural or man-made, that are of such historic significance that they educate the viewer and stir an appreciation of the past.

To provide an understanding of the past, two inventories were conducted: one provides an overview of the history of the region and of historic features that are visible from the highway[26]; the other relates to the features of the Carmel-San Simeon Highway Historic District[27]. Furthermore, an historical account of road closures was produced that sheds light on the patterns of travel disruption over the years.[28]

The inventory of features visible along the highway was performed consistent with state and federal guidance for identifying historic properties. Generally, a property must be at least 50 years old to be considered potentially eligible to the California or National Register of Historic Places unless it exhibits extraordinary characteristics of a period or type of development. This inventory captured several properties that are less than 50 years old. Since the inventory has not undergone a Determination of Eligibility, individual properties that could be affected by future work would require subsequent evaluation and determination, as appropriate.

<u>Historic Qualities</u>
The historic context for this inventory focuses on four major historic themes that exemplify the resources inventoried. These themes, or patterns of events, provide an understanding as to how and why buildings and structures were constructed during various historic periods. Historic preservation professionals have recognized this thematic approach to the history of a region as an effective means of establishing a framework for understanding the potential significance of historic resources.

[26] Corridor Intrinsic Qualities Inventory: Historic Qualities (November 2001), JRP Historical Consulting Services
[27] Historic Resources Evaluation Report (1996), Pavlik, Robert C. Caltrans District 5
[28] A History of Road Closures Along Highway 1, Big Sur, Monterey and San Luis Obispo Counties (November 2001), JRP Historical Consulting Services

- Pioneer (pre-highway) settlement
- Development of tourist-oriented facilities after the highway was completed
- Occupation of the area by notable individuals
- Development of public sector infrastructure

A fifth category ("Other") was necessary to include those events and historic properties not reflected in any of the four major themes.

Pioneer Settlement The pioneer era in Big Sur began during California's Mexican Period (1821-1846) and lasted for over a century, culminating with the completion of the Carmel-San Simeon highway in 1937. The settlers who ventured into this region, with family names such as Pfeiffer, Bixby, Post, Harlan, and Dani, made a living through a variety of activities including subsistence agriculture, stock raising, mining, timber harvesting, and road-building.

Tourism Industries By the time the Carmel-San Simeon highway was completed, the pioneer era in Big Sur had come to an end. In its place, a new economy developed that was centered on tourism. Compared to the rugged roads that had previously served Big Sur, the new highway provided easy access into and out of the region. The early families, which before had lived in virtual isolation, could now move freely up and down the coast. Perhaps more important to the economy of Big Sur was the fact that tourists could easily visit and experience first hand the region's spectacular beauty.

Notable Individuals Throughout much of the 20th century, Big Sur attracted notable individuals who established permanent or part-time residences there. Three residences along the highway stand out as particularly notable examples of this theme: the D.L. James House, designed in 1918 by renowned architect Charles S. Greene; the "Wild Bird" house, designed in 1958 by Nathaniel Owings; and the ranch of Linus Pauling, an important scientist and political figure, near Gorda.

Public Sector Although historic and current residents of Big Sur have celebrated their self-sufficiency, government has long played an important role in the history of the region. There are numerous public sector historic properties along Highway 1 that were built by local, state, or federal agencies. The federally developed Point Sur Light Station, now owned by the California Department of Parks and Recreation, is one of the most visible and striking of all the historic resources in the vicinity. Other public sector resources include the U.S. Forest Service ranger station at Salmon Creek, the maintenance station at Willow Springs originally built for the California Division of Highways (now Caltrans), and the gatehouses at the Point Lobos State Reserve. All of these resources were established in the 1930s, although some of the buildings in the complexes are of more recent vintage.

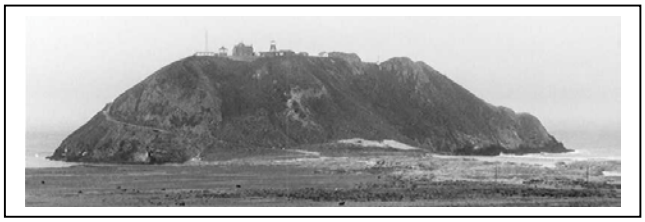


Figure 18: *The historic Point Sur Light Station is one of the most significant historic resources in the corridor area.*

One of the most important public sector resources relates to the Highway 1 corridor itself. Following its completion in 1937, the highway forever changed the character of Big Sur from an isolated frontier to a popular and easily accessible tourist destination. A collection of features dating to its original construction, notably the stone masonry and concrete arch bridges, has been determined eligible for listing in the National Register (see the discussion below on the Carmel-San Simeon Highway Historic District).

Other History & Culture
The inclusion of an "other" category in this summary history of Big Sur is important, because humans and human events do not always fit into neat categories. This category includes resources that clearly express an aspect of Big Sur history and culture, but cut across the four major themes. For example, Big Sur boasts two notable institutions devoted to those seeking peace and contemplation: the Carmelite Monastery, built in the Medieval Italian architectural style in 1931; and the Esalen Institute, an alternative learning center established in the 1960s. The Big Sur Grange Hall, built in 1949, commemorates the long pioneer era of the region and also serves as a public gathering place. Another property of community-wide interest is the Henry Miller Memorial Library, established in 1981 by Emil White, secretary and friend to author Henry Miller.

History of Road Closures Over a long period of time (from the mid-1930s to the present), road closures have been one of the few constants of life in Big Sur. The population and economy of the area have always been in flux, as is true of all other parts of California. Road closures at any given point in time have affected the people and businesses that were in the area. The numbers of permanent residents and resorts have grown slowly but steadily over the years; the value of the investment in those homes and businesses has grown at a much faster rate. As more expensive homes and resorts have been built and used on a more year-round basis, the impact of the closures has grown more severe. Fortunately, significant technological advances and organizational improvements have occurred over the years. These along with the community's ability to galvanize in the face of adversity strengthen Big Sur's ability to deal with such events. Nonetheless, the historic record suggests that closures will continue into the future on a reasonably predictable basis, with major closures coming in clusters that coincide with wet weather patterns and summertime fire events. Nonetheless, the historic record suggests that closures will continue into the future on a reasonably predictable basis, with major closures coming in clusters that coincide with wet weather patterns and summertime fire events. If the level of investment and use at Big Sur continues to grow, the severity of the impact of closures will also increase correspondingly.

Carmel – San Simeon Highway Historic District Pioneer settlers created the predecessor to Highway 1 in the late 1800's. Monterey County assisted in constructing the Coast Road, which provided access from the Monterey Peninsula south into the upper reaches of Big Sur. The Coast Road was adopted into the county road system for maintenance.

The modern highway is traced to a Monterey area physician by the name Dr. John Roberts, who treated patients along Big Sur and envisioned a more reliable thoroughfare extending the length of the coast south to San Simeon. In addition to improving transportation for the local settlers, he saw an opportunity to provide a destination route for tourists and to open the area for land sales. The endeavor to build the Carmel-San Simeon Highway received a green light in 1919 when California voters passed a $1.5 million bond for its construction, which got underway in 1922. Faced with unexpected complexity during construction, work on the highway nearly came to a halt over a 4-year period before resuming again. The opening of the Carmel-San Simeon Highway, which ultimately cost $8 million to construct, was commemorated with a gala celebration on June 27, 1937.[29]

Elements dating to the original construction of the highway include the features constructed with stone masonry and seven concrete arch bridges. Collectively, these features comprise the Carmel to San Simeon Highway Historic District, as they are related by geographical proximity, and united historically and aesthetically by their physical development. The State Historic Preservation Officer has concurred that the District is eligible for listing in the National Register of Historic Places (NRHP) under Criterion C (design/construction).

The stone masonry parapets, retaining walls, culverts headwalls, and drinking fountains embody the distinctive characteristics of a type (rustic style), period (1920s-1930s), and method of construction (handcrafted). They also possess artistic value as they harmonize with their natural and rugged environment along the Big Sur Coast in a style that was popular in rural areas of the state throughout the Depression.

Over 300 of the stone (or rubble) masonry features have been recorded within the Carmel - San Simeon Highway Historic District. Culvert headwalls are among the most common found throughout the corridor, particularly where the slopes are quite steep (such as along Partington Ridge); retaining walls are also prevalent in these areas. Today, the area along the Partington Coast still exhibits a concentration of these resources; this fact combined with very little evidence of development gives it a special scenic value. The integrity and setting of these features is largely intact, giving the traveler a sense of what it may have been like to travel the highway 70 years ago.

The seven concrete arch bridges (Big Creek, Bixby Creek, Rocky Creek, Garrapata Creek, Granite Canyon, Malpaso Creek, and Wildcat Creek) are best understood as a group unified by a common roadway, a common setting, and a single design principle. These are the Big Sur Arches, which together comprise one of the most beautiful public works projects in the United States. They are perhaps the finest products of the Bridge Department of the California Division of Highways, which, in the opinion of bridge

[29] Pavlik, Robert C., *Historic Resource Evaluation Report – Rock Retaining Walls, Parapets, Culvert Headwalls and Drinking Fountains along the Carmel to San Simeon Highway, San Luis Obispo*. Caltrans District 5, 1996

historian/engineer David Billington, was responsible for "the best series of arch bridges in the United States."

Figure 19: *The concrete arch bridges, like this one over Rocky Creek, provide some of the most dramatic and memorable images of the Big Sur Coast*

There were originally six water fountains built along the highway. Five of the six are still in existence (Soda Springs, Big Redwood, Willow Creek, Lucia, and Rigdon). Although the Big Redwood Fountain (Post Mile 5.55) is outside present limits of the roadway it is still considered a contributing element to the District. The fountains were constructed in response to the public need for water along remote and arid stretches of state highways, where commercial or other facilities were not available, and to alleviate the public's use of the Highway Department's maintenance yards.

Some of the fountains are simple stone affairs. The most elaborate and impressive are the Willow Creek (Post Mile 11.95) and the Senator Rigdon Memorial Fountain (Post Mile 26.9). These might have been considered primitive roadside rests, since they have contained picnic tables as well as elaborate stonewalls and benches.

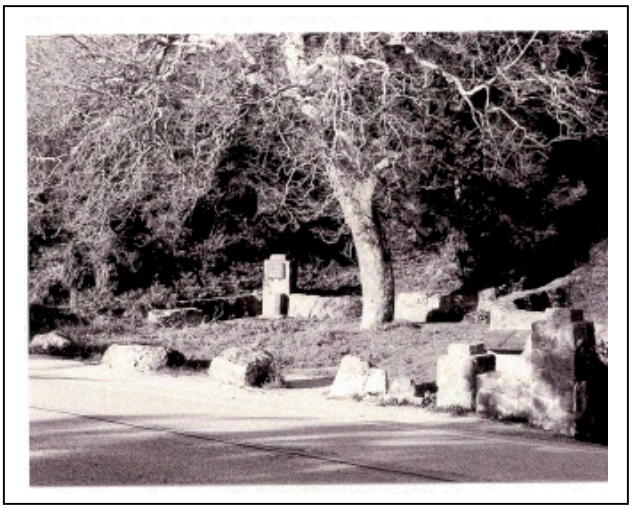
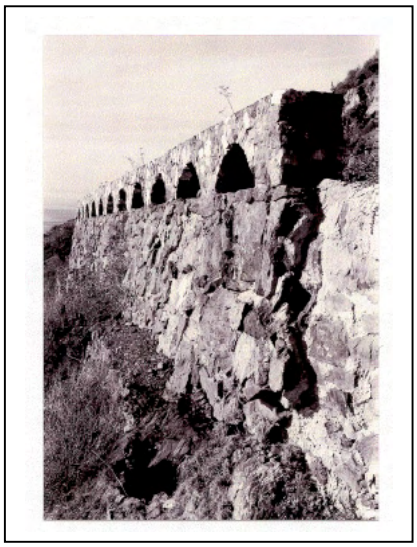


Figure 20: *The Senator Elmer Rigdon Memorial fountain is one of the most elaborate drinking fountain sites.*

The majority of the Historic District's masonry features consist of the headwalls built for corrugated-metal pipe culverts; these were built because of the ready availability of material and the complementary nature of the headwalls, with other similar structures (namely, walls and fountains) and with their rugged setting. Some have been repaired, reinforced, or protected with large redwood planks, corrugated tin, or concrete.

Five highway markers, identified as square concrete posts with an engraved "C" (California survey monument) were recorded. These markers likely date to the original construction in the1930s.

There are three types of parapets along Highway 1: arcade, a style of multiple arched windows built into the parapet wall; battlement style, a monolithic wall with a crenellated top (vast majority); and a simple monolithic wall with a flat top and no decoration. The walls are uncoursed; that is, the rocks are laid in a random order, not in layers. They are built of local stone of varying sizes and types, and held in place with cement mortar. The parapet is usually built on top of a rubble masonry retaining wall. In a few instances, the retaining wall extends slightly above the level of the roadway, forming a de-facto parapet (usually of the simple monolithic style with flat top). The less common arcade style occurs at the southern end of the route.



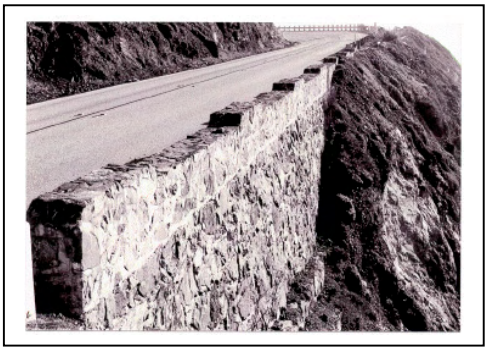


Figure 21: *These retaining walls built as part of the original highway construction illustrate the arched window (left) and crenellated parapet wall designs. (Photos: Bob Pavlik)*

Due to the rugged nature of the topography, the location of rock retaining walls appears to have been left to the discretion of the resident engineer. On one "As-Built" plan, a notation reads "dry rubble retaining wall to be used as called for on the cross sections and as ordered by the engineer." Each retaining wall was built with a large footing, the width equaling 1/6 of the wall's height. The wall was battered or sloped at a very steep angle and built of the same material as the parapet walls, and in the same manner.

3.2.5 Archeological Qualities

The archeological qualities of the Coast Highway corridor include physical evidence of prehistoric human habitation and activity in the Big Sur area.

Juan Cabrillo was the first European known to traverse the waters off the Central Coast in 1542. Cabrillo's voyage was followed some fifty years later by Sebastian Vizcaino's mapping expedition along the California coast. Spain did not initiate land exploration and colonization of the Central Coast for nearly 170 more years. Even then, when Gaspar de Portola's overland expedition from San Diego encountered the Santa Lucia Mountains looming over San Carpoforo Creek at the south end of today's Coast Highway Corridor, the party turned eastward away from the Big Sur Coast before reaching the Salinas River and returning to the coast.

For over 6000 years before Spain's occupation of California, the Big Sur Coast was home to several groups of Native Americans. The rugged mountains that continue to repel intense development by modern people are much of the reason for the paucity of first-hand accounts of contacts with Native Americans along the Big Sur Coast until well into the 20th Century.

When the Spanish first arrived, the Big Sur Coast was home to three groups of people, speakers of the Salinan, Esselen and Ohlone (or Costanoan) languages. The southernmost group, Salinan language speakers, lived in an area extending from the San Carpoforo Creek area north to the Big Creek drainage and east over the inland mountains and into the Salinas River valley. The Salinan are believed to have numbered around 2,500-3,000 in the late 18th Century.

Speakers of the Esselen language numbered around 1,000 at this time. The Esselen lived immediately north of the Salinan districts. Esselen territories extended north from Big Creek to Post Creek and again, east from the Coast, over the mountains, throughout the watersheds of the Carmel River and the Arroyo Seco and on into the Salinas River Valley. The Esselen group was the most isolated of the three groups at the time of early European occupation of the Monterey Peninsula. The Esselen may have occupied a larger territory to the north before becoming isolated in the mid-coastal area by an influx of Ohlone from the north.

Contact with Europeans was completely lacking for the Esselen people who lived in the most remote part of the coast, far from the settlements near the Monterey Peninsula and the San Antonio and San Luis Obispo Missions. Owing to mission records and accounts of early explorers and ethnographers, more is known about the contact-period Ohlone people than the other two groups. During the Mission era, the Ohlone ranged from Point Sur north to the tip of the San Francisco Peninsula, with some sub-groups occupying the central Salinas Valley. Artifacts, dietary remains, structural remains and burial sites comprise the physical evidence archeologists have considered as they assemble the record of the peoples who lived along the coast in prehistoric times.

3.2.6 Cultural Qualities (Contemporary)

Cultural quality is evidence and expressions of the customs or traditions of a distinct group of people. Cultural features including, but not limited to, crafts, music, dance, ritual, festivals, speech, food, special events, and vernacular architecture are currently practiced.

Capturing the "evidence and expressions of the customs or traditions" of the Big Sur corridor is challenging given the fact that many residents are attracted to the area because of its remoteness and isolation. Also, while the resident population is small, it comprises individuals with a wide range of income levels, interests, beliefs, and traditions.

The dramatic terrain along the Big Sur coast and the large areas of land under public ownership creates a dispersed pattern of development within the buildable areas along the cliffs and within the valleys, with homes scattered along the corridor in isolated pockets. Some members of the Big Sur community have expressed concern that the acquisition of private land by public or quasi-public entities could threaten the community's long-term viability. The Big Sur Valley is the primary commercial and social center of the area, although residents of the northern part of the corridor are more closely aligned with the Monterey area. Residents of the more remote and isolated southerly area are less involved in community activities in the Big Sur Valley. People are attracted to the area for a variety of reasons including generational traditions, alternative lifestyles, employment opportunities, seclusion in a beautiful setting, artistic expression, meditative and spiritual enrichment or simply for a reclusive lifestyle.
The tourism industry also affects the cultural traditions and events in the Big Sur area. Many of the commercial businesses along the corridor are oriented to visitors, and many of the events listed in the area are marketed to a wider population to bring additional visitors to the area predominantly during the dry season.

The Big Sur community has a long tradition of volunteerism and community events that comprise contemporary expressions of that tradition. Big Sur residents come together to celebrate social, cultural and charitable events in the limited number of venues in the Big Sur Valley. Since the local community activities occur throughout the year, scheduled activities during the rainy season are more susceptible to cancellation or postponement, depending on weather and road conditions.

CHAPTER 4 ISSUES AND CHALLENGES

From some perspectives, the complexity associated with managing the Highway 1 corridor appears to reveal competing interests. Variable priorities and perspectives held by diverse stakeholders result in differences that can be difficult to resolve. However, through careful consideration, there is a set of common values and interests underlying the differences. Communication and investigation of the range of issues progresses into shared perspectives and a broader understanding of core values. This provides the foundation for problem solving. Exploring the issues and working toward common solutions has become the primary focus of this corridor management effort.

4.1 Defining Events

Seasonal, natural events such as storms, landslides and fires have affected service on the highway to varying degrees ever since its opening in 1937. In the first two decades of highway operation, ranchers and mine operators owned the few tourist facilities in the corridor. Permanent residents were few, tourism decidedly seasonal and traffic light. In those days, perhaps the inconvenience of occasional closures was outweighed by the novelty of the new road.

Figure 22:The corridor has suffered landslide-related closures ever since the highway's opening in 1937.

As the number of permanent residents, tourism and related businesses has grown, combined with factors such as inflated land values and statewide economic trends, the community's ability to withstand sustained closures or lengthy delays for road repair has been stressed. The cyclical pattern of large storm events, commonly referred to as El Niño, has brought this phenomenon into sharp focus.

In the winter of 1982-83, four major slides closed the highway, none more significant than one at Julia Pfeiffer Burns State Park, also known as the McWay landslide, which at the time was the largest landslide ever to have affected the state highway. Although the landslide impacted a stretch of highway only 300 meters long, the volume of material that moved is nearly incomprehensible at 2.3 million cubic yards. The road was closed for over a year to complete repairs, which removed 3.1 million cubic yards of material.

Over the next 15 years, storm damage was limited both in severity and distribution at any one time. The largest event in this period occurred in 1986 when a landslide some six miles north of the San Luis Obispo-Monterey County line closed the road for 68 days (Redwood Gulch). Then came the El Niño-driven storms in the winter of 1997-98 when a series of record storms in a short period of time resulted in an unprecedented level of damage.

The distribution and severity of the 1997-98 storms and the number of damaged locations along the highway resulted in the complete isolation of many residents, communities, businesses and schools. In all, 36 individual sites along the highway required major repair. The circumstances were not only serious, but the memory of the yearlong closure and long-term environmental impacts associated with the 1983 McWay landslide gave rise to heightened anxiety in 1998.

Residents and business owners were concerned about the fundamental effects on their livelihood and the potential long-term visual effects from the repairs. Regulatory agencies were concerned about making decisions with little information. The Department was put to the test for re-opening the road as soon as possible. Ultimately, the work kept the highway closed for nearly four months and exceeded $30 million in construction costs. The common factor that caused the greatest challenge was determining the disposition of excess material. Locating and hauling material to suitable sites that could receive material was time consuming and costly.

While efforts had been underway since 1983 to develop a longer-term plan, the 1998 events prompted greater focus and produced what is now the Big Sur Coast Highway Management Plan. Underlying the effort is a desire to move away from a crisis-driven approach that can result in poor decisions with unintended consequences. The desired outcome is to formulate a common approach that allows well-informed decisions with broader support.

4.2 Exploring the Issues

At the outset of the planning process, a variety of stakeholders were canvassed about their concerns. Identifiable themes emerged from this exercise and enabled the formation of a series of working groups. These groups were charged with deliberating the issues, bringing relevant information into the discussion and making recommendations on proposed solutions or actions.

Stakeholders broadly agree on the value of sustaining a safe and reliable highway. In addition, the Big Sur Coast is guarded by strongly held values for preservation of place. These values are not inherently in conflict. However, when actions to sustain the highway introduce change on the landscape or affect any of the important qualities of the corridor, the potential for conflict between these values arises.

Stakeholders recognized that the needs of one group should not be disproportionate to others. Members of the local community have voiced concerns over increasing transfers of private property into the public domain. These transfers have occurred through various mechanisms and for a variety of purposes, one of which is preservation of views. The community wishes to retain its strong sense of character and identity and to remain viable and sustainable. Accommodating needs of visitors should not outweigh the desires and needs of the local community for whom the highway is a central feature of daily life, and vice versa. Similarly, protection of one resource should also not outweigh

another, unless special protections are warranted, such as the need to sustain endangered species.
The issues raised during the scoping are organized by general theme and listed as topics. The text that follows describes more fully the points of view that were brought forward in as part of the various working group discussions.

4.2.1 Storm Damage Response & Repair

- Due diligence to prevent highway damage or alleviate a deteriorating condition from becoming an emergency to the extent possible
- Appropriateness of repair solutions for landslides
- Sufficient supply and distribution of disposal sites for landslide debris
- Relationship of natural processes and human-induced change
- Polar approach to landslide deposits, balancing the extremes of "all or nothing" for casting material seaward of the highway
- Re-vegetation success
- Coordinated emergency response
- Balancing social demands and environmental protection

Different perspectives are evident on the very nature of the instabilities in the corridor. Concern has been expressed that the presence of the highway precipitates landslides or at least aggravates the background conditions. Others readily acknowledge that this landscape is not conducive to maintaining a consistent man-made linear feature; if the original proposal for constructing the highway were being made today, it would not likely meet with approval. Nevertheless, the argument today is not whether or not the highway belongs. Dependence on Highway 1 along the Big Sur Coast as an important thoroughfare, primary coastal accessway, and integral part of the state highway system does not give the Department of Transportation a choice as to whether or not to continue maintaining the highway. The question to be answered is how management activities are best undertaken that either avoid or minimize conflicts among equally strong values.

<u>Diligence</u>
Concerns about how instabilities affecting the highway are managed include the notion of not doing enough to prevent damage and being too aggressive in the course of repairing damage. The Department will declare an emergency condition when safe two-way highway travel is impaired or when there is imminent threat to traveler safety or to the integrity of the highway. Concern has been expressed that the Department acts too often under emergency conditions, rather than taking prudent actions ahead of time to alleviate the potential for emergencies.

While year-round maintenance activities alleviate the potential for damage, not every event can be anticipated or averted. The Department initiates capital improvement projects where more attention is required to hinder a progressive failure. Depending on the complexity of the situation, and the corresponding time needed to complete the project development and approval process, projects are not always brought to fruition before a condition deteriorates to become an emergency. Even still, The Department has a handful of improvements in this corridor at various stages of consideration at any given point in time.

The Department's ability to address progressive failures proactively is limited in part by constraints of the highly competitive process for programming highway funds. The types of projects initiated to evaluate landslide activity fall within a category that is generally

less competitive than others. However, if safety is at risk or when the condition becomes more urgent, these projects become much more competitive.

Repair Solutions

When an emergency condition occurs and restoration is required, decisions are made quickly and with the best information available. In locations where little is known, more conservative solutions may result. In many cases, the conservative approach may also appear to be overly aggressive. The 1983 repair at the McWay landslide illustrates this: the repair option was to achieve stability with complete removal of the landslide, excavating behind the slide plane to the depth of rock and at a flat enough slope to prevent any local instabilities. The repair achieved both global and local stability above the road.

When more is known prior to a failure, site-specific conditions can better be taken into account for the repair. An example of this approach was the Forest Boundary landslide in 2000. Since a project had already been initiated, the subsequent emergency repair benefited from the detailed investigations that were underway. The solution at this location was a sidehill viaduct that resulted in very little excavation or excess material. Although these two landslides were very different in type and character, the examples illustrate the value of formally initiating site investigations when a need is identified.

In addition to the benefit of well-timed project initiation and programming, changes in fundamental management practices have occurred in response to multiple factors, including environmental regulations, new technology, economics, and public pressure. The approach to managing Highway 1 has responded to these factors, not the least of which are the constraints imposed by sensitive environment conditions. The evolution of techniques over time documents an overall reduction of land disturbances directly associated with repairs. However, a need remains to address the transfer and disposal of excess landslide debris (Duffy, 2001).

Figure 23: A landslide above the road south of Big Creek temporarily closes the highway in 2000.

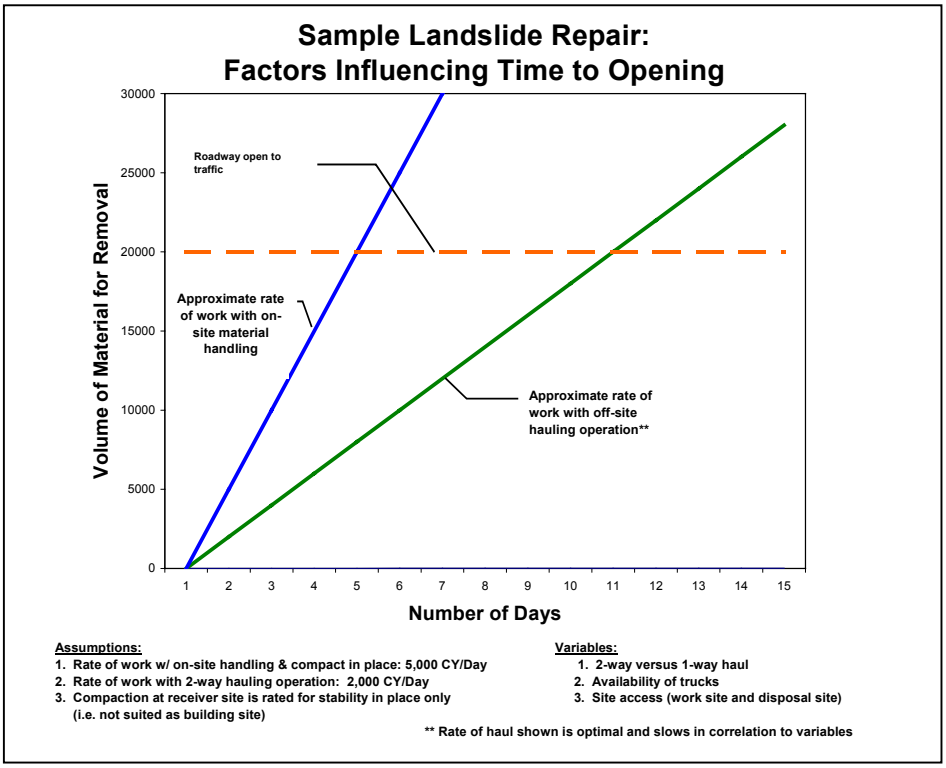


Figure 24: *This graph represents a hypothetical project where removal of 20,000 cubic yards of material is necessary to re-open the highway safely to traffic. Haul distance for off-site disposal is unspecified. Minimal handling for on-site disposal is assumed.*

Landslide Debris

Finding suitable receiver sites for material generated by landslides and subsequent highway-related repair remains a challenging issue.

There is ongoing concern that disposal of material at a location or in a manner that sediment would enter the marine environment can cause environmental damage in some locations. Such damage could include burial of habitats, increased turbidity, or increased scouring which can inhibit larval settlement, depending on the sensitivity or level of adaptation of species present and various physical factors. Controversy over effects to the marine environment was triggered by the 1983 McWay landslide, when excavated material from the repair was pushed downslope and well into the nearshore intertidal area causing long-lasting effects to a unique underwater park.

With the establishment of the Monterey Bay National Marine Sanctuary in 1996, the practice of casting material seaward has ceased. Options for handling material have been limited and became especially critical in the aftermath of the 1998 El Nino storms. Since 1998, efforts to locate suitable terrestrial sites have continued, although no sites have been approved to date. Current practices preclude casting material where it could enter the marine environment; material that cannot be recycled or reused in some manner is typically hauled to landfill sites.

Deposit of material in landfills has its own set of concerns. Largely, these are related to changes in landform and the ability to re-establish native vegetation at the receiver sites. While the effects to the terrestrial environment are relatively easy to observe and document, potential effects to the marine environment are more difficult to observe and therefore not as well understood.

There are two primary mechanisms of interest in evaluating the potential effects of highway management activities on the nearby marine habitats. The first is storm water discharges from the Department's properties, facilities, and activities. The Department has been identified as a point source discharger and operates under a statewide National Pollutant Discharge Elimination System (NPDES) permit issued in 1999. The Department's NPDES permit does not allow discharges (including sediment) to cause an impairment of beneficial uses identified for the protection of surface waters or to result in a nuisance to the public. An example includes the direct discharge of waste into an ASBS if the discharge would alter the water quality condition of the ASBS. Impairment or nuisance may include deleterious bottom deposit, turbidity, or discoloration of waters of the State or actions that unreasonably affect or threaten to affect the beneficial use of such waters.

The second mechanism of interest is the deposit (direct or indirect) of large amounts of earthen material from slides, rockfalls and related construction activity into the ocean. For thousands of years, gravity abetted by seasonal storms has brought material down the steep slopes to land on beaches, sometimes reaching the intertidal areas. Several offshore areas have been subjects of in-depth reviews related to individual landslide sites[30]. The Monterey Bay National Marine Sanctuary in cooperation with the Department will be developing a more thorough characterization of the important shoreline habitats in the near future. Data have been collected recently from several underwater sites for these investigations. The observations are anticipated to clarify the relationship of material inputs vis-à-vis the marine habitats and identify locations that may be suitable sites for receiving material from landslide-related repair.

The potential for direct and secondary effects of the current practice need to be considered as a whole, including weighing the impacts of long-haul trucking to terrestrial disposal sites and whether this also might be considered a disruption in the flow of natural inputs to the marine system. While the extreme positions are undesirable (everything goes over the side or nothing goes over the side), modifying a change in policy or regulation requires thorough consideration of the potential adverse effects that could result from either approach or some combination.

Toward achieving a better solution, regulators are interested in knowing more about the natural processes, the relative influence of the highway and the sensitivity or level of adaptation of various habitats and locations to landslides. This information will help determine best practices for managing excess material in this context. While research has been conducted to address these questions, a solid course of action to resolve the matter remains elusive.

In 1998, an ad hoc committee formed to find acceptable locations for depositing hundreds of thousands of cubic yards of material. In an effort to locate potential sites in advance, the Department pursued a program to identify and seek approval for terrestrial disposal sites along the Big Sur Coast. This endeavor, now in its fifth year, continues

[30] See bibliography of marine studies between 1985-2001 for evaluating the effects of landslide activities to offshore and nearshore habitats.

through the approval for up to nine sites, however, none have yet been approved for use. Only commercial landfill sites are presently available to receive large volumes of material.

Hauling excess material off-site for disposal can add days to the time required for reopening the highway following a landslide. In a comparison of off-site hauling with on-site handling, it has been demonstrated that the effect of off-site hauling on "time to opening" becomes much greater as the volume of material to be removed increases (See Figure 24.)

Coordination and Communication
A key aspect of effective emergency response is efficient coordination. Multiple agencies must be consulted and the community and businesses must be kept informed. This is a challenge with events of any kind. Highway repairs in response to landslides are dynamic; conditions can vary from one day to the next. Uncertainties prevail and communication is critical.

Revegetation
Yet another challenge exists in restoring surface conditions of the land to re-establish native habitats. Factors such as construction staging, finished slope conditions, underlying soil and rock types, erosion and weed control methods and availability of seed all influence the probability for successful site restoration. Limitations associated with making longer-term commitments on shorter duration contracts further complicate the administrative remedies to ensure success of site restoration activities.

4.2.2 Maintenance

- Taking a long-term view
- Preventive maintenance activities for landslides, drainages, erosion control
- Innovation and efficiency to address maintenance problems
- Recycling excess earthen material
- Consistent practices and approach throughout the corridor
- On-site/local availability of equipment and materials
- Minimizing traffic disruption with maintenance activities
- Vegetation management, exotic species control

Stakeholders value the role of diligent and well-advised maintenance that supports the reliability of the highway, and makes it less vulnerable to damage during storm events. Stakeholders have expressed concerns about such matters as drainage, vegetation management, the establishment of roadside berms, particularly where ocean views or parking may be affected and the approach to vegetation management. There is a desire for assurances that the various aspects of the highway facility, including drainage through and around the highway are properly maintained so as to withstand the periodic strain of seasonal events. Furthermore, there is a need to ensure that the demands for maintenance are adequately supported with sufficient resources (personnel, budget, equipment and facilities).

Considering the highway weaves through many different properties, both public and private, the Department's role as a good neighbor is also important. Work activities in the Big Sur Valley, for example, need to consider the various businesses such as the inns and resorts. Good communication is as important here as it would be within any neighborhood.

A full range of maintenance duties is employed throughout the year to prevent or minimize damage from winter storms; the activities encompass maintenance of the roadbed, shoulders, and drainage and vegetation management.

Roadbed

The quality of the roadbed surface is important to ensure its ability to drain water properly. A poor quality surface can result in highway flooding, ineffective water flow, draining to the wrong side of the highway or not draining to the proper ditches and culverts. Repairing potholes in the surface not only helps maintain the quality of a smooth ride, it also protects the integrity of the roadbed.

Unpaved Shoulders

Unpaved shoulders provide an important function for the lateral support of the paved roadway and for ensuring effective drainage and stormwater runoff. The support is most critical along areas where the paved portion of the shoulder is narrow or non-existent, where the distribution of the load is diminished. Maintaining a smooth road edge is important not only for the integrity of the pavement but also for the fundamental safety of the traveler. A smooth transition is necessary for vehicle recovery, should a vehicle unintentionally leave the traveled way, and for deliberate movements off the traveled way.

These transitions are also important where they double as opportunities for public access (both formal and informal). Where unpaved shoulders are wide enough for vehicles to safely pull off the pavement, a number of uses are possible. Such areas may be used as informal turn-outs[31] that allow motorists to take a more leisurely pace, small pullouts where motorists can stop to take views; and informal trailhead parking for accessing the many trails along the route[32].

Drainage

Ensuring the proper function and integrity of drainage facilities is critical for managing the flow of water in and around the highway. The primary function of good drainage is to eliminate ponding of water on the roadway and to maintain free flow of water around and across the highway.

Regular maintenance of roadside ditches and culvert inlets keeps them clear of debris and major vegetation. Ease of access by maintenance crews is also important should these features require attention during a storm. A variety of channels and drains control the flow of water along the highway; these include roadside ditches, groundwater relief drains, surface water conduits, and coastal streams. Maintenance crews are challenged by the sheer number of features on the Big Sur Coast where culverts alone number over 700.

[31] A turnout allows slower vehicles to pull off the highway and allow following motorists to pass; formal, designated turnouts are paved and signed. When five or more vehicles follow, a slow-moving vehicle is required to use designated turnouts. Unpaved turnouts, while they may provide a similar function, are not formally designated.

[32] *Corridor Intrinsic Qualities: Recreational Qualities Inventory Report*. January 2002

Vegetation Management

Due to the widespread threat of invasive and exotic plants along the coast highway, weed control has been identified as a high priority issue within the corridor[33]. The highway can act as a vector for the spread of invasive plants and seeds. Therefore, precautions are necessary in the management of roadside vegetation. This requires coordination with adjacent property owners, both public and private, to be effective.

Department policy encourages growth of native vegetation along the highway. Vegetation control along the highway is necessary to ensure visibility for safety, fire management, protect pavement surfaces, control noxious weeds, assist in preventing erosion, and preserve views [34]. This activity also includes the removal of dead trees to avoid the potential for these trees to fall onto the road or knock down power lines.

Use of herbicides must be consistent with the Department's commitment to an 80% reduction in herbicide use statewide by the year 2012. Use of herbicides is completely restricted within the Los Padres National Forest, and for years the Department has also prohibited its use along stretches of Highway 1 that pass through these lands.

Storm Response

Continuous patrolling occurs during daylight hours to ensure a roadway free of rocks and debris, clearing downed vegetation and continually monitoring drainage. Maintenance crews shovel out culverts and ditches that are starting to plug or are not draining properly. Storm response also includes using equipment to clean up small slides. This work can be labor intensive, involving an entire maintenance crew for traffic control, equipment operation, spotting (for safety) and hauling the material away to temporary locations (such as turnouts or pullouts). Further cleanup includes repairing potholes, hauling material from temporary storage areas to locations for recycling or permanent disposal, equipment maintenance, removing other downed vegetation and repairs to drainage systems.

Figure 25: Road crew working to remove material from a landslide

Crews

Maintenance crews are limited by their size (human power) and sometimes by the availability of equipment. When response to an event exceeds the ability of the crews to respond, rented equipment may be used or capital program efforts may be initiated.

[33] Scenic Conservation Planning Workshop, September 2000.
[34] *Caltrans Maintenance Manual*. 1998

On the Big Sur Coast support activities are high in relation to production. Support includes activities such as transporting material, equipment and personnel to the job site, preparing and repairing equipment and performing traffic control. These hours can vary greatly from year to year depending on planning, personnel availability, weather, emergencies, equipment and material availability.

Drainage maintenance activities are a high priority in the central Big Sur Coast. Keeping ditches clean and functioning requires a ratio of support to production of nearly 50% which is relatively high. Accounting for this is the fact that material must be stockpiled in a turnout, and then hauled to a location where it can be processed for reuse or recycling. Processed material must be suitable for work such as shoulder repair. The processing activity involves running material through a rock screen. The only time considered as production is that spent while the ditch cleaning operation itself is underway.

4.2.3 Scenic & Habitat Conservation

- Consider aesthetics of standard design features for overall design compatibility; bring innovative design to achieve desired aesthetic
- Reduce and minimize visual clutter, such as utilities and signs
- Establish appropriate roadside practices to protect views and fight the battle against invasive weeds
- Consider aesthetic values of non-native plants, where they do not pose a threat to habitat
- Consider Highway 1 as a “Main Street” for Big Sur communities
- Promote safe, quiet, narrow highway for serenity
- Avoid the accumulation of progressive changes that degrade character
- Avoid and reduce interference with wildlife corridors
- Reduce roadside litter and waste
- Honor community concerns regarding acquisition of private property and rights for public purposes.

The overriding theme is conservation. Stakeholders largely value the corridor just as it is, rugged and rural. The landscape speaks for itself. The idea of creating any special design themes meets with resistance; introducing elements of self-consciousness or a sense of control to the corridor is undesirable.

<u>Scenic Qualities and Sense of Place</u>
Standards for highway design are derived from ongoing technical research and documented patterns and trends; they are being updated constantly. Elements of maintaining a highway in modern times can bring changes that seem out of character in a place like Big Sur. At the same time, the Department must ensure the safety of the traveling public in accordance with the best available techniques. Innovation and creativity in design solutions is desired to meet safety criteria while not compromising the scenic integrity and sense of place, which includes its history. Flexibility in application of design criteria is in high demand.

Prominence of utilities and signs (both on and off the highway) contribute to an overall sense of clutter that is compounded by an accumulation of other features, such as roadside markers, driveway entry features and mailboxes. Many of these features, while part of the vernacular, can also bring nuances of urban design, which are out of place.

Furthermore, the responses to landsliding have left scars on slopes that are visible for long periods of time as they are difficult to revegetate.

Figure 26: *Modern style mailboxes on left contrast with the familiar rural impression from the mailboxes on the right.*

Although the Department controls all signs within the right of way, numerous signs are considered unnecessary for the safe and orderly movement of traffic and could be removed. These so-called "non-essential" signs arrive in the corridor at the request of others; while the Department resists excessive signing, accommodations for signs is not uncommon when justification of a need can be established.

Habitat and Species Protection

The vast landscape of the Big Sur Coast is wild and rugged; it supports diverse natural habitats for a wide array of species. In many ways, the highway is an incidental feature, but it can create conflicts, act as a physical barrier or induce changes that threaten the natural qualities. The highway intersects wildlife corridors, where traffic conflicts increase mortality; fences along the right of way can also act as barriers to free movement across the highway. Data collected over several years' time may be used to identify trends in wildlife crossing patterns and implement strategies that could reduce the potential for conflicts between highway traffic and wildlife[35]. Invasive weeds, which seem to thrive along the highway corridor, threaten the integrity of native habitats.

Meanwhile, the Pacific Ocean crashes at the bottom of the steep slopes. The precarious position of the highway above nearshore intertidal habitats raises concern about potential impacts to this resource. The sensitivities of the shoreline habitats are not as well understood as some terrestrial habitats. There is ongoing concern that sidecasting material generated from landslide activity can cause damage in some locations to he marine environment through burial of habitats, increased turbidity, or increased scouring which can inhibit larval settlement, depending on the sensitivity or level of adaptation of species present and various physical factors.

[35] Smiley, John. Big Sur Coast Highway Volunteer Roadkill Survey. 2003. http://www.redshift.com/~bigcreek/roads/roadkill_survey/index.html

4.2.4 Public Access & Recreation

- Balance needs and considerations of visitors and residents
- Provide and protect opportunities for public viewing and access
- Provide for different modes of non-motorized access, achieving separation from the highway where possible
- Manage overall volumes of traffic to retain quiet atmosphere
- Consider opportunities for providing visitor information and education
- Provide opportunities for short-term parking where vehicles can safely pull off the highway and park clear of the travel lane and shoulder.

Figure 27: *Pullouts like this one near Hurricane Point are popular places to pull off the highway to take in a view.*

The highway was never intended to carry more than two lanes and the idea of Big Sur as a quiet remote place can be threatened as travel demand increases. Given this basic limitation, creative solutions are needed to sustain the conditions that make traveling the highway a pleasure. As such, marketing the area to draw higher numbers is not an objective under this planning effort for concerns of crowding. Preservation of place relies in part on controlling the intensity of use.

Owing to the lack of development along the coast, amenities such as restrooms and trash bins are few and far between; litter and even human waste have a noticeable effect at some vista points and pullouts. Residents often complain that the concentration of human waste in some areas is not only unsightly but may rise to the level of a public health issue. Visitors often seek information about the places that they visit. Yet, the idea of providing amenities such as bathrooms or facilities for interpretation might conjure images of a guided tour, in contrast to the essential Big Sur Coast experience that is simply to be in a rugged natural environment and enjoy the spectacular views. Visitors in the past have indicated a desire for some of these amenities, yet many desire no changes as they could take away from the very essence of the place[36]. This dilemma

[36] Caltrans, District 5. *The Big Sur Transportation Management Study*, November 1990.

belies a source of tension between preserving the place and accommodating those who come to experience it.

Roadside parking has been stated as a matter of concern. Parking is generally not prohibited except where it is determined to be unsafe. The Department is sometimes requested to prohibit parking in the vicinity of high use areas with access from the highway. Opportunities to park safely along the roadside support public access and enjoyment of the corridor itself. Regulatory solutions (e.g., No Parking signs) add visual clutter to the landscape and are generally inappropriate for the purposes of managing access to adjacent lands.

The remoteness of the Big Sur Coast brings an element of risk to the traveler with regard to roadside communication. In other areas of the state where cellular phone coverage or emergency call boxes are available, travelers have a means of calling for help when needed. Transit services oriented to the visiting traveler are offered by Monterey-Salinas Transit and operate in the summer months between (and including) the Memorial Day and Labor Day holiday weekends. Installation of new communication facilities and even simple amenities associated with bus stops can add to visual clutter.

While the highway is a popular section of the Pacific Coast Bike Route, shoulders are severely limited in many places along the route, requiring cars and bikes to share the road carefully. A vision for a continuous statewide trail, known as the California Coastal Trail, values physical separation from highway traffic, but given the topography, may rely heavily on the established right-of-way as a suitable corridor. It may be feasible, however, to locate at least short stretches of separated facilities in the vicinity of existing high use areas that would provide benefits mostly to pedestrians and equestrians. However, such shorter stretches may not serve as an effective alternative for touring cyclists who are accustomed to the thoroughfare provided by the existing highway.

CHAPTER 5 ACTION PLAN

This action plan has been developed to address the full range of issues identified throughout the planning process. The disposition of the various issues takes several forms. Some issues were resolved simply by sharing information about an existing process or by taking a particular action. Some of the more broad-ranging issues are handled in more depth via the one of the three sets of management guidelines. Still others remain unresolved; although information and discussion may have advanced the collective understanding of the issue, more study or deliberation is needed to reach formal agreement.

5.1 Anticipated Benefits of the Action Plan

The Action Plan supports the vision for the Big Sur Coast Highway. The primary benefits of the Action Plan are the following: (1) maintaining the road in a safe operating condition, (2) supporting the traveler experience, (3) protecting corridor resources, and (4) providing for a balanced, coordinated, action-oriented approach to achieving the corridor vision. Each of these benefits is described below.

Benefit 1: Maintaining a Reliable & Safe Highway
Highway 1 along the Big Sur Coast is a key transportation corridor for access to residences and businesses along the route and destination communities to the north and south. Since its completion in 1937, the highway has also provided the means for countless numbers of people to enjoy this spectacular stretch of coastline. Because the highway is isolated and subject to landslides and related damage, maintenance of the roadway has always been difficult and labor intensive.

The Action Plan presents strategies and actions that address key issues related to highway repair, maintenance and operations, including:

- Managing for landslides
- Maintaining the integrity of the highway
- Providing timely information about road conditions
- Managing roadsides consistent with aesthetic and habitat values

Benefit 2: Supporting the Travel Experience
This stretch of highway is a national treasure. The state and national designations recognize that the corridor's natural scenery and rural setting should be preserved for the enjoyment and pleasure for generations to come.

This Action Plan includes strategies and actions that address the essential components of corridor enjoyment:

- Finding out what traveling the corridor entails in advance of commitment to drive (distance, travel time, travel speed, availability of services)
- Being in a beautiful out-of-the-way place
- Having options for reaching the corridor and getting around
- Pulling off the road along the way
- Making connections to other activities along the corridor

Benefit 3: Preserving Corridor Resources
The Big Sur Coast Highway is rich with scenic, natural, historic, and cultural resources. Resource protection is an important responsibility in the course of providing for mobility and a safe and enjoyable travel experience. Aspects of preservation include environmentally sensitive practices as well as finding opportunities to restore features that may be in need of special attention.

Strategies that address key issues related to preserving corridor resources include:

- Environmental Stewardship
- Regulatory Compliance

Benefit 4: Providing for a Balanced, Coordinated, Action-Oriented Approach
The many qualities of the Big Sur Coast inspire diverse demands from stakeholders. Some stakeholders' objectives may appear, at least on the surface, to be at odds with others. The Coast Highway Management Plan has been developed through a process that considers the full range of stakeholder values and objectives and seeks balance.

Stakeholders include persons who live and work in the corridor, those who visit, those responsible for operating public facilities, those with special interests and those who manage resources held in the public trust. Safe access and mobility is a common thread. Beyond that, interests may diverge.

Benefits accruing to one stakeholder group should not be disproportionate to others. Accommodating needs of visitors should not outweigh the desires and needs of the local community for whom the highway is a central feature of daily life, and vice versa. Similarly, protection of one resource should also not outweigh another, unless special protections are warranted, such as the need to sustain endangered species.

As a practical matter, this set of actions aims to manage human activity in ways that preserve and protect natural resources; in other words, to tread lightly. For example, strategies call for providing safety and directional signage that is sufficiently visible to do its job, but minimally intrusive, blending in harmony with its surroundings.

Balancing values means recognizing that advocates of other values have valid points of view. Each of the working groups developed a set of guiding principles that have been carried into the management strategies and actions. The plan's implementation will emphasize balance.

5.2 Management Strategies

This section describes the recommended management strategies for the Big Sur Coast Highway Corridor. A management strategy is a plan of action for attaining a desired end. The strategies presented below have been grouped into four strategic management areas, each of which generally corresponds with an element of the corridor vision and the purview of one of the technical working groups, as indicated below:

Strategic Management Area	Working Group
A. Managing for Landslides	Storm Damage Response & Repair
B. Highway Features & Function	Maintenance Practices
C. The Traveler Experience	Public Access and Recreation
D. Environmental Stewardship	Scenic and Habitat Conservation

The core value and guiding principles established by the pertinent working group head each strategic management area. Each strategic management area includes strategies that, in turn, are supported by actions. The proposed primary responsible party and a timeframe goal have been identified for each action. An action may also have additional implementation requirements such as funding and/or other resources. Timeframe goals are denoted as follows:

TIMEFRAME	DEFINITION
Ongoing - (O)	Reflects current practice that may be strengthened
Immediate - (I)	A proposed practice that may be initiated within 12 months; may require a change in business practice, but no additional funding, resources or authorization required
Short-range - (S)	A proposed practice or action to be initiated within 1-2 years; may require additional resources, coordination and approvals
Long-range - (L)	An action to be initiated or accomplished within 3-6 years, involves the potential for a greater investment of resources and coordination; may require data gathering and contingent decision-making

Any items leading to a change in business practice or requiring additional resources or funding will be subject to the availability of funds. For Caltrans as well as other responsible parties, budgetary constraints must be carefully considered. The Department's budget, as for other state agencies, is subject to actions of the California State Legislature; likewise federal agency budgets are subject to Congressional authority.

The purview of the Implementation Working Group did not correspond with any of the strategic management areas presented in the Action Plan below. Implementation will entail its own structure, timing and funding. Oversight responsibilities for implementation are expected to be coordinated through a formalized collaboration of stakeholders, as an evolution of the CHMP Steering Committee. Implementation is addressed in detail in Chapter 6.

Strategic Management Area A

5.2.1 Managing for Landslides

Core Value: Efficient and timely restoration of safe, reliable, continuous two-way travel, in a manner responsible to the environment, the community and the public.

Guiding Principles
1. Respect travelers' needs for timely and accurate information on highway conditions. 2. Act immediately and responsibly to protect or restore highway access. 3. Promote interagency and community solutions to prevent, anticipate and respond to disruptions caused by storm events. 4. Pursue solutions that avoid or minimize overall adverse environmental impacts and respect natural processes.

The hierarchy for managing emergencies related to highway operations is: (1) prevention, (2) anticipation and (3) response. The following outlines the recommendations in each case and presumes that no level of prevention can eliminate the potential for landslides to impact the highway. Each of the three components is equally important for highway management.

The *Guidelines for Landslide Management and Storm Damage Response* provide greater depth and background for the strategies and actions identified below:

Strategy A-1: Prevention

The prevention strategy entails methodical and prudent advance actions to eliminate or alleviate the potential effects of landslide-related risks. Given the degree to which geologic and hydrologic processes continue to shape the coastal landscape, a creative damage prevention program will incorporate both monitoring for changes and pre-emptive actions. In addition, highway design and repair procedures will include preventive approaches to minimize future highway disruptions and environmental impacts.

Monitoring & Managing Instabilities

A-1.1 Provide information about monitoring activities and progress of proposed improvements; seek input regarding methods and approaches for options that promote a reliable degree of highway stability and limits overall footprint. (Caltrans, Ongoing)

A-1.2 Scope and develop pre-emptive projects (identified through monitoring activity)with stakeholder involvement including a full range of alternatives (Caltrans, Ongoing)

A-1.3 Establish a technical working group and provide an annual review of pre-emptive project development efforts, including discussion of priorities. (Caltrans, Short-term).

Drainageway Management

A-1.4 Maintain corridor culvert inventory with regular inspections and identification of those culverts needing remedial work and/or replacement. (Caltrans, Ongoing)

A-1.5 Cooperate with landowners to manage debris and minimize culvert clogging. (Caltrans, Short-term)

A-1.6 Maintain flow lines in a manner that (a) limits disturbance to the minimum area necessary to re-establish essential function; (b) avoids secondary adverse consequences, such as downstream erosion and sedimentation and introduction or spread of invasive vegetation; (c) conforms to best practices under the Storm Water Pollution Prevention Program[37]; and (d) complies with appropriate regulations for any protected resource or species known to occur. (Caltrans, Ongoing)

A-1.7 Prioritize culvert repair needs and develop projects to address deficiencies identified in culvert inventory. (Caltrans, Ongoing)

A-1.8 Consider workforce partnerships for maintaining culvert drainages sufficiently free of debris to avoid clogging. (Caltrans, Short-term)

A-1.9 Compile and maintain a candidate list of drainages that may be better served by a bridge rather than a culvert, based on an evaluation of multiple criteria, including potential for debris flows and habitat values. Coordinate with appropriate stakeholders to obtain input for candidate list. (Caltrans, Long-term)

A-1.10 When replacement of facilities is warranted, incorporate multiple functions and values (hydraulic and debris load capacity, wildlife corridors, habitat functions and trails for people) in determining size and type of facility. (Caltrans, Immediate)

Pre-Emptive Projects

A-1.11 Perform in-depth landslide characterization on a priority set of locations where the highway is or could be affected by continuing movements; evaluate conditions contributing to instabilities and provide recommendations for maintenance or capital investments. (Caltrans, Short-term)

A-1.12 Compile and maintain a candidate list of protective betterment projects. (Caltrans, Ongoing)

37 In accordance with the statewide permit under the National Pollutant Discharge Elimination System issued by the State Water Quality Control.

A-1.13 Share candidate list and seek input from stakeholders. (Caltrans, Immediate)

A-1.14 Explore opportunities in programming to seek funding partners and receive priority for protective betterment type projects in the corridor (Caltrans, Short-term)

Site Restoration

A-1.15 Manage sites to effectively control erosion and promote succession of natural habitats. (Caltrans, Ongoing)

Applied Research and Investment in Technology

A-1.16 Invest in technological research and innovation in search of equipment and techniques to limit construction-related disturbances in both area and volume. (Caltrans, Ongoing)

A-1.17 Initiate pilot projects to test specific techniques for broader application, as appropriate. (Caltrans, Ongoing)

A-1.18 Maintain highly skilled geotechnical engineering expertise for advising on state-of-the-art repair decisions (including technology and equipment). (Caltrans, Ongoing)

A-1.19 Pursue and invest in continuing research and analysis to advance the availability of appropriate preventive techniques. (Caltrans, Ongoing)

Strategy A-2: Anticipation (Preparation)

Anticipation strategies encourage community preparedness, promote collaboration for solutions ahead of the need, and outline responsibilities for interagency coordination during an event.

Community Preparedness

A-2.1 Develop and maintain emergency plans for a variety of situations, e.g., incident response plans specific to certain incidents and coordinated emergency response plans specific to certain geographic threat areas. (Monterey County Office of Emergency Services, Ongoing)

A-2.2 Provide updated information on emergency preparedness to the communities. (Monterey County Office of Emergency Services, Ongoing)

Interagency Coordination

A-2.3 Review Big Sur Coordinated Emergency Response Plan on an annual basis and update emergency contact information as needed. (Caltrans and the Monterey County Office of Emergency Services, Ongoing)

A-2.4 Maintain updated list of emergency contacts (from the Big Sur Coordinated Emergency Response Plan) and distribute to stakeholders in October of each year and as needed. (Caltrans and the Monterey County Office of Emergency Service, Ongoing)

A-2.5 Conduct annual reviews to ensure that the highway emergency response team is well informed about activities and thresholds that may require authorization from regulatory agencies prior to commencing certain activities; ensure common understanding of distinctions, when applicable, between critical work to stabilize a deteriorating or unsafe condition from repair necessary to restore full service. (Caltrans, Ongoing)

A-2.6 Prepare advance environmental agreements for common and recurring activities. (Caltrans, Short-term)

Handling Excess Material

A-2.7 Continue search for materials handling and disposal options that minimize overall environmental impacts: biological, physical, and socio-economic. (Caltrans, Ongoing)

A-2.8 Follow best practices for material handling that includes overall reduction, recycling and beneficial re-use of material. (Caltrans, Ongoing)

A-2.9 Identify, evaluate and seek approval for terrestrial sites available to receive excess material (disposal). (Caltrans, Ongoing)

A-2.10 Advance the development of best practices that are most compatible with natural system processes through comprehensive environmental analysis that considers and balances the range of potential environmental impacts (socio-economic, physical and biological) including information from the marine habitat sensitivity analyses outlined in Action D-1.7. (Caltrans, Long-term)

Working in Environmentally Sensitive Areas

A-2.11 Employ best practices for working in sensitive habitats areas and areas known to contain sensitive resources. (Caltrans, Ongoing)

Provisions

A-2.12 Conduct annual inventory and procure supplies or make arrangements, as necessary, to ensure ready availability of specialized heavy equipment, communication equipment, fuel and other essential provisions for the Maintenance stations. (Caltrans, Ongoing)

Strategy A-3: Response

The Department of Transportation has the authority and responsibility for maintaining the highway in a safe operating condition. Whenever traveler safety is threatened or compromised or the integrity of the facility is at risk (and thereby public safety), the Department has the authority to determine that an emergency condition exists with regard to the highway.

Interagency Coordination

A-3.1 Implement use of the Interagency Emergency Notification Form (see Appendix F) as the primary tool to promote interagency coordination emergency highway repairs. (Caltrans, Ongoing)

Communications

A-3.2 Implement responsibilities consistent with the Monterey County's Big Sur Coordinated Emergency Response Plan. (Caltrans, Ongoing)

A-3.3 Provide accurate and reliable messages to travelers, would-be travelers and the local and regional community for any event-related closure or delay to include information about specific location, expected duration of delays or closures, destinations/businesses that remain accessible and open, and any unusual circumstances. (See Appendix F: Emergency Communications) (Caltrans, Ongoing)

A-3.4 Consider the full range of stakeholders and potential impacts (physical, natural, and socio-economic) in decisions regarding actions to restore highway service. (Caltrans, Ongoing)

Construction & Site Restoration

A-3.5 Conduct activities pursuant to best practices. (Caltrans, Ongoing)

Post-Incident Review

A-3.6 Conduct a debriefing with stakeholders to evaluate all aspects of emergency response. (Caltrans, Ongoing)

A-3.7 Conduct a post-incident multi-disciplinary review, including representatives from the scientific community, to evaluate site conditions, discuss actions, management options and make recommendations to Caltrans. (Caltrans, Short-term)

Strategic Management Area B:

5.2.2 Highway Features & Function

Core Value: Efficient and timely restoration of safe, reliable, continuous two-way travel, in a manner responsible to the environment, the community and the public.

Guiding Principles
1. Conduct maintenance activities in manner that sustains the sensitive environment along the corridor. 2. Protect the public's investment in the highway with preventive care. 3. Ensure the functional integrity, safety and operation of Highway 1 for the traveling public. 4. Strive continually to apply the best available techniques for diverse maintenance activities.

This management area speaks to managing all aspects of the highway in a manner that is sensitive to its context; i.e., consistent with the rural character and with minimal visibility of human fingerprints on the rugged landscape. Innovation and creativity are demanded to meet the essential need for a safe and efficient highway that is also sensitive to its context.

Strategy B-1: Clean Roadsides

The proliferation of visual clutter threatens aspects of the corridor's scenic qualities. By contrast, a cleaner (less cluttered) roadside environment is also safer for the highway traveler.

B-1.1 Practice "net loss" of clutter throughout the corridor where requests for adding features (including signs) within the corridor must demonstrate visual compatibility and any residual impacts must be offset. (Caltrans, Immediate)

B-1.2 Adopt and implement *Guidelines for Corridor Aesthetics* for the Big Sur Coast to address the broad variety of features associated with the highway and along the corridor that can contribute or detract from overall scenic qualities. (Caltrans, Immediate)

Strategy B-2: Context Sensitive Solutions

Application of standard highway design elements that are associated with freeway and urban settings appear out of place on the Big Sur Coast. Exploring the possibilities for flexibility in highway design is necessary. Furthermore, stakeholder involvement in a collaborative decision-making process is key. The *Guidelines for Corridor Aesthetics* are especially relevant to this subject.

B-2.1 Seek experimental applications for alternative aesthetic design treatments for construction of new features, such as guardrail, or retrofit of existing roadside features, such as paddle markers. (Caltrans, Immediate)

B-2.2 Establish a reliable approach to improve effective stakeholder participation at various stages of decision-making, from non-essential sign requests to alternatives for a capital improvement. (Caltrans, Immediate)

Strategy B-3: Highway Operations and Capacity

Long-range plans and policies all provide that State Route 1 will remain a rural two-lane highway throughout the Big Sur Coast. With demand increasing and capacity limited, optimizing the existing facility is critical so as not to degrade the quality of the experience of traveling the highway. (See also Strategy C-2).

Operations

B-3.1 Review proposals for new development and anticipated traffic impacts on the Coast Highway. (Monterey County and Caltrans, Ongoing)

B-3.2 Minimize the number of access road entrances to the Coast Highway. (Monterey County and Caltrans, Ongoing)

B-3.3 Require new facilities and expansion of existing facilities to provide adequate and safe off-highway parking. (Monterey County, Caltrans, Ongoing)

B-3.4 Optimize highway operations and safety by evaluating need and pursuing opportunities for additional slow moving vehicle turnouts. (Caltrans, Ongoing)

B-3.5 Review roadway deficiencies and implement appropriate corrective measures to improve operational conditions where warranted (e.g., left turn lanes). (Caltrans, Short-term)

B-3.6 Perform an evaluation for unmet transit needs, possible sources of additional funding; determine capacity and fiscal impact of augmenting bus service to relieve congestion at peak periods. (MST, TAMC, Short-term)

Capacity

B-3.7 Collect and review data on traffic levels (seasonal and average) and travel characteristics (e.g., mode split, trip purpose) every five years. (Caltrans, Immediate)

B-3.8 Distinguish areas of unpaved shoulders and turnouts and promote deliberate decisions on managing roadside uses to avoid unplanned or incremental widening. (Caltrans, Short-term)

Strategic Management Area C:

5.2.3 Traveler Experience

Core Value: Highway 1 is the primary access to important coastal and recreational resources available to the public. The need to provide access must uphold the value of preserving the informal visitor experience and be balanced with adequate resource protection to ensure appreciation and enjoyment of these resources for generations to come.

Guiding Principles
1. Communicate essential traveler information. 2. Promote a non-motorized network for public access that balances recreational opportunities with use of the highway by motor vehicles and protection of sensitive resources, private properties, and community values 3. Support the recreational value of traveling the Coast Highway 4. Be guided by the capacity of the Big Sur Coast to educate and inspire.

The intent of these strategies is (1) to provide information about traveling and enjoying the Big Sur Coast; (2) to provide opportunities to pull off the highway for various purposes; (3) to manage connections between the highway and neighboring facilities; and (4) to provide safe conditions for non-motorized touring.

Of equal importance is what might be considered excluded from these strategies, namely marketing. These strategies speak to a general desire to manage existing levels of visitation along the corridor, rather than actively seek out more visitors. This in itself is considered a preservation technique to avoid congestion and crowding, which would ultimately alter both the visitor's experience and the quality of life in the community.

The four strategies within this category speak to visitor services, recreation, interpretation, and non-motorized transportation.

Strategy C-1: Visitor Services

Visitors desire information about the area, including expected travel conditions, points of interest along the way, and locations of visitor-oriented facilities in the corridor.

Information

C-1.1 Develop trip-planning information regarding the Coast Highway for distribution in Monterey and San Luis Obispo Counties, with information about basic driving conditions, travel time and weather. Distribute to visitor bureaus, State Park offices, hotels and other points of visitor contact. (Caltrans, Short-term)

C-1.2 Evaluate opportunities to improve the availability of visitor information at both ends of the corridor, Carmel River in the north and San Simeon in the south. (CA Dept of Parks & Recreation, Long-term)

Facilities and Amenities

C-1.3 Evaluate specific needs of travelers, by a variety of means, such as a survey to poll the demand for additional facilities such as central visitor information and public restrooms (include "do nothing" as an option). (Big Sur Chamber of Commerce, Short-term)

C-1.4 Form partnerships to evaluate opportunities and develop criteria for selecting appropriate site(s) and solutions for new visitor amenities, such as restroom facilities. (Caltrans, Short-term)

C-1.5 Develop and implement volunteer litter program with alternative recognition program (i.e., without signs). (Caltrans, Short-term)

C-1.6 Identify and evaluate opportunities to retrofit existing roadside amenities consistent with Americans with Disabilities Act (ADA) compliance where needed. (CT with DPR and USFS, Short-term)

Strategy C-2: Non-Motorized Transportation and Transit

Non-motorized transportation and transit both have the potential to reduce the demand on Highway 1 for automobile use and to serve recreational purposes as well. In general, walkers and cyclists are pursuing purely recreational interests. Accommodating the California Coastal Trail (CCT) along the corridor is a primary objective of this strategy.

California Coastal Trail

C-2.1 Plan, develop, and construct the California Coastal Trail, providing separation from motor traffic, to the extent feasible. (CA Coastal Conservancy in partnership with Caltrans/DPR and others, Ongoing)

C-2.2 Support the proposed California Coastal Trail that runs parallel to or coincident with the highway by evaluating specific requirements necessary to accommodate it within the right of way and by incorporating appropriate aspects of the system into funded capital improvements. (Caltrans, Immediate)

C-2.3 Identify and prioritize areas of high demand for pedestrian, bicycle and equestrian use; identify specific capital improvements to improve non-motorized modes. (Caltrans/DPR/TAMC, Short-term)

Bicycling

C-2.4 Incorporate consistent 4-foot paved shoulders, as appropriate and feasible, as part of funded capital projects. (Caltrans, Ongoing)

C-2.5 Provide reminders about shared-use of the highway. (Caltrans, Short-term)

C-2.6 Explore the feasibility of ITS-based sensor/signal system to alert motor vehicles of non-motorized users ahead along the route. (Caltrans, Short-term)

Transit

C-2.7 Identify and prioritize opportunities to enhance transit connections for non-motorized travelers along the highway corridor, such as bicyclists and hikers. (MST, Short-term)

Strategy C-3: Recreation

Highway 1 provides direct access to popular viewing areas and trailheads on public lands. Secondary access from Highway 1 leads to beaches, public parks, private campgrounds and other recreation-oriented facilities. This strategy supports the tradition of low impact recreational activities.

Highway Connections

C-3.1 Manage safe access to trailheads with existing parking along the highway while respecting rights and concerns of public and private landowners. (Caltrans with DPR and USFS, Ongoing)

C-3.2 Conduct a feasibility study to evaluate the potential for existing pullouts that provide trailhead access to become formalized as permanent dedicated access. (Caltrans, Short-term)

C-3.3 Evaluate needs and upgrade facilities for ADA compliance, where feasible. (Caltrans in partnership with DPR/USFS, Short-term)

Strategy C-4: Interpretation

Interpretive information is currently available within units of the State Parks and some private facilities as well as in books, pamphlets and audio tapes available for purchase and at libraries and over the Internet. The interpretation strategy is intended to (1) honor the overriding value of the Big Sur experience as discovery and revelation, rather than a guided tour; (2) encourage coordination among resource agencies that are mandated as part of their respective missions to provide educational and interpretive services; and (3) discourage installations that would add clutter along the corridor.

C-4.1 Consider development of a corridor-wide interpretive program that addresses needs of Los Padres National Forest, the Monterey Bay National Marine Sanctuary, California Coastal National Monument and State Parks and that highlights corridor themes and qualities along its length, while directing people away from sensitive areas and private property. Evaluate use of self-tours using print or audio media including Highway Advisory Radio (HAR) neither of which would require intrusive physical installations along the corridor. (USFS, Short-term)

Strategic Management Area D:

5.2.4 Environmental Stewardship

Core Value: Preserving, restoring and maintaining the natural beauty and rural character of the corridor.

Guiding Principles
1. Respect diversity, individuality, and character of place. 2. Minimize visibility of human activity. 3. Protect and restore native habitats and corridor natural, scenic and cultural resources. 4. Pursue multi-party solutions to achieve success.

Although Caltrans has no authority or responsibility for areas beyond the highway right-of-way, the CHMP provides a framework for collaboration among other public and private landowners and managers as well as resource agencies. Two primary strategies for this subject are resource protection and environmental streamlining.

Strategy D-1: Resource Protection

The essential role of stewardship is to care for the resources. For Caltrans, that means taking care of the environment while achieving its fundamental mission to provide for mobility. Various stakeholders have roles and together can be more effective at meeting ultimate stewardship objectives.

Roadside Management

D-1.1 Practice stewardship of corridor intrinsic qualities in day-to-day operations; establish broad understanding within the various units of the Department through a program of regular exchange with regard to type, extent and distribution of resources along the corridor. (Caltrans, Ongoing)

D-1.2 Coordinate the corridor-wide effort to combat the spread of exotic weeds with the Big Sur Weed Management Task Force (WMTF). (USFS, On-going)

D-1.3 Adopt and implement *Guidelines for Vegetation Management* for practices directly along the highway that incorporate best practices according to variety, distribution, and sensitivity of habitats along the coast and vulnerability to exotic species. (Caltrans, Short-term)

D-1.4 Consider and re-evaluate program for safe and effective application of herbicides along Highway 1 throughout the corridor. (Caltrans, in cooperation with USFS, Ongoing)

D-1.5 Establish priorities and coordinate the approach for controlling and removing invasive and exotic plants throughout the corridor. (WMTF, Short-term)

D-1.6 Develop and implement a volunteer workforce effort (e.g., Adopt-a-Highway program) for weed control. (WMTF, Short-term)

Shoreline Resources

D-1.7 Evaluate the sensitivity and adaptability of various marine habitats and specific physical locations for the potential disposal to accept landslide material. Use this information as the basis for general regional guidelines regarding areas to be avoided and identify potential disposal locations. Conduct further site-specific analysis for the potential disposal locations. (MBNMS in coordination with Caltrans, Immediate)

D-1.8 Evaluate highway management practices for impacts to shoreline resources in the context of natural processes and the results of habitat sensitivity analyses. (Caltrans in coordination with MBNMS, Short-term)

D-1.9 Participate in the development of the statewide Sediment Management Master Plan. (Caltrans, Immediate)

Viewshed Restoration/Preservation

D-1.10 Develop a list of detractors and visual clutter within Caltrans' right-of-way for remediation over time. Remediation will be undertaken as part of regular funded programs and projects in order to restore the scenic qualities along the corridor. (Caltrans, Short-term)

D-1.11 Explore opportunities for public–private cooperation to protect the critical viewshed, ensuring that measures other than fee simple acquisition are considered, where vacant lots have been rendered undevelopable due to local critical viewshed policies (to be determined, On-going)

D-1.12 Consider innovative ways to accommodate private development and protect corridor resources while avoiding fee title acquisition of private land by a public agency, including: sale of excess public land, land swaps, facilitation of parcel reconfigurations, provision of access easements across public land, and technical assistance to private property owners. (to be determined, On-going)

Historic Preservation

D-1.13 Initiate a restoration project for significant contributing features such as the rubble masonry drinking fountains of the Carmel-San Simeon Highway Historic District. (Caltrans, Short-term)

D-1.14 Implement the Guidelines for Corridor Aesthetics for context sensitive solutions honoring the corridor's historic qualities. (Caltrans, Immediate)

Strategy D-2: Environmental Streamlining

Environmental Analysis

D-2.1 Conduct program level environmental analysis for specific corridor management activities, focusing on landslide management and storm damage response. Provide alternatives analysis to facilitate collaborative decision-making. Establish agreement on conceptual mitigation strategies for specific types of impacts. (Caltrans, Short-term)

Programmatic Agreements

D-2.2 Develop corridor-wide programmatic agreement to address activities that could affect the federally endangered Smith's blue butterfly. (Caltrans, Ongoing)

D-2.3 Develop corridor-wide programmatic agreement for the rubble masonry features of the Carmel-San Simeon Highway Historic District. (Caltrans, Ongoing)

D-2.4 Develop a Public Works Plan for compliance with the California Coastal Act for landslide management and storm damage response activities (Caltrans, Immediate)

D-2.5 Develop appropriate agreements with the Monterey Bay National Marine Sanctuary for compliance of highway activities with Marine Sanctuaries Act. (Caltrans, Short-term)

D-2.6 Consider development of a Regional General Permit for activities under the jurisdiction of the US Army Corps of Engineers for compliance with the Clean Water Act. (Caltrans, Short-term)

Environmental Compliance – Event-related

D-2.7 Implement the Interagency Emergency Notification process and the associated follow-up actions; provide consistent and reliable communication and information exchange for environmental compliance. (Caltrans, Ongoing)

CHAPTER 6 IMPLEMENTATION

Implementation of the Coast Highway Management Plan will entail efforts along separate but interrelated tracks. The first track moves towards initiating the proposed actions themselves: prioritizing them, matching actions to specific sites, obtaining commitments from responsible parties, and preparing to effect the actions. The second track addresses design of a program for accomplishing the action program over time: forming an organizational structure, assuring adequate funding, and providing for tracking, evaluation, and plan updates.

6.1 Getting Started

More than 85 distinct actions are identified in the Action Plan. For the most part, actions are not geographically specific. In addition, specific measures for accountability by each of the responsible parties have not yet been identified. These two matters are important to stakeholders and work is underway to address them.

Concurrent with the design of a corridor management and coordination program described in 6.2 below, the CHMP Steering Committee and planning team are initiating the process of profiling the corridor to assign and prioritize actions for each of the segments.

Not all the actions have location parameters. Examples of these actions include investing in technological research and innovations and conducting annual reviews of highway emergency response protocols. Some actions are already underway; others will be addressed through the program described below. Preparing corridor segment profiles and identifying needs and priorities within these segments will make aspects of the CHMP more tangible while progress proceeds into future phases of implementation.

The Action Plan identifies responsible parties for each of the actions. In most cases, these assignments are based upon the purviews and jurisdictional responsibilities that exist along the corridor. The responsibility party must identify needs for funding, internal work programs, or partnerships that are necessary to succeed. This framework will become a tool for ensuring accountability in implementing the CHMP.

E-1.1	Prepare corridor segment profiles showing incidence of conditions to be targeted by actions in implementation phase (Caltrans, Short-term).
E-1.2	Assign and prioritize actions by corridor segments (Caltrans, Short-term).
E-1.3	Determine specific institutional needs for full implementation, such as supplemental support for the highway Maintenance program (e.g., personnel, equipment, facilities) (Caltrans, Long-term).

6.2 Ongoing Corridor Management and Coordination Program

For the majority of recommended actions, Caltrans has been identified as the entity with primary responsibility. However, accepting primary responsibility for accomplishing individual actions is not the same thing as accepting responsibility for implementing the CHMP. The latter function will entail management of the entire process.

Carrying out the recommended actions and making appropriate adjustments will be needed over time. As has been the case in all phases of the CHMP to date, implementing the strategies and actions will entail consultation with stakeholder representatives and coordination among multiple agencies. The actions will also require prioritizing, scheduling, tracking and evaluation. Clearly, an ongoing corridor management and coordination program will be essential for plan implementation. Key elements in the management and coordination program include the organizational structure, acquisition and management of funds, and updating the CHMP. (On various occasions throughout the CHMP process the Steering Committee and the Plan Implementation Working Group considered and discussed the role, authority and structure of a successor organization. Summaries of these discussions are included in Appendix G.)

Implementation Structure
Four entities were involved in preparing the CHMP: the Steering Committee, technical Working Groups, a planning team led by Caltrans, and interested members of the public. Implementation of the CHMP will require a functional equivalent of these forums.

"Byway Organization"
A successor to the broad-based Steering Committee would be comprised to represent diverse stakeholder interests, work closely with the community and involve the public in the spirit of cooperation and collaboration to implement the CHMP. This group would recommend priorities among the actions; clarify issues and provide direction; provide a forum for all stakeholders to be heard and to represent and interpret the CHMP to the public. Responsibility for these larger functions would be assumed by this successor organization.

In addition, with the recent extension of the All-American Road designation south to San Luis Obispo, coordination with stakeholders across the county line will be even more important.

In deliberations to date concerning its successor, the CHMP Steering Committee has indicated a preference for operating under an Interagency Agreement or a Memorandum of Understanding among key partners. There was general concurrence that a partnership among existing organizations is preferred to creating a new organization, even a non-profit organization at this time. At the same time, the new organization or partnership should be motivated by the particular vision of the CHMP to seek balance among interests in maintaining the highway in good repair; protecting and enhancing corridor resources; and providing safe, human-scale travel along the Big Sur coast. Elements of a proposed charter were drafted; the Steering Committee agreed to receive input on the proposal during circulation of the draft CHMP document(s) for public review and comment. The successor organization is generically referred to as "the byway organization".

The current Big Sur Multi-Agency Advisory Committee will guide the formation and makeup of the future organization.

Implementation Management Team
A successor to the Planning Team and the CHMP Project Manager will be needed to track actions; monitor and track the implementation process; disseminate information; receive feedback on implementation and emerging issues (satisfaction survey); maintain records and account for certain funds. While Caltrans provided project management during the planning process, another entity with a major stake in the process could lead the Implementation Management Team. Caltrans will have major responsibility for many strategies and actions. Therefore, whether or not Caltrans continues in a leadership role for the overall management, Caltrans continue to have a long-term responsibility for coordinating and tracking its activities and for providing a liaison function to the broader stakeholder group.

Caltrans may serve as interim Implementation Manager following adoption of the CHMP until the role of manager or coordinator is more fully specified by the byway organization.

In addition to a leader, two important roles must be filled: a fiscal agent and staff to coordinate activities of the new organization including reporting and following up on actions. The fiscal agent will hold and disburse any funds that are not directed to an implementing agency. This role should be filled by a neutral organization that is eligible to receive funds from private foundations and government sources. The non-profit affiliate of the Association of Monterey Bay Area Governments, Regional Analysis & Planning Services, Inc (RAPS) has volunteered to act as Fiscal Agent for the new organization. This arrangement could avail staff for grant writing and administration as well as expertise in the field of transportation.

A number of Programmatic Agreements and/or Memoranda of Understanding may be proposed for execution between agencies. The Implementation Manager would facilitate and track the preparation of such agreements.

Technical Working Group
A group to review and input to ongoing activities and technical information will provide a forum as-needed basis to accomplish actions requiring specific kinds of expertise, or interests.

Public Involvement
As its development, implementation of the CHMP must continue as an open public process.

6.3 Funding

Caltrans has received two Scenic Byways seed grants to initiate the formation and development of a byways organization for the Big Sur Coast. The seed grants must be used for this purpose.

Caltrans will undertake many of the recommended actions as modifications to the way it has undertaken its construction, maintenance, public information and environmental compliance activities in the past. Other agencies such as Monterey County, Transportation Agency for Monterey County, California Department of Parks & Recreation and the USDA Forest Service similarly will be modify existing procedures to implement actions in the CHMP. While these agencies will be expected to apply their own funding to undertake the recommended actions, they may be eligible to receive special funding to support their efforts.

A number of funding sources may be appropriate for activities contemplated with the CHMP. The Implementation Manager would maintain a database of grant programs and other funding sources and would collect sources of matching funds often necessary to receive grant funds.

6.4 Next Steps

As the Implementation Phase is undertaken, several initial steps will be taken[38]:

1. A charter for the successor to the Steering Committee will be written and accepted by member organizations. (See proposed charter, above.)

2. The new byway organization will identify its preferences for membership, participation and leadership on the Implementation Management Team, including appointment of a Fiscal Agent. (Caltrans may serve as interim Implementation Manager until this step has been completed).

3. The recommended actions will be sorted by corridor section, responsible agency and timeframe and then prioritized for initiation or assigned to a task group for addressing unresolved issues.

4. A method for tracking progress and measuring outcomes will be created and effectuated.

5. The modes and frequency of communicating with the public and reporting to other agencies will be considered. A process for modifying/revising actions or procedures and a formal communication plan for disseminating that information to affected persons will be created.

6. A process for updating the CHMP to reflect modifications to actions or procedures will be designed and implemented.

7. Other matters such as coordinating with member agencies, involvement with planning for Corridor Management Plans for adjacent roadway segments will be addressed.

6.5 Updating the CHMP

As stated among the objectives: the CHMP provides a process for effective corridor management and resolution of corridor issues. This objective requires the CHMP to be a *living* document that is continually updated to accommodate changed conditions, new resource information and new regulations, technologies and organizational mandates.

The Implementation Manager will be the “keeper of the plan” who tracks minor changes to actions or procedures. These changes will be disseminated to affected persons as they are made. Annually in the new byway organization’s first quarterly meeting of the calendar year, the Implementation Manager will present a “State of the Corridor” report which will also be made available to the public and other agencies according to the

[38] Where no primary actor has been identified for completing the step, the Implementation Manager will propose alternatives for consideration/direction/adoption by the new byway organization.

communication plan identified in 6.4.5, above. The "State of the Corridor" will address the following topics:

1. Summary of activities and events in the corridor over the past year: maintenance and construction work on the corridor, significant weather-related events; significant traffic-related events; new multi-modal services in the corridor.

2. Progress in completing recommended CHMP actions over the past year.

3. Progress in completing major studies, negotiations and related MOUs or agreements.

4. Results of a satisfaction survey of Council members and the public.

5. Changes in the institutional context for corridor decision-making (i.e., updates to other agencies' management plans, new legislation or regulations affecting member agencies' operations).

6. Issues/concerns raised by agencies or the public and proposals for addressing them.

7. The year's accumulated modifications to actions and procedures.

8. New funding opportunities or constraints.

9. Text of any proposed annual amendment to the CHMP.

Upon consideration of the information in the State of the Corridor report and discussion by Council Members, the Council will direct the Implementation manager to prepare and disseminate information about the annual amendment.

The annual review of progress and modifications to the CHMP will accommodate a limited scope of change within the framework of these documents and current institutional arrangements. The CHMP should be formally reviewed, evaluated and updated periodically to reflect fundamental changes in the context of planning for the corridor and to reaffirm commitment to the effort. While details of the update will properly be decided by the byway organization and the Implementation Manager, a three-year interval for such an update is recommended with the first to be completed in the spring of 2007.

Potential Funding Opportunities

Appendix H provides a list of sources for potential funding opportunities that might be available for activities in the corridor. Interested parties should contact administering agency or organization for more specific eligibility criteria and application requirements.

References

California Department of Transportation, District 5, December 2000. *Negative Declaration: Disposal Sites for Landslide Material from Highway Repairs, Highway 1 along the Big Sur Coast.*

California Department of Transportation, District 5, July 2001. *Interagency Notification for Emergency Highway Repair and Guidelines for Implementation*.

California Department of Transportation, District 5, November 2001. *Draft Highway 1 Closure Sign Plan.*

California Department of Transportation, District 5, October 2001. *Big Sur Coast Emergency Operations and Notification Plan.*

California Department of Transportation, District 5. April 2002. *Culvert Inventory for the Big Sur Coast Highway Management Plan.*

California Department of Transportation, District 5. November 1990. *The Big Sur Transportation Management Study.*

California Department of Transportation. *Maintenance Manual* 1998.

California Department of Transportation, District 5. September 2001. *Slope Instabilities affecting the Highway 1 Corridor: Road Condition and Hazard Potential.*

California Division of Mines & Geology, September 2001. *Landslides in the Highway 1 Corridor: Geology and Slope Stability along the Big Sur Coast.*

Duffy, John. *Living with Landslides on the Big Sur Coast.* PowerPoint presentation. 2001.

Hapke, Cheryl. *Estimated Sediment Yield from Coastal Landslides and Active Slope Distribution Along the Big Sur Coast and Addendum: Coastal Cliff Erosion Rates, Big Sur, CA. May* 2003.

Federal Highway Administration, 1999. *National MOU on Environmental Streamlining*.

JRP Historical Consulting, Inc (for the California Department of Transportation, District 5), September 2001. *A History of Road Closures along the Big Sur Coast.*

Smiley, John. *Big Sur Coast Highway Volunteer Roadkill Survey*. 2003. http://www.redshift.com/~bigcreek/roads/roadkill_survey/index.html

Storm Damage Working Group Handout: *Emergency Definition Matrix*.

Monterey County Planning Department, *Big Sur Coast Land Use Plan*. 1985.

Monterey County Office of Emergency Services, 1999. *Big Sur Coordinated Emergency Response Plan.*

University of California Santa Cruz, Big Creek Reserve. www.redshift.com/~bigcreek/

Attachment 1: Area of Interest Map

Ron DeCarli, Executive Director
San Luis Obispo Council of Governments
1150 Osos St., Suite 202
San Luis Obispo, CA 93401

January 16, 2002

Dear Mr. DeCarli,

Thank you for your December 13 letter indicating your plans to nominate Route 1 from San Luis Obispo to the Monterey County line. You requested the Federal Highway Administration to respond to several questions. After reviewing the questions you raised, I believe some general comments about the National Scenic Byways Program would be helpful. With the following comments as background, I am enclosing my reply to each of your questions.

Under the National Scenic Byways Program, the U.S. Secretary of Transportation recognizes certain roads as National Scenic Byways or All-American Roads based on their archeological, cultural, historic, natural, recreational, and scenic qualities. There are 72 such designated byways in 32 states. The FHWA promotes the collection as America's Byways.

Anyone may nominate a road for possible designation by the Secretary, but the nomination must be submitted through a state's official scenic-byway agency – the California Department of Transportation in your case. The nomination also must include a corridor-management plan designed to preserve and enhance the unique qualities of the byway.

State and byways representatives typically cooperate to develop the corridor management plan. The plan specifies the actions, procedures, controls, operational practices, and strategies to maintain the scenic, historic, recreational, cultural, natural, or archeological characteristics that support scenic byways designation. Important components of plan development are:

- It is developed with community involvement;
- It provides for the conservation and enhancement of the byway's intrinsic qualities as well as the promotion of tourism and economic development; and
- It provides an effective management strategy to balance these concerns while providing for the users' enjoyment of the byway

For consideration of national byway designation, the corridor management plan must address the 14 points of corridor management planning included in our interim policy for the National Scenic Byways Program (see *Federal Register* notice, May 15, 1995, paragraph 9, copy enclosed).

Attachment 2

It also is important to note what the corridor management plan is not. It is not a FHWA plan or document. The corridor management plan should complement other plans for the area. The plan does not supercede state or local requirements for the design, construction, maintenance, or use of the road, nor does it supercede local land use or zoning requirements. It simply articulates a vision and set of local strategies for the byway and communities along the byway. Byway representatives should look to local land use and transportation plans and initiatives as means for helping achieve the goals and objectives for the byway.

To be designated as a National Scenic Byway must possess at least one of the six intrinsic qualities. The significance of the features contributing to the distinctive characteristics of the corridor's intrinsic qualities must be recognized throughout the multi-state region.

To receive an All-American Road designation, a road must possess multiple intrinsic qualities that are nationally significant and contain one-of-a-kind features that do not exist elsewhere. The road or highway must also be considered a "destination unto itself." That is, it must provide an exceptional traveling experience so recognized by travelers that they would make a drive along the highway a primary reason for their trip.

The National Scenic Byways Program is a voluntary, grass roots program. As the local leader for one byway has said, "the program is about recognition, not regulation." With these thoughts in mind, I am enclosing replies to your questions. I hope this information will prove helpful to you as you consider whether to advance Route 1 in the County of San Luis Obispo for possible national designation. I also encourage you to contact Dennis Cadd (at 916 654-5370), Caltrans' Scenic Byway Coordinator discuss your concerns.

Sincerely,

Original Signed By:

Robert W. Draper, Director
National Scenic Byways Program

2 Enclosures

cc: Dennis Cadd

Enclosure One 1/16/02

1. Does the designation affect any private property rights?

There is one Federal requirement affecting private property rights. State and local officials must ensure that no new billboards are erected on a State scenic byway if the road is part of the National Highway System or was part of the Federal-aid primary system before, on, or after December 18, 1991; Title 23, United States Code, Section 113(s). Route 1 in the County of San Luis Obispo is subject to this requirement because of its designation as a California scenic byway. New off-premise billboards cannot be constructed on private property along Route 1 of the byway.

2. Can inclusion in a Scenic Byway area impose any regulations on a County, City or individual property?

Aside from the billboard restrictions noted earlier, there are no Federal regulations imposed on a County, City or individual property as a result of scenic byway designation.

3. Can property owners within the corridor be required to alter the use of their land and buildings without the acquisition of those property rights by the State?

No. The Federal Highway Administration does not have the authority to require owners within the corridor to alter the use of their land and buildings. However, a locally-sponsored byway project might require land, such as for a visitor's center, but the location of any project such as this requires a willing seller or donated property. If there is a compelling public need then, as a last resort, the state or a local unit of government could use its corporate powers of eminent domain to acquire the needed property for the project.

4. Can the State use eminent domain to acquire property rights within the corridor area for implementation of the corridor plan?

The Federal Highway Administration does not have the authority to initiate or undertake eminent domain to acquire property. Both state and local units of government typically have the right of eminent domain, with or without a scenic byway designation. For what action might be taken by the California Department of Transportation along a scenic byway in California, I defer to Dennis Cadd, Caltrans' Scenic Byway Coordinator. Perhaps you are in the best position to know whether any local units of government might use eminent domain to acquire property rights within the corridor.

5. If in the future the City of Morro Bay, the City of San Luis Obispo, and/or the County of San Luis Obispo become dissatisfied with the program can we withdraw and what are the procedures and requirements?

Yes. If Route 1 in the County of San Luis Obispo is designated as a National Scenic Byway or All-American Road, the local units of government may withdraw from the program by

requesting Caltrans to de-designate it as a scenic byway. Upon receiving such a request from Caltrans, the Federal Highway Administration would de-designate the road.

6. Can a corridor plan, a required component of the nomination package, be revised and how does revision get authorized for implementation?

Yes, the plan can be revised at any time. The document should change over time to reflect the changing needs of the byway, local governments and residents. It should not be a stagnant document that is never "revisited." If the San Luis Obispo Council of Governments is the lead byway organization for Route 1, then the Council of Governments will decide whether and how to update the plan with community involvement.

7. Since receiving the December letter with the preceding six questions, Richard Murphy San Luis (Obispo Council of Governments) emailed a seventh question – does designation enable regulatory agencies to impose more stringent regulations on private property owners?

No. The corridor management plan and the designation itself do not create or impose legal authority over any person or any government. As such, regulatory agencies would have to rely their existing authority to impose more stringent regulations on private property owners. The corridor management plan is a local document developed to guide the actions of the local byway organization in achieving their vision for the byway.

Appendix A: Summary of Action Items

Strategic Management Area A: MANAGING FOR LANDSLIDES

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	🯅	
A-1: Prevention								
Monitoring & Managing Instabilities	A-1.1	Provide information about monitoring activities and progress improvements; seek input about options that promote highway stability and limits footprint.	O	CT	✓		✓	Readily accessible information about managing instabilities
	A-1.2	Scope and develop pre-emptive projects.	O	CT		✓	✓	Protective betterments receive priority consideration
	A-1.3	Establish technical working group and provide an annual review of pre-emptive project development efforts.	S	CT	✓		✓	Interdisciplinary-Interagency group in place with defined role and responsibility
Drainageway Management	A-1.4	Maintain corridor culvert inventory with regular inspections and identify culverts needing work/replacement.	O	CT			✓	Regularly maintained database informs project priorities
	A-1.5	Cooperate with landowners to manage debris and minimize culvert clogging.	S	CT	✓		✓	Informal agreements w/ owners of land prone to debris-flow
	A-1.6	Maintain flow lines in a manner that (a) limits disturbance; (b) avoids secondary adverse consequences; (c) conforms to Storm Water Pollution Prevention Program[39]; and (d) complies with resource/species protection regulations.	O	CT	✓		✓	Lack of regulatory violations
	A-1.7	Prioritize culvert repair needs; develop projects to address deficiencies.	O	CT			✓	Culverts rehabilitated or replaced prior to failure

[39] In accordance with the statewide permit under the National Pollutant Discharge Elimination System issued by the State Water Quality Control Board

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Implementation Requirements

Δ Change in Business Practice
$ Capital Resources
🯅 Human Resources

[a] Above currently funded levels.

Strategic Management Area A: MANAGING FOR LANDSLIDES

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	🙍	
Drainageway Management (continued)	A-1.8	Consider workforce partnerships for maintaining culvert drainages free of debris.	S	CT	✓	✓		Culvert inlets free of loose debris without increasing effort by Maintenance crews.
	A-1.9	Compile and maintain candidate list of drainages better served by bridge rather than culvert. Coordinate with appropriate stakeholders.	L	CT	✓		✓	Prioritized candidate list available
	A-1.10	When replacement of facilities is warranted, incorporate multiple functions and values in determining size/type of facility.	I	CT	✓			Application of multi-function criteria with new projects.
Pre-Emptive Projects	A-1.11	Perform landslide characterization on priority set of locations, evaluate conditions and provide maintenance or capital investments recommendations.	S	CT	✓		✓	Site-specific management recommendations available.
	A-1.12	Compile and maintain candidate list of protective betterment projects.	O	CT	✓		✓	Readily accessible information.
	A-1.13	Share candidate list and seek early and continuous input from stakeholders.	I	CT	✓		✓	Reduce average project delivery time for protective betterments.
	A-1.14	Explore programming opportunities to seek funding partners and receive priority for protective betterment projects.	S	CT	✓			Increase delivery of protective betterment-type projects without increasing SHOPP expenditures
Site Restoration	A-1.15	Manage sites to control erosion and promote natural plant succession.	O	CT	✓		✓	Reduced total area of barren or weedy areas aggravated by surface erosion

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Strategic Management Area A: MANAGING FOR LANDSLIDES

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
Applied Research and Investment in Technology	A-1.16	Invest in technological research and innovation in search of equipment and techniques to limit disturbances, area and volume.	S	CT		✓		Best available equipment and techniques consistently relied upon for maintenance activities and construction projects
	A-1.17	Initiate pilot projects to test specific techniques for broader application.	O	CT	✓		✓	Availability of new or different management techniques or methods based on accepted science
	A-1.18	Maintain highly skilled geotechnical engineering expertise for advising on repair decisions.	O	CT				Strong peer-to-peer professional relationships
	A-1.19	Continue research and analysis to advance availability of appropriate preventive techniques.	O	CT			✓	Application of newest and proven technology
A-2: Anticipation (Preparation)								
Community Preparedness	A-2.1	Develop and maintain emergency plans for a variety of situations.	O	MC OES			✓	Plan has wide application
	A-2.2	Provide updated information on emergency preparedness to communities.	O	MC OES			✓	Knowledgeable community

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Strategic Management Area A: MANAGING FOR LANDSLIDES

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
Interagency Coordination	A-2.3	Review Big Sur Coordinated Emergency Response Plan annually and update emergency contact information, as needed.	O	MC OES			✓	Smooth implementation under emergency circumstances
	A-2.4	Maintain updated list of emergency contacts and distribute to stakeholders in October of each year.	O	CT			✓	Reliable contact information available
	A-2.5	Conduct annual reviews to ensure highway emergency response team is informed about activities and thresholds that require authorization from regulatory agencies prior to commencing activities; ensure clear distinctions about critical work to stabilize a condition from repair.	O	CT	✓			Reduced delays for beginning operations subject to regulatory agency authorization. Reduced risk associated with performing critical work.
	A-2.6	Prepare advance environmental agreements for recurring activities.	S	CT	✓		✓	Clear impact avoidance and minimization measures
Handling Excess Material	A-2.7	Continue search for materials handling and disposal options that minimize overall environmental impacts: biological, physical, and socio-economic.	O	CT		✓	✓	Optional sites available when needed in response to storm events.
	A-2.8	Follow best practices for material handling that includes reduction, recycling and beneficial re-use.	O	CT				Minimal volumes of excess material requiring disposal.
	A-2.9	Identify, evaluate and seek approval for terrestrial sites available to receive excess material.	O	CT	✓	✓	✓	Optional terrestrial sites available for minimum 100,000 cy capacity

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Strategic Management Area A: MANAGING FOR LANDSLIDES

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
Handling Excess Material (continued)	A-2.10	Advance development of best practices through comprehensive environmental analysis that considers and balances the range of potential impacts including the marine habitat sensitivity analyses outlined in Action D-1.7.	L	CT	✓	✓	✓	Well-informed decisions are broadly embraced.
Working in Environmentally Sensitive Areas	A-2.11	Employ best practices specific to those areas where sensitive habitats or resources are known to occur.	O	CT			✓	Lack of inadvertent impacts to sensitive resources
Provisions	A-2.12	Conduct annual inventory and procure sufficient supplies of essential provisions for Maintenance stations.	O	CT			✓	No lost time due to unavailable supplies.
A-3: Response								
Interagency Coordination	A-3.1	Implement use of Interagency Emergency Notification Form for emergency highway repairs.	O	CT	✓		✓	Reduced time for agency response for actions requiring authorization.
Communications	A-3.2	Implement responsibilities consistent with Monterey County's Big Sur Coordinated Emergency Response Plan.	O	CT				Smooth coordination during emergency
	A-3.3	Consider the full range of stakeholders and potential impacts (physical, natural, and socio-economic) in decisions regarding actions to restore highway service.	O	CT				

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Strategic Management Area A: MANAGING FOR LANDSLIDES

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
Communications	A-3.4	Provide messages to travelers, would-be travelers and local and regional community for closure or delay.	O	CT				Lack of complaints regarding road closure information
Construction & Site Restoration	A-3.5	Conduct activities pursuant to best practices.	O	CT				Minimize time to re-opening when traffic disrupted
Post-incident Review	A-3.5	Conduct a debriefing to evaluate all aspects of emergency response.	O	CT				Lessons learned documented and applied to future events
	A-3.6	Conduct a post-incident multi-disciplinary review, including representatives from scientific community.	S	CT	✓		✓	Written evaluations available and recommendations applied to future events

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Strategic Management Area B: HIGHWAY FEATURES & FUNCTION

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
B-1: Clean Roadsides								
	B-1.1	Practice "net loss" of clutter throughout corridor	I	CT	✓		✓	Fewer overall numbers of roadside features
	B-1.2	Adopt and implement *Guidelines for Corridor Aesthetics* for Big Sur Coast.	I	CT	✓		✓	Consistent and predictable approach to roadside management
B-2: Context Sensitive Solutions								
	B-2.1	Seek experimental applications for alternative aesthetic design treatments for construction of new features, or retrofit of existing roadside features.	I	CT	✓	✓	✓	Increased options for aesthetic treatments; fewer overall visually incompatible features
	B-2.2	Establish a reliable approach to improve effective stakeholder participation at various stages of decision-making.	I	CT	✓		✓	Reduce average time for project delivery related to regulatory and community concerns.
B-3: Highway Operations and Capacity								
Operations	B-3.1	Review proposals for new development and anticipated traffic impacts.	O	MC, CT			✓	Consistent methods for evaluation
	B-3.2	Limit number of private roads and recreational access road entrances.	O	MC, CT				No increase in number of highway connections
	B-3.3	Require new facilities and expansion of existing facilities for safe off-highway parking.	O	MC, CT	✓			Reduce number of requests to preclude roadside parking

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Δ Change in Business Practice
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Strategic Management Area B: HIGHWAY FEATURES AND FUNCTION

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀♂	
Operations (continued)	B-3.4	Optimize highway operations and safety by evaluating need and pursuing opportunities for additional slow-moving vehicle turnouts.	O	CT			✓	Maintain existing highway capacity
	B-3.5	Review roadway deficiencies and implement measures to improve operational conditions.	S	CT			✓	Maintain existing capacity
	B-3.6	Perform an evaluation for unmet transit needs, possible sources of additional funding; determine capacity and fiscal impact of augmenting bus service to relieve congestion at peak periods.	S	MST, TAMC			✓	Documentation of transit demands
Capacity	B-3.7	Collect and review traffic level data and travel characteristics every five years.	I	CT			✓	Description available
	B-3.8	Distinguish unpaved shoulders and turnouts; managing roadside uses to avoid unplanned or incremental widening.	O	CT	✓		✓	Consistent and predictable roadside practices

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Strategic Management Area C: TRAVELER EXPERIENCE

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
C-1: Visitor Services								
Information	C-1.1	Develop trip-planning information regarding for distribution in Monterey and San Luis Obispo Counties.	S	MC CVB		✓		Information available
	C-1.2	Evaluate opportunities to improve availability of visitor information at both ends of corridor.	L	DPR		✓		Availability of a proposal for visitor information
Facilities and Appearance	C-1.3	Evaluate specific needs of travelers, using a variety of means.	S	BCCC		✓		Documentation of survey results
	C-1.4	Form partnerships to evaluate opportunities and develop criteria for selecting appropriate site(s) and solutions for visitor amenities.	S	CT			✓	Successful competition for funds and project initiation
	C-1.5	Develop and implement volunteer litter program with alternative recognition program.	S	CT	✓			Reduce litter and related complaints
	C-1.6	Identify and evaluate opportunities for roadside amenities consistent with Americans with Disabilities Act.	S	CT, DPR, USFS			✓	Reduce number of roadside features that are inaccessible
C-2: Non-Motorized Transportation and Transit								
California Coastal Trail	C-2.1	Plan, develop, and construct the California Coastal Trail (CCT)	O	CCC, CT, DPR	✓	✓	✓	Improved safety for non-motorized travel
	C-2.2	Identify requirements to accommodate CCT within the right of way and incorporate the system into funded capital improvements.	I	CT	✓	✓	✓	Clear policy direction; sections of highway identified where trail will be coincident

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Strategic Management Area C: TRAVELER EXPERIENCE

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
California Coastal Trail (continued)	C-2.3	Identify and prioritize areas of demand for pedestrian, bicycle and equestrian use; identify capital improvements.	S	CT, DPR, TAMC	✓		✓	Non-motorized demand documented; priorities identified
Bicycling	C-2.4	Incorporate 4-foot paved shoulders as part of funded capital projects.	O	CT		✓		Number of miles of 4-foot paved shoulders
	C-2.5	Provide shared-use highway reminders.	S	CT	✓			Reduce potential vehicle/bicycle conflicts
	C-2.6	Explore the feasibility of ITS-based sensor/signal system to alert motor vehicles of non-motorized users ahead along the route.	S	CT		✓	✓	Identification of applicable ITS strategies.
Transit	C-2.7	Identify opportunities to enhance transit connections along highway corridor.	S	MST			✓	Opportunities and priorities identified
C-3: Recreation								
Highway Connections	C-3.1	Manage safe access to trailheads with existing parking along highway while respecting landowner rights.	O	CT, DPR, USFS		✓	✓	Reduce management conflicts and related complaints
	C-3.2	Conduct feasibility study to evaluate potential for trailhead access pullouts to become permanent dedicated access.	S	CT	✓		✓	Trailheads formalized as part of public access inventory
	C-3.3	Evaluate needs and upgrade facilities for ADA compliance.	S	CT, DPR, USFS		✓	✓	Increase the number of roadside facilities that are accessible

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Implementation Requirements
- Δ Change in Business Practice
- $ Capital Resources
- ♀ Human Resources

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Strategic Management Area C: TRAVELER EXPERIENCE

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
C-4: Interpretation								
Interpretation	C-4.1	Consider development of corridor-wide interpretive program that addresses needs of Caltrans, Los Padres National Forest, the Monterey Bay National Marine Sanctuary, California Coastal National Monument, and State Parks. Evaluate use of self-tours using print or audio media including Highway Advisory Radio (HAR) neither of which would require intrusive physical installations along the corridor.	S	USFS		✓	✓	Approach to interpretation outlined for securing funds

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Strategic Management Area D: ENVIRONMENTAL STEWARDSHIP

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀♂	
D-1: Resource Protection								
Roadside Management	D-1.1	Practice stewardship of corridor intrinsic qualities in day-to-day operations.	O	CT			✓	Reduce instance of inadvertent impacts
	D-1.2	Coordinate effort to combat the spread of exotic weeds via the Big Sur Weed Management Task Force.	O	USFS			✓	Implementation of shared public/private responsibilities for weed control/eradication
	D-1.3	Implement vegetation management guidelines that incorporate best practices according to variety, distribution, and sensitivity of habitats.	S	CT	✓		✓	Increase total area of sustained native habitats
	D-1.4	Consider and re-evaluate program for safe/effective application of herbicides along Highway 1.	O	CT, USFS			✓	Criteria and practices for safe use readily available
	D-1.5	Establish priorities and coordinate approach for controlling/removing invasive and exotic plants.	S	WMTF	✓		✓	Common set of priorities applied to geographic sections of corridor.
	D-1-6	Develop and implement an Adopt-a-Highway program for weed control.	S	WMTF	✓		✓	A sponsored Adopt-a-Highway program undertaking regular weed control activities along the corridor

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Strategic Management Area D: ENVIRONMENTAL STEWARDSHIP

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
Shoreline Resources	D-1.7	Evaluate the sensitivity and adaptability of various marine habitats and specific physical locations for the potential disposal to accept landslide material. Use this information as the basis for general regional guidelines regarding areas to be avoided and identify potential disposal locations. Conduct further site-specific analysis for the potential disposal locations.	I	MBNMS, CT	✓		✓	Sensitivity information incorporated into corridor-wide database
	D-1.8	Evaluate highway management practices for impacts to shoreline resources in the context of natural processes and the results of habitat sensitivity analyses.	S	MBNMS, CT	✓		✓	Availability of environmental impact analysis document.
	D-1.9	Participate in development of statewide Sediment Management Master Plan.	I	CT	✓	✓	✓	Representation of transportation-related issues in statewide planning effort.
Viewshed Restoration & Preservation	D-1.10	Develop a list of detractors and visual clutter within Caltrans' right-of-way for remediation over time. Remediation will be undertaken as part of regular funded programs and projects in order to restore the scenic qualities along the corridor.	CT		✓		✓	List available

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Strategic Management Area D: ENVIRONMENTAL STEWARDSHIP

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀♂	
Viewshed Restoration & Preservation (continued)	D-1-11	Explore opportunities for public–private cooperation to protect the critical viewshed, ensuring that measures other than fee simple acquisition are considered, where vacant lots have been rendered undevelopable due to local critical viewshed policies	O	TBD	✓	✓		Permanent protection of viewshed by means acceptable to property owners
	D-1-12	Consider innovative ways to accommodate private development and protect corridor resources while avoiding fee title acquisition of private land by a public agency, including: sale of excess public land, land swaps, facilitation of parcel reconfigurations, provision of access easements across public land, and technical assistance to private property owners. (to be determined, On-going)	O	TBD	✓	✓	✓	Instances of enhanced developability of private parcels and reduction of potential resource impacts with no net increase in public land fee title ownership and resulting from accommodations by public agencies
Historic Preservation	D-1.13	Initiate a restoration project for significant contributing features.	S	CT		✓	✓	Number of historic features restored for lasting integrity
	D-1.14	Implement Guidelines for Corridor Aesthetics for context sensitive solutions.	I	CT	✓		✓	Fewer number of incompatible features

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Strategic Management Area D: ENVIRONMENTAL STEWARDSHIP

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
D-2: Environmental Streamlining								
Environmental Analysis	D-2.1	Conduct program level environmental analysis and provide alternatives analysis and establish agreement on conceptual mitigation strategies.	S	CT	✓	✓	✓	Improved delivery of planned protective betterments; reduce uncertainties and overall costs associated with emergency repairs
Programmatic Agreements	D-2.2	Develop corridor-wide programmatic agreement to address activity that could affect Smith's blue butterfly.	O	CT	✓		✓	Reduced potential for inadvertent impacts; improve delivery of planned protective betterments
	D-2.3	Develop corridor-wide programmatic agreement for rubble masonry features of Carmel-San Simeon Highway Historic District.	O	CT	✓		✓	Reduced potential for inadvertent impacts; improve delivery of planned protective betterments
	D-2.4	Develop Public Works Plan for landslide management and storm damage response activities.	I	CT	✓		✓	Improved delivery of planned protective betterments; reduce uncertainties and overall costs associated with emergency repairs
	D-2.5	Develop agreements for compliance with Marine Sanctuaries Act.	S	CT	✓		✓	Reduced potential for inadvertent impacts; reduce uncertainties and overall costs associated with emergency repairs

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Strategic Management Area D: ENVIRONMENTAL STEWARDSHIP

Strategy	#	Action	Time frame Goal	Lead Agency	Implementation Requirements[a]			Performance Measure
					Δ	$	♀	
Programmatic Agreements (continued)	D-2.6	Consider development of Regional General Permit for activities under jurisdiction of US Army Corps of Engineers.	S	CT	✓		✓	Determination of streamlining value
Environmental Compliance-Event-related	D-2.7	Implement the Interagency Emergency Notification process; provide communication and information exchange for environmental compliance.	O	CT	✓			Reduce delays for beginning work that requires prior authorization

Strategic Management Area E: IMPLEMENTATION

E-1: Implementation								
Corridor Profiles	E-1.1	Prepare corridor segment profiles showing incidence of conditions to be targeted by actions in implementation phase.	S	CT	✓	✓	✓	Geographic needs identified
	E-1.2	Assign and prioritize actions by corridor segments.	S	CT	✓	✓	✓	Site specific action plan available
Support	E-1.3	Determine specific institutional needs for full implementation, such as supplemental support for the highway Maintenance program (e.g., personnel, equipment, facilities).	S	CT	✓	✓	✓	Quantification of resource needs above and beyond current levels

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APPENDIX B Stakeholder List for the Big Sur CHMP

Stakeholders are defined as those with a vested interest in management issues related to the Highway 1 corridor and are generally categorized into several groups. New stakeholders continue to be identified as the planning process continues.

ELECTED OFFICIALS

Congressperson Sam Farr
Congressperson Lois Capps
State Senator Bruce McPherson
State Assemblyman John Laird
Monterey County 5th District Supervisor Dave Potter
SLO County 2nd District Supervisor Shirley Bianchi

PUBLIC AGENCIES

Federal

Federal Highway Administration
Monterey Bay National Marine Sanctuary
National Marine Fisheries Service
US Army Corps of Engineers
US Department of Agriculture
- Natural Resource Conservation Service
- Forest Service

US Environmental Protection Agency
US Fish and Wildlife Service
US Geological Survey

State

Department of Transportation (Caltrans)
Department of Fish and Game
Department of Forestry
California Highway Patrol
Coastal Commission
Department of Parks and Recreation
Trade and Commerce
Regional Water Quality Control Board
State Lands Commission

Regional/Local

Association of Monterey Bay Area Governments
Cambria Community Services District
Carmel Unified School District
County of Monterey
County of San Luis Obispo

PUBLIC AGENCIES (cont'd)

Monterey County Office of Emergency Services
Monterey County Planning and Building Inspection Department
Monterey County Sheriff's Department
Monterey Regional Parks District
Monterey -- Salinas Transit
Pacific Valley Unified School District
San Luis Obispo Council of Governments
San Luis Obispo County Planning Department
San Simeon Community Services District
Transportation Agency for Monterey County

NON-GOVERNMENTAL ORGANIZATIONS

Big Creek Reserve
Big Sur Chamber of Commerce
Big Sur Historical Society
Big Sur Land Trust
Big Sur Land Use Advisory Committee
Big Sur Multi-Agency Advisory Council
Big Sur Fire Brigade
California Native Plant Society
Cambria Chamber of Commerce
Carmel Highlands Community
Coast Property Owners Association
*Coast Watch
El Sur Ranch
Hearst Ranch
League of Women Voters
Monterey County Convention & Visitors Bureau
Moss Landing Marine Laboratories
North Coast Alliance (San Luis Obispo County)
North Coast Advisory Council (San Luis Obispo County)
Palo Colorado Community
San Luis Obispo Land Conservancy
San Simeon Chamber of Commerce
Save our Shores
Sierra Club Santa Lucia Chapter
South Coast Advisory Committee
Ventana Wilderness Sanctuary

* No longer active

APPENDIX C FHWA Requirements for Corridor Management Plans

The essential components of a CMP that must be included for a route to be considered for national designation include:

1. A map identifying the corridor boundaries, location of intrinsic qualities, and land uses in the corridor. *See CMP Attachment 1.*

2. An assessment of the intrinsic qualities and their "context" (the areas surrounding them.) *See CMP Section 3.2*

3. A strategy for maintaining and enhancing each of these intrinsic qualities. *See CMP Chapter 5.*

4. The agencies, groups, and individuals who are part of the team that will carry out the plan, including a list of their specific, individual responsibilities. Also, a schedule of when and how you'll review the degree to which those responsibilities are being met. *See CMP Chapter 6.*

5. A strategy for of how existing development might be enhanced and new development accommodated to preserve the intrinsic qualities of your byway. *See CMP Chapter 6 and Guidelines for Corridor Aesthetics*

6. A plan for on-going public participation. *See CMP Chapter 6.*

7. A general review of the road's safety record to locate hazards and poor design, and identify possible corrections. *See CMP Chapters 4 and 5.*

8. A plan to accommodate commercial traffic, while ensuring the safety of sightseers in smaller vehicles, as well as bicyclists, joggers, and pedestrians. *See CMP Chapters 4 and 5.*

9. A listing and discussion of efforts to minimize anomalous intrusions on the visitors' experience of the byway. *See CMP Section 5.2 (D-1) and Guidelines for Corridor Aesthetics*

10. Documentation of compliance with all existing local, state, and federal laws about the control of advertising. *See Guidelines for Corridor Aesthetics.*

11. A plan to make sure that the number and placement of highway signs will not get in the way of the scenery, but still be sufficient to help tourists find their way. This includes, where appropriate, signs for international tourists who may not speak English fluently. *See Guidelines for Corridor Aesthetics .*

12. Plans of how the byway will be marketed and publicized. *See CMP Chapters 4 & 5.*

13. Any proposals for modifying the roadway, including an evaluation about design standards and how proposed changes may affect the byway's intrinsic qualities. *See Guidelines for Corridor Aesthetics.*

A description of what you plan to do to explain and interpret your byway's significant resources to visitors *See CMP Chapter 5.*

APPENDIX D: Traffic Analysis for Highway 1 along the Big Sur Coast

Analysis Methods, Assumptions, and Traffic Volumes

Classification

1. In the *Highway Capacity Manual* (*HCM*), two-lane highways are categorized into one of two classes for analysis.

   Class I highways are two-lane highways on which motorists expect to travel at relatively high speeds. Two-lane highways that are major intercity routes, primary arterials connecting major traffic generators, daily commuter routes, or primary links in state or national highway networks generally are assigned to Class I. Class I facilities most often serve long-distance trips or provide connecting links between facilities that serve long-distance trips.

   Class II highways are two-lane highways on which motorists do not necessarily expect to travel at high speeds. Two-lane highways that function as access routes to Class I facilities, serve as scenic or recreational routes that are not primary arterials, or pass through rugged terrain generally are assigned to Class II. Class II facilities most often serve relatively short trips, the beginning and ending portions of longer trips, or trips for which sightseeing plays a significant role.

   The 75-mile long stretch of highway through the Big Sur corridor is a Class II 2-lane highway.

Assumptions

2. Caltrans analysis of traffic on this highway would use the following assumptions:

   a. 1% heavy trucks and 3 % recreational vehicles
   b. Peak hour factor >.7 (versus the *HCM* default of .88)
   c. Rolling terrain over majority of route with mountainous and level sections

3. In *mountainous terrain* combined horizontal and vertical alignments require traffic to slow to crawl speed for significant distances or at frequent intervals.

   This travel pattern usually occurs where grades of 3 percent or more are present for lengths of 0.6 mile or more and the methodology for mountainous terrain is typically applied to highway sections of at least 2.0 miles.

   In *rolling terrain* a combination of horizontal and vertical alignments causes heavy vehicles to reduce their speed substantially below that of passenger cars but not to operate at crawl speeds for a significant amount of time.

   In *level terrain* a combination of horizontal and vertical alignments permits heavy vehicles to maintain approximately the same speed as passenger cars; this generally includes short grades of more than 1 to 2 percent.

Highway 1 along the Big Sur Coast presents a combination of rolling, mountainous and level terrain. While numerous stretches with sustained grades occur along the route, the predominant pattern in such areas is winding, i.e., changes in horizontal alignment, and frequent changes in vertical alignment.

Level of Service

4. Level of Service (LOS) is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

5. According to the *HCM*, percent time-spent-following (an indicator for freedom to maneuver), rather than speed is the appropriate measure of service level (LOS) on a Class II 2-lane road. (By contrast, both speed and percent time following are used in calculating LOS on a Class I 2-lane road.)

   This distinction is significant. The *HCM* provides the following example: "For example, a Class I two-lane highway with percent time-spent-following equal to 45 percent and an average travel speed of 40 mph would be classified as LOS D… However, a Class II highway with the same conditions would be classified as LOS B…. The difference between these LOS assessments represents the difference in motorist expectations for Class I and II facilities."

6. Percent time-spent-following is affected by travel speed differentials (slow-moving vehicles in stream), opportunities for slow-moving vehicles to pull off the road and passing opportunity limitations related to sight distance, density of access points (intersections and driveways), and volume of oncoming traffic.

7. Mountainous terrain results in poorer LOS (increased time-spent-following and lower speeds) than rolling or level terrain.

8. Ordinarily, LOS C is the target LOS for a 2-lane rural road." Because this highway is to remain a 2-lane highway and widening is not an option, LOS C cannot be the target. Rather the concept calls for a 32-foot paved width consisting of two 12-foot travel lanes with 4-foot paved shoulders.

Capacity

9. Capacity is defined as the maximum sustainable flow rate at which vehicles or persons reasonably can be expected to traverse a point or uniform segment of a lane or roadway during a specified time period, usually expressed as vehicles per hour, passenger cars per hour, or persons per hour.

   Two–way capacity for Route 1 is 3,200 passenger-car equivalents per mile. One- way capacity is 1,600 passenger-car equivalents per mile.

10. In determining free flow speed on a two-lane road, two adjustments are typically made:

    a. Lane width and shoulder width: Downward adjustments are made for widths narrower than 12-foot travel lanes and/or 6-foot shoulders
    b. Access-point density: Each access point per mile decreases the estimated free flow speed by about 0.25 mph. (Access points unnoticed by the driver or with little activity should not be included.)

11. In determining demand flow rate, three factors (referred to as "adjustment" in the analysis) are considered:

    a. Peak hour factor: The highest hourly volume of the day.
    b. Grade factor: Downward adjustment for rolling, rather than level. All directional segments in mountainous terrain and all grades of 3% or more with a length of 0.6 mile or more must be analyzed as specific upgrades or downgrades. Neither specific mountainous areas nor demand flow rate were calculated for this analysis.
    c. Heavy vehicle factor: Upward adjustment to vehicle counts, e.g., 1 truck = 2.5 passenger car equivalents (PSE) and 1 RV = 1.1 PSE on rolling terrain, and therefore downward adjustment for flow rate for trucks and RVs.

Incidental Factors

12. Caltrans neither encourages nor discourages use of highway facilities by categories of users such as visitors or residents; RVs or passenger vehicles; motorists or cyclists.

    In many cases, Caltrans promotes transit and carpooling as alternatives to single occupant motor vehicles to reduce the overall demand on a given route.

13. Most bicyclists ride in pairs, if not in small groups of three or more. Whether or not four-foot shoulders are provided, cyclists will not be present in anything like a constant stream unless a special cycling event is being held.

    If shoulders are widened:

    a. Motorists will feel comfortable traveling at a consistent speed during the majority of time when bicyclists are not present. Motorists will perceive the road to be less confining.

    b. Motorists may slow when bicyclists are present in the shoulder, but generally they will not be required to travel behind cyclists in the travel lane.

    c. Both motorists and cyclists will (correctly) perceive travel to be safer when shoulders are at least four feet wide.

Volumes

14. Traffic volumes, existing and projected, for the project area are as follows:

Route 1 Segments in San Luis Obispo & Monterey Counties[1]			AADT[2] Existing	AADT Projected	Peak Hour Volumes[3]		Peak % of ADT	% in peak direction	% Trucks in peak
#	Co.	Postmile	2001	2025	2001	2025			
5A	SLO	0.00/9.00	5100	8300	400	1000	12.0%	67% NB	5.0%
5B	SLO	9.00/10.38	8100	11800	1000	1500	12.3%	57% NB	11.0%
6	SLO	10.38/16.80	13000	27400	1650	3100	11.3%	60% NB	2.0%
7	SLO	16.80/17.80	26000	59700	2400	5500	9.2%	59% SB	2.0%
8	SLO	17.80/27.88	24500	33500	2150	3100	9.4%	64% NB	3.0%
9	SLO	27.88/32.10	16700	18600	1600	2200	11.7%	63% NB	3.0%
10A	SLO	32.10/36.80	9100	12400	1350	1800	14.6%	67% SB	5.0%
10B	SLO	36.80/56.39	8100	11100	1250	1800	15.9%	67% NB	1.0%
10C	SLO	56.39/71.34	2600	3300	380	600	18.8%	54% SB	1.0%
11	**SLO**	**71.34/74.32**	**2600**	**3300**	**380**	**470**	**17.8%**	**65% SB**	**1.0%**
12A	**MON**	**0.00/43.10**	**2800**	**3600**	**500**	**600**	**17.8%**	**60% SB**	**1.0%**
12B	**MON**	**43.10/51.20**	**4200**	**5600**	**740**	**960**	**17.8%**	**60% SB**	**1.0%**
12C	**MON**	**51.20/67.90**	**4800**	**6400**	**620**	**800**	**16.6%**	**60% SB**	**1.0%**
13	**MON**	**67.90/72.30**	**8200**	**10900**	**940**	**1190**	**16.4%**	**60% SB**	**1.0%**
14A	MON	72.30/75.14	61000	77500	5300	7800	10.0%	55% SB	2.0%
14B	MON	75.14/R78.12	81000	102800	7600	10300	10.0%	55% NB	2.0%
14C	MON	R78.12/R90.98	88000	261900	8900	26700	10.2%	65% NB	3.0%
15	MON	R90.98/R102.03	34500	43800	4000	5000	11.4%	65% NB	6.0%

[1]Segments in the Big Sur Coast area are highlighted in **bold**
[2]**AADT:** Annual Average Daily Traffic. Peak month traffic numbers would be higher than AADT.
[3]Peak hour is the hourly volume during the maximum-volume hour of the day.

APPENDIX E Corridor Inventory Reports Bibliography

OVERVIEW

In support of the Big Sur Coast Highway Management Plan, the following technical reports have been produced. The reports document intrinsic qualities within the corridor and contribute to the overall body of scientific knowledge to help facilitate coordinated decision-making in the corridor.

ARCHAEOLOGY (PREHISTORY) AND HISTORY

Cultural Resources Inventory of Caltrans District 5 Rural Highways, Monterey and San Luis Obispo Counties, California: Coast Highway 1. Far Western Anthropological Research Group, June 2001

Volume I: Historic and Pre-historic (Archaeology) resources along or within the Highway 1 right of way

Volume III: Features of the Highway 1 Historic District

Corridor Intrinsic Qualities Inventory: Historic Qualities. JRP Historical Consulting Services, November 2001

Historic features visible from Highway 1

Historic Resource Evaluation Report: Rock Retaining Walls, Parapets, Culvert Headwalls and Drinking Fountains along the Carmel to San Simeon Highway. Caltrans District 5 (Pavlik, Robert C.), November 1996

Rock masonry features of the Highway 1 Historic District

History of Road Closures. JRP Historical Consulting Services, November 2001

History of the impact of landslides and road closures to the Big Sur community

CONTEMPORARY CULTURE

Corridor Intrinsic Qualities Inventory: Cultural Qualities. Parsons-Brinckerhoff, August 2002.

Contemporary expressions of life and culture in Big Sur.

GEOLOGY

Landslides in the Highway 1 Corridor: Geology and Slope Stability along the Big Sur Coast. California Division of Mines & Geology, November 2001.

Description of the geology and characterization of landsliding.

Slope Instabilities in the Highway 1 Corridor: Road Condition and Hazard Potential. Caltrans District 5, September 2001.

Database of the locations along Highway 1 affected by landsliding.

Estimated Sediment Yield from Coastal Landslides and Active Slope Distribution along the Big Sur Coast and Addendum: Coastal Cliff Erosion Rates, Big Sur, CA. Hapke, C., Dallas, K. and Green, K. U.S. Geological Survey, U.C. Santa Cruz, May 2003.

Estimation of historical of sediment (sediment yield) that enters the littoral system directly from coastal slope failures and map the temporal and spatial distribution of active coastal slopes.

NATURAL ENVIRONMENT

Corridor Intrinsic Qualities Inventory: Natural Qualities. Parsons Transportation Group, November 2001.

Description of biotic communities within a 400-foot corridor along Highway 1.

Culvert Inventory: Hydrology, Debris Protection, Inspection and Replacement. Caltrans District 5, May 2002.

Evaluation of drainage facilities across Highway 1.

RECREATION

Corridor Intrinsic Qualities Inventory: Recreational Qualities. Patillo-Garrett & Associates, May 2002.

Description and identification of recreational areas and features along Highway 1.

SCENIC QUALITIES

Corridor Intrinsic Qualities Inventory: Scenic Qualities. Public Affairs Management, January 2002.

Characterization and description of the visual qualities and features along the Highway 1 corridor.

Each of these studies is available at:

Caltrans District 5

50 Higuera Street

San Luis Obispo, CA 93401

APPENDIX F Emergency Communications

Strategies A-3.1-2

Communications

Objectives for effective communication during an emergency are:

Reliable—Establish a best source for consistent and reliable information that enables people to make informed decisions about their travel.

Accurate—Update relevant information as conditions warrant. The degree of disruption (ranging from "inconvenience" to "extreme" per CERP) and the dynamic nature of the work generally dictate the frequency, which may be needed on a daily basis under the most severe conditions.

Consistent—The message sent and delivered by multiple sources, from official statements (press releases) to roadside flag-persons, is as consistent as possible. Given there is little control over "unofficial" sources of information, it is recognized that emphasis on the first two points to produce a reliable source of accurate information, can help control potential rumors.

Incident Command: Monterey County's Big Sur Coordinated Emergency Response Plan[40] is the guiding document for establishing the incident command system. Caltrans also uses the Big Sur Coast Emergency Operations and Notification Plan as a means of initiating and maintaining communications and operations during full closures of Highway 1 along the Big Sur Coast.

Public Information: Caltrans provides information about highway conditions or incidents are disseminated to Big Sur travelers and the local community. See attachment X for description of the information and distribution of the messages.

Agency Roles: Confirm agency roles and responsibilities for emergency communications:

Responsible Party	*Area of Responsibility*
Monterey Co. OES	Establish Incident Command and provide tactical incident and dispatch communications
Sheriff, CHP, Volunteer Fire Dept.	Emergency Services per Incident Command
Traffic Management Center (TMC)	Caltrans Operations
Caltrans Environmental Planning	Caltrans Interagency Coordination and Environmental Compliance
Caltrans Public Information	Traveler and Community Liaison
California Dept of Parks & Recreation	State Parks
Big Sur Chamber of Commerce	Liaison to Community and Businesses

[40] *Big Sur Coordinated Emergency Response Plan.* 1999

Caltrans

- Traffic Management Center (Operations)
- Environmental Planning (Interagency Coordination)
- Public Affairs Office (Traveler and Community Liaison) – writes and disseminates news releases; answers questions from the public, other agencies, and the media
- Caltrans Environmental Coordinator (monitor)—ensures storm damage construction is conducted in compliance with environmental regulations; primary liaison between Caltrans and regulatory agencies regarding changes in project scope, conditions, impacts or mitigation.*

Monterey County Office of Emergency Services

- Establishes Incident Command
- Provide tactical incident and dispatch communications

CHP and Monterey County Sheriff

- Emergency response providers

CA Department of Parks & Recreation

- State park visitor safety and security of state parklands

Big Sur Chamber of Commerce

- Liaison to community and businesses

APPENDIX G Byway Organization Background

To date, four forums have been held to discuss a potential future organization as a continuation of the existing Steering Committee for the Big Sur Coast Highway Management Plan (CHMP). The role of the Steering Committee is specific to guiding the development of the plan. A next logical step is to have an organizational structure in place to ensure implementation of the CHMP.

Discussions on this subject were held as follows with highlights enumerated below (see complete meeting summaries more detail):

- May 11, 2001 Steering Committee teleconference call
- July 27, 2001 Plan Implementation Working Group meeting
- August 22, 2001 Steering Committee meeting
- October 17, 2001 Plan Implementation Working Group meeting

<u>5/11 Steering Committee Teleconference</u>

1. The Scenic Byways Resource Center (SBRC), based on a nationwide survey of byways organization provided a brief overview of the various types of organizations, highlighting the limitations and benefits of each (see attached).
2. Some concern was expressed about creating another entity – government or otherwise. SBRC representatives noted that an effective organization shouldn't create more hoops to jumps through. Their effort should be to coordinate and see that activities are implemented.
3. The benefit of an organization's ability to raise and manage funds was noted also.
4. The importance of naming a lead for the organization (whether it was a public agency or an existing non-profit) was raised especially in their capacity to be a fiscal agent for the group.
5. Another important element of creating an effective organization mentioned was the development of a mechanism for handling disputes.
6. Seed grant monies are available through the National Scenic Byways Program to help launch a byways organization (application submitted for 2002 cycle).
7. The SBRC is available and willing to host a workshop on developing an effective organization.

<u>7/27 Plan Implementation Working Group Meeting</u>

1. After considerable discussion, the group recommended formation of a hybrid organizational structure, consisting of a non-profit byway organization with MOUs among the various agencies and the organization.
2. It was recommended that the Carmel River Watershed Council be used as a model.
3. Key points from the discussion include:
   - Organization should have autonomy
   - Not a desire for more government in Big Sur
   - Need to designate a lead entity
   - Lead entity must care about the entire corridor
   - Common thread is the roadway for the CHMP (like the River is for the CRWC)
   - MOUs can provide a mechanism for the use of agency staff and support to the organization

- Number of participants should be up to the group
- Recognize that the focus of byway organization is not managing land use, but implementing the plan.
- CHMP demands a real collaborative effort given the various jurisdictions and entities involved.
- Formation of nonprofit may require hiring a coordinator/spokesperson.
- Need commitment from agencies regarding their participation.
- Need to determine process to handle CHMP amendments and institutionalize role of organization.

8/22 Steering Committee Meeting

- Important to not only get people involved but maintain participation in organization's activities.
- Developing an independent non-profit requires a lot of work.
- Need an agreed upon decision making process that includes unanimous agreement to the extent that is possible.
- JPAs may make public feel excluded (since they are limited to public agencies)
- Heavy involvement of agencies in the CHMP may make community feel they have less of a role.
- Involve Watershed Councils in the CHMP.
- Paid coordinator is critical to the process.
- Must have fiscal agent to receive funds.
- Organization needs to consider property owner, resident, business and visitor opinions as well as those of the agencies.
- The advantage of using an outside fiscal agent instead of starting a non-profit is a citizen's group can be formed much more quickly. Informal structure allows you to focus on goals, can build momentum and attract attention – jumping off point for a more formal organization.
- Consider an existing non-profit organization to act as a fiscal agent (e.g., AMBAG is a government agency, but also has a non-profit 501c(3) affiliate.

10/17 Plan Implementation Working Group Meeting

- Reviewed initial draft proposal for Byway Organizational structure (comments incorporated into revised Draft Proposal #2 "Charter for a Byway Organization", dated 10/18/01)
- Membership of the Council—discussed whether there should be parity among elected officials on the Council. (This will be taken up by the Steering Committee.)
- Relationship to the Big Sur Multi-Agency Advisory Council—desire for the proposed Hwy 1 Council to have some independence from the MAAC, rather than a standing committee "subset". Many members would be the same, but MAAC could reconvene (plus or minus some members) as another group (i.e., the Highway 1 Council).
- Desire to legitimize the Highway 1 Council (institutionalize it so it has more recognition than a "club".) Potentially special legislation could be proposed to support it.
- The make-up/structure/function of a byway organization should be proposed, reviewed and evaluated as part of the public review of the CHMP.

- Evaluated opportunity to work with an existing non-profit organization (Regional Analysis & Planning Services, Inc)

Benefits and Limitations

Benefits:

- Limits creation of new entities by utilizing existing organizational structures—metamorphosis of the CHMP Steering Committee to a standing committee of the Big Sur MAAC and fiscal agent with an existing non-profit.
- This "hybrid" structure allows for flexibility in the way the organization may develop in the future according to changing needs (e.g., can evolve into more formal structure, including a separate non-profit, if so desired.)
- Less complex structure allows smooth transition from current format
- Broad representation from the various stakeholders continues
- Structure reflects the context of the community in which it is operating
- Has ability to get things done quickly

Limitations:

- Coordination of individual members with one another is not guaranteed
- Challenges to reaching consensus on some issues may be significant
- Doesn't have independent legal standing and liability would revert back to individual agencies and other participants
- Need to secure agreement with willing fiscal agent
- Uncertain lead agency designation
- Obtaining a paid coordinator role is uncertain

APPENDIX H Potential Funding Sources for Future Actions

Endangered Species Financial Assistance Partnerships
http://endangered.fws.gov/grants/section6/grants.pdf

Federal Aid in Wildlife Restoration Program
http://federalaid.fws.gov/wr/fawr.html

Federal Lands Highway Programs
http://www.fhwa.dot.gov/flh/flhprog.htm

Federal Scenic Byways Program
http://www.bywaysonline.org/grants/index.html

FTA 5313(b) Transit Technical Planning Assistance Grants
http://www.dot.ca.gov/hq/tpp/grants.htm

Forest Legacy Program
www.fs.fed.us/spf/coop/programs/loa/flp.shtml

Habitat Conservation Fund Grant Program
http://www.parks.ca.gov/default.asp?page_id=21361

Habitat Enhancement and Restoration Program
http://www.dfg.ca.gov/wcb/habitat_enhancement_and_restoration_program.html

Highway Bridge Replacement and Rehabilitation Program
http://www.dot.ca.gov/hq/LocalPrograms/hbrr99/hbrr99a.htm

Highway Safety and Operations Research Program
http://www.tfhrc.gov/site/active.htm

Land Acquisition Program (Wildlife Conservation)
www.dfg.ca.gov/wcb/land_acquisition_program.htm

Land and Water Conservation
http://www.parks.ca.gov/default.asp?page_id=21360

National Coastal Wetlands Conservation Grant Program:
http://www.fws.gov/cep/cwgcover.html

National Heritage Preservation Tax Credit Program
http://www.dfg.ca.gov/wcb/inland_wetlands_conservation_program.htm

National Highway System Program
http://www.dot.ca.gov/hq/LocalPrograms/lpp/LPP97-03.pdf#xml=http://www.dot.ca.gov/cgi-bin/texis/webinator/search/xml.txt?query=national+highway++system+program&db=db&pr=default&order=r&id=3ff62ed42

National Recreational Trails Grant Program
http://www.fhwa.dot.gov/environment/rectrails/links.htm

North American Wetlands Conservation Program
http://northamerican.fws.gov/NAWCA/grants.htm

Pedestrian Safety Program
http://www.dot.ca.gov/hq/LocalPrograms/lpp/lpp01-02.pdf

Public Access Program
http://www.dfg.ca.gov/wcb/public_access_program.htm

Rangeland, Grazing Land and Grasslands Protection Program
http://www.dfg.ca.gov/wcb/RangelandProgramRev3.htm

Recreational Trails Program
http://www.parks.ca.gov/default.asp?page_id=21362

Roadway Safety and traffic Records Programs
http://www.ots.ca.gov/profile/overview.asp

Sport Fish Restoration Grant Payments to States Program
http://policy.fws.gov/521fw2.html

State Transportation Improvement Program
http://svhqsgi4.dot.ca.gov:80/hq/transprog/stip.htm

Stewardship incentive Program
http://www.nrcs.usda.gov/programs/sip/

Traditional Folk Art Program
http://www.actaonline.org/funding_resources/CAC_2003_2004_proposal.htm

Transportation Enhancement Program
http://www.dot.ca.gov/hq/TransEnhAct/

Water Quality Planning Grants Program – 205j

http://yosemite.epa.gov/r9/fsfc.nsf/58cc78776e5e186b8825641b006a9bd8/d52443c83328333688256429006961 04?OpenDocument

Watershed Coordinator Grant Program
http://www.consrv.ca.gov/DLRP/rcd/publications/index.htm

Whale Tail Grants Program
http://www.coastal.ca.gov/publiced/plate/platefaq.html

Wildlife Habitat Incentive Program
http://www.fs.fed.us/spf/coop/programs/loa/whip.shtml

THE BIG SUR TRANSPORTATION MANAGEMENT STUDY

Executive Summary Only

Complete Study available at:

Caltrans District 5
50 Higuera Street
San Luis Obispo, CA 93401

PREPARED BY:

THE STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DISTRICT 5

November 1990

APPENDIX I

EXECUTIVE SUMMARY

The Big Sur Transportation Management Study (BSTMS) was initiated by the California Department of Transportation (Caltrans), in response to the California Coastal Commission's action on the Federal Consistency Certification (Number CC-48-88) for the Hatton Canyon Project. Concerns were raised regarding the impacts the Hatton Canyon Project may have on the Big Sur area; specifically, the potential increase of recreational traffic congestion by travelers who unintentionally drive the Big Sur Highway.

The BSTMS was developed in cooperation with a committee made up of representatives from Caltrans, Monterey County Transportation Commission (MCTC), Association of Bay Area Governments (AMBAG), County of Monterey, Monterey-Salinas Transit (MST), California Coastal Commission, State Department of Parks and Recreation (DPR), California Highway Patrol (CHP), State Department of Forestry (CDF) and the United States Forest Service (USFS).

The procedure used in developing this study included establishing the need for transportation management strategies, identifying and analyzing the selected alternatives, and formulating recommendations. Further discussion of each is presented below.

1. Establish the need for transportation management strategies.

To establish the need for transportation management strategies, a license plate survey of Big Sur visitors was undertaken. The intent of the survey was to identify the target audience, ascertain their perceptions of transportation needs and obtain an indication of the number of visitors who unintentionally drive the Big Sur Highway. A questionnaire was developed with assistance from the BSTMS Committee and Caltrans Division of Transportation Planning in Sacramento. The questionnaire was sent to 2,823 vehicle owners who were recorded driving in-bound to Big Sur on Sunday, July 23, 1989. There were 1,339 questionnaires returned, for a response rate of 47 percent.

The survey results indicate that 4 percent of the visitors traveling the Big Sur Highway had unintentionally taken this route. Upon further analysis of those who unintentionally took the route, only 2 percent of these visitors would not have taken the route had they been aware of the travel times and conditions. Therefore, for purposes of this study, the target audience for whom transportation alternatives should be directed is of approximately 2 to 4 percent of area visitors. Based upon these results, the need for transportation alternatives has not been clearly established. It is questionable whether the implementation of any alternative designed specifically for those who unintentionally use the Big Sur Highway would result in an appreciable decrease of traffic volumes.

2. Identify and analyze alternatives

Alternatives were identified and selected for further consideration by the BSTMS Committee based upon the information provided by the visitor survey.

The criteria used in evaluating alternatives included a review of safety issues, environmental issues, existing plans, policies or standards, constraints to implementing the alternative, and opportunities to implementing the alternative. In addition, the agencies with responsibility of implementing the alternative were identified.

There were nine alternatives selected for further analysis. These include:

- Safety Roadside Rest Area/Traveler Information Center
- Traffic Signs
- Bus Service
- Bicycle Improvements
- Turnouts
- Emergency Call Boxes
- Vistas
- Highway Advisory Radio (HAR)
- Visitor Information/Publications/Maps

A detailed discussion of each alternative may be found in Chapter III of this report.

3. Formulate recommendations.

Recommendations made in this report do not commit Caltrans or other agencies to provide any facility for which funding is not available.

Recommendations were formulated into two categories; "short-term" and "long-term". The short-term recommendations are those which should be considered by the responsible agencies for immediate implementation. These recommendations include, the following:

- Consider adding traffic signs along the Big Sur Highway to identify "Narrow Two-Lane Road, Watch for Bikes".

- Modify the existing Route 1 "Southbound Truck Use 183/101" sign to include all vehicles.

- Retain existing Vista Points.

- Caltrans should consider the potential to accommodate bus service in its investigation of a park-and-ride lot for the Peninsula area.

Long-term recommendations are those which may be considered for implementation by the responsible agencies as existing conditions change, but are premature for immediate implementation. This would include alternatives which are constrained by existing policies or standards, require modification to current statutes or legislation, or are dependent upon the actions of other jurisdictions before implementation can be considered. These recommendations include the following:

- Caltrans should consider any proposals for SRRA/Travel Information Centers, if requested.
- Within Hatton Canyon Project limits, include sign "Highway 1 South of Carmel Subject to Delays".
- MST should consider year round bus service.
- MST should consider providing bus stop amenities.
- MST should consider providing bicycle racks on buses.
- DPR should consider providing an off road bikeway.
- Caltrans should consider turnouts in the Big Sur area, if requested.
- MCTC should consider implementing a SAFE program and include Highway 1.
- DPR and USFS should provide Highway Advisory Radio.
- Caltrans should consider using the existing Hatton Canyon Project telephone information system for Big Sur traffic conditions and information after the construction of the project to test its effectiveness in providing visitor information on travel conditions.