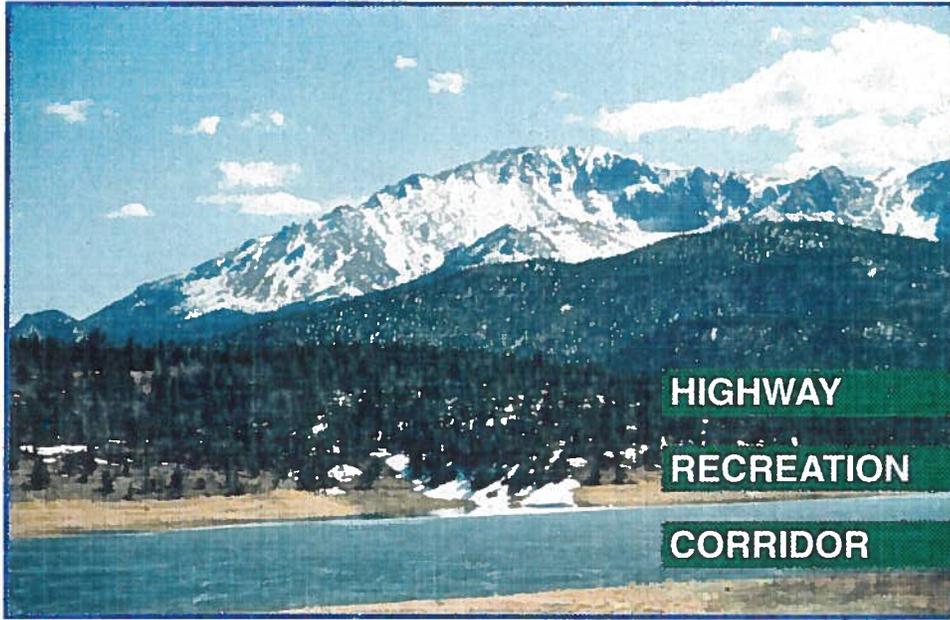


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# PIKES PEAK



HIGHWAY

RECREATION

CORRIDOR

## MASTER PLAN

September 1992

**PIKES PEAK HIGHWAY RECREATION CORRIDOR**

**MASTER PLAN**

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# PIKES PEAK HIGHWAY RECREATION CORRIDOR MASTER PLAN

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**PART ONE: EXECUTIVE SUMMARY**

Part Two: Master Plan and Guidelines

Part Three: Implementation Plan

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## MASTER PLAN SUMMARY

The City of Colorado Springs has a special use permit from United States Forest Service (USFS) to construct, operate and maintain the Pikes Peak Highway Recreation Corridor and toll road for public recreational travel. Under the terms of the special use permit, a master plan was to be prepared for the corridor. The purpose of the master plan is to describe and define policies, plans, design concepts, and guidelines with regard to the desired future conditions for the land and facilities within the highway corridor.

In developing the Pikes Peak Highway Recreation Corridor Master Plan, a broad public and agency participation program was instituted. It included a series of four workshops and six public meetings. In addition, a Technical Review Committee (TRC) was formed with representatives from the U.S. Forest Service, the Pikes Peak Auto Hill Climb Association, the Pikes Peak Highway Advisory Commission and various departments or agencies from the City of Colorado Springs. With the valuable input from these groups, the master plan evolved and took shape focusing on the main elements identified below.

## MASTER PLAN ELEMENTS

The main themes or elements in the master plan are the erosion and sedimentation control program, the transportation element, the interpretive program, the recreation elements and the signage system. A general overview of these elements is provided along with a summary list of the elements or site specific improvements, and their phasing and estimated costs.

### EROSION AND SEDIMENTATION CONTROL PROGRAM

Erosion and sedimentation control was the major issue identified at the public meetings and workshops. To address this problem, general guidelines were developed to assist in improving the highway corridor and in adhering to U.S. Forest Service Standards. These guidelines encompass new construction, road maintenance, slopes, grading and drainage control.

In addition to the general guidelines pertaining to erosion and sedimentation control, specific locations along the highway corridor were identified as high, moderate or low areas of erosion/sedimentation damage. Specific treatments or mitigation measures were also suggested for these locations. In the high priority areas, the improvements address both the road edge and the off-road treatment requirements and include the Crystal Reservoir area, Halfway Picnic Area, Old Ski Area, Sedimentation Basin, Glen Cove, the W's, Elk Park and Bottomless Pit. The moderate priority areas are identified as the Auto Hill Climb race start, Alpine segment and roadside pull-offs. The lower priority areas relate to general road edge improvements.

### TRANSPORTATION ELEMENT

The transportation element of the master plan refers to the roadway and the mode of transportation. Currently, the roadway is gravel surfaced and varies in width from 19' 6" to 48' 2". To avoid increasing the width with side-casting of surfacing materials, which contribute to the sedimentation of lakes and drainages, a roadway standard of eleven-foot travel lanes and two-foot shoulders is proposed for a total roadway width of 26 feet. Adoption of this width will entail some widening of the roadway in existing narrow areas, and reduction of the existing maintained width in many other areas. This

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## PART ONE: EXECUTIVE SUMMARY

roadway width is applicable for any type of roadway surface and should be physically defined by either delineation or paving of the full width. The definition of the edge of the roadway will help to confine maintenance practices to a specified corridor.

With regard to the roadway surface, one of the main issues identified in the workshops and public meetings was the surface condition and treatment of the roadway. There was much concern voiced by the Pikes Peak Auto Hill Climb participants that changing the surface of the roadway from gravel to bituminous paving would result in the termination of the Auto Hill Climb event. After careful consideration of this viewpoint, the environmental effects, the long-range cost projections, and the various pros and cons of each alternative, the recommendation of this Master Plan is to pave the entire length of the Pikes Peak Highway. This recommendation is supported by a variety of environmental and economic factors related to paving the highway, including significant annual savings for maintenance, greater ease in maintaining erosion control structures and the highway itself, increased visitor use or patronage, and reduction of impacts to vegetation. With respect to the Hill Climb and the impacts of paving, it is hoped that race organizers will meet the challenge to continue the race, adapting to the roadway surface as it has adapted to many other changes over its seventy-year history.

Other elements associated with the roadway are informal and interpretive turnouts. The informal turnouts are a minimum of seven feet in width and vary in length. They essentially provide parallel parking to the highway and should be located where existing width is available. The purpose of the informal turnouts is to provide drivers with safe breakdown or stopping areas that are outside the main travel lanes. These turnouts are to be strategically located along the corridor. The purpose of the interpretive turnouts is to provide a safe area separate from the main travel lane, and off of the highway, so that visitors can slow or stop to view an area of noted importance as identified on the audio interpretive program. Seven locations along the corridor have been identified for these interpretive turnouts.

In addition to the existing cog railroad and auto access on Pikes Peak, there was public support for the provision of a self-supporting shuttle service as part of the master plan. Consequently, a shuttle service route in the highway corridor from the Visitor Facility to the Summit was identified. The associated facilities such as shuttle staging areas, signage and stops have been incorporated into the prototypical and site plans.

### INTERPRETIVE PROGRAM

Interpretive programs and developments have been designed to enhance the average visitor's experience on Pikes Peak. Issues of comfort, enlightenment, stimulation and aesthetic surroundings have all been factored into the program's design. While interpretation has been planned to appeal to and be used by all of the many interest groups that enjoy the mountain, touring families and local repeat-visit families and individuals have been a primary concern.

The content of interpretive programs and developments will be drawn from the mountain itself: a more than fourteen thousand foot peak soaring abruptly from the high plains of the western United States, it embodies a wide spectrum of topical resources. Its surface rises through three life zones and thus contrasts five very different ecosystems within the length of the road leading to its summit. It makes its own weather, providing significant water for the plains below. Its rocks display the forces and materials that built it, as well as, earth history during the eons preceding its rise. The peak has been a beacon and a "finding" place for people and it has assumed near mythic status in the cultures of Native, Hispanic and other European Americans.

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## PART ONE: EXECUTIVE SUMMARY

To convey the interpretive themes that can be drawn from these attributes, the interpretive programs and associated infrastructure development will take several forms. These include an audio program to be used while travelling on the highway, roadway turnouts keyed to the audio program, interpretive loop trails, small wayside signs at specific trailhead locations and various interpretive programs such as videos and displays customized for the themes portrayed at specific facilities. The Visitor Facility, in particular, will play a major role and provide a focal point for many of the interpretive program elements.

### RECREATION ELEMENT

In addition to the interpretive programs and sightseeing in the corridor, a wide variety of recreational activities were identified by the public. However, due to the Watershed Agreement, permitted activities within the corridor are limited. Consequently, the master plan recreation elements basically build upon existing permitted uses and either expand or in some cases formally recognize activity in specific locations. For example, existing picnic facilities at Halfway Picnic Area and Glen Cove will be upgraded with new toilets, a covered picnic shelter and general site clean-up. A third picnic area which currently exists at Crow Gulch will be removed and replaced with a large picnic area at the new Visitor Facility.

In terms of hiking activities, the plan identifies trailheads for the informal trails that are used within the corridor. These trailhead locations are Crow Gulch, Old Ski Area, Glen Cove, Elk Park, and Devil's Playground. All trailheads will have parking associated with them. A new trailhead is proposed at the Visitor Facility to connect the facility and site to Crystal Creek Reservoir which has great recreation potential for hiking, fishing and informal picnicking. In addition to these informal trails, the Barr Trail is identified as a trailhead in the master plan. This trail and trailhead is officially recognized by the U.S. Forest Service.

The opening of the North Slope Recreation Area resulted in the promotion of fishing activity at Crystal Reservoir which is within the master plan corridor. Any development or improvement of recreational opportunities within this area of the North Slope will be a benefit to both the Pikes Peak Highway and North Slope Recreation users. The recreation elements that are associated with a major facility are also identified in the specific site plans.

### SIGNAGE SYSTEM

An unified signage system was created for the Pikes Peak Highway based on a signage hierarchy of three distinct groups: Interstate and U.S. Highway 24, Pikes Peak Highway Corridor, and buildings and facilities. The Interstate and U.S. 24 sign design must conform to the Manual of Uniform Traffic Control Devices and include brown, cultural and recreational area guide signs; blue, tourist oriented directional signs; and regulatory and traffic signs.

Pikes Peak Highway Corridor signs include the following types: regulatory and traffic control signs, cooperative signs, recreation area site identification signs, mile markers and elevation markers, site approach signs, management signs and trail signs. Examples of signs in the buildings and facilities category include an entry sign, information signs, accessibility signs, map displays, building identification signs, shuttle stop identification and interior signs. For each of these sign types, design objectives and guidelines were developed to address color, shape and placement in order to create an unified signage system. However, before the design of any specific sign types is started, it is recommended that a logo/identity be devised for the Pikes Peak Highway Corridor. This identity design should include a logotype, color and materials palette along with a guideline for application to signage.

MASTER PLAN PHASING AND COST

The total estimated cost to implement the master plan is \$23,237,800. As shown in Table 1.1, this cost is fairly evenly spread over the three phases representing a total time period of ten years.

Phase 1 represents the beginning of the plan implementation through year three. The major elements programmed in this phase are erosion control improvements, gravel roadway improvements, development of an audio interpretive program, summit improvements and signage improvements.

Phase 2, the middle phase, represents years four through six. The major elements programmed in this phase are erosion control improvements, construction of a new Visitors Facility near Crystal Creek Reservoir and Tollgate improvements.

Phase 3, the last phase, represents years seven through ten. The major elements programmed in this phase are erosion control improvements, paving of the roadway, renovation and remodeling of Glen Cove and general improvements at several of the picnic and trailhead locations.

It should be noted that the cost information identified for the individual elements is only a general estimate for the master plan. Detailed site investigations and design are needed to provide more definitive cost data.

MASTER PLAN FUNDING

The Pikes Peak Highway revenues, generated within the ten-year period of the master plan, are not sufficient to cover the \$23,237,800 costs associated with implementing the master plan improvements. Consequently, other funding sources besides the Highway Enterprise Fund have been identified. These potential funding sources include other City of Colorado Springs entities; U.S. Forest Service; ARA, the concessionaire; and private corporations and foundations.

PIKES PEAK HIGHWAY RECREATION CORRIDOR MASTER PLAN  
SUMMARY OF ELEMENTS BY PHASE

Element	Phase 1 (0 - 3 yrs.)	Cost	Phase 2 (4 - 6 yrs.)	Cost	Phase 3 (7 - 10 yrs.)	Cost
Drainage/Erosion Control	<p>Implement new maintenance procedures</p> <p>Provide high priority improvements</p> <ul style="list-style-type: none"> <li>- Crystal Reservoir area</li> <li>- Halfway Picnic Area</li> <li>- Old Ski Area</li> <li>- Sedimentation basin site</li> <li>- Glen Cove</li> <li>- W's area &amp; Elk Park</li> <li>- Bottomless Pit</li> </ul>	\$3,415,500	<p>Provide moderate and low priority improvements</p> <ul style="list-style-type: none"> <li>- Alpine segment</li> <li>- Race start segment</li> <li>- Turnout sites</li> <li>- General road edge areas</li> </ul>	\$2,563,800	<p>Provide low priority improvements</p> <ul style="list-style-type: none"> <li>- General road edge areas</li> </ul>	\$2,496,200
Transportation	<p>Implement gravel roadway improvements</p> <ul style="list-style-type: none"> <li>- Roadway standard 11 ft. travel lanes and 2 ft. shoulders for a total road width of 26 feet</li> <li>- Change maintenance procedures for grading and blading to confine roadway width</li> <li>- Continue surface treatment for dust control</li> <li>- Delineate roadway width and turnout locations</li> </ul> <p>Pave Glen Cove straight-away</p>	230,000			<p>Implement paved roadway improvements</p> <ul style="list-style-type: none"> <li>- Roadway standard of 11 ft. travel lanes and 2 ft. shoulders for a total roadway width of 26 feet</li> <li>- Pave remaining sections of roadway</li> <li>- Provide guardrails where appropriate</li> </ul>	2,070,000
Interpretive Audio Program	<p>Develop audio program</p>	57,500	<p>Monitor paved locations</p> <p>Implement shuttle service on a break even basis from Visitor Facility to summit</p>	-	<p>Provide interpretive turnout improvements</p>	1,795,100
Major Site Specific Improvements	<p>Reorganize and consolidate with a new facility to include:</p> <ul style="list-style-type: none"> <li>- Upgraded store</li> <li>- Food service</li> <li>- Information</li> <li>- Interpretive area</li> <li>- Covered drop-off/pick-up area for auto and bus</li> <li>- Trailhead</li> <li>- Hiker's shelter</li> <li>- Restrooms</li> <li>- Paved parking area</li> </ul>	4,403,600	<p>Complete summit improvements</p> <ul style="list-style-type: none"> <li>- Interpretive summit trail</li> </ul>	824,300		
<u>Summit</u>						

PIKES PEAK HIGHWAY RECREATION CORRIDOR MASTER PLAN  
SUMMARY OF ELEMENTS BY PHASE

Element	Phase 1 (0 - 3 yrs.)	Phase 2 (4 - 6 yrs.)	Phase 3 (7 - 10 yrs.)	Cost	
Visitor Facility		<p>Construct near Crystal Creek Reservoir to include:</p> <ul style="list-style-type: none"> <li>- Interpretive area</li> <li>- Rustic amphitheater</li> <li>- Restrooms</li> <li>- "Museum-type" store</li> <li>- Picnic area &amp; covered picnic shelter</li> <li>- Information</li> <li>- Food/dining service</li> <li>- Paved parking area</li> <li>- Shuttle staging area</li> <li>- Trailhead &amp; Crystal Loop Trail</li> <li>- Interpretive trail</li> <li>- Fishing at Crystal Reservoir</li> <li>- Reserve area for possible tollgate relocation</li> </ul>	<p>Renovate exterior and remodel (after Visitor Facility complete) to include:</p> <ul style="list-style-type: none"> <li>- Restrooms</li> <li>- Picnic area upgrade</li> <li>- Covered picnic shelter</li> <li>- Limited store</li> <li>- Lounge/interpretive area</li> <li>- Limited food service</li> <li>- Deck area</li> <li>- Paved parking area</li> <li>- Trailhead</li> <li>- Interpretive trail</li> <li>- Retain brake check station</li> <li>- Shuttle staging area</li> </ul>	3,053,200	899,300
Glen Cove					
Tollgate		<p>Evaluate tollgate location based on North Slope Comprehensive Plan, relocation can be accommodated at Visitor Facility</p> <p>Improvements for tollgate at current location</p> <ul style="list-style-type: none"> <li>- Restrooms</li> <li>- Tollhouse &amp; canopy</li> <li>- Information area in station house</li> <li>- Parking organization</li> <li>- Entry sign</li> </ul>		775,800	

PIKES PEAK HIGHWAY RECREATION CORRIDOR MASTER PLAN							
SUMMARY OF ELEMENTS BY PHASE							
Element	Phase 1 (0 - 3 yrs.)	Cost	Phase 2 (4 - 6 yrs.)	Cost	Phase 3 (7 - 10 yrs.)	Cost	
Other Site Specific Improvements	<u>Elk Park</u>	Minimal improvements to interim auto access with ingress from and egress to downhill only	28,800				
	<u>Halfway Picnic Area</u>			Upgrade site area and facilities to provide - Restrooms - Covered picnic shelter - Trailhead	119,600	Improve auto access to full movement intersection, and provide helicopter landing area, trailhead and parking improvements consistent with directing/limiting use to a specified area	81,600
	<u>Crow Gulch</u>					Refocus use/activities, after Visitor Facility completed, by removing picnic facilities and provide - Trailhead & paved parking - Interpretive loop trail	59,800
	<u>Old Ski Area</u>	Retain access for overflow parking for special events	-			Provide trailhead & paved parking	38,000
Signage	Implement unified signage system - Interstate & U.S. 24 - Entry sign - Corridor/recreation signs - Mile markers - Facility signs	127,900		Provide additional signage for improvements - Corridor/recreation signs - Facility signs	57,500	Provide trailhead & paved parking	36,800
						Provide additional signage for improvements - Corridor/recreation signs - Facility signs	57,500
COST BY PHASE						\$7,394,200	\$7,534,300
TOTAL COST							\$23,237,800

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Part One: Executive Summary

**PART TWO: MASTER PLAN AND GUIDELINES**

Part Three: Implementation Plan

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## INTRODUCTION

### MASTER PLAN PURPOSE

The purpose of the master plan for the Pikes Peak Highway Recreation Corridor is to describe and define policies, plans, design concepts, and guidelines with regard to the desired future conditions for the land and facilities within the Highway Corridor.

To fully appreciate the integration of the various elements into the final Pikes Peak Highway Recreation Corridor Master Plan, it is important to understand the context in which the plan was developed and will be implemented. The master plan context is described briefly in terms of the corridor's history, the relationship of the entities involved in the ownership, management and use of the Highway and the process involved in developing the master plan itself.

### HISTORY OF PIKES PEAK HIGHWAY

Ute and Plains Indians were the original inhabitants of the Pikes Peak Region. They seldom stayed on the mountain, but used an extensive trail system through the region to pass over into South Park, renowned as rich hunting grounds. Remnants of the historic trail down Ute Pass can still be seen when traveling Highway 24.

The mountain, Pikes Peak, was named for Zebulon Montgomery Pike who was the first man to describe and map the enormous mass that dominates the front range of the Southern Rockies. Pike was dispatched by President Jefferson to describe the lands acquired in the Louisiana Purchase of 1803. The expedition set out November 24, 1806 to climb what they called "the Grand Peak", but they were turned away from the summit due to extreme weather conditions and lack of provisions. The first recorded ascent of the peak was accomplished by Dr. Edwin James of the Long Expedition on July 14, 1820. Julia Archibald Holmes was the first woman to make the ascent to the summit on August 5, 1858.

The initial gold rush of 1859 lured prospectors and explorers to the Pikes Peak and Denver regions of the Colorado Territory. Pikes Peak became the symbol and the landmark of the western expansion as is exemplified by the famous slogan, "Pikes Peak or Bust". Gold prospecting in Pikes Peak Country was not prosperous until 1891 when a genuine cache of precious metal was discovered. This discovery was the catalyst that transformed Cripple Creek and Victor into prosperous communities. During its heyday, in 1900, Cripple Creek accommodated a population of 10,000.

Several structures have adorned the summit of Pikes Peak. The original U.S. Signal Service/Weather Station was constructed in 1873 by the U.S. Army Signal Corps. In 1891, the Cog Railway used the abandoned Signal Service/Weather Station building as its first terminal on the summit. The building was remodeled to include guest rooms, a lunch counter, and a curio stand. A steel observation tower was constructed next to the building in 1899, but was subsequently moved in 1900 to the top of the second story addition of the Summit House. In 1953, the Summit House burned. The Cog Railway continued to provide its own terminal building until 1962. In 1963, the Cog Railway relinquished the station grounds easement so that a new Summit House could be built to serve both the cog and highway users. The present Summit House structure and mechanical building/observation deck were completed in 1964.

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## PART TWO: MASTER PLAN AND GUIDELINES

The first toll road was completed in 1889, thus making the journey to the summit possible by horsedrawn carriages. Two years later in June of 1891, the Cog Railway made its first journey to the summit. The carriage road could not compete economically with the railway and was abandoned shortly after 1891. It was during this period that Katherine Lee Bates ascended the mountain in a prairie wagon in the summer of 1893. It is from this trip that she wrote the words to the poem "America the Beautiful" which was published July 4, 1895. Inevitably, the first "horseless carriage" a Locomobile Steamer would make the trip in 1901.

The increasing popularity of the automobile drove the construction of the auto road in 1915. This endeavor was a private commercial venture by Spencer Penrose, and was authorized by a US Forest Service special use permit. The toll road opened in 1916 for automobile use and was also the first year of the Pikes Peak Auto Hill Climb. Penrose created the event to encourage travelers to drive the toll road and watch the excitement of racers careening around corners as they each raced to the summit. This arrangement continued until 1935 when Penrose relinquished the permit and improvements back to the government of the United States.

Upon relinquishment of the permit, Pikes Peak Highway was added to the State Highway System as the US Forest Service did not have the funds to support the maintenance of the roadway. Adding the highway to the State Highway System provided a means of maintaining the road through funds obtained from a special gas tax. This arrangement continued from 1935-1948, during which time the road was free to users.

In 1947, an amendment to the state gasoline tax statute limited the uses of the special gas tax funds. These funds were no longer available for the maintenance of the Pikes Peak Highway and accordingly the State ceased maintenance of the road on June 1, 1948. Both the City of Colorado Springs and the US Forest Service recognized the importance of the Pikes Peaks Highway as a tourist attraction and as an integral part of the local economy, but the US Forest Service did not have the funds or the authority to operate the road and the City could not justify spending general revenue funds raised by taxation to operate and maintain the road. However, the City believed it could operate the road on a toll basis and thus submitted an application for a special use permit to the US Forest Service on May 1, 1948. Federal regulations in effect in 1948 prohibited toll roads on National Forest System lands; however, Pikes Peak Highway was unique within the system. The Secretary of Agriculture was asked to make an exception in the case of the Pikes Peak Highway and the result was the first permit granted to the City of Colorado Springs dated May 18, 1948. The toll road was reinstated.

During the early years of highway reconstruction, Fred Barr was developing an alternative route up the eastern side of the mountain. This route, accessible only by foot, was completed in 1918 and is known as the Barr Trail. This route is still used today by adventurous hikers.

In 1892 the Pike National Forest was created. The purpose of this act was to preserve large timber reserves for protection of several watersheds, one of which is the Pikes Peak Watershed. The City of Colorado Springs acquired land through acts of Congress, cooperative agreements with the Department of Agriculture, and land purchases that has allowed them to preserve much of the watershed that provides the City its water today. As part of the City's development of water resources, several reservoirs have been completed on the mountain. The first and largest was Mason Reservoir built in 1905 with a capacity of 860 billion gallons. Crystal and South Catamount Reservoirs were completed in 1933 and North Catamount was finished in 1968.

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## PART TWO: MASTER PLAN AND GUIDELINES

The historic importance of Pikes Peak was officially recognized in 1963 when the land above 14,000 feet above was declared a National Historic Landmark and was "registered" with the Department of Interior as an Historic Place. The Inn at Glen Cove and the Cog Railway have been identified by the USFS as having historic significance.

Today the highway provides a unique means of ascending a 14,000 ft. peak in the Colorado Rockies and opportunities for a variety of experiences to a variety of users. Some of the more common recreational experiences provided on the mountain and in the highway corridor are hiking, picnicking, and fishing. In addition to these activities, several special events are held annually. Some of these events include the AdAmAn Club's New Year's Trek to the summit to display fireworks, the Pikes Peak Marathon on the Barr Trail, and the Pikes Peak Hill Climb Auto Race.

The total number of visitors to Pikes Peak in 1991 was 475,043 (100%). Of those, 253,043 (53.3%) visited the mountain via the highway, the Cog Railway carried 186,000 (39.1%) of the visitors to the summit, while an estimated 25,000 (5.3%) hiked the Barr Trail. An estimated 11,000 (2.3%) spectators viewed the Auto Hill Climb in 1991. Included in the total visitor numbers are several other special interest groups that use the mountain. These include, the AdAmAn Club, the Pikes Peak Marathon, and bike rides with Challenge Unlimited. It is expected that visitor numbers for 1992 and the future will increase with the opening of the North Slope Recreation Area. In addition, an underlying concept of the Master Plan, provided it is implemented, is to increase the number of visitors to Pikes Peak.

### MANAGEMENT OF THE PIKES PEAK CORRIDOR

A municipality operating and maintaining federally-owned improvements and charging a user fee is a unique situation within the US Forest Service.

As mentioned previously, the Pikes Peak National Forest was created in 1892 and is under the jurisdiction of the US Forest Service. The railroad predates the creation of the National Forest System and operates without any regulation by the US Forest Service; however, the present day Pikes Peak Highway Recreation Corridor lies within the National Forest and thus must abide by US Forest Service regulations.

The City of Colorado Springs has been granted use of the corridor through a thirty-year special use permit from the US Forest Service. The corridor extends 150 feet outward from the centerline of the road and includes all facilities or areas adjacent to the highway that are of special significance to the highway. The permit is for the purpose of constructing, operating, and maintaining the Pikes Peak Highway Recreation Corridor and toll road for public recreational travel to the summit of Pikes Peak. A contingency to that issuance is the development of a Recreation Corridor Master Plan. The remainder of the mountain, if not directly owned by the City of Colorado Springs, is under the jurisdiction of the US Forest Service. At the present time the City of Colorado Springs is not charged a permit fee. In lieu of a fee, the City is required to operate, maintain and recondition the improvements, provide visitor services, and care for the land.

In addition to the special use permit, the City of Colorado Springs and the US Forest Service have a watershed agreement that restricts the location and types of uses that can occur within the watershed. Public use is restricted by a 1913 Federal law and 1914 regulations and agreements between the City of Colorado Springs and the Secretary of Agriculture. This agreement particularly affects the recreational opportunity of areas off of the legally designated routes on the mountain. These primary routes include

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## PART TWO: MASTER PLAN AND GUIDELINES

the Barr Trail, Cog Railway, Pikes Peak Highway and Gold Camp Road. Gold Camp Road skirts the southern side of Pikes Peak and is the most direct route from Colorado Springs to the gold camps of Cripple Creek and Victor.

The year 1992 has seen the opening of the North Slope Recreation Area, which is under the jurisdiction of the North Slope Watershed Advisory Committee. Recreational opportunities are limited to low impact activities such as, bank fishing, hiking, and picnicking. The intent of opening the North Slope is to monitor the impact of recreation on the watershed and to aid decisions of whether or not to open other watershed areas to recreationists.

The objectives of the three primary jurisdictions, the USFS, the City of Colorado Springs, and the North Slope Recreation Committee, may not always be same, thus managing the corridor and the mountain can be difficult. Coordination and agreement must be reached between these entities for the good of the environment, the visitor, and to ensure the perpetuity of the wealth of resources presently available on the mountain.

### MASTER PLAN DEVELOPMENT

The process for the development of the Pikes Peak Highway Corridor Recreation Master Plan began with the identification of main issues/themes pertaining to the use and management of this corridor. To address these issues within the context of the master plan, plan goals were identified. These goals in turn directed the development of the plan itself.

The various elements/issues pertaining to the corridor were grouped according to the main topic areas of recreation and tourism, the environment and the highway itself. These elements were then assessed and the opportunities and/or constraints associated with them were identified. (Information on the opportunities and constraints is documented in Technical Memorandum #3). From the information on opportunities and constraints, concepts for three alternative plans were formulated. A single, final plan was then crafted based on a refinement of various elements within the three alternatives. Consequently, the final master plan presented here, is not one of the original three alternative plans but rather, it is a melding of various concepts and elements in each of the alternatives.

The public and agency participation program, the main themes, and the three alternative plans are described briefly.

### PUBLIC AND AGENCY PARTICIPATION

A series of workshops were held to solicit input from particular interest groups (private and public) with respect to recreation and tourism, environmental issues, the highway itself, and the Pikes Peak Auto Hill Climb.

In addition to four workshops, six public meetings were held to obtain input and to present information about the workshop results and the key milestones in the project, such as the alternative plans and the final plan. Both the workshop participants and the public provided valuable input as well as important background information for the master planning process.

To provide technical advice and to assist in the development of the Master Plan, a Technical Review Committee (TRC) was formed with representatives from the U.S. Forest Service, the Pikes Peak Auto

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## PART TWO: MASTER PLAN AND GUIDELINES

Hill Climb Association, the Pikes Peak Highway Advisory Commission and various City of Colorado Springs Departments, including Planning and Development, Parks and Recreation, Transportation and Utilities. The TRC was actively involved in all phases of the master plan development including the public participation program.

### MAIN ISSUES/THEMES

The main issues or themes, pertaining to the Pikes Peak Highway Corridor, that recurred throughout the public and agency participation process are listed below.

- Erosion and dust must be controlled
- Existing environmental and erosion damage must be repaired
- Further environmental damage must be stopped
- Human and environmental needs must be balanced
- Carrying capacity must be adjusted in relation to environmental needs
- Local access for recreation and points of passage must be established along the Pikes Peak Highway with a reasonable fee structure at the tollgate
- The visitor experience should be of the whole mountain, not just to the top and back
- More educational and interpretive opportunities should be provided
- The interpretive program should "reveal the secrets of the mountain" - oldest tree, weather effects, elk migration and calving areas, geologic and human history, etc.
- Human activities should be explained and interpreted: road building, current maintenance practices, the Auto Hill Climb, etc.
- Use should be diversified and increased
- A high quality visitor facility should be built
- The summit needs major improvements - higher quality
- The Pikes Peak Auto Hill Climb race should be preserved, if at all possible, but not at the price of the environment
- Hill Climb participants believe a gravel road is imperative to maintain the viability of the race
- Restrooms, restrooms, restrooms.....restrooms

In general, the outcome of all workshops pointed toward a master plan which should address multiple uses, create national and international exposure, upgrade the experience and facilities in the corridor, reduce costs for operations and maintenance, provide for increased visitation, mitigate current negative environmental impacts, and make local use more easily available. All groups responded strongly to the need for interpretation opportunities to be developed, and particularly in relation to the development of some type of comprehensive visitor facility.

### PLAN ALTERNATIVES

After assessing the opportunities and constraints for the highway, environmental/cultural, and recreation and tourism elements, plan concepts were formulated. These concepts were expanded and evolved into three distinct alternative plans.

Alternative #1 represented the "minimal" approach. It included limiting the impact to and development of environmental and cultural resources and the lowest capital expenditure of all the alternatives. Consequently, the interpretive program was primarily summit oriented and the highway improvements

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## PART TWO: MASTER PLAN AND GUIDELINES

consisted of incorporating changes in the maintenance procedures with a roadway standard and surface treatment for the existing gravel roadway.

Alternative #2 represented the "moderate" approach. It included moderate capital expenditure to promote use of environmental/cultural elements, such as an increase in the variety of activities for recreation and tourism as well as a dispersed interpretive program along the highway corridor. Higher capital expenditure for roadway improvements included paving to the Elk Park area.

Alternative #3 represented the "maximal" approach. It included promoting environmental/cultural opportunities and providing the greatest variety and expansion of activities in the corridor, such as major interpretive trails, a major visitor facility and a concentration of activities at the Old Ski Area. Roadway improvements consisted of paving the entire length of the highway and therefore had the highest capital expenditure for the roadway alternatives.

For all three alternatives, erosion/sedimentation control measures were proposed along with changes in maintenance procedures and new roadway standards.

Various concepts and elements were chosen from each of the alternatives to formulate the final Master Plan.

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## PART TWO: MASTER PLAN AND GUIDELINES

### MASTER PLAN GOALS

A set of Master Plan goals were developed with the Technical Review Committee as a result of the discussions and input at the workshops and public meetings. The goals for the Master Plan are grouped according to the following categories: general master plan, facilities, environment and highway. These goals, which follow, set the framework for the master plan.

#### GENERAL MASTER PLAN GOALS

1. To protect and enhance the watershed
2. To protect and enhance the natural environment and outdoor experience
3. To develop a plan which will promote a variety of uses for the Pikes Peak Highway Corridor, consistent with current interagency agreements and practices
4. To provide for greater educational and interpretive experiences in the corridor
5. To provide a balance between increased visitation/users and the natural resources. Do not exceed the carrying capacity
6. To coordinate with outside influences that interact with the Pikes Peak Highway Corridor
7. To develop a plan which further promotes and attracts national-level visitation and exposure
8. To develop a plan which will promote increased visitation to the Pikes Peak Corridor
9. To develop a plan which increases local Colorado Springs/regional visitation to the Pikes Peak Highway Corridor

#### FACILITIES GOALS

1. To provide high quality architectural consistency which responds to the environmental context
2. To provide interpretive and educational facilities in and along the Pikes Peak Highway Corridor
3. To enhance/upgrade/replace/remove existing facilities in the Pikes Peak Highway Corridor, and add new facilities as they are deemed necessary
4. To provide for a variety of experiences and services in and along the Pikes Peak Highway Corridor
5. To develop consistent architectural themes for improvements and facilities
6. To evaluate facility utilities

#### ENVIRONMENTAL GOALS

1. To reduce/eliminate the erosion impacts on stream channels and lakes and caused by the Pikes Peak Highway Corridor maintenance activities
2. To protect the watershed
3. To protect and enhance the natural environment
4. To provide for environmental education and interpretive opportunities
5. To enhance the visual experiences on/along/from/to the Pikes Peak Highway Corridor
6. To mitigate dust impacts (improve air quality)

#### HIGHWAY GOALS

1. To stabilize and mitigate negative environmental impacts
2. To accommodate opportunities for special event uses (i.e. - the Pikes Peak Auto Hill Climb) consistent with environmental protection

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## PART TWO: MASTER PLAN AND GUIDELINES

3. To balance the needs of all highway interests in a comprehensive framework
4. To improve the overall image of the Pikes Peak Highway Corridor
5. To optimize revenues for highway operations and maintenance without negative environmental impacts
6. To provide the most efficient, convenient, safest means of access to corridor elements
7. To provide identified access to North Slope activities
8. To promote greater public use of the Highway Corridor and Pikes Peak area
9. To explore multi-modal transit alternatives

## **MASTER PLAN AND DEVELOPMENT GUIDELINES**

The main themes or elements of the master plan are the erosion and sedimentation control program, the transportation improvements, the interpretive program, the recreation improvements and the signage system. The corridor master plan, which is shown in the figure that follows, identifies the location of the components specifically related to the transportation, recreation, and interpretive elements. The master plan also identifies the location of the major activity areas such as the Tollgate, Crystal Creek Reservoir, Glen Cove, and the Summit, to name a few.

The transportation elements that are shown include the existing and proposed paved road sections of the highway and the associated possible guardrail locations, parking areas, cog railway access and shuttle bus stop locations. The recreation element includes hiking trailheads, picnic areas, covered picnic shelters, a hiker's shelter and a fishing area. Components of the interpretive program elements include interpretive turnouts/scenic overlooks, interpretive loop trails, interpretive wayside or trail signs and interior displays. Information on the corridor facilities or services such as gift shops, restrooms, information and food service is noted as well.

A summary list of the improvements by element or for specific sites/activity areas are shown in Table 1.1. Also included in Table 1.1 are the phasing and estimated costs for each improvement. Detailed information and guidelines for these specific improvements and the general master plan elements follow.

### **EROSION AND SEDIMENTATION CONTROL PROGRAM**

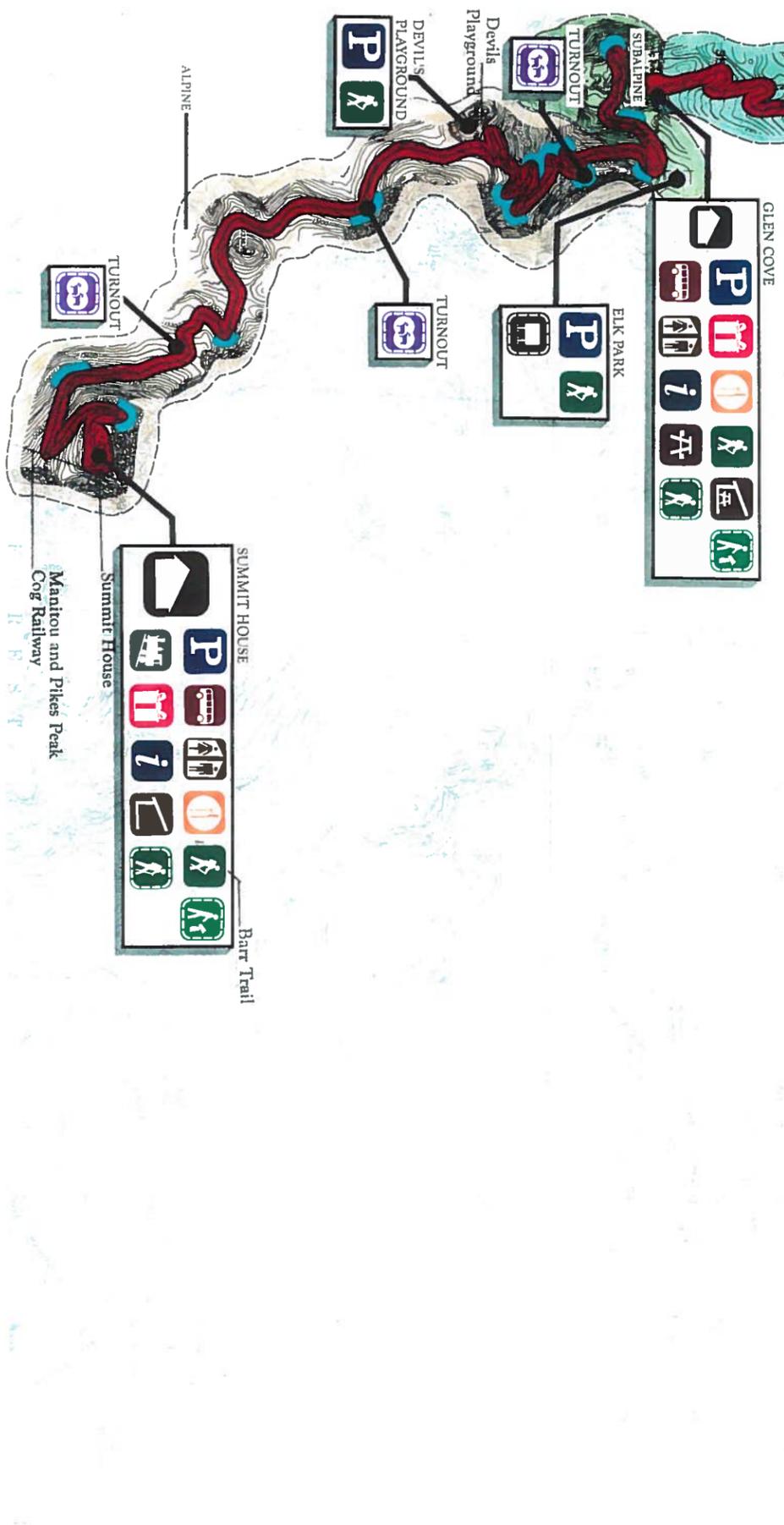
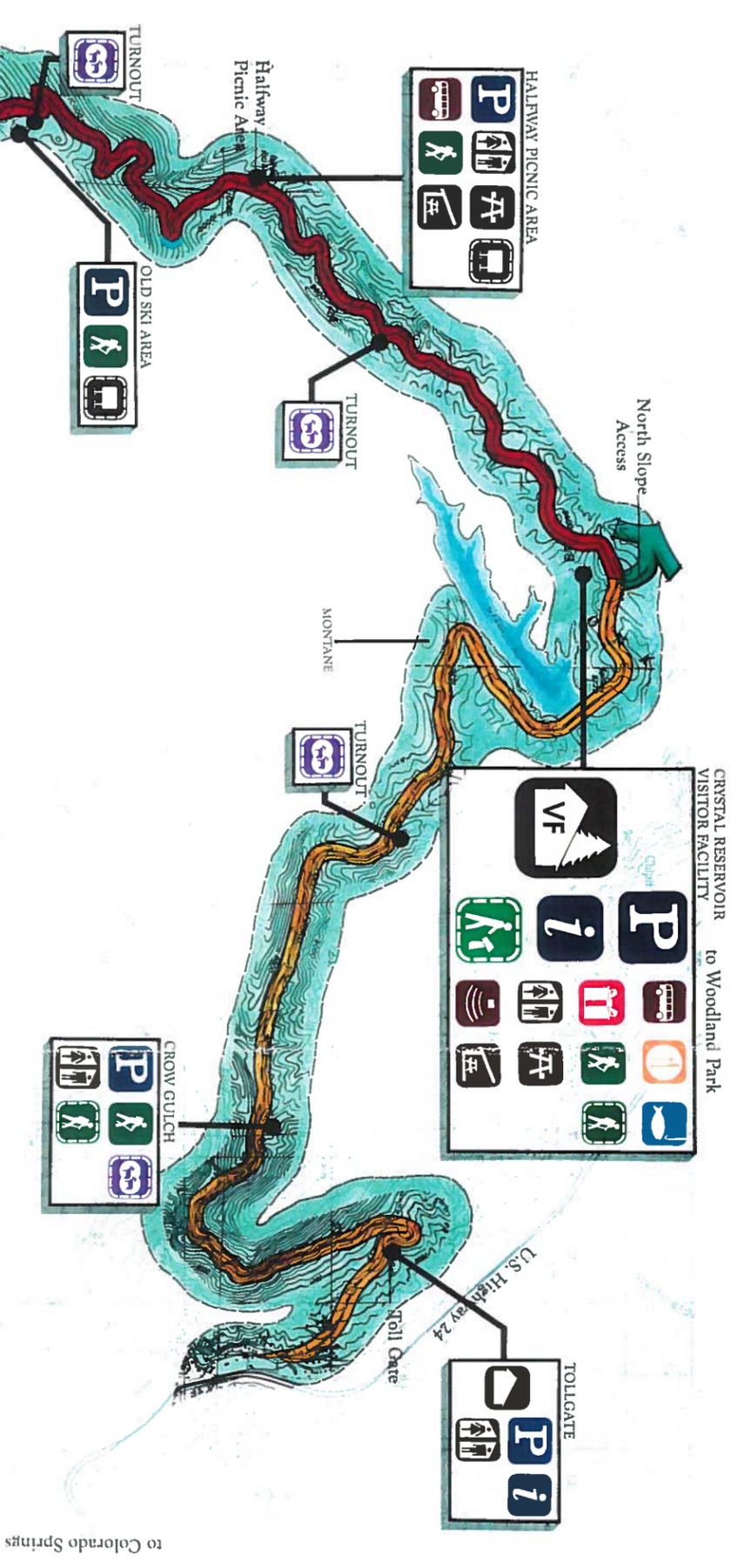
Erosion and sedimentation control was the major issue identified at the public meetings and workshops. Upon investigating of the conditions within the highway corridor, specific locations were identified as high, moderate or low areas of erosion/sedimentation damage. As part of the erosion and sedimentation control program, specific treatments or mitigation measures are suggested for these locations. Also included in information for this program are general guidelines that were developed to assist in addressing some of the current erosion and sedimentation problems and in avoiding them in the future.

### **EROSION/SEDIMENTATION CONTROL IMPROVEMENT AREAS**

Specific areas within the corridor identified with erosion/sedimentation damage are described in Table 2.1 and grouped as high, medium, or low areas of concern according to the extent of the damage and its impacts. Also presented in Table 2.1 are the treatments and benefits associated with the improvements at the specific sites. These specific locations and their designation as high, medium and low areas of concern correspond to the improvement priority categories of high, medium and low, and are identified accordingly in the figure titled, Erosion/Sedimentation/Maintenance. The high priority areas relate to off-road improvements, as well as, road edge improvements in specific locations such as Crystal Reservoir, Halfway Picnic Area, Old Ski Area, sedimentation basin site, Glen Cove, W's area, Elk Park and Bottomless Pit area. The moderate priority areas are more concerned with segments along the road such as the Alpine segment, the Auto Hill Climb race start segment and turnout locations. The lower priority areas refer to general areas along the edge of the roadway.

# CORRIDOR MASTER PLAN

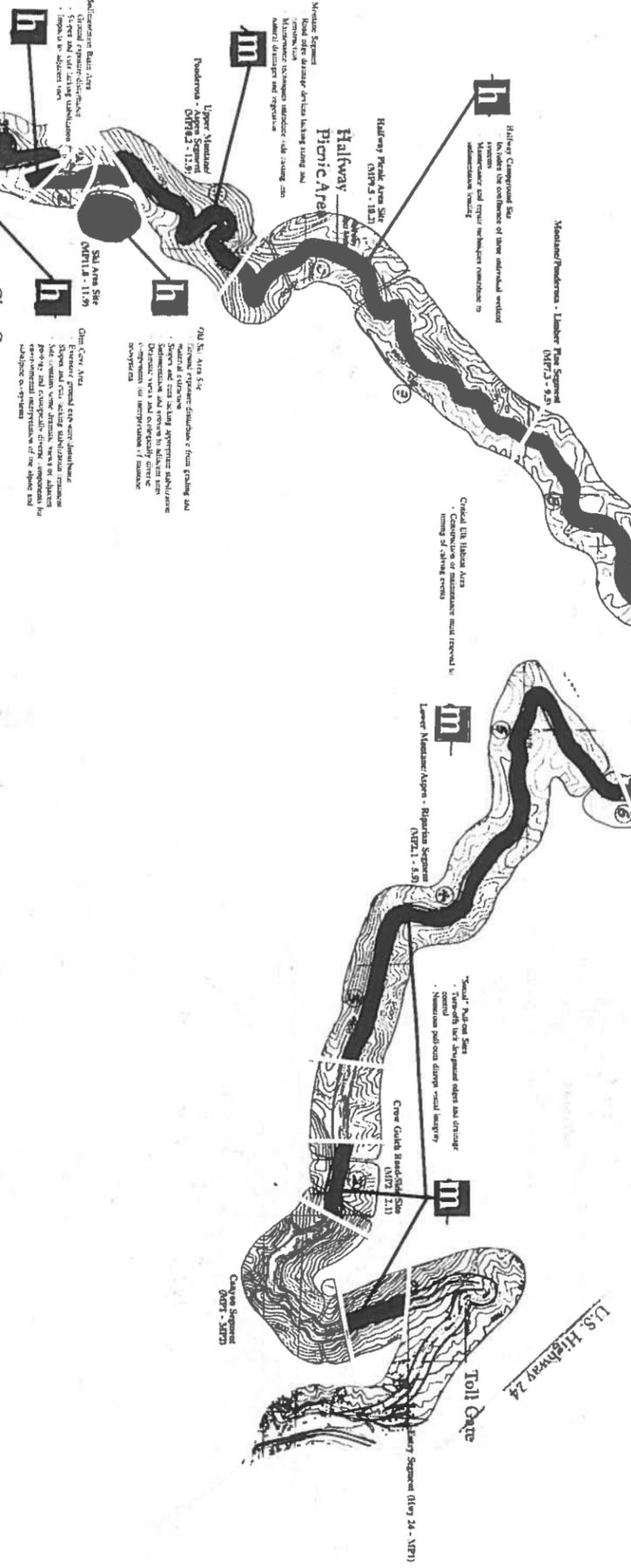
- LEGEND**
- TRANSPORTATION ELEMENTS:**
- New Paved Road
  - Existing Paved Road
  - Guardrail Location
- FACILITIES:**
- New Visitor Facility
  - Upgraded Existing Facility
  - Gift Shop
  - Restrooms
  - Amphitheatre
  - Food Services
  - Information
  - Shuttle Bus
- RECREATION ELEMENTS:**
- Hiking Trailhead
  - Picnic Area
  - Picnic Shelter
  - Hiker's Shelter
  - Fishing
- INTERPRETIVE ELEMENTS:**
- Turnout/Scenic Overlook
  - Interior Display Element
  - Trail
  - Trail Sign



# PIKES PEAK HIGHWAY RECREATION CORRIDOR MASTER PLAN



# EROSION/SEDIMENTATION/ MAINTENANCE PROBLEMS AND PRESCRIPTIONS



- h** High Treatment Areas  
Road edge stabilization:  
exposed slopes, cuts, fills  
Erosion/sedimentation devices:  
ditches/walls  
Sensitive wildlife habitat or  
cultural/historic concerns  
Diverse visual resources
- m** Moderate Treatment Areas  
Road edge stabilization:  
exposed slopes, cuts, fills  
Diverse visual resources  
Sensitive wildlife habitat or  
cultural/historic concerns
- Low Treatment Areas  
Road edge stabilization:  
exposed slopes, cuts, fills
- Barriera

### Drainage Control Recommendations

- Ditches and drains should be clear to allow water to freely flow away from the road
- Erosion of ditch bottoms can be prevented by paving, use of stumps or riprap, use of combinations of artificial and natural materials such as rock riprap
- Provide adequate drainage from road surfaces by using initial grades, outleaked or crowned roads, drain dips, or installed roads with ditches and cross drains
- Space road drainage devices at the appropriate intervals in order that peak flow on the road surface or in ditches will not exceed the capacity of the road drainage facilities
- Outleaked roads provide the means of dispersing water in a low-energy flow from the road surface
- Outleaked roads are appropriate when fill slopes are stable; drainage will be flow directly into stream channels, and transportation safety considerations can be met
- Properly constructed drain dips can be an economical method of channeling surface flow off the road
- From downslope movement of sediment and off-site impacts to wetlands, streams, and reservoirs by using sediment catch basins, drop areas, changes in the road grade, headwalls, and berms or terraced cut and fill slopes
- Where possible, install ditch relief devices at the gradient of the original ground slope. If this is impractical, use a drop structure or a drop structure damppond to carry water safely across the fill slope
- Steep ditch relief culverts 20 to 30 degrees are set the inflow from the ditch to protect the upstream end of open drain channels from plugging
- Prevent ditch water from bypassing culverts
- Provide sturdy dissipators (rockynes, logs, etc.)
- Route road drainage through buffer strips, filtration field, or other sediment settling structures

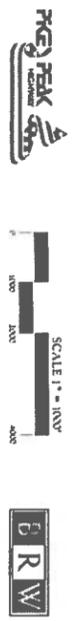
### Erosion and Sedimentation Recommendations

- Do not construct during major rainfall or rain events
- Install subsurface drainage, berms, and other structures to avoid slope saturation and failure
- Design and construct roads to disperse runoff
- Repave cuts and fills to restore effective ground cover
- Design and space road drainage features and outlets
- Use rolling dips instead of ditches and culverts
- Remove or break berms that concentrate runoff on the road
- Apply erosion control treatments to slopes, roads, restore effective ground cover, and keep sediment out of streams
- Recommend only the extent necessary to provide adequate drainage and safety
- Avoid disturbing stable road surfaces and stable ditches or drainage systems

### Road Maintenance Recommendations

- Items that help drain water from the road surface
- design road cross sections
- ditches - fill or road-shouldered
- ditches - properly sized
- Minimize grading activities when slope recovery is not desired
- Minimize damage to vegetation during snow plowing
- Reduce plowing techniques toward minimizing the amount of cut to reduce the quantity of gravel from roadways into adjacent riparian
- Compact or stabilize road repairs within the same operating season
- Prevent road activities that will let in an unstable condition over winter
- Restore road surfaces or treatment to minimize erosion
- Construct cut and fill slopes at same angles
- Tree frames to revegetate banks are measured in hundreds of years
- Treat a series of sections, or terrace the cut slopes to reduce the amount of soil leaving the surface
- Erosion control mats will be high but eroded soil is deposited on level terrace rather than transported off the slope
- During road maintenance, avoid other vehicles or heavy machinery on steep slopes or filling in low eroded areas where it might create disturbance of overtopping and erosion
- Bank and depression stabilize soil as debris and soil improve impacts on roadside vegetation
- Stabilize erodible exposed soils by seeding, mulching, spreading, mulching, or other suitable means
- Minimize sediment production from sources pits and gravel sources through proper maintenance, common practices, and reclamation
- At a minimum, maintenance with grading and re-vegetation - avoid further degradation
- Avoid using surface soil as a seed source
- Avoid cutting the top of cut slopes, bank grading, mounds, and peeling ditches
- If grading produces excess material, transfer it out or haul it to a site disposal area
- Avoid seeding materials
- Avoid leaving a berm that channels water down the road

# PIKES PEAK HIGHWAY RECREATION CORRIDOR MASTER PLAN



PART TWO: MASTER PLAN AND GUIDELINES

**Table 2.1  
EROSION/SEDIMENTATION AREAS**

**HIGH PRIORITY**

Existing Condition	Treatments/Benefits
<p><b>Crystal Reservoir Material Excavation Area</b></p> <ul style="list-style-type: none"> <li>• Extensive ground exposure/disturbance from previous grading and material extraction</li> <li>• Slopes and cuts lacking appropriate stabilization treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Minimize surface erosion material (soil) from moving onto adjacent sites from natural run-off and drainage</li> <li>• Site contains some of the most dramatic views and ecologically diverse components for environmental interpretation</li> </ul>
<p><b>The Halfway Picnic Area Segment</b></p> <ul style="list-style-type: none"> <li>• Area includes the confluence of three individual wetland systems: Crystal Reservoir and two portions of South Catamount Lake</li> </ul>	<ul style="list-style-type: none"> <li>• Changes in maintenance and ditch repair of the highway in this segment could greatly improve sedimentation loading into three of four primary areas of wetland damage</li> </ul>
<p><b>The Old Ski Area Site</b></p> <ul style="list-style-type: none"> <li>• Extensive ground exposure/disturbance from previous grading and material extraction</li> <li>• Slopes and cuts lacking appropriate stabilization treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Sedimentation and erosion could be eliminated on adjacent sites from natural runoff and drainage through ditch repair and regrade/plant slopes</li> <li>• Site contains some of the most dramatic views and ecologically diverse components for environmental interpretation of montane ecosystems</li> </ul>
<p><b>The Sedimentation Basin Area</b></p> <ul style="list-style-type: none"> <li>• Extensive ground exposure/disturbance from previous grading and material deposition</li> <li>• Slopes and cuts lacking appropriate stabilization treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Sedimentation and erosion impacts could be greatly reduced on adjacent sites from natural runoff and drainage through ditch repair, regrading, and revegetation of slopes</li> </ul>
<p><b>The Glen Cove Area</b></p> <ul style="list-style-type: none"> <li>• Extensive ground exposure/disturbance from previous grading and material extraction</li> <li>• Slopes and cuts lacking appropriate stabilization treatment</li> <li>• Sedimentation and erosion are occurring on adjacent sites from natural runoff and drainage</li> </ul>	<ul style="list-style-type: none"> <li>• Site contains the Glen Cove Inn which has historic value as a period structure</li> <li>• Site contains some dramatic views of foreground geology and ecologically diverse components for environmental interpretation of the alpine and subalpine ecosystems</li> <li>• Regrade, revegetate exposed slopes, repair or install ditches and direct runoff.</li> </ul>

**PART TWO: MASTER PLAN AND GUIDELINES**

Table 2.1 continued

<b>Existing Condition</b>	<b>Treatments/Benefits</b>
<p><b>The Elk Park Site</b></p> <ul style="list-style-type: none"> <li>• Compaction and tundra/alpine ecosystem disturbance</li> <li>• Vehicle parking and access roads lack designated containment</li> </ul>	<ul style="list-style-type: none"> <li>• Site contains some dramatic views of distant geology and ecologically diverse components for environmental interpretation of the alpine and subalpine ecosystems</li> <li>• Identifying appropriate places to drive, park and walk will provide and enhance visual and vegetation quality</li> </ul>
<p><b>The "W"s Area</b></p> <ul style="list-style-type: none"> <li>• Area includes headwaters of an important wetland system presently filling with sediment</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance and ditch repair techniques of the highway in this segment could be altered to reduce sedimentation loading into a primary area of wetland damage</li> <li>• Sizing and placement of adequate culverts should be evaluated</li> <li>• Limits of sidecast must be determined</li> </ul>
<p><b>The Bottomless Pit Area</b></p> <ul style="list-style-type: none"> <li>• Area includes an important wetland system</li> <li>• Maintenance and repair techniques of the highway in this segment contribute to sedimentation loading into a primary area of wetland damage</li> <li>• The site is within an important bighorn sheep use area</li> </ul>	<ul style="list-style-type: none"> <li>• Site contains some dramatic views of foreground geology and ecologically diverse components for environmental interpretation of the alpine ecosystem</li> <li>• Regrade exposed slopes, repair or install ditches and direct runoff.</li> </ul>

**MODERATE PRIORITY**

<b>Existing Condition</b>	<b>Treatments/Benefits</b>
<p><b>"Social" Turnout Sites</b></p> <ul style="list-style-type: none"> <li>• Roadside turnouts lack designated edges and drainage control</li> <li>• Numerous turnouts in a road segment disrupt visual integrity</li> </ul>	<ul style="list-style-type: none"> <li>• The overall driving experience could be enhanced by caring for the foreground. Visual disturbance is created by too many turnouts in certain locations</li> <li>• Placement and repair of ditches, culverts, slopes is required</li> </ul>
<p><b>Race Start Segment</b></p> <ul style="list-style-type: none"> <li>• Road edge build-up/concentration of gravel material from maintenance contributes to adjacent sedimentation</li> <li>• Historic road race "Start" and staging area</li> </ul>	<ul style="list-style-type: none"> <li>• Interpretation of the historic race event, wildlife and vegetation could be improved with changes in road maintenance techniques</li> <li>• Roadside ditch erosion and limits of side cast must be determined</li> </ul>

Table 2.1 continued

Existing Condition	Treatments/Benefits
<b>Alpine Segment</b> <ul style="list-style-type: none"> <li>Road edge drainage devices require appropriate sizing and construction</li> </ul>	<ul style="list-style-type: none"> <li>Area contains critical bighorn sheep habitat, maintenance and construction must respond to lambing and rutting events</li> <li>Roadside ditch erosion and limits of side cast must be determined</li> </ul>

**LOWER PRIORITY**

Many similar conditions exist along the highway corridor and each one contributes to the erosion/sedimentation problem. In an effort to outline a direction for implementation of the "ideal" prescriptions under budget constraints, the following table identifies some alternative "short-term" mitigation for some of these typical problems.

Short-term prescriptions tend to be less costly, initially, because they are less labor intensive and do not require structural work. Similarly, short-term measures can be quickly and easily implemented to mitigate existing erosion and sedimentation problems, both on and off the site. However, continued maintenance and ongoing erosion and sedimentation will eventually make temporary prescriptions more costly than installation of permanent controls.

Condition	Long-term Solution	Short-term Mitigation
Road surface erosion:	<ol style="list-style-type: none"> <li>Pavement</li> <li>Place culverts</li> </ol>	<ol style="list-style-type: none"> <li>Shape road with maintenance grading</li> <li>Remove/breach berms of material build-up</li> <li>Apply bonding surface treatment</li> </ol>
Roadside ditch erosion:	<ol style="list-style-type: none"> <li>Place cross drains</li> <li>Permanent ditch liner (Rock/concrete)</li> <li>Drop structures</li> <li>Place energy dissipators</li> </ol>	<ol style="list-style-type: none"> <li>Straw/hay bales</li> <li>Sand bags</li> <li>Mat and seed</li> </ol>
Exposed slope erosion:	<ol style="list-style-type: none"> <li>Retaining walls</li> <li>Erosion control blankets</li> <li>Construct benches, terraces, furrows</li> <li>Revegetation with drill seed</li> </ol>	<ol style="list-style-type: none"> <li>Silt/filter fence</li> <li>Mulch or place windrow/slash &amp; brush on slopes</li> <li>Apply soil binders</li> <li>Revegetate with hydroseed</li> </ol>
Plugged culvert:	<ol style="list-style-type: none"> <li>Reset or place with larger culvert</li> <li>Construct a road "dip"</li> </ol>	<ol style="list-style-type: none"> <li>Clear and remove debris</li> <li>Install inlet protection</li> </ol>

Table 2.1 continued

Condition	Long-term Solution		Short-term Mitigation	
Erosion below culvert:	1.	Place more cross drains	1.	Place rock below outlet
	2.	Permanent energy dissipator (i.e., concrete reinforced structures) below outlet	2.	Direct culvert outlet to flatter slopes
Sidecast on fill slopes:	1.	Pave road to preclude graveling and grading	1.	Pull excess material onto roadway
			2.	Haul away excess material

**Erosion/Sedimentation Control Improvement Costs and Phasing**

The total estimated cost for undertaking erosion control improvements for all the areas listed in Table 2.1 is \$8,475,500. As part of the Implementation Plan, it is proposed that this cost be allocated among the three phases. Consequently, the high priority improvements, with an estimated cost of \$3,415,500 are included in Phase 1, the first three years of the implementation program. The moderate priority improvements and some of the low priority improvements are included in Phase 2, which is years four through six, and have an estimated cost of \$2,563,800. The remaining lower priority improvements are included in Phase 3, which is years seven through ten, and have an estimated cost of \$2,496,200.

**GENERAL IMPROVEMENT GUIDELINES**

General improvement guidelines from a variety of sources have been screened to identify those that are currently or may in the future be applicable to the Pikes Peak Highway Corridor. These guidelines encompass new construction, road maintenance, slopes, grading and drainage control. It is important to note that implementation of any of these specific measures will require design and engineering of the system to site specific conditions acting on any given segment of the road (i.e., gradient, surface water flow, storm flow, sediment load, etc.) The general guidelines are listed below. Specific areas noted in these guidelines are referenced to the milepost (MP) locations that are represented by the circled numbers in the Erosion/Sedimentation/Maintenance figure.

**Erosion and Sedimentation Guidelines for New Construction**

Do not construct roads during major rainfall or runoff events.

Locate and design new features or changes in alignment with respect to areas with infrequent landslides. Full-bench roads on unstable slopes and end-haul excavated material to a gentle, stable upland site and revegetate. Do not drain roads onto unstable slopes. Install subsurface drainage, binwalls, and other structures as needed to avoid slope saturation and failure.

Locate, design, and construct roads to disperse runoff. Do not incorporate slash or other organic material into fills. Revegetate cuts and fills as needed to restore effective ground cover.

Design and space road drainage features, and armor their outlets as needed, to maintain low risks of rill erosion of the road, fills, and slopes and to trap sediment on the land. Use rolling dips instead of ditches

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## PART TWO: MASTER PLAN AND GUIDELINES

and culverts if practical. Design ditches and culverts to maintain low risks of ditch erosion and culvert plugging.

Remove or breach berms on roads that concentrate runoff on the road, fill, or slopes, while maintaining the integrity of the road surface and drainage features.

Close roads not built for all-weather use during major rainfall or runoff events. If a road is not a permanently open road, close it in the same growing season that its use ends. Apply erosion control treatments as needed to disperse runoff, restore effective ground cover, and keep sediment out of streams.

Where the Pikes Peak Highway requires repair, reconstruct only to the extent necessary to provide adequate drainage and safety; avoid disturbing stable road surfaces and stable roadside ditches or drainage systems.

### Road Maintenance Guidelines

Items that help drain water from the road surface:

- develop road cross section/crown having:
  - 1/4 to 1/3"/foot for an asphalt road
  - 1/3 to 1/2"/foot for an aggregate road
- eliminate depressions
- ditch - flat or round-bottomed
- culverts - properly sized
- seal cracks and potholes

The road should be surveyed for compliance with drainage features, particularly in problem areas, such as milepost (MP)-8 to MP-11 and from the "W"s MP-14.2 to MP-16 switchbacks to the summit.

Keep slope stabilization and erosion and sediment control work as current as possible. This includes installing drainage features as part of the maintenance and upkeep process. Currently, serious erosion problems exist from MP-8 to MP-11, at approximately MP-12.3, and from MP-13 to the summit.

Complete or stabilize road repairs within the same operating season, ensuring that drainage features are fully functional prior to spring or fall runoff and that major road sections are not left in an unstable condition over winter.

Maintain erosion control features through periodic inspection and maintenance, including cleaning dips and crossdrains, repairing ditches, marking culvert inlets to aid in location, and clearing debris from culverts.

Avoid using service and old forest access roads during wet periods if such use would likely damage the road drainage features.

Scheduling and timing for maintenance and reconstruction activity must respond to critical wildlife habitat areas and calving, lambing, rutting events.

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## PART TWO: MASTER PLAN AND GUIDELINES

### Slope Guidelines

Construct cut and fill slopes at stable angles. Many of the cut and fill slopes are unstable, however, the road segment from MP-14 to the summit is a critical area where road material is washing over the alpine tundra. Time frames to revegetate tundra are measured in hundreds of years.

Create a series of benches or terraces on the cut and fill slopes to reduce the amount of soil leaving the surface. Slope erosion may still be high, but eroded soil is deposited on level terraces rather than transported off the slopes. The slopes located from the tollgate MP-1 to MP-14 are in need of immediate attention. Numerous cut slopes are unvegetated, too steep, and should be assessed for specific erosion control measures.

Stabilize erodible, exposed soils by seeding, compacting, riprapping, mulching, or other suitable means to avoid further environmental damage. Erosion of cut and fill slopes and roadside ditches is a common problem along the Pikes Peak Highway; however, such problems from MP-8 to MP-11 and MP-14 to the summit are resulting in significant off-site impacts, i.e., sedimentation in wetlands, reservoirs, and on alpine tundra.

Minimize sediment production from borrow pits and gravel sources through implementation of erosion and sedimentation control measures and reclamation. The Glen Cove MP-12.9 to MP-13.1 area and the disturbance at the Crystal Creek Reservoir dam area MP-5.9 to MP-6.9 have been previously disturbed by grading for parking and borrow materials. At a minimum these areas should be stabilized with grading and revegetation to minimize further degradation. Other borrow and disturbance areas include switchback curves and excessively widened road segments above the switchbacks.

### Grading Guidelines

Grade road surfaces only as often as necessary to maintain a stable running surface and to retain the original surface drainage.

Avoid letting sidecast or waste material enter streams or placing it on unstable areas where it might erode. Particularly sensitive areas are located near Halfway Picnic Ground, MP-9.5 to 10.3 and the "W"s MP-14.2 to 16. Currently, sidecast material is impacting roadside vegetation by physical disturbance of overtopping and inundation. Similarly, dust and magnesium chloride act as defoliant and impose adverse impacts on roadside vegetation.

Avoid cutting the toe of cut slopes when grading roads and pulling ditches.

If grading produces excess material, feather it out or haul it to a safe disposal site. Sidecasting materials should be avoided. Avoid leaving a berm that channels water down the road unless it is routed into an effective vegetation filter which spreads it out and removes the sediment. Several locations having significant berms (accumulated material forming a roadside "curb") were observed from MP-6.9 to MP-11.

The road surface should be surveyed for proper side slope gradients. Outsloped roads provide the means of dispersing water in a low-energy flow from the road surface. Outsloped roads are appropriate when fill slopes are stable, drainage will not flow directly into stream channels, and transportation safety considerations can be met. For insloped roads, plan gradients steep enough, generally greater than 2% but less than 8%, to prevent sediment deposition and ditch erosion. The higher gradients may be suitable for more stable soils; use the lower gradients for less stable soils.

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## PART TWO: MASTER PLAN AND GUIDELINES

Consider road surfacing or treatment to minimize erosion from MP-7.1 to MP-19.5. The most effective and long-term dust and erosion control measure is pavement.

Minimize grading activities when soils appear excessively wet (spring). The higher elevations of Pikes Peak Highway sustain significant damage from early grading and snow removal for road opening. Do not disturb roadside vegetation more than necessary to maintain slope stability and to serve traffic visibility and clearance needs.

Minimize damage to vegetation during snow plowing. Identify areas such as previously disturbed borrow pits, roadside pull-off and gravel storage areas for snow storage - redirect plowing techniques toward minimizing the amount of depth of cut to reduce the quantity of gravel finds mixed with snow which is loaded onto adjacent vegetation.

### Drainage Control Guidelines

Roadside drainages and ditches should be clear to allow water to freely flow away from the road into areas that can accommodate ready movement of water. Erosion of ditch bottoms can be prevented by paving, use of mats or plastic, jute or combinations of artificial and natural materials such as rock riprap. Although erosion of roadside ditches is common along the highway, severe off-site impacts are occurring to adjacent wetlands due to erosion from the area between MP-8 to MP-11.

Provide adequate drainage from road surfaces by using rolled grades, outsloped or crowned roads, drain dips, or insloped roads with ditches and cross drains. This is particularly important on unsurfaced service and forest access roads leaving the Pikes Peak Highway where erosion is a problem, i.e., from MP-7 to Glen Cove.

Space road drainage devices at the appropriate intervals in order that peak flow on the road surface or in ditches will not exceed the capacity of individual drainage facilities. Eroded roadside ditches are common from MP-7 to the summit and indicate that better drainage spacing and sizing is required.

Properly constructed drain dips can be an economical method of channeling surface flow off the road. Construct drain dips deep enough into the subgrades so that traffic will not obliterate them.

Prevent downslope movement of sediment and off-site impacts to wetlands, streams, and reservoirs (i.e., from MP-8 to MP-11 and from drainage off the switchbacks) by using sediment catch basins, drop inlets, changes in the road grade, headwalls, and benetted or terraced cut and fill slopes.

Where possible, install ditch relief culverts at the gradient of the original ground slope; if this is impractical, armour outlets with rock or anchor downspouts to carry water safely across the fill slope.

Skew ditch relief culverts 20 to 30 degrees toward the inflow from the ditch to improve inlet efficiency. Protect the upstream end of cross-drain culverts from plugging.

Prevent ditch water from bypassing a culvert by constructing a ditch plug higher than the culvert top but lower than the road surface slightly down ditch from the intake.

Provide energy dissipators (rock-piles, logs, etc.) where necessary at the downstream end of the ditch relief culverts to reduce the erosion energy of the emerging water. Crossdrains, culverts, waterbars, dips and other drainage structures should not discharge onto erodible soils or fill slopes with out outfall protection. This is particularly important where culverts drain onto fill slopes from MP-16 to the summit.

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## PART TWO: MASTER PLAN AND GUIDELINES

Route road drainage through buffer strips, filtration fields, or other sediment settling structures. Install road drainage features above stream crossings to route discharge into filtration zones before entering a stream. Road drainage should never be routed directly into a stream. Road drainage from the switchbacks and from MP-8 to 11 is heavily sediment laden and contributing significant amounts of sediment to local streams (Glen Cove Creek, Crystal Creek), wetlands, and reservoirs (South Catamount Reservoir, Crystal Creek Reservoir).

Buffer strip widths should be at least  
 **$50 + (4 \times \% \text{ slope})$  in feet below the road fill toe slope.**

Example: With a 15% side slope,  $50 + (4 \times 15) = 110$  foot buffer.

Where the buffer width is too short, it is particularly important to place obstructions in the form of logs, rock, brush, or spreader ditches below drain outlets to spread the water out, reduce its force and trap sediment. Additional drains can be placed across the road to reduce the load on the buffer width.

Erosion at the Old Ski Area can be mitigated by diverting concentrations of surface flow to stabilized outlets using runoff diversions with a two percent outslope directed toward energy-dissipating devices. Water bars should begin and end in undisturbed vegetation or soil. Slope breakers should be constructed and maintained according to the following spacing:

<u>Slope (%)</u>	<u>Spacing (feet)</u>
5-15	150
15-30	100
> 30	75

TRANSPORTATION ELEMENTS

The transportation element deals with the roadway itself and the mode of transportation. Issues pertaining to the roadway include implementing and maintaining a roadway standard for width, alignment, grade and cross slope, maintenance practices, and the roadway surface type.

ROADWAY STANDARD

Existing Conditions

The existing Pikes Peak Highway has previously been paved from the point of beginning (MP 0.0) at the present Tollgate to approximately MP 7.0. This existing asphalt pavement was placed in the late 1950's to MP 4.0 and in 1966 to MP 7.0 and was 4 inches thick. Two asphalt overlays, one inch thick, have also been placed since. The last overlay was placed about 10 years ago. This pavement has reportedly held up well over its 25 year life with little maintenance required. The width of pavement on this portion of highway is 24 feet wide; the existing gradient reaches a maximum of approximately 10%.

The existing highway is gravel surfaced from approximately MP 7.0, to the summit at MP 19.5, a distance of 12.5 miles. Per a study of the existing gravel conditions done by the Pikes Peak Highway Division in 1991, the following characteristics apply:

Average Grade	7.26%
Maximum Grade	12.28%
Minimum Grade	6.99%
Average Width	28' 9"
Maximum Width	48' 2"
Minimum Width	19' 6"

No detailed field information exists regarding the horizontal curvature or superelevation of curves in either the paved or gravel portions of the highway. A detailed ground survey of the highway would be required in order to assess the applicable design speeds of the curves, as a function of the curve radii and the rate of superelevation, or cross slope.

Recommended Design Criteria

Table 2.2 provides a listing of the various roadway design criteria that are applicable to the Highway, taking into account its recreational use, mountainous terrain, and current (and past) traffic volumes. The opportunity for improvements has to reflect the extreme nature of the terrain and the dedicated recreational use of the Highway as primarily a scenic drive on a high mountain road. A review of the design criteria recommended by the American Association of State Highway and Transportation Officials (AASHTO) provides a reasonable background from which practical recommendations can be made. The following discussion summarizes the criteria with respect to the constraints posed by the existing conditions.

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Table 2.2  
ROADWAY DESIGN CRITERIA

SOURCE: AASHTO POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS 1990 - CHAPTER V. LOCAL ROADS AND STREETS

BASE INFO: RURAL RECREATIONAL ROAD  
MOUNTAINOUS TERRAIN  
INTERMEDIATE SURFACE TYPE  
EXISTING TRAFFIC ADT = 900  
PROJECTED TRAFFIC ADT = 1200  
(ASSUME TRAFFIC IS EVENLY DISTRIBUTED THROUGHOUT THE DAY)

DESIGN SPEED (TABLE V-1)

MOUNTAINOUS TERRAIN, ADT > 400: 30 MPH  
RECREATIONAL ROAD (PRIMARY ACCESS ROAD - AREA ROAD):  
20 MPH - 40 MPH

MAXIMUM GRADE (TABLE V-4 AND TABLE V-15)

MOUNTAINOUS TERRAIN, 30 MPH: 14%

ROADWAY CROSS SLOPE (TABLE V-5)

INTERMEDIATE TYPE SURFACE (GRAVEL): 1.5% - 3%  
HIGH TYPE SURFACE (PAVED): 1.5%-2%

WIDTH OF ROADWAY (TABLE V-8)

CURRENT ADT > 400, 30 MPH (OR 20 MPH):  
MINIMUM TRAVELED WAY 20 FT  
MINIMUM SHOULDERS 4 FT  
TOTAL 28 FT

(TABLE V-16)  
PRIMARY ACCESS ROAD:  
TRAVELED WAY 22-24 FT  
SHOULDER 2-4 FT  
TOTAL (RANGE) 26-32 FT

MINIMUM RADIUS HORIZONTAL CURVE FOR GRAVEL SURFACE (FIGURE V-9)

30 MPH, 10% SUPERELEVATION: 300 FT.  
20 MPH, 10% SUPERELEVATION: 130 FT.

FORESLOPE (SOURCE: CDOH ROADWAY DESIGN MANUAL 1990)

10 FOOT LANES, 4 FOOT SHOULDERS:  
4 FEET SLOPED 4:1

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## PART TWO: MASTER PLAN AND GUIDELINES

### Design Speed

The AASHTO criteria would call for a design speed of at least 30 mph for this type of facility. The low end criteria for a recreational road - an "area road" would be 20 mph. 20 mph has to be the practical selection in this case, although the Highway has a higher functional use than that compatible with a 20 mph area road. Many existing switchback curves are very sharp and may not meet the 20 mph criteria; it is also impractical to suggest any rebuilding of the alignment to try to achieve anything greater than 20 mph since this would cause undue environmental damage and does not serve any demonstrated safety need.

### Maximum Grade

The AASHTO criteria for grade is 14%; this maximum allowable grade is presently not reached on the Highway. Based on the reported information, the maximum existing grade is 12.28%, within the established criteria.

### Roadway Cross Slope

The use of a crowned cross slope is a function of the surface type and roadway alignment, whether tangent or curved. A gravel surface should be crowned with up to 3% cross slope on tangent portions of the highway; an asphalt paved surface should be crowned with up to 2% cross slope on tangents. However, the winding alignment of the Highway, and the numerous curves (156 turns per Pikes Peak Hill Climb literature) make the issue of tangent cross slope somewhat irrelevant. Since most of the Highway is on curves, most of it should be superelevated as currently exists. Ten percent superelevation is generally acceptable on a gravel (or paved) surface unless significant snow and ice conditions prevail. Since most all traffic on the Highway occurs from May through October, and the surface is well maintained, an excessive amount of snow and ice is not anticipated to impact superelevation selection. Actual survey results should be reviewed, taking into account the existing conditions, prior to final slope selection.

### Width of Roadway

The AASHTO minimum width for a local rural road is 28 feet; the minimum width for a recreational road is 26 feet. A review of the existing conditions shows that the paved width is 24 feet and the average gravel width is 29 feet. The recommended width for this Highway - either paved or gravel is 26 feet wide. This width meets the minimum AASHTO criteria and reasonably reflects the existing conditions. The gravel portion of the Highway is at least 26 feet or wider for approximately 70% of the total length. The remaining 30% would not require major improvements but only minor widening of two to three feet each side (or on one side as best fits the terrain). Since much of the Highway is wider than the 26 feet, care should be taken in future maintenance work to restrict the primary operations to a consistent width of 26 feet, to avoid further encroachment onto adjacent vegetation. In special use areas where extra width is available and periodically used for parking, a parking lane could be included in the designated width. This parking lane should be at least 7 feet wide (10 feet where possible) and could be placed on one or both sides of the Highway as appropriate to conditions and use. Gravel surfacing of any such parallel parking areas should be adequate.

### Foreslope

The foreslope is the area adjacent to the shoulder that forms either an additional roadside recovery area/widened shoulder in fill sections, or defines the ditch flowline location in cut sections. Based on

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the lower functional use of the Highway, and the recommended roadway widths, the foreslope should be a minimum of 4 feet, sloped away from the roadway on a 4:1 slope. This width will provide an effective emergency breakdown width of 6 feet (2 foot shoulder plus 4 foot foreslope) and provide minimum width for a stalled vehicle. In a cut section, the ditch flowline would be offset 4 feet from the edge of the roadway, and depressed one foot below that edge, thus removing water from the actual roadbed itself.

### Standard Roadway Section

Based on these design criteria, a prototypical roadway section was developed for both a gravel and paved roadway. As shown in the figure titled Typical Roadway Sections, the total roadway width of 26 feet is applicable to both a gravel and paved roadway. One additional element to this width is the need to provide curve widening where possible. The inside of sharp curves (defined as curves with a degree of curvature greater than 15°) should be widened up to 4 feet for better negotiation of the curve.

Guardrail has been included in the Typical Roadway Section for the paved roadway. The upgrading of the roadway surface and the reconstruction of the roadbed to achieve a constant paved width will result in operational improvements to the roadway that will have a beneficial effect on safety. Safety improvements will also require the installation of guardrail, as part of the general upgrading of the Highway. Guidelines for the actual design and installation of guardrail should follow the criteria established by AASHTO in the Roadside Design Guide, determined as a function of roadside hazards, embankment height, slope of embankment (or roadside terrain), roadside "clear zone" or recovery area and accident history. However, due to the extreme mountainous terrain of much of the highway, guardrail requirements will be very extensive and possible cost prohibitive. Engineering judgement will have to be applied to an analysis of each specific area warranting guard rail, and to the development of project specific criteria.

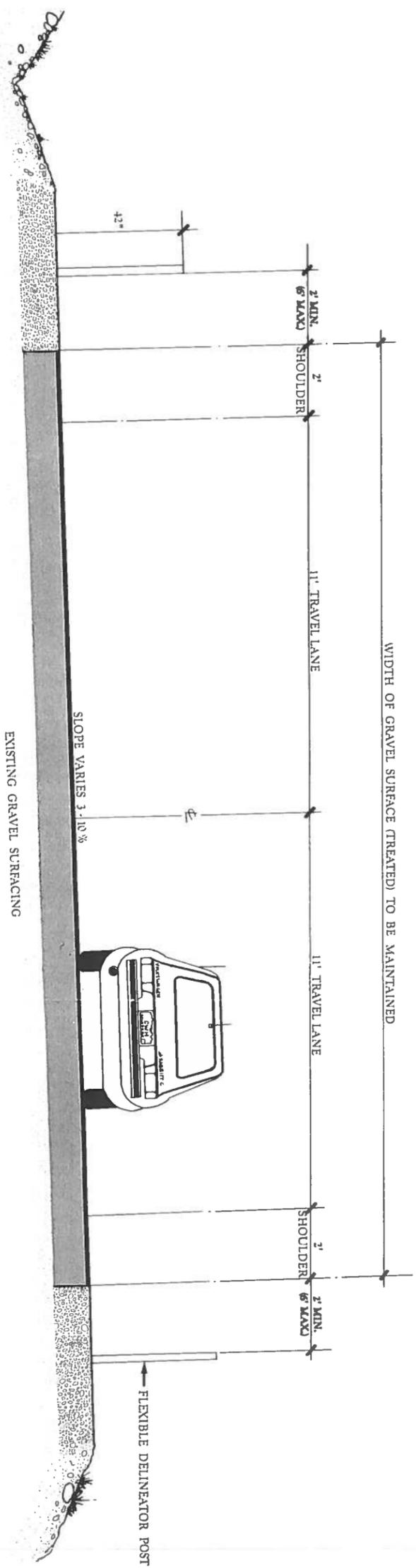
General locations for guardrail are shown on the previous Corridor Master Plan figure. These locations are along areas on the outsides of curves in the downhill direction with steep side slopes. The locations are approximate only and are the most severe areas with obvious need. Guardrail requirements will have to be investigated in more detail in the engineering design phase of project implementation.

Guardrail type and offset from traveled way will also be issues to be resolved in the engineering phase. Standard placement of steel "W-Beam" (Type 3) Guardrail may not be the most aesthetic, although the use of weathering steel should be compatible with the Highway's visual aspects. The guardrail will pose an impediment to snow plowing and removal, and should be carefully located to provide as much snow storage area as possible.

### Implementation of Roadway Standards

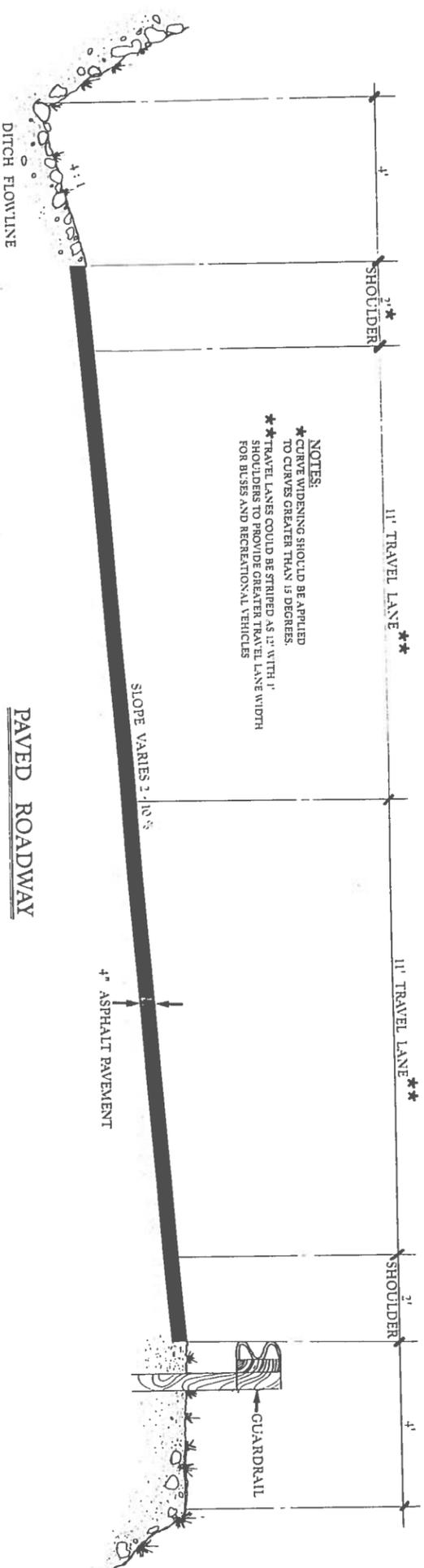
The implementation of the previously discussed roadway standards will involve changes to the present methods, equipment used, materials, and procedures for maintenance. The most significant change to existing equipment and materials used would be for the paved highway surface. The paving of the highway will require associated sweeping of sand and gravel from the surface periodically, with the purchase of a street sweeper broom necessary. The Highway Division currently borrows a sweeper from the City Street Division for use on the lower 7 miles of paved highway. With the addition of 12 more miles, a more full time use may be necessary. With a paved surface and adjacent guardrail, snow blowers will have to be purchased for snow removal and highway clearing. (The Highway Division currently has one older model that is becoming obsolete.) The acquisition of additional snow blowers may be necessary regardless of the surface type, since the current *plowing* of snow with mixed gravel tends to degrade the roadside areas with excess gravel.

WIDTH OF GRAVEL SURFACE (TREATED) TO BE MAINTAINED



GRAVEL ROADWAY WITH SURFACE TREATMENT

TYPICAL ROADWAY SECTIONS



NOTES:  
 \* CURVE WIDENING SHOULD BE APPLIED TO CURVES GREATER THAN 15 DEGREES.  
 \*\* TRAVEL LANES COULD BE STRIPED AS 11' WITH 1' SHOULDERS TO PROVIDE GREATER TRAVEL LANE WIDTH FOR BUSES AND RECREATIONAL VEHICLES

PAVED ROADWAY

• DESIGN VENTURES • NES, INC. • DAMES & MOORE • HSGA • AMPERSAND STUDIOS • NAN RICKEY • MICHAEL COLLINS ARCHITECTS •

PIKES PEAK HIGHWAY  
 RECREATION CORRIDOR  
 MASTER PLAN



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In addition to sweeping and plowing, pavement maintenance equipment for crack filling, pothole repair, and striping is also necessary, and currently being borrowed from the Street Division. The borrowed equipment will be needed by the Highway maintenance crew more often, or for longer periods of time. Replacement parts and equipment for the repair of damaged guardrail will also be necessary with the upgraded roadway.

Continued use of the gravel surface will not require any new haul or grading equipment, but will require more careful procedures to ensure a reduction on impact to adjacent tundra and vegetation. (These procedures are discussed in the section on Erosion and Sedimentation Control, and in the following section on Maintenance Practices). Delineation of the roadway width to be maintained will be necessary, with flexible 42 inch high roadside delineators proposed. The delineators will help to both guide the traveling public and to contain roadway maintenance to a specified corridor. Higher delineators may be necessary for guidance of plow and snow blower operators, and will need to withstand the severe high mountain weather. Some study may be necessary, with input from maintenance operators, to arrive at the best solution for road edge delineations, driver safety, plow operator guidance, and durability. A sufficient stockpile of these delineators will also have to be kept on hand for replacement as the need arises.

A discussion of existing maintenance practices and some recommended procedures or guidelines applicable to a gravel surfaced road follows.

### MAINTENANCE PRACTICES

#### Existing Maintenance Procedures

The maintenance of the Highway is performed by a separate division of the Department of Transportation, the Pikes Peak Highway Division, with a maintenance garage, equipment and materials all available on-site, on Pikes Peak. The asphalt paved portion of the Highway, up to MP 7.0, has reportedly not required any significant amount of maintenance effort, other than minor crack sealing and filling of potholes in its 25 plus year history. Previous overlays have been placed, as usually anticipated for any asphalt pavement, with current plans for another chip seal type project in the near future. The last overlay was apparently placed about 10 years ago; thus the frequency of overlays will have averaged at 8 to 10 year intervals. This frequency corresponds with the anticipated pavement rehabilitation frequency for any moderate to low volume highway.

Maintenance of the gravel portion of the Highway consists of the haul of surfacing gravel and the motorgrading and blading of this gravel into the Highway surface. Gravel is obtained from the Crystal Borrow Pit located near the base of the mountain in proximity to the point of beginning of the gravel surface (MP 7.0). Surfacing gravel is obtained from this pit and hauled onto the highway and placed as needed throughout the length of the Highway. The maximum haul distance to reach the summit area would be about 13 miles since the pit is located off of the Highway. Approximately 3 inches of new material is hauled and placed annually. Taken over the average Highway width of 29 feet for 12.5 miles, this equates to approximately 32,000 tons per year, or 18,000 Cu.Yds. At this rate of usage, it is anticipated that the material available in the Crystal Pit will last only another 8 to 10 years.

Starting in 1991, with a limited application, Calcium chloride was placed as a surface treatment on the gravel to help bind the surface and reduce dust. Calcium chloride is again being placed this year. With the use of this chemical (salt) additive, the loss of "fines" in the gravel is reduced, with an overall reduction in gravel expected. With this material incorporated, the gravel from the Crystal Pit could last up to 15 years, thus extending the life of the pit. From an environmental perspective, the Calcium

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chloride could be detrimental to adjacent vegetation and may not be the most desirable treatment. (All of the above information on pit material use and availability is per discussion with Highway staff and not the result of any quantitative investigation.)

The continual use of the import of new gravel every year, and its future availability problem, may be an area subject to improvement. The widening of the Highway beyond that needed for the roadway or shoulders has taken place in many locations, demonstrated by the maximum width reached of 48 feet (adequate for a full *four* lane section). The "over-widening" has resulted in an encroachment onto adjacent vegetation and the burial of some forest and tundra areas. Confinement of the required width to 26 feet (plus parking) and the use of a surface treatment should contribute to avoidance of the vegetation with future grading operations.

The existing gravel used for the surfacing may tend to contribute towards base stability or cohesion problems. The percentage of "fines" in a gravel surfacing material and the plasticity of the material need to be on the high side to bind it together and create a hard riding surface. The result of the one gradation test done (if representative) indicates only 1.4% passing a No. 200 sieve, classified as "fine" material. Also, the tendency of the pit run Catamount type soil is to be generally non-plastic. These qualities are very desirable in a roadbase material on which to pave, but not necessarily the optimum for a gravel surface. It is recommended that a full testing procedure be done for the existing pit run soils analyzing all applicable engineering properties. The results of this may help to point out the need for corrective additives that will help control dust and serve as a good binder.

### Methods of Blading

The generally recommended procedures for grading and blading gravel surfaced roads have been documented in a publication prepared by the National Association of County Engineers. The booklet titled Blading Aggregate Surfaces, National Association of County Engineers Training Guide Series, 1987, is the primary source document on procedures for blading. Various aspects of blading are discussed therein with some of the more pertinent items worth highlighting as follows:

- Periodically blade surface of the road against the flow of traffic to eliminate drifting of aggregate onto adjacent roadside areas.
- Avoid breaking the hard wearing surface crust by putting only minimal pressure on the blade to smooth the surface and drag excess material across the surface.
- One pass on each side of the centerline is usually adequate for smoothing of the surface, depending on width of grader blade vs. surface width. Angle grader blade so excess surface material is windrowed to the center of the road. Spread the windrow from center across the remaining half of the road.
- Spread loose aggregate and fines from shoulder across road surface to help build the crown and stabilize surface aggregate.
- When windrows are left at the edge of the road, cuts in the windrow should be made at short intervals to allow drainage away from the surface and to avoid concentration over a long distance. Otherwise runoff water will flow along the windrow and wash out a section of shoulder/ditch at low points.

ROAD SURFACE

One of the main issues identified in the workshops and public meetings was the surface treatment of the roadway. It is the opinion of many of the governmental agencies involved that paving of the highway must be done to control erosion and sedimentation and to reduce maintenance costs. On the other hand, there was much concern voiced by the Pikes Peak Auto Hill Climb participants that changing the surface of the roadway from gravel to bituminous paving would result in the termination of the Auto Hill Climb event. After careful consideration of this viewpoint, the environmental effects, the long-range cost projections, and the various pros and cons of each alternative, the recommendation of this Master Plan is to pave the entire length of the Pikes Peak Highway. This recommendation is supported by a variety of environmental and economic gains related to paving the Highway. Factors to be considered in retaining the gravel surface include the quality of maintenance procedures, ensuring that sidestepping of surfacing materials is eliminated or greatly reduced, the long-term effects of surface treatment materials leaching into the watershed and their affect on vegetation and corrosive characteristics. Without some type of surface treatment, however, dust and air quality problems will continue.

Paving of the roadway addresses these environmental issues and in addition provides greater ease in maintaining erosion control structures and maintaining the roadway itself. Economic benefits of paving include eliminating the need to find another gravel supply and its associated costs, increased visitor use or patronage and therefore increased revenues, and significant annual cost savings. It should be noted that in implementing the gravel roadway standard and changed maintenance practices, the average annual savings in road maintenance costs over current maintenance costs is an estimated \$125,000. The average annual cost savings for paving the roadway is an estimated \$375,000. Based on all of the above factors, paving of the roadway is recommended and programmed for Phase 3, at which time it is projected that the major drainage improvements would be completed and the remaining low priority drainage improvements could be incorporated into the roadway paving program. If funding is available at an earlier date and the drainage improvements program is compatible, the paving of the roadway could be undertaken at an earlier time.

Although paving contractors believe that it is possible to pave the entire gravel section of the roadway within one construction season, the paving project could be completed in sections over a number of years. This approach may be more compatible with funding availability and budgeting; however, it will have additional costs associated with it due to multiple start-up/mobilization costs and lower volumes of work resulting in higher-unit prices. As part of the paving program, it is recommended that the tangent (straight-away) section near Glen Cove and the Summit parking area be paved in Phase 1. Paving these sections will provide an opportunity to monitor the paving performance in this high-altitude/permafrost environment and consequently to make adjustments prior to undertaking the paving of the entire roadway. The cost associated with paving the straight-away is estimated to be \$46,000; the estimated cost for the remainder of the roadway is \$2,070,000. These costs combined represent approximately 9.1% of the overall Master Plan estimated costs.

With respect to the Hill Climb and the impacts of paving, it is hoped that race organizers will meet the challenge to continue the race, adapting to the roadway surface as it has adapted to many other changes over its seventy-year history. The question to be answered by the governing agencies in this case is whether the Highway is a season-long tourist and recreational facility with a single weekend race or whether the Highway is a race course that allows general public use when no races are scheduled.

### ROADWAY OPERATING CHARACTERISTICS

Roadway operating characteristics considered here are safety, capacity and traffic flow and congestion. Based on the Highway Capacity Manual methodology, the existing roadway capacity is sufficient for the current volume of traffic on the highway. The peak years for tourist activity were in the early 1970's, at which time there were 340,000 visitors using the highway. The total number of visitors in 1991 was 253,043. Therefore, the number of visitors using the highway in the peak years was 34% higher than in 1991. The visitation levels projected for the ten-year period of the master plan are within peak levels of the 1970's, and therefore, the roadway capacity should be sufficient to handle the number of highway users projected for the master plan period.

During the peak visitation years, the high volume of traffic did result in periods of congestion, especially near corridor facilities. The proposed site improvements including directional signage, parking and roadway definition and turnouts should help alleviate potential problems associated with increased traffic. Other factors that have been identified as impacting or interrupting traffic flow are vehicle problems and driver behavior. There are a number of vehicle-type problems that can impede the flow of traffic. The most common are mechanical failure due to vapor locks and hot brakes or brake failure. Vapor lock problems, which result in a disabled vehicle impeding the traffic flow, are more likely to occur going uphill nearer the summit. To address this problem, turnouts are recommended. In addition to the seven turnouts identified for the interpretive program, several informal turnouts or parking areas should be dispersed along the highway, especially above Glen Cove. The hot brake and brake failure problem is addressed by retaining the brake check station at Glen Cove and providing additional turnouts for downhill traffic so that a vehicle can be safely pulled off the main road to stop and cool the brakes. Driver behavior can also impact traffic flow, as drivers slow or stop their vehicles on the roadway for "sightseeing". The proposed interpretive turnouts will address this problem by providing a safe area separate from the main travel lane, and off the highway, so that visitors can slow or stop to sightsee. These areas will be signed and designed so as not to impede the flow of traffic. The turnouts have not only safety value but also recreational and educational value as an integral component of the Interpretive Program which is described in a later section.

### MODE OF TRANSPORTATION

In addition to the existing cog and auto access on Pikes Peak, there was public support for the provision of a self-supporting shuttle service as part of the master plan. Encouraging the use of tour buses or shuttle service in the corridor would provide the opportunity to increase the number of visitors without having as great an increase in the amount of traffic. Consequently, a shuttle service route in the highway corridor from the Visitor Facility to the summit was identified. The associated improvements such as shuttle staging areas, signage and stops have been incorporated to the prototypical and site plans.

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## PART TWO: MASTER PLAN AND GUIDELINES

### INTERPRETIVE PROGRAM

Interpretive programs and developments have been designed to enhance the average visitor's experience on Pikes Peak. Issues of comfort, enlightenment, stimulation and aesthetic surroundings have all been factored into the program's design. While interpretation has been planned to appeal to and be used by all of the many interest groups that enjoy the mountain, touring families and local repeat-visit families and individuals have been a primary concern.

### INTERPRETIVE PROGRAM THEMES

The content of interpretive programs and developments will be drawn from the mountain itself: a more than fourteen thousand foot peak soaring abruptly from the high plains of the western United States, it embodies a wide spectrum of topical resources. Its surface rises through three life zones and thus contrasts five very different ecosystems within the length of the road leading to its summit. It makes its own weather, providing significant water for the plains below. Its rocks display the forces and materials that built it, as well as, earth history during the eons preceding its rise. The peak has been a beacon and a "finding" place for people and it has assumed near mythic status in the cultures of Native, Hispanic and other European Americans.

Interpretive themes drawn from these attributes are listed in Table 2.3.

**Table 2.3**  
**PIKES PEAK INTERPRETIVE THEMES**

<u>The Environment of the Mountain</u>	<u>Life on the Mountain</u>
Uniqueness	Life Zones
Diversity	Trees and Shrubs
Fragility	Grasses
<u>Climate and Water on the Mountain</u>	Wildflowers
Weather Characteristics	Tundra
Weather Making	Wildlife (Mammalian and Reptilian)
Water Resources	Birds and Insects
Water Needs	
Water Users	<u>People and Pikes Peak</u>
<u>Mountain Making</u>	Native Americans/Hispanic and Other European Americans
Geology	History of Use
Geologic History	Symbolism and Myth
Geography	Exploitation
	Conservation

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## PART TWO: MASTER PLAN AND GUIDELINES

To convey the interpretive themes that can be drawn from these attributes, the interpretive programs and associated infrastructure development will take several forms. These include an audio program to be used while travelling on the highway, roadway turnouts keyed to the audio program, interpretive loop trails, small wayside signs at specific trailhead locations and various interpretive programs such as videos and displays customized for the themes portrayed at specific facilities. The Interpretive Center at the Visitor Facility, in particular, will play a major role and provide a focal point for many of the interpretive program elements. The locations of the various interpretive program elements are identified in the Corridor Master Plan figure.

### INTERPRETIVE AUDIO TOUR

An audio tour should provide interpretation for all visitors driving to the summit. Its cost should be included in the highway's entrance fee. A variety of systems could be used to provide this program. System selection should be done by the professional audio production firm contracted to produce the program. The type of system selected will influence development facilities for its distribution at the Tollgate, and therefore, program planning needs to be closely coordinated with design activity for that area. Among the systems which might be chosen are short-wave radio transmission, audio tapes, or signal activated audio sending stations. All have advantages and disadvantages, and a careful, informed selection will be important.

The tour will start at the Tollgate area where any use information and necessary equipment can be distributed and returned. The tour will be planned to be heard during both the ascent and descent of the mountain, calling attention to views and other features as the car passes by. Mile markers will be used to direct the program's use. At seven locations along the road, a roadside turnout will allow drivers to leave the main roadway for a slowed drive-by or stop, and view of especially interesting areas or features. Longer audio messages will be provided at these areas, keyed to particular interpretive themes. The turnout locations with direction of travel and their thematic associations are listed in Table 2.4. These turnouts are identified in the previous Corridor Master Plan figure.

**Table 2.4**  
**INTERPRETIVE TURNOUTS**

	<u>Location</u>	<u>Theme</u>
1.	Crow Gulch - uphill	The Environment, Geology
2.	Four Mile - uphill	Geography, Lower Montane, Riparian Life Zone
3.	Downhill of Halfway Picnic Area - downhill	Montane Life Zone, Geography
4.	Old Ski Area - downhill	Geography, Upper Montane Life Zone
5.	The W's - downhill	Geology, Sub-Alpine Life Zone

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## PART TWO: MASTER PLAN AND GUIDELINES

Table 2.4 continued

	<u>Location</u>	<u>Theme</u>
6.	17 Mile - downhill	Geology, Sub-Alpine Life Zone
7.	Bighorn Sheep Overlook - uphill	Alpine Life Zone, Geography

These interpretive turnouts have been sited in the general area of the resources to be interpreted. Final locations may need to be adjusted because of terrain, views, and road safety. This should be done at the design development and final design phases of the project.

### CORRIDOR INTERPRETIVE DEVELOPMENTS

#### Tollgate

The Tollgate should have a staffed information facility where basic information and visit planning assistance can be provided. The facility should be prepared to provide other service such as information about local accommodations, restaurants, medical care, and shopping centers. Maps and other visit planning publications should be available on a limited basis. The area should be "decorated" with interpretive visuals displaying the moods and scenery of the mountain, the quality of the drive to its summit, and the character of its life zones as a way of introducing the resource themes and setting the mood for the drive to the summit.

#### Glen Cove

The building at Glen Cove will serve chiefly as a rest and safety stop for visitors. It should be staffed for information and other visitor service functions. The limited space will have a gift shop, some food service and a lounge/waiting area, all of which should be integrated as fully as possible. The interpretive program will consist of a wide selection of short tape programs, "cameo" presentations of very minute aspects of all the Pikes Peak themes. Such things as a single bird species, or Indian Paintbrush, or old wagon road traces can be examined in depth. Visitors will select tapes and enjoy them in comfortable seating groups located in front of television sets (VCRs). The tapes might also be sold in the gift shop.

#### Summit

A new facility at the Summit will be designed to provide visitors with maximal views of both the sky above and the horizon below, as well as, perhaps someday, of the stars and the universe. Themes for interpretation at the summit will be weather making and water, geology and geography. A variety of exhibit media, some of it kinetic, should be used to supplement the view areas, but care will be taken to restrict exhibits and to make them very time and message effective so visitors will not be distracted from the summit experience. Personal service interpretation should be available to answer visitor questions and guide the experience so that visitor time can be effectively and satisfyingly spent.

---

## PART TWO: MASTER PLAN AND GUIDELINES

Outside, a loop trail around the summit will provide views (geography) and an experience of the mountain top. Wayside signs, very brief in nature, along the trail will be used to provide interpretation and information.

### Visitor Facility

The corridor's primary center for interpretation at the Visitor Facility near Crystal Reservoir will have a staffed lobby, and an information and visit planning center for use by visitors who may not have stopped at the Tollgate facility, as well as for those who have new information needs when they arrive at this stage of their drive. In addition to map and drive assistance, the Center should provide backup for the driving audio tour (equipment and/or service). A primary function will also be to provide information about current activities, off-road use opportunities, and the Center's program. The lobby space should be comfortable with seating for "waiting and meeting," as well as for gathering tour or guided walk groups.

The Center's interpretive developments will encompass all themes in a holistic approach. Here visitors will experience and learn about Pikes Peak and all its diverse resources in a fashion that emphasizes their interdependence. One theme, that of Man and Pikes Peak, will be explored by an independent program, perhaps a film. A wide variety of media, including such things as exhibits, interactive programs, habitat and diorama groups, audio and audio-visual events should be considered for the Center so that visitors will be attracted to the facility and stimulated by their visit.

The amphitheater associated with the Center should be equipped with sound and audio-visual systems. It will be the site of special and regularly scheduled interpretive programs designed to provide in-depth interpretation of particular subjects. The facility can also accommodate special events such as folk music concerts or holiday celebrations as opportunities arise.

Also associated with the Center will be the wildflower garden discussed in the section on Interpretive Loop Trails.

### INTERPRETIVE LOOP TRAILS

Hiking and walking trails exist or will be developed at various locations in the road corridor. At Crow Gulch, and Glen Cove, these trails will incorporate interpretive loop walks originating in and returning to parking areas. Interpretive walks should be named and their entry points defined by signs. Loop trails should not exceed one to one and one-half miles in length in order to invite a wide spectrum of users. They should be easy and accessible to all. Interpretation will be provided by small signs of the standard design used for interpretive developments along the entire road corridor.

The theme for the loop trail at Crow Gulch should be the environment (human and natural impacts, forest management). At Glen Cove, the trail should be devoted to geology.

A well-planted walking trail should also be developed in connection with the Interpretive Center at the Crystal Visitor Facility. More "designed" and frankly planted, the walk should pass through a Pikes Peak wildflower and native grasses garden, where plants (and perhaps feeders) will be used also to attract birds and insects. Small signs along the garden path can provide interpretation and identification, or a leaflet could be made available at the Interpretive Center. Seating areas should be planned to invite birds, flowers and visitors to enjoy the landscape together.

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## PART TWO: MASTER PLAN AND GUIDELINES

As mentioned earlier, an interpretive loop trail around the summit is also proposed. This trail will provide views (geography) and an experience of the mountain top.

### WAYSIDE INTERPRETIVE SIGNS

At several other locations, wayside signs will be used to provide interpretive program information. The signs will be located in the parking area at the trailheads in the Old Ski Area, Halfway Picnic Area, and Elk Park, and at the Bighorn Sheep Overlook. At the Old Ski Area, the sign will interpret the sub-alpine landscape and wildlife. At Elk Park, attention will be called to elk, the tundra and bristle cone pine in the area. At the Sheep Overlook, the subject will be bighorn sheep and geology. At Halfway Picnic Area, the wildlife habitat, especially elk, will be discussed, and locations for bird finding will be identified.

RECREATION ELEMENT

A wide variety of possible recreation activities and uses were identified at the workshops and public meetings. These activities were screened based on cost of implementation, the opportunity to provide the activity in the North Slope Recreation Area, institutional constraints such as the restrictions on types of uses within the municipal watershed area in which the highway is located, and consistency with the master plan goals. One of the goals is to provide greater interpretive and educational experiences in the corridor. In keeping with this goal, an interpretive program was developed as discussed in the previous section. The recreational activities that are emphasized in this plan such as sightseeing, hiking, and walking are consistent with the interpretive program and therefore these recreational activities have been integrated with many of the interpretive program elements. In addition to sightseeing, hiking and walking, fishing and picnicking activities are identified in the master plan. The opening of the North Slope Recreation Area resulted in the promotion of fishing at Crystal Creek Reservoir, which is within the highway corridor. Therefore, fishing is identified as a recreational activity in the master plan. Although fishing as a recreational activity is consistent with the plan, the management and provision of facilities for this activity are not discussed in detail because they will be addressed in a more comprehensive manner as part of the North Slope Recreation Area Master Plan which will consider fishing activity over a much wider area. Any development or improvement of recreational opportunities, including fishing, within this area of the North Slope will be a benefit to both the Pikes Peak Highway and North Slope Recreation users.

The master plan recreation elements of hiking and picnicking basically build upon existing permitted uses and are presented in greater detail.

PICNICKING

Picnic facilities currently exist at Crow Gulch, Halfway Picnic Area and Glen Cove. At the latter two picnic areas, an upgrade is suggested which includes new toilets, a covered picnic shelter and general site cleanup. The third picnic area at Crow Gulch can be removed once the picnic area is completed at the proposed Visitor Facility. The picnic area at the Visitor Facility will serve the users on the lower part of the mountain, including those who were served by the Crow Gulch facility. With the additional North Slope use and proposed function of the Visitor Facility as a central activity area, the picnic area at the Visitor Center is well placed to serve a great number of visitors.

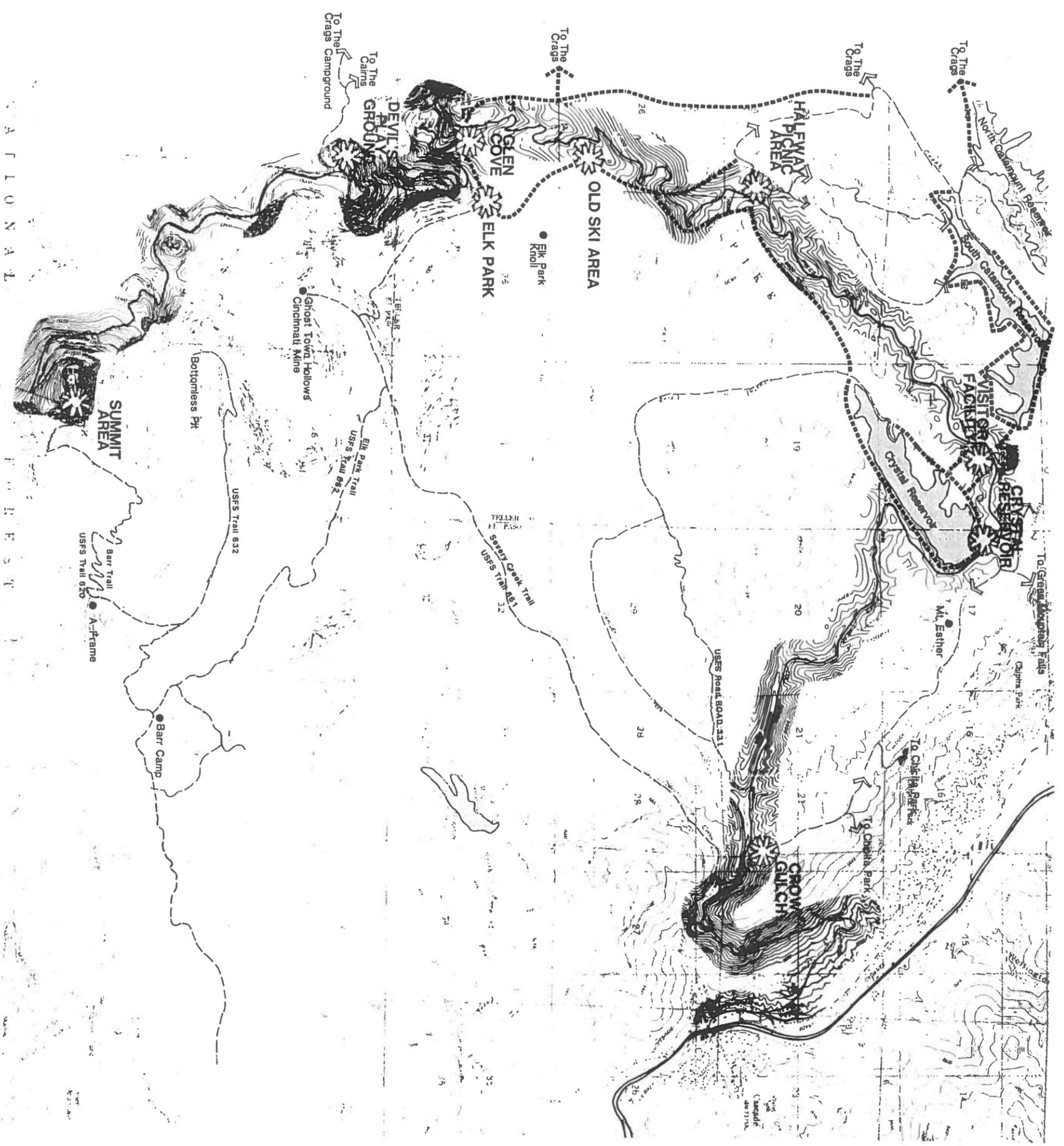
TRAILHEADS

A number of informal or unofficial trails, ie. trails that are not officially recognized by the U.S. Forest Service, are located in the corridor. The existing unofficial trails and several new trails proposed in this plan that are important links to the existing trail network, are identified in the figure titled Recreational Trail and Trailhead System.

Each trailhead proposed in the Pikes Peak Highway Corridor Master Plan provides access to an unique portion of Pikes Peak. These trailheads consist of an orientation plaza adjacent to a parking lot. Within the orientation plaza would be a trail map of the area showing trail options from this location including a map and trail length, interpretive features of this trail, trail description with scenic and difficulty factors, and water accessible to users. The major trailheads are described below.

# RECREATIONAL TRAIL and TRAILHEAD SYSTEM

- LEGEND**
- Existing Trail
  - Proposed Trail
  - Trailhead



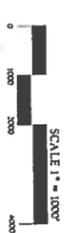
NATIONAL

FOREST



• DESIGN VENTURES • NES, INC. • DAMES & MOORE • HSGA • AMPERSAND STUDIOS • NAN RICKEY • MICHAEL COLLINS ARCHITECTS •

# PIKES PEAK HIGHWAY RECREATION CORRIDOR MASTER PLAN



SEPTEMBER 24, 1992

Crow Gulch Trailhead

This trailhead provides access to the existing Crow Gulch Trail allowing travel to Crystal Reservoir (2.1 miles), to Chipita Park via Esther Trail (1.3 miles), and to Green Mountain Falls (3.1 miles). Existing Forest Service Trail 661, Severy Creek Trail, is also accessible from the Crow Gulch Trailhead with the provision of a new 0.25 mile trail from Crow Gulch downhill to the Severy Creek Trail in its present location.

Crystal Reservoir Trailhead

Located at the northwest shoreline of Crystal Reservoir adjacent to the North Slope Recreation Area parking lot, this trailhead provides access to a proposed perimeter trail around Crystal Reservoir (2.6 miles), and travel to the Crow Gulch Trailhead (2.1 miles), Green Mountain Falls via existing trails (1.7 miles) and Chipita Park via the Mt. Esther Trail (2.1 miles).

Visitor Facility Trailhead

At the site of the proposed Visitor Facility, the Crystal Reservoir Trailhead provides access to a proposed 3.0 mile loop trail around Crystal Reservoir, and to a proposed 1.0 mile trail to South Catamount Reservoir, which links to an existing 0.8 mile trail to North Catamount Reservoir. Also accessible from this trailhead is the existing Crystal Creek Trail and Forest Service Road 331 leading to the Crow Gulch Trailhead (6.0 miles), Halfway Picnic Area (2.4 miles), and the Old Ski Area (4.0 miles).

Halfway Picnic Area Trailhead

Located at the Halfway Picnic Area, this trailhead provides access to South Catamount Reservoir on two existing trails (1.5 miles and 2.0 miles), to North Catamount Reservoir via an existing trail (0.8 miles additional), and to the Craggs on existing and proposed trails (2.3 miles). Access to the Visitor Facility from the Halfway Picnic Area is also suggested by a proposed 2.8 mile trail. This trail would require a crossing of the Pikes Peak Highway.

Old Ski Area Trailhead

Located at the site of the former Pikes Peak Ski Area, this trailhead allows access to those points lower in elevation on proposed trails to the Pikes Peak Highway Visitor Facility (4.0 miles), and to the Halfway Picnic Area along a tributary of South Catamount Reservoir (1.3 miles). A road crossing would be required for this trail. The possibility of providing a trail link between Elk Park and the Old Ski Area should also be investigated.

Glen Cove Trailhead

The Glen Cove Trailhead provides access to the Craggs on a proposed and existing trail (2.6 miles), to South Catamount Reservoir (2.6 miles) via a proposed trail along Glen Cove Creek, to Elk Park Knoll (0.5 miles), and to Forest Service Trails 652 (Elk Park Trail) and 661 (Severy Creek Trail). Trail 652 provides access to the Barr Trail, and to Ghost Town Hollows and the Cincinnati Mine (2.3 miles).

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## PART TWO: MASTER PLAN AND GUIDELINES

### Elk Park Trailhead

This trailhead is the beginning of Forest Service Trail 652, Elk Park Trail, which runs to Ghost Town Hollows and the Cincinnati Mine (1.8 miles) and to Barr Camp along the Barr Trail. A proposed 0.5 mile trail would connect this trailhead with Glen Cove, possibly allowing the Elk Park Trailhead and associated parking area to be less extensively developed to preserve the existing tundra vegetation. This trailhead also provides access to the Severy Creek Trail, Forest Service Trail 661. The possibility of providing a trail link between Elk Park and the Old Ski Area should also be investigated.

### Devil's Playground Trailhead

This trailhead provides access to the area west of the highway known as the Cairns via existing trails (1.3 miles). A minor, relatively steep existing trail also would allow access to the Craggs Campground (3.3 miles).

### Summit Trailhead

Located at the summit of Pikes Peak, this trailhead provides access to Forest Service Trail 620, the Barr Trail. This 12 mile existing trail is one of the most popular hiking trails in the region. Many trails are accessible from the Barr Trail including Trail 632, an existing 4.3 mile trail to the Bottomless Pit. For the adventurous Pikes Peak hike, it is possible to hike to the Glen Cove Trailhead via the Barr Trail (8.5 miles).

In addition to these trails and trailheads described above, interpretive loop trails are proposed at Crow Gulch, Crystal Reservoir Visitor Facility, Glen Cove and the Summit. Details on the interpretive loop trails were provided in the Interpretive Program section.

## TRAILHEAD MANAGEMENT

Future studies will be needed to design the exact routing of each proposed trail and to verify master plan mileage figures. Maintenance and construction responsibilities will need to be cooperatively studied by the United States Forest Service (USFS), the Pikes Peak Highway Advisory Commission (PPHAC), and the North Slope Advisory Board (NSAB). Until future trail studies are completed, this master plan suggests the responsibilities for trail maintenance and construction identified in Table 2.5.

**Table 2.5**  
**TRAIL AND TRAILHEAD MANAGEMENT**

<u>TRAIL TYPE</u>	<u>AGENCY RESPONSIBLE FOR MAINTENANCE/CONSTRUCTION</u>
PPH Trailhead to USFS Trail	USFS
PPH Trailhead to PPH Trailhead	USFS
PPH Trailhead to USFS Destination	USFS
PPH Trailhead to North Slope Recreation Area (North Catamount & South Catamount)	NSAB within North Slope boundaries, PPH outside North Slope boundaries
PPH Trailhead at Crystal Reservoir and Crystal Reservoir Loop Trail	PPH
PPH Trailhead to Crystal Loop Trail	USFS
<u>TRAILHEADS</u>	
All Trailheads along PPH	PPH

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## PART TWO: MASTER PLAN AND GUIDELINES

### SIGNAGE SYSTEM

An unified signage system for the Pikes Peak Highway Corridor is recommended as part of the master plan to provide an opportunity to coordinate all current and future signage elements and bring them up to a consistent, high quality design standard.

The current signage system within the corridor, which includes elements from interpretive signs, to milemarkers, is disjointed and inconsistent in form, materials, color, and placement. In addition, the signage from I-25 to Pikes Peak Highway and along U.S. Highway 24 could be improved.

The unified signage system created for the Pikes Peak Highway is based on a signage hierarchy of three distinct groups: regional such as the Interstate and U.S. Highway 24; Pikes Peak Highway Corridor; and buildings and facilities. For the various sign types within these categories, design objectives and guidelines were developed to address color, shape and placement to create a consistent signage system.

### REGIONAL SIGNS

The regional sign category refers to signs on the Interstate and U.S. 24. These signs must conform to the Manual of Uniform Traffic Control Devices (MUTCD). They include brown, cultural and recreational area guide signs; blue, tourist-oriented directional signs; and regulatory and traffic signs.

The general sign types and locations for the Interstate and U.S. 24 are presented in the figure titled Regional Signage Map. Examples of these sign types are included in the figures following the Regional Signage Map.

### PIKES PEAK HIGHWAY CORRIDOR SIGNAGE

All traffic signage within the corridor must be in accordance with the MUTCD standards. The U.S. Forest Service (USFS) boundary signs should remain as standard U.S.F.S. signs. All other signage developed for the corridor should be designed to be within the capability of the City of Colorado Springs Park and Recreation signage works to produce and maintain.

Signs for the Pikes Peak Highway Corridor include the following types: regulatory and traffic control signs, cooperative signs, management signs and trail signs. Examples of these sign types and their corresponding design guidelines are presented in the figures that follow.

### Pikes Peak Highway Logo

Prior to developing any signage for the corridor, it is recommended that a logo/identity be designed specifically for elements within the corridor. This identity should include a logo type, color and materials palette. Guidelines for the application of this logo to various signage elements should also be developed.

### BUILDINGS AND FACILITIES SIGNS

Examples of signs in the buildings and facilities category include an entry sign, information signs, map displays, building identification signs, shuttle stop identification and interior signs. Examples of some of these sign types and their guidelines are included in the signage figures.



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## PART TWO: MASTER PLAN AND GUIDELINES

### Americans with Disabilities Act Signage

The Americans with Disabilities Act 1990 (ADA) relates to the removal of architectural and communications barriers from existing and new structures. The ADA regulations apply to signage within the corridor and therefore guidelines specific to the ADA have been developed and incorporated to this signage system. Examples of these guidelines for typeface and symbols, as well as proposed locations are presented in the figure that follows.

**REGIONAL SIGNS**

This category refers to signs on the Interstate and Highway 24. The design of these signs is governed by strict control of the Colorado Department of Transportation and The Manual of Uniform Traffic Devices (MUTCD).

**Interstate 25**

**Recreation and Cultural Interest Area Guide Signs**

Directional signs located on I-25 at Exit 141

**Design Objectives:**

Replace existing GREEN guide signs with BROWN signs, to make it readily recognizable to the public that Pikes Peak is a recreational and cultural interest area.

**Design Guidelines:**

BROWN backgrounds with white reflective copy. Must conform to MUTCD design standards.



**Tourist Oriented Directional Signs**

Signs located on Highway 24

**Design Objectives:**

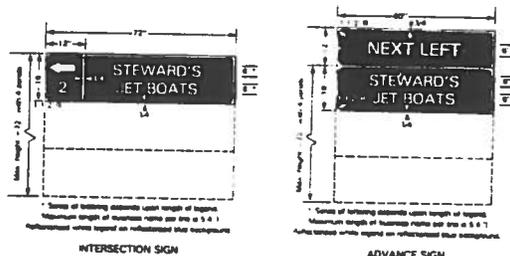
Add signs to provide business identification and directional information for tourists.

**Design Guidelines:**

BLUE backgrounds with white reflective copy. Must conform to MUTCD design standards.

ie. sign message:

*Pikes Peak Race Car Museum 1mi <*  
*North Pole 4mi <*



**Highway 24**

**Recreation and Cultural Interest Area Guide Signs**

**Design Objectives:**

Replace existing GREEN guide signs with BROWN signs, to make it readily recognizable to the public that Pikes Peak is a recreational and cultural interest area.

**Design Guidelines:**

BROWN backgrounds with white reflective copy. Include International Symbols along with sign messages. Must conform to MUTCD design standards.

ie. sign message:

*Pikes Peak Highway 1mi <*  
*Crystal Reservoir >*



Figure 2-52 Typical General Directional Guide Signs for Conventional Roads.

**GRAPHIC IDENTITY / LOGOTYPE**

It is recommended that a logo/identity be designed specifically for elements within the Pikes Peak Corridor. This would include; development of sign forms, shapes and sizes, and design themes; logo applications guideline; graphic design standards for typeface, color and materials palette; final camera ready artwork.



**PikesPeak**

*Logotype*

ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
abcdefghijklmnop  
rstuvwxyz1234567890

*Optima*

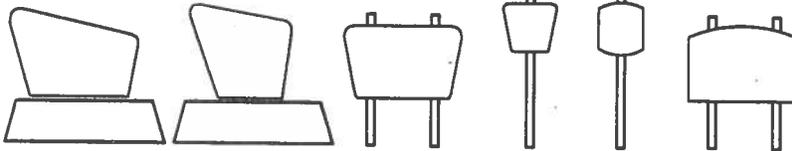
ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
abcdefghijklmnop  
rstuvwxyz1234567890

*Palatino Bold*

ABCDEFGHIJKLMN  
OPQRSTUVWXYZ  
abcdefghijklmnop  
rstuvwxyz1234567890

*Garamond Book*

*Typeface*



*Sign forms*

*National Forest*



*Application guidelines*

### PIKES PEAK HIGHWAY CORRIDOR SIGNAGE

This category refers to signs located in the highway corridor. The design of these signs should be unique to Pikes Peak and design standards for shape, form, color and typeface should be developed.

Design standards for Traffic control sign within the corridor are governed by strict control of the Colorado Department of Transportation and The Manual of Uniform Traffic Devices (MUTCD).

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#### Site Approach Signs

Signs located along Pikes Peak Highway corridor

**Design Objectives:**

To identify facilities, pull-outs, points of interest etc. in advance of site

**Design Guidelines:**

Dark earthtone backgrounds cream / off white reflective copy

ie. sign message:

*Bighorn Viewing Area <*

*Campground >*

*Picnic Area >*



—Site Approach Sign.



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#### Mile Posts / Elevation Markers

Pikes Peak highway corridor signs

**Design Objectives:**

Are intended to serve as guides for motorists and serve as a means of identifying accidents, road maintenance and reference points for audio interpretive tours.

**Design Guidelines:**

Should be of a special design in keeping with graphic standards developed for all sign types

Mile marker 0 should be at the Summit.



**Cooperative Sign / Monument**  
Pikes Peak highway corridor signs

- Announcement for Pike National Forest
- Forest Entry Monument at Tollgate/ Entrance
  - Entry Monument at North Slope

**Design Objectives:**

To identify entrance in to a National Forest or major recreation area. The sign would acknowledge Forest Service cooperation with the City and other agencies.

**Design Guidelines:**

Dark earthtone background cream / off white copy.  
Raised or sandblasted copy

Shape should be simple and appropriate to area. Stone base. Forest Service and City of Colorado Springs Logo should be included on sign face or base.

ie. sign message:

- *Pike National Forest*
- *North Slope Recreation Area*



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**Recreation Area Site Identification Sign**  
Pikes Peak highway corridor signs

- Crystal Reservoir  
Campgrounds  
Picnic Areas

**Design Objectives:**

To identify recreation facility

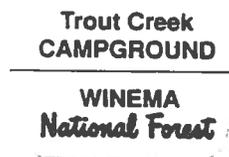
**Design Guidelines:**

Dark earthtone background cream / off white copy.  
Sandblasted copy  
Signface: vinyl on aluminum or silkscreen  
with a wood frame/structure

Shape should be simple and appropriate to area. Forest Service and City of Colorado Springs Logo should be included on sign face.

ie. sign message:

- *Crystal Reservoir*
- *Crow Gulch Picnic ground*



## PART TWO: MASTER PLAN AND GUIDELINES

### Self Locator Map

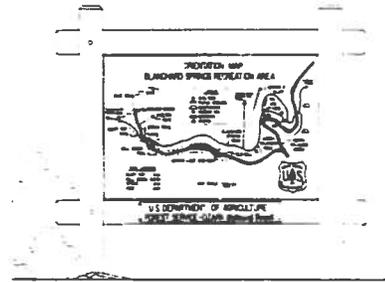
Pikes Peak highway corridor signs  
Located at recreation areas

**Design Objectives:**

To identify recreation facilities trails, major features roads and distances.

**Design Guidelines:**

To be designed in harmony with other sign types



### Trail Identification, Guide Signs and Markers

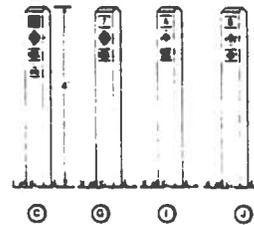
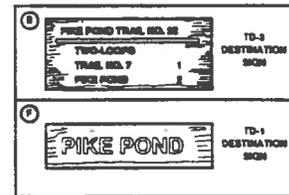
Pikes Peak highway corridor signs  
At trailheads and along trails

**Design Objectives:**

To inform and control people using the trails

**Design Guidelines:**

To be designed in harmony with other sign types  
Signs to be as small as possible while still effectively communicating the information.  
Include accessibility symbol on designated trails



### Interpretive Signs

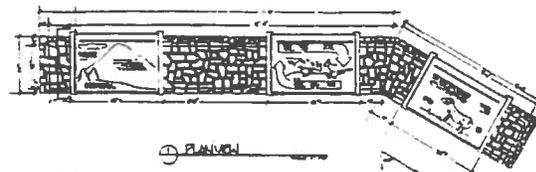
Pikes Peak highway corridor signs

**Design Objectives:**

To interpret natural, cultural and historic information and stories to the visitor.

**Design Guidelines:**

Provide barrier free access and visitor safety  
Orient display to avoid sun and glare  
Consider protective shelter needs  
Avoid traffic hazards



NOTES:  
FOR DETAILS OF PLANVIEW SEE PLAN



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## PART TWO: MASTER PLAN AND GUIDELINES

### Regulatory and Traffic Control Pikes Peak highway corridor signs

**Design Objectives:**

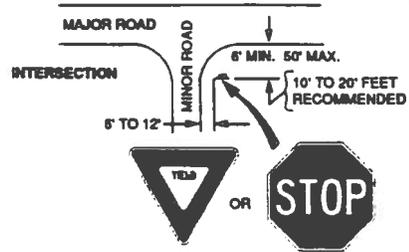
Traffic Control

**Design Guidelines:**

Sign design is governed by strict control of the Colorado Department of Transportation and The Manual of Uniform Traffic Devices.

sign message:

*Stop, Speed Limit, Yield, etc.*



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### Management Signs

#### Pikes Peak highway corridor signs Located at recreation sites

**Design Objectives:**

To state rules and regulations, instructions, hours

**Design Guidelines:**

To be designed in harmony with other sign types



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### Kiosk, Posters and Resource Program Signs

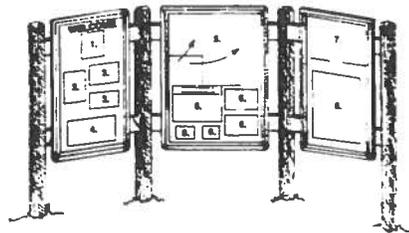
#### Pikes Peak highway corridor signs At Gateway or other information sites

**Design Objectives:**

To provide information to the visitor on recreation opportunities, safety, environmental awareness, community services etc..

**Design Guidelines:**

To be designed in harmony with gateway canopy structure of natural materials.  
Shape should be simple and appropriate.



**BUILDINGS AND FACILITIES SIGNS AND MONUMENTS**

This category includes all identification, directional and informational signs at buildings and facilities.

**Building and Facility Signs**

Includes:

- Entry/Tollgate
- Visitor's Center
- Glen Cove
- Summit Building
- Toilet Facilities
- Transit/Shuttle Stops

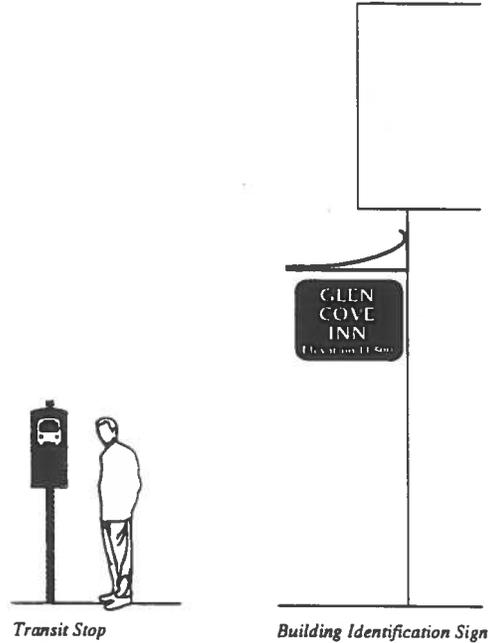
**Design Objectives:**

To unify the design of all signage elements that are part of the building or facility.

**Design Guidelines:**

Signage to be designed in harmony with structure, using materials colors and architectural themes of the building. Sign system also needs to be part of overall graphic design standards developed for Pikes Peak.

Signs design to comply with ADA regulations and applicable building codes



**Gateway Entrance Signs and Monuments**

Includes:

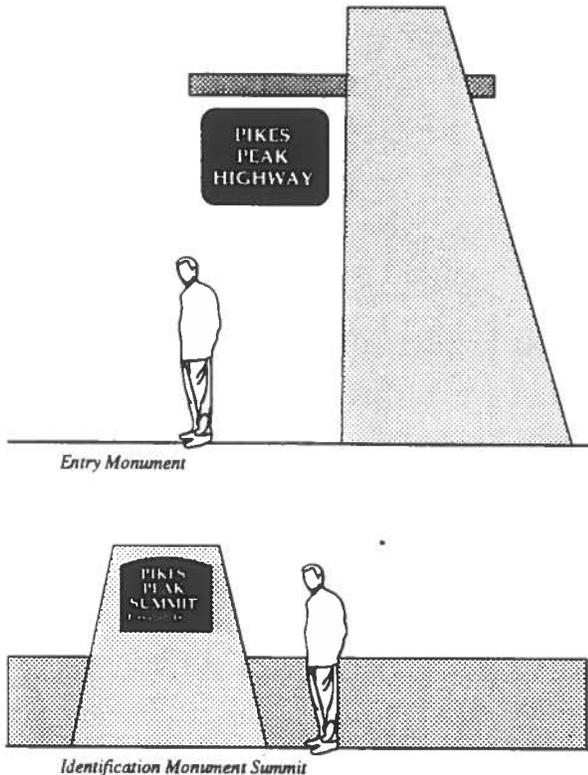
- Highway Entry
- Summit Monument

**Design Objectives:**

To provide a sense of arrival and identification

**Design Guidelines:**

Monuments to be designed in rustic manner using a palette of materials from the mountain, stone and logs. Colors and materials to be in harmony with architectural and identity themes developed for Pikes Peak.



**ADA SIGNAGE**

The Americans with Disabilities Act 1990 (ADA) relates to the removal of architectural and communications barriers from existing and new structures. The ADA regulations apply to signage within the Corridor and therefore guidelines specific to the ADA have been developed and incorporated into this signage system. Examples of these guidelines for typeface and symbols as well as interior and exterior signs are as follows:

**Accessibility Signage**

**Design Objectives:**

To provide barrier free accessibility for the needs of people with disabilities. Important text and graphics should be accessible to all visitors.

**Design Guidelines:**

Permanent Room Designation Signs must include:

- Tactile lettering and Braille
- Letters must be at least 5/8" cap height all caps
- Typeface sans serif or simple serif.
- Sign copy and background must be non-glare, matte or eggshell
- Type is to have 70% contrast with background

**Mounting Locations:**

Signs permanently designating rooms and spaces must be mounted on the wall adjacent to the latch side of the door 60" from the floor.

**Interior Overhead signs:**

May have upper and lower case characters, cap height must be 3" minimum.

**Parking Areas:**

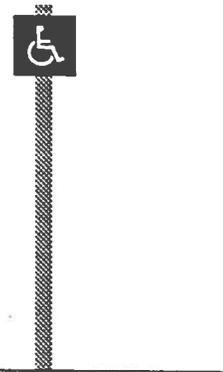
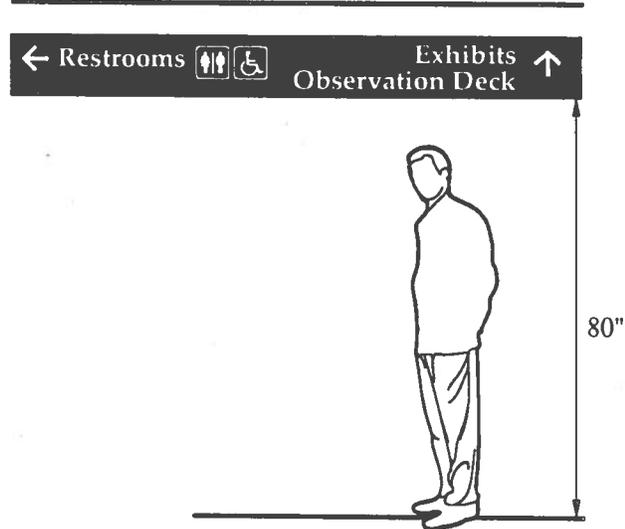
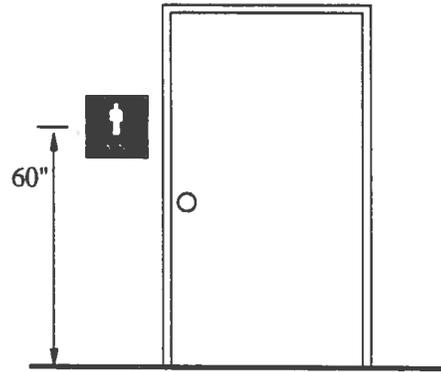
Accessible parking spaces and loading zones must be marked by a sign (accessibility symbol)

**Symbols:**

**Public telephones:**

Text telephones must be identified with the TDD (text telephone) symbol

Assistive listening systems must be identified by the international symbol for hearing loss.



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## PART TWO: MASTER PLAN AND GUIDELINES

### SITE SPECIFIC DEVELOPMENTS

The following is a discussion of each facility that is included in the master plan. The format provides general information regarding location, purpose, proposed action, summary of improvements, and phasing for the proposed site improvements. Site specific guidelines, for the site and structure(s), are provided for each of the following facilities: Summit, Visitor Facility, Glen Cove, Tollgate, Elk Park, Halfway Picnic Area, trailheads and parking, and interpretive/viewing turnouts.

Prior to this information on the specific sites, several general development guidelines are listed to identify and summarize the overall themes from which the site specific development guidelines were derived.

### GENERAL DEVELOPMENT GUIDELINES

Several general guidelines have been developed to establish the character of the highway corridor and direct or solidify the role and nature of development within the corridor. These guidelines are stated below with a brief explanation.

1. Planning and development within the highway corridor should emphasize the natural environment.

The natural environment is the key to the Pikes Peak experience and therefore any development should showcase the natural environment and the mountain.

2. There should be architectural consistency throughout the corridor and the use of indigenous materials is encouraged.

Architectural consistency will tie together the various elements and facilities throughout the corridor. The use of indigenous materials is in keeping with the theme of emphasizing the natural environment. Examples of architectural materials that should be used include native stone, massive dry set masonry, metal standing seam roofs, wood or log siding and glass. (Refer to the figure titled Proposed Architectural Style and Materials.)

3. Memorial plaques should be confined to structures.

The issue of memorial plaques was extensively considered. In keeping with the emphasis on the natural environment and not on man-made structures, it is suggested that plaques be located indoors so as not to disrupt the views or to distract visitors from experiencing the natural environment.

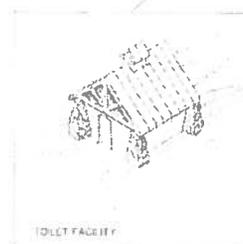
### SITE SPECIFIC DEVELOPMENT GUIDELINES

#### SUMMIT HOUSE

##### Location

The existing summit facility is located at the top of Pikes Peak, 14,110 feet above sea level, on the northeast portion of the summit area. Refer to the Corridor Master Plan figure and the Summit House Site Development Concept Plan for visual clarification.

PROPOSED ARCHITECTURAL STYLE and MATERIALS



PIKES PEAK HIGHWAY  
RECREATION CORRIDOR  
MASTER PLAN



JULY 21, 1992

# SUMMIT HOUSE SITE DEVELOPMENT CONCEPT

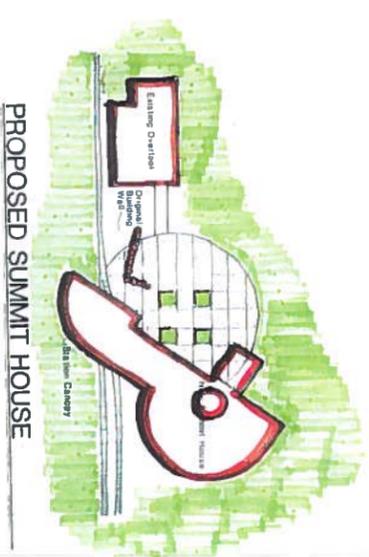
- LEGEND**
- Building Area
  - Pikes Peak Highway
  - Secondary Vehicular Access
  - Trail / Pedestrian Circulation
  - Trailhead
  - Vegetation Edge
  - Parking
  - Outdoor Plaza
  - Picnic Area
  - Camping Area
  - Amphitheater
  - Major View
  - Wall



**SUMMIT SIGNAGE**  
Located at High Point



**SUMMIT HOUSE SITE PLAN**



**PROPOSED SUMMIT HOUSE**



**PROPOSED SUMMIT HOUSE SKETCH**

# PIKES PEAK HIGHWAY RECREATION CORRIDOR MASTER PLAN



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## PART TWO: MASTER PLAN AND GUIDELINES

### Purpose

The purpose of the summit facility at the peak is to provide a safe shelter from the elements and to symbolically mark the triumph of successfully conquering a fourteener for many who would otherwise not do so. This experience has the potential to be worldclass, thus the building should exhibit that potential by showcasing the spectacular views and environment experienced by the numerous visitors.

### Proposed Action

The proposed action for the summit facility embraces the concept of a worldclass experience and provides the visitor with a new summit house that excites rather than disappoints. In conjunction with the new building, a Cog Railway station and covered drop-off/pick-up area for visitors arriving by auto or bus should be incorporated into the design. An integral part of the overall site plan is the proposed interpretive loop trail that surrounds the summit, the reorganized parking area, and the improved trailhead for the Barr Trail. These elements are integrated with the summit house and observation deck. The overall plan should create a cohesive space that organizes the visitors actions and offers them an exciting experience and a wealth of information about Pikes Peak.

### Phasing of Improvements

Phase 1 improvements include the following: reorganization and consolidation with a new facility that includes an upgraded store, food service, information, interpretive area, covered connection to Cog Railway, entrance/exit canopy for visitors arriving by automobile, trailhead improvements, hiker's shelter, restrooms, and a paved parking area. The estimated cost for these improvements is \$4,403,600. Phase 2 is the completion of the interpretive summit loop trail and has an estimated cost of \$824,300.

### Site Design Guidelines

- Provide improvements for drainage and erosion control. Refer to Erosion and Sedimentation Control Program.
- Minimize disturbance to the summit tundra environment and historic/cultural resources, such as the original summit house wall.
- Protect the remaining tundra by use of well defined pathways and barricades where necessary.
- Initiate reclamation of the tundra in those areas to be rehabilitated.
- Coordinate organization of the building facility with the Barr Trail, the parking area, and the Cog Railway.
- Locate new summit house just to the north of the existing building to accommodate access by the Cog Railway and to maintain the existing views to the north and east.
- Use native natural materials, such as indigenous stone and/or wood, for any built site improvements. These would include, but are not limited to, walkway delineation, viewing terraces, and walls.

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## PART TWO: MASTER PLAN AND GUIDELINES

- Implement an interpretive summit loop trail with a geographic theme that also allows the visitor to experience the mountain top environment.
- Identify the point of highest elevation and link this site feature with the interpretive trail.
- Improve the trailhead for the Barr Trail. Refer to Trailhead and Parking Design Guidelines for information pertaining to trailheads and parking areas.
- Address 1990 American Disabilities Act (ADA) requirements for accessibility for all site improvements.

### Building Design Guidelines

- Develop a sense of arrival upon reaching the summit.
- Maximize views to the north, east, and southwest from within the summit house.
- Use architectural materials that are site indigenous, native stone, metal standing seam roof and/or proper level roof, wood and glass.
- Keep profile of the building low, so as to blend with the natural profile of the summit.
- Locate building where permafrost problems are minimal.
- Design building to respond to requirements of permafrost and high wind conditions.
- Consolidate the summit facilities and use the proposed summit loop trail to connect the new Summit House with the existing observation deck.
- Enclose water tanks within building facility.
- Provide an enclosed, short, efficient, and level connection from the Cog Station to the Summit House.
- Provide a covered facility for auto and shuttle bus drop-off and pick-up.
- Provide additional restroom facilities within the new Summit House.
- Provide a gift shop and limited food services.
- Provide a hikers' shelter within the summit area. Location and orientation of the shelter should consider weather elements.
- Incorporate within the building an interpretive area that discusses the themes of weather making and water, geology and geography. Refer to Interpretive Program section for specific information.

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## PART TWO: MASTER PLAN AND GUIDELINES

- Confine the placement of memorial plaques, if any, to the inside of buildings.
- Incorporate appropriate signage. Refer to Signage System section for signage guidelines.
- Address 1990 ADA requirements for accessibility for all buildings.

VISITOR FACILITY

Location

The location of the Visitor Facility is northwest of Crystal Reservoir on the south side of the highway. The site is approximately 9,320 feet above sea level and lies within the montane life zone. The North Slope Access is just to the east or downhill of the proposed site. Refer to the Corridor Master Plan figure and Visitor's Center Site Development Concept Plans for visual clarification.

Purpose

The purpose of the Visitor Facility is to provide a comprehensive experience and interpretation of Pikes Peak. This facility will not replace the summit experience, but will alleviate pressure from the summit with regards to interpretive programming, food and gift services, and monument display. This facility should be nothing less than a worldclass operation.

Proposed Action

The proposed action for building a Visitor Facility also embraces the concept of a worldclass experience at a worldclass facility. Although the building will be new, the architecture will carry through the rustic character as displayed by the Glen Cove building. This facility will be the center of activity for the interpretive program as well as other recreational experiences.

Phasing of Improvements

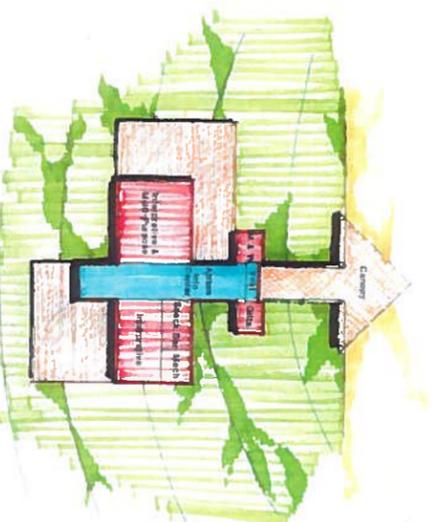
The Visitor Facility would be constructed during Phase 2. This would include interpretive exhibits and videos within the building, information, food/dining services, museum-type store, staging area for the shuttle bus service, parking areas to accommodate shuttle users and all types of vehicles, a rustic amphitheater for interpretative talks, small seminars or productions, an interpretive loop trail through a high-altitude wildflower garden, picnic areas complete with covered picnic shelters and restrooms, and a trailhead. Other activities that are accommodated or developed at this site are fishing and hiking. The Visitor Facility with all the site components has an estimated cost of \$3,053,200.

Site Design Guidelines

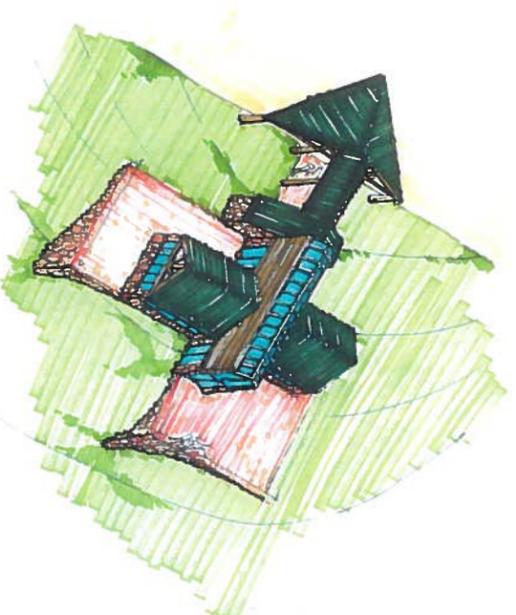
- Provide improvements for drainage and erosion control. Refer to Erosion and Sedimentation Control Program.
- Minimize disturbance to the montane environment, during site construction.
- Initiate reclamation efforts in those areas to be rehabilitated.
- Landscape parking areas and building site to soften visual impact of the facility, thus providing a natural looking environment.
- Use native natural materials, such as indigenous stone, and/or wood, for any built site improvements. These would include, but are not limited to, parking delineation, pedestrian crossings, trail delineators, and trailhead development.

VISITOR CENTER  
SITE DEVELOPMENT CONCEPT

- LEGEND
- Building Area
  - Pikes Peak Highway
  - Secondary Vehicular Access
  - Trail / Pedestrian Circulation
  - Trailhead
  - Vegetation Edge
  - Parking
  - Outdoor Plaza
  - Picnic Area
  - Camping Area
  - Amphitheater
  - Major View
  - Wall



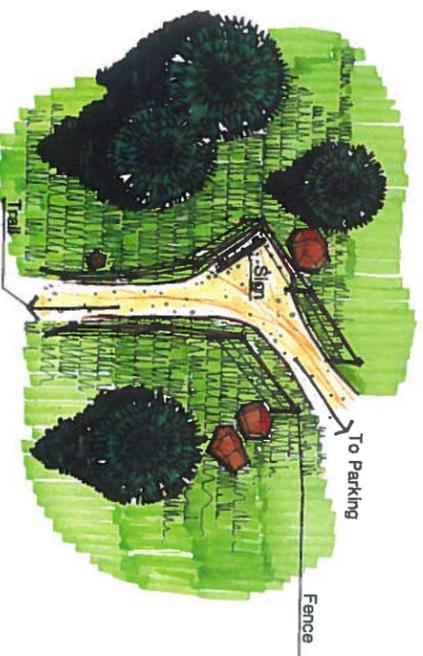
VISITOR CENTER PLAN



VISITOR CENTER SKETCH



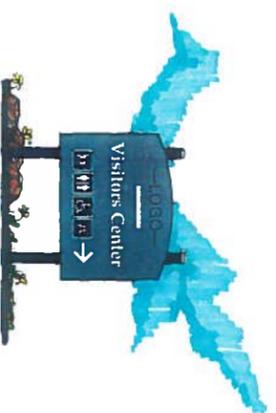
VISITOR CENTER SITE PLAN



TRAILHEAD



TRAILHEAD SIGNAGE



DIRECTIONAL GUIDE SIGNAGE

PIKES PEAK HIGHWAY  
RECREATION CORRIDOR  
MASTER PLAN



SEPTEMBER 1, 1992

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## PART TWO: MASTER PLAN AND GUIDELINES

- Locate Visitor Facility near Crystal Reservoir. This site is easily accessible to the highway with parking located directly south of the highway on both sides of the building.
- Provide a small rustic amphitheater for small presentations or gatherings.
- Provide an area for picnicking, inclusive of picnic tables, covered picnic shelter(s) and restroom facilities.
- Provide fishing opportunities at Crystal Reservoir consistent with the North Slope Recreation Plan.
- Develop a level or slightly ramped entry to the building to offer maximum views of the peak and Crystal Reservoir.
- Provide a pedestrian crossing from the Visitor Facility to the north side of the highway for the trailhead access to the North Slope.
- Incorporate a shuttle bus staging area in the design of the parking facilities.
- Provide an interpretive trail that starts at the south side of the building and winds toward Crystal Reservoir. The theme should consist of a planted wildflower garden and associated fauna.
- Design the site to accommodate a possible future relocation of the tollgate.
- Provide a trailhead to access Crystal Reservoir, South and North Catamount Reservoirs, Crystal Creek Trail and USFS Road 331.
- Incorporate appropriate signage. Refer to Signage System section for guidelines.
- Address 1990 ADA requirements for accessibility for all site improvements.

### Building Design Guidelines

- Investigate for water services, the alternatives of pumping and treatment of water directly from the reservoir, or drilling a new well at or near the site. Include cost comparisons, any environmental or site specific restrictions, permitting and regulatory requirements and more in-depth research into capacities and operational costs of existing facilities.
- Investigate for sanitary sewer service, a septic tank/leaching field system serving disposal needs on or near the site. Investigation will be required regarding soil types, ground water table, and bedrock elevations during any site planning for a new visitor facility. This work will have to be included in any follow-up conceptual design for the facility, as well as a review of the permits required for any septic system installations from the appropriate Federal and State agencies.
- Obtain electric power from existing power source on site, transform local electric service from existing overhead distribution lines that serve Glen Cove and the Summit; for

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## PART TWO: MASTER PLAN AND GUIDELINES

aesthetic purposes, investigate possibility of providing underground conduit to the visitor facility from the overhead line.

- Investigate for power for heating, alternatives of power/fuel sources for heating systems such as propane gas, electricity, diesel fuel or solar energy.
- Investigate for telephone/emergency communications, capabilities and costs of cellular phone system.
- Design and construct the building, consistent with the architectural character of the Glen Cove building (a standing seam green metal roof, logs and/or wood siding, and rustic and massive dry set masonry).
- Design and place windows carefully to consider sun exposure, viewing opportunities, and architectural character.
- Tie-in the Visitor Facility's design with the overall character of the architectural elements throughout the corridor.
- Provide an extensive interpretive display program in keeping with the primary function of the Visitor's Facility.
- Provide easy access to the displays and exhibits and lecture or seminar spaces, and central area for viewing and congregating.
- Provide a full service food area that does not overshadow the primary purpose of the facility.
- Provide a discreet gift shop that is similar in character to those in museums.
- Confine the placement of memorial plaques, if any, to the inside of buildings.
- Signage should be integrated properly. Refer to Signage System section for guidelines.
- Address 1990 ADA requirements for accessibility for all building and structures.

## GLEN COVE

### Location

Glen Cove is located within mile thirteen at an elevation of 11,500 feet above sea level in the subalpine life zone. Refer to the Corridor Master Plan figure and Glen Cove Site Development Concept Plans for visual clarification.

### Purpose

The Glen Cove Inn was developed for the traveler who ascended Pikes Peak. Its purpose was to provide shelter, safety and warmth during rest stops to and from the summit. Today Glen Cove still provides a welcomed rest area along the highway.

### Proposed Action

The proposed action for Glen Cove is to return the building to its original character, as much as possible. Food services and gift sales would be minimized to allow space for a small lounge/waiting area where interpretive information may be viewed. The purpose of the facility would continue to be a rest and safety stop for visitors.

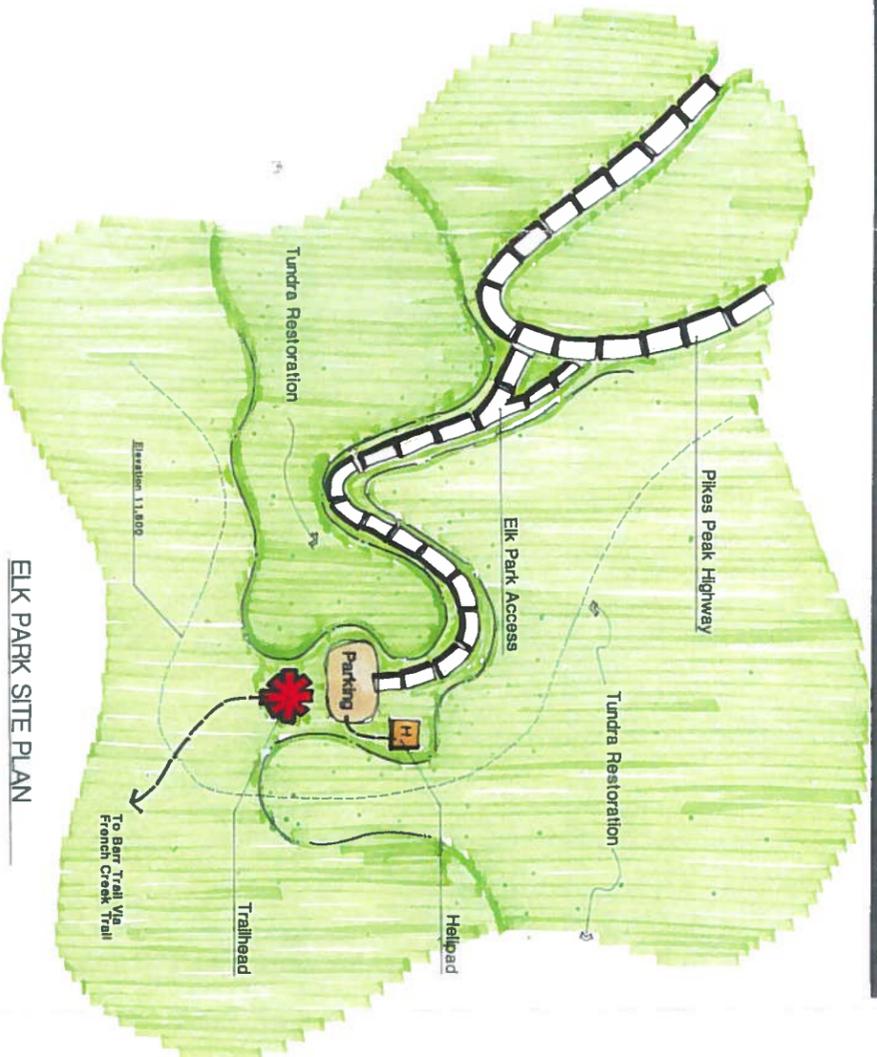
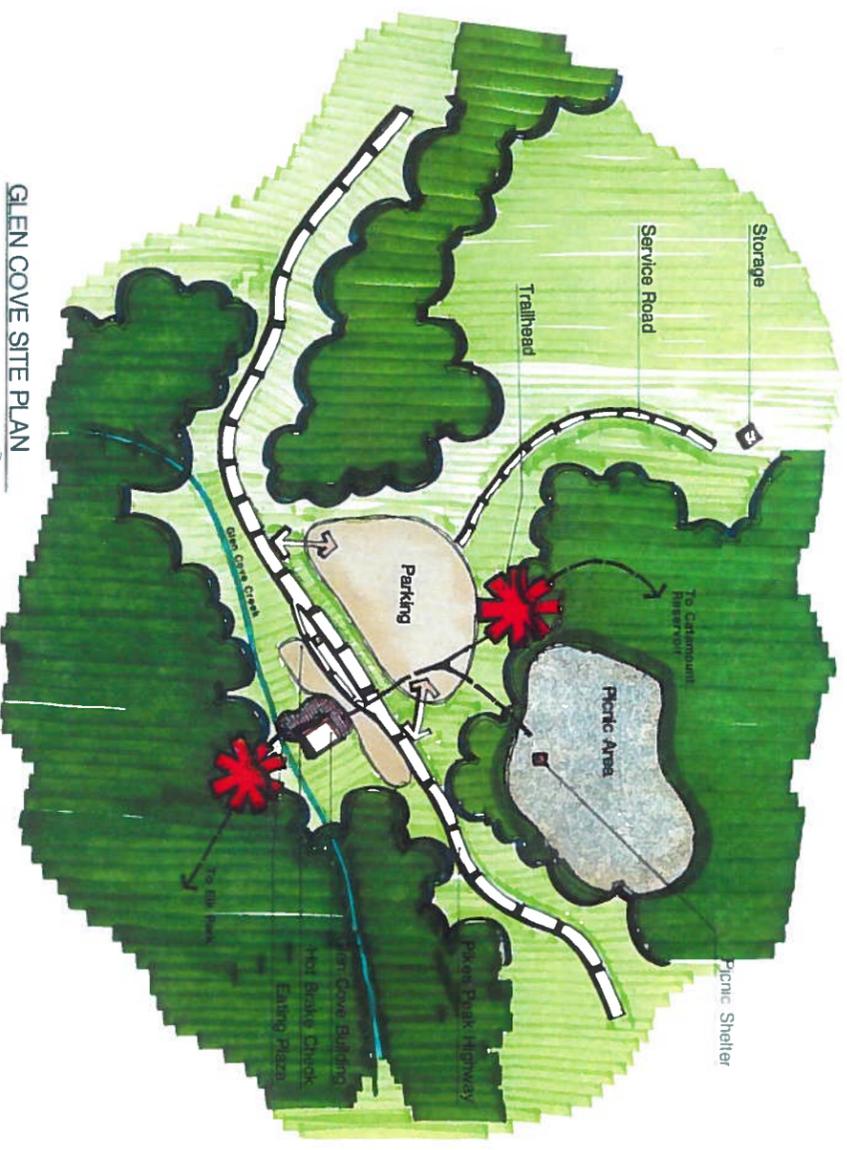
### Phasing of Improvements

Improvements to Glen Cove are proposed in Phase 3 after the Visitor Facility is completed. The improvements include renovating the building exterior and remodeling the interior, to include restrooms, limited store, limited food service, and lounge/interpretive area. Additional site improvements include a new deck area, paved parking areas, a shuttle staging area, picnic area upgrade, a covered picnic shelter, a trailhead, and an interpretive trail. The existing brake check function is also incorporated to the site design. The estimated cost for building and site improvements at Glen Cove is \$899,300.

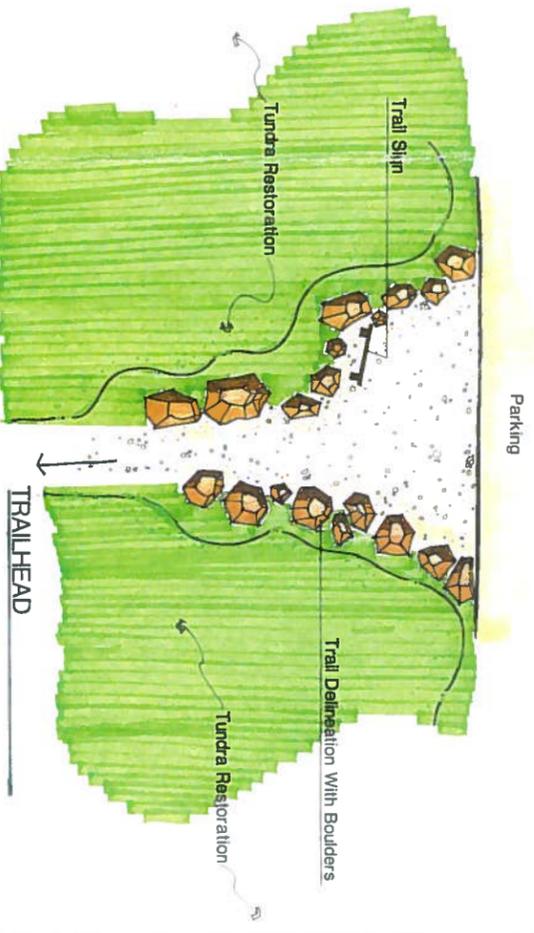
### Site Design Guidelines

- Provide high priority improvements for drainage and erosion control. Refer to Erosion and Sedimentation Control Program.
- Initiate reclamation of the subalpine areas in those locations to be rehabilitated.
- Maintain building at its existing location on the east side of the highway.
- Develop new parking area on west side of the highway.
- Provide handicap parking near the building.
- Use native natural materials, such as indigenous stone and/or wood for any built site improvements, such as trailheads, interpretive walkway, picnic area delineation, etc.
- Provide covered picnic shelter and redefine picnic sites north of the parking area.

G L E N C O V E  
SITE DEVELOPMENT CONCEPT



- LEGEND**
- Building Area
  - Pikes Peak Highway
  - Secondary Vehicular Access
  - Trail / Pedestrian Circulation
  - Trailhead
  - Vegetation Edge
  - Parking
  - Outdoor Plaza
  - Picnic Area
  - Camping Area
  - Amphitheater
  - Major View
  - Wall



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PIKES PEAK HIGHWAY  
RECREATION CORRIDOR  
MASTER PLAN



SEPTEMBER 1, 1992

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## PART TWO: MASTER PLAN AND GUIDELINES

- Delineate clearly and definitively the roadway and parking edge.
- Delineate and sign pedestrian crossings from the parking and picnic areas to the building. An inlaid paving material of native stone is suggested.
- Site and design the brake check station area to allow test vehicles to bypass the station.
- Provide an interpretive trail discussing the theme of geology at the Glen Cove site.
- Improve the Glen Cove trailhead that accesses the Craggs, South Catamount Reservoir, and USFS Trails 652 and 661 (Severy Creek Trail). For trailhead and parking requirements refer to Trailhead and Parking Design Guidelines.
- Address 1990 ADA requirements for accessibility for all site improvements.

### Building Design Guidelines

- Site any future addition, only if needed, to the east side of the building, so that the visual impact is minimized. Any addition to the south, north, or west would dramatically impact the original facade and character of the building.
- Site the outdoor deck terrace to the south or the uphill side of the Glen Cove structure due to sun, existing site grades, and the interior building configuration.
- Locate the deck off the existing building with easy access from the Glen Cove building to the deck.
- Return the building, as closely as possible, to its original character. Wood and stone railings can be added and interfaced with the building to accommodate ADA requirements for accessibility.
- Add, on the main floor, restroom facilities that meet ADA requirements.
- Reorganize/remodel the kitchen and gift shop to accommodate a snack bar type eating facility and limited sales area.
- Create a small lounge type interpretive facility within the existing structure to accommodate video programs and exhibits.
- Renovate the exterior of the building by restaining, and repairing and caulking the logs.
- Replace the existing roof with a standing seam of dark green color. In addition to providing architectural consistency, this type of roof would be easier to maintain and would be more fire resistant.
- Replace the windows with divided light-sash to reflect the original character.
- Provide additional free standing restroom facilities in the parking area/picnic area. These

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## PART TWO: MASTER PLAN AND GUIDELINES

structures should be of log construction with rustic dry set masonry, standing seam metal roof. This piece of architecture should blend naturally with the wooded area and tie in with the established architecture of the existing Glen Cove building.

- Integrate signage appropriately. Refer to Signage System section for signage guidelines.
- Address 1990 ADA requirements for accessibility for all buildings.

## TOLLGATE

### Location

The location of the tollgate is within the first mile of the highway. The elevation is approximately 7,740 feet above sea level and is within the montane life zone. Refer to the Corridor Master Plan figure and Tollgate Area/Typical Turnout Site Development Plans for visual clarification.

### Purpose

The purpose of the tollgate has historically been to mark the beginning of the journey up Pikes Peak. Today this facility still serves its original purpose in addition to collecting tolls from visitors travelling the highway.

### Proposed Action

The proposed action for the tollgate area is to upgrade and reorganize the site to improve the facility's operation. Its function essentially remains the same, however, greater emphasis is placed on the visitor information services. The entrance to the highway should announce the beginning of the highway and provide a sense of arriving at a special place to embark on a special experience. The toll collection booth or station should be redesigned to accommodate multiple lanes of traffic. An exit by-pass lane should be implemented to alleviate any congestion from the downhill traffic. Parking areas for both employees and visitors should be reorganized and defined pedestrian crossings are necessary. Additional restrooms and information would be available in the remodeled park station presently at the tollgate.

Although relocation of the tollgate is not a recommendation of this master plan, it is suggested that this issue be reevaluated upon completion of the North Slope Recreation Area master plan and prior to undertaking the proposed tollgate improvements. So as not to preclude the option of relocating the tollgate to the Visitor Facility area at a later date, it is recommended that the Visitor Facility site be designed to accommodate the possible relocation of the toll facility.

### Phasing of Improvements

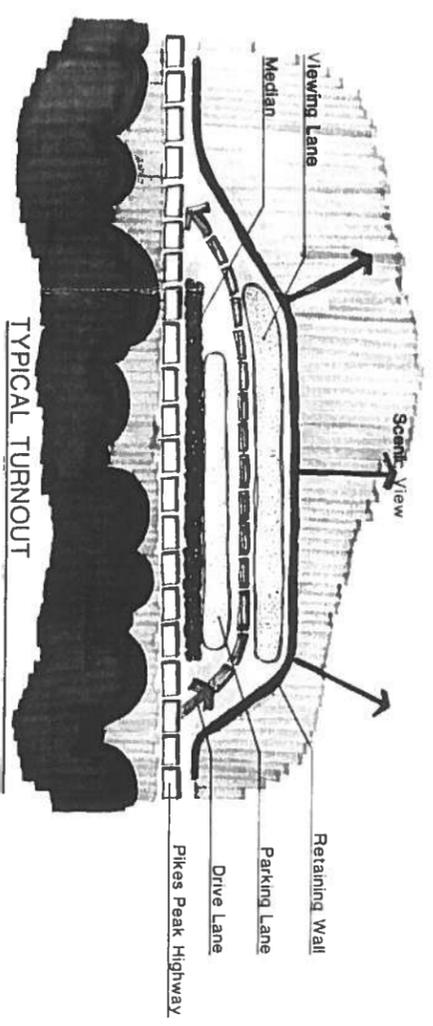
Improvements to the tollgate occur in Phase 2. Improvements for the tollgate in its present location are as follows: tollhouse and canopy, restrooms, information, parking organization, and an entry sign. The estimated cost for the tollgate improvements at the present site is \$775,800.

### Site Design Guidelines

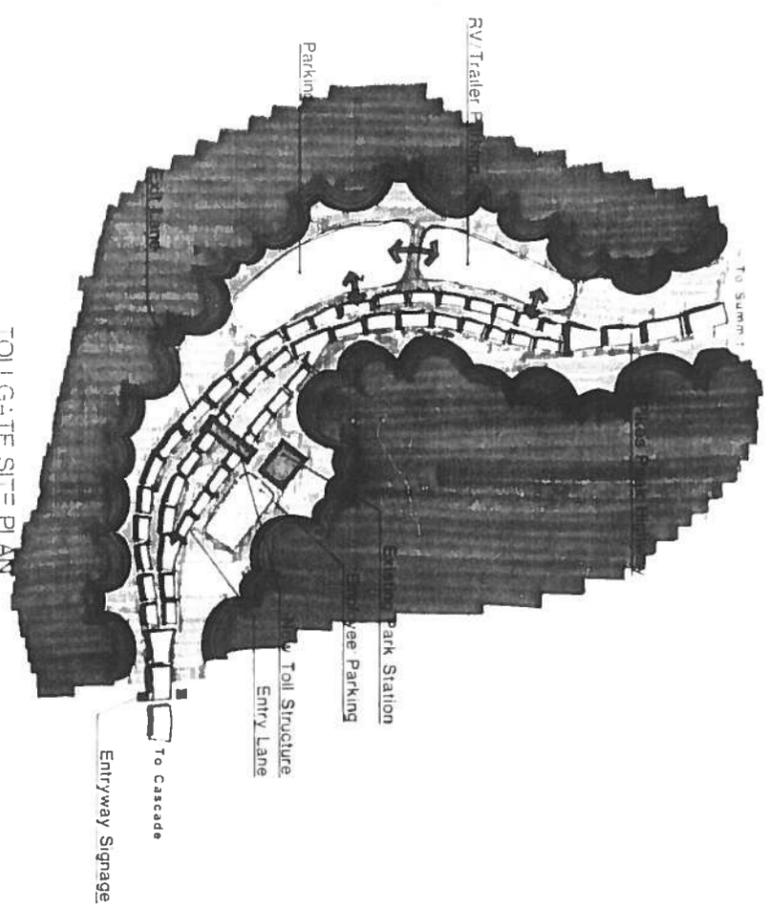
- Provide improvements for drainage and erosion control. Refer to Erosion and Sedimentation Control Program.
- Minimize disturbance of the surrounding environment.
- Initiate reclamation of the montane areas to be rehabilitated.
- Landscape to buffer the employee parking and soften the visual impact to the visitor.

TOLLGATE AREA  
TYPICAL TURNOUT  
SITE DEVELOPMENT CONCEPT

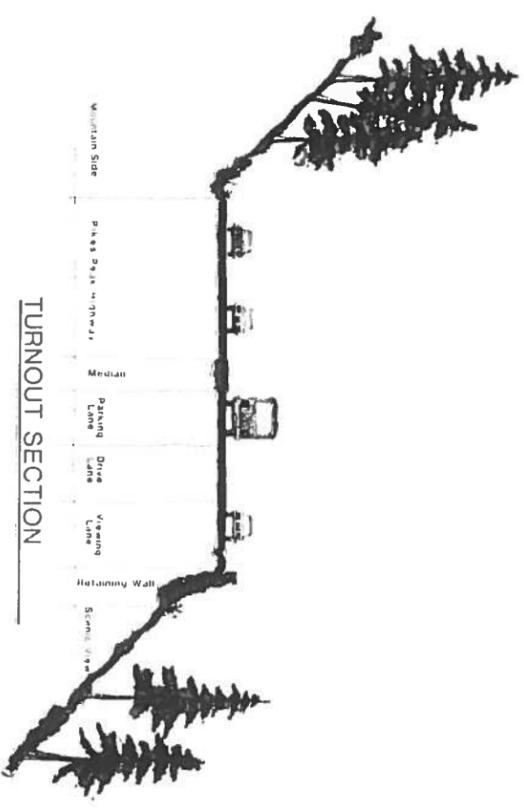
- LEGEND
- Building Area
  - Pikes Peak Highway
  - Secondary Vehicular Access
  - Trail / Pedestrian Circulation
  - Trailhead
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  - Outdoor Plaza
  - Picnic Area
  - Camping Area
  - Amphitheater
  - Major View
  - Wall



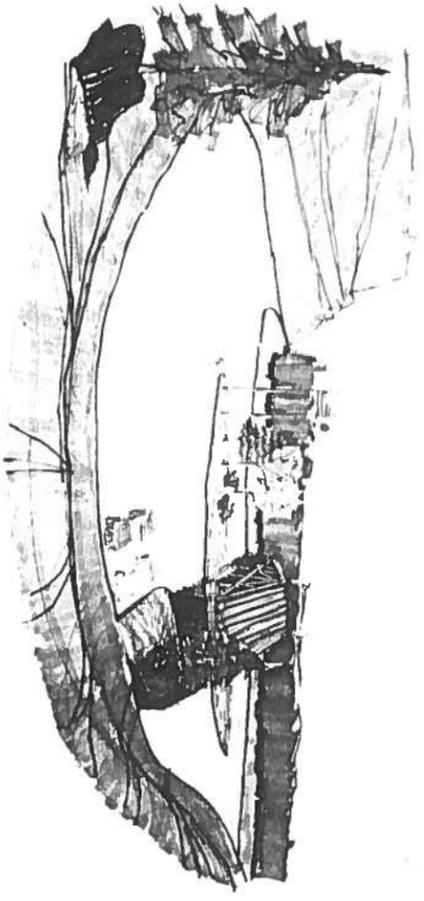
TYPICAL TURNOUT



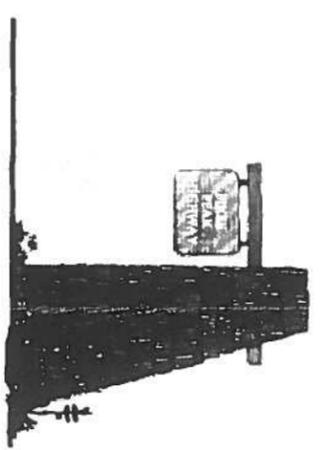
TOLLGATE SITE PLAN



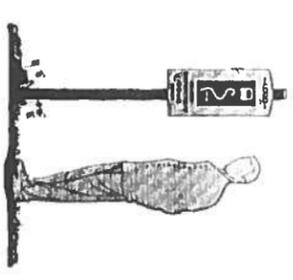
TURNOUT SECTION



TOLLGATE SKETCH



ENTRYWAY SIGNAGE



SHUTTLE SIGNAGE

PIKES PEAK HIGHWAY  
RECREATION CORRIDOR  
MASTER PLAN



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## PART TWO: MASTER PLAN AND GUIDELINES

- Reintroduce the use of an entry arch or sign prior to the tollhouse facility, to set the tone for and announce the beginning of the Pikes Peak Highway.
- Reorganize tollgate area to accommodate several lanes of incoming traffic, one lane of exiting traffic, parking area for employees, and parking area for visitors.
- Provide a turnaround area.
- Define pedestrian crossings from parking areas to the park station facility for public safety.
- Use native natural materials for any built site improvements. These may include, but not limited to, parking and roadway delineators and pedestrian crossings.
- Integrate signage appropriately. Refer to Signage System section for guidelines.
- Address 1990 ADA requirements for accessibility for all site improvements.

### Building Design Guidelines

- Provide a large canopy sufficient in size to cover two cars in line for at least two lanes of incoming traffic.
- Use materials that consist of natural log and wood with standing seam metal roof.
- Use an architectural style that is rustic, inviting, quiet, and low maintenance.
- Provide additional restroom facilities and an information area at the remodeled park station house.
- Use appropriate signage. Refer to Signage System section for guidelines.
- Address 1990 ADA requirements for accessibility for all buildings.

## ELK PARK

### Location

Elk Park is located above Glen Cove in the transition zone between the subalpine and the alpine life zones. The approximate elevation is 11,820 feet above sea level. Refer to the Corridor Master Plan figure for visual clarification. The Glen Cove Site Development Concept Plan figure also contains the Elk Park site plans.

### Purpose

Elk Park has historically been used as a stop to enjoy the panoramic views of the surrounding mountain ranges. This area is also prime elk habitat, thus its name Elk Park.

### Proposed Action

The proposed action for Elk Park is to mitigate the environmental impacts and to accommodate the existing level of use. Promoting or encouraging a great increase in use of the area is not recommended for environmental reasons. The tundra that still remains is badly damaged and further damage is to be prevented. In recognition of the sensitive tundra environment and to promote its restoration, improvements will focus on restricting activities to specific areas. A strictly defined and delineated parking area will be developed to contain vehicles in those areas that are currently disturbed. An interpretive sign at the existing trailhead will be the only type of formal interpretation of the area. A clearly defined trailhead and path delineation will be implemented to keep hikers on the trail and off of the fragile tundra environment. In addition to these measures, access improvements are proposed for safety reasons.

### Phasing of Improvements

Minimal improvements for auto access, with ingress from and egress to downhill only, will occur in Phase 1. Improvements to provide a full movement intersection for auto traffic, a helicopter landing area, trailhead, interpretive sign and a well-defined limited parking area will occur in Phase 3. The estimated cost of improvements in Phase 1 is \$28,800. The estimated cost for Phase 3 improvements is \$81,600.

### Site Design Guidelines

- Provide high priority improvements for drainage and erosion control. Refer to Erosion and Sedimentation Control Program.
- Use previously disturbed areas to accommodate trailhead, helipad, and parking area.
- Minimize disturbance to the environment in which trailheads or parking are to be constructed.
- Initiate reclamation efforts in those areas to be restored.

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## PART TWO: MASTER PLAN AND GUIDELINES

- Protect Bristlecone Pine during construction of Pikes Peak Highway/Elk Park intersection improvements.
- Locate, design, and construct trailheads and trails sensitive to topography, vegetation, wildlife habitat, previous disturbance, drainage patterns, intended use, aesthetic quality of the area, and the adjacent resources.
- Locate, design, and construct trailheads and trails in areas that ensure the safety and enjoyment of the users.
- Use native natural materials for any built site improvements. These would include indigenous rock or boulders and/or wood and would be used for the trailhead orientation plaza delineation, path definition, parking definition, and helipad definition.
- Provide a natural orientation plaza for information showing a trail map, trail length, description, interpretation, and level of difficulty.
- Provide only a small limited parking area that is delineated with large boulders that are difficult to move and impossible to drive over or through.
- Close this area to parking during special events.
- Prohibit overnight camping.
- Balance environmental and recreational objectives by not actively promoting use of this area.
- Integrate signage within each individual setting. Refer to Signage System section for guidelines.
- Address 1990 ADA requirements for accessibility.

## HALFWAY PICNIC AREA

### Location

Halfway Picnic Area is located in the montane life zone within mile ten at an elevation of approximately 9,980 feet above sea level. Refer to the Corridor Master Plan figure and Halfway Picnic Area Site Development Concept Plans for visual clarification.

### Purpose

The purpose of Halfway Picnic Area has been to provide a pleasant rest area to enjoy a picnic along the highway.

### Proposed Action

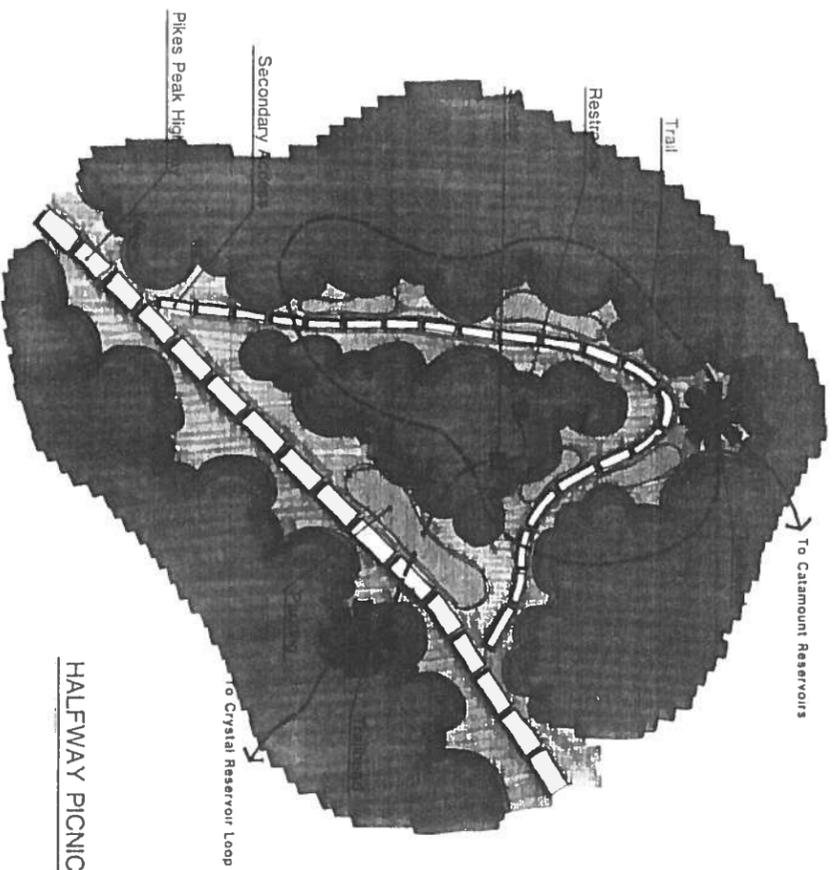
The proposed action for Halfway Picnic Area is to maintain the concept of the rest/picnic area and provide facilities in accordance with the current level of use. Due to the provision of additional picnic facilities at the proposed Visitor Facility, increased use at Halfway Picnic Area is not anticipated. The facilities are to be upgraded including covered picnic shelters and new restrooms. Improvement of picnic site definition is to be provided. Improvements to the trailhead, which provides access to South Catamount and North Catamount Reservoirs and the Crags, will be implemented. Interpretive programming will consist of an informational sign located at the trailhead.

### Phasing of Improvements

Improvements to Halfway Picnic Area will occur in Phase 2. These improvements include an upgrade of the site area and facilities to provide new restrooms, covered picnic shelter, and trailhead. The estimated cost for improvements to Halfway Picnic Area is \$119,600.

### Site Design Guidelines

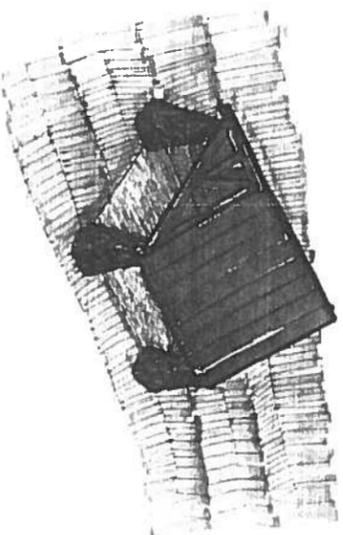
- Provide high priority improvements for drainage and erosion control. Refer to Erosion and Sedimentation Control Program.
- Initiate reclamation in those montane areas to be rehabilitated.
- Minimize disturbance to the surrounding environment.
- Locate covered picnic shelter and restroom facilities in wooded areas convenient for handicap use and near parking.
- Locate and provide fire pits to discourage random pit development.
- Provide and locate a single, large parking area to accommodate trail users, yet also provide small pockets of parking in designated areas near picnic tables.
- Do not pave parking areas within the picnic site.



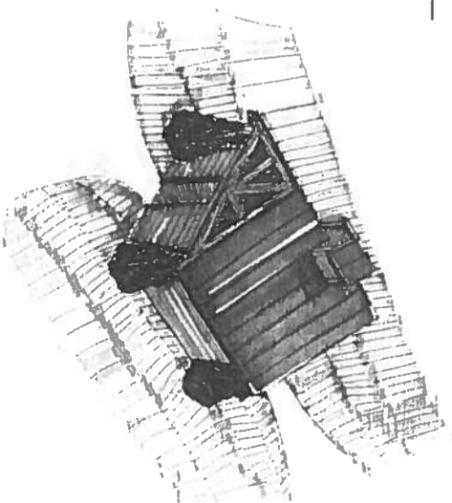
HALFWAY PICNIC GROUNDS SITE PLAN



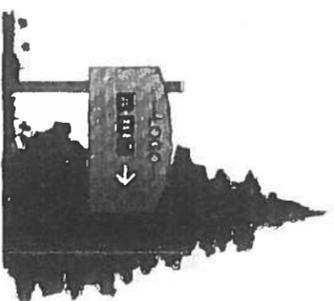
TYPICAL PICNIC AREA



TYPICAL SHELTER



TYPICAL RESTROOM



DIRECTIONAL GUIDE SIGNS



TRAIL SIGNAGE

HALFWAY PICNIC AREA  
SITE DEVELOPMENT CONCEPT

- LEGEND
- Building Area
  - Pikes Peak Highway
  - Secondary Vehicular Access
  - Trail / Pedestrian Circulation
  - Trailhead
  - Vegetation Edge
  - Parking
  - Outdoor Plaza
  - Picnic Area
  - Camping Area
  - Amphitheater
  - Major View
  - Wall

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PIKES PEAK HIGHWAY  
RECREATION CORRIDOR  
MASTER PLAN



SEPTEMBER 1, 1992

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## PART TWO: MASTER PLAN AND GUIDELINES

- Use native natural materials for any built site improvement. These could include, but are not limited to, delineation of the picnic areas, construction of the picnic tables, delineation of the shuttle bus stop, and the fire pit construction.
- Define areas where vehicles are permitted and restrict them in other areas through the use of natural type barriers, such as boulders or wooden bollards.
- Provide a shuttle bus stop along the highway.
- Provide, at the trailhead, an interpretive sign offering information on wildlife habitats, flora and fauna.
- Improve trailhead to the North and South Catamount Reservoirs and to the Craggs. Refer to Trailhead and Parking Design Guidelines.
- Incorporate appropriate signage. Refer to Signage System section for guidelines.
- Address 1990 ADA requirements for accessibility for all site improvements.

### Building Design Guidelines

- Locate picnic sites and covered picnic shelter(s) to be responsive to the topography, climatic conditions, and vegetation.
- Provide and construct covered picnic shelter(s) of log material. The shelter should be open and exposed allowing for viewing from within. The roof construction should be of wood trusses composed of either log timbers and/or slab type beams.
- Upgrade the existing facilities, to include picnic tables, fire pits, and restrooms.
- Provide restroom facilities that are log structures with rustic set masonry with a standing seam metal roof. The character of these structures should be the same throughout the corridor and should display the rustic architecture as established at Glen Cove.
- Integrate signage appropriately. Refer to Signage System section for guidelines.
- Address 1990 ADA requirements for accessibility for all buildings or structures.

## TRAILHEADS AND PARKING

### Location

Trailhead locations from the base to the summit along the highway are as follows: Crow Gulch, Crystal Reservoir, Crystal Visitor Facility, Halfway Picnic Area, the Old Ski Area, Glen Cove, Elk Park, Devil's Playground, and the Summit. To accommodate day-hikers, parking areas are proposed at the trailhead locations also. Refer to the Corridor Master Plan figure for visual clarification of location.

### Purpose

The purpose of the trailheads and, therefore corresponding trails, is to provide the visitor with additional recreational opportunities while they are on the mountain. These trails are dispersed throughout the corridor and will appeal to a wide variety of users offering information regarding the environment, life zones, flora, fauna, habitats, geology, geography, historic and cultural events.

With the development or improvement of trailheads, parking is also proposed to accommodate the trail users. The parking areas vary in size depending on the activity or facility located at the site. Large parking areas will be sited at the Tollgate, the Visitor Facility, Glen Cove, and the Summit. Smaller parking areas will be sited at Crow Gulch, Halfway Picnic Area, the Old Ski Area, Elk Park, and Devil's Playground. These parking areas should be designed to accommodate the level of use or desired level of use for each of the trailheads.

### Proposed Action

The proposed action involves the improvement or development of trailheads that serve the trails along the Pikes Peak Highway. Several of the existing trails that are accessed by these trailheads are not officially open to the public due to the watershed agreement between the City of Colorado Springs and the US Forest Service; however, there is an opportunity to tie into these existing trails should the agreement be reevaluated and the trails officially recognized by these entities. Some trailheads may provide an interpretive sign, while others may offer a full scale interpretive experience on a loop trail. Interpretive signs at trailheads are sited at the Halfway Picnic Area, the Old Ski Area, and Elk Park. Interpretive loop trails are at Crow Gulch, the Visitor Facility, Glen Cove and the Summit.

In conjunction with the trailheads, parking areas will be improved or developed. These areas may be enlarged, reduced, or reorganized, to fit the needs of the trailhead or associated facility.

Improvements and estimated costs are discussed individually for Crow Gulch, the Old Ski Area, and Devil's Playground. Trailheads, interpretive trails, and parking area costs for the Tollgate, the Visitor Facility, Halfway Picnic Area, Glen Cove, and the Summit have been included in the previous discussions on these specific sites.

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## PART TWO: MASTER PLAN AND GUIDELINES

- Prohibit overnight camping in the alpine tundra environment.
- Integrate signage within each individual setting. Refer to Signage System section for guidelines.
- Address 1990 ADA requirements for accessibility to best extent possible for each trailhead and trail.

## INTERPRETIVE/VIEWING TURNOUTS

### Location

Interpretive/viewing turnout locations from the base to the summit are as follows: Crow Gulch, Four Mile Hill, Nine Mile, Old Ski Area, The W's, Seventeen Mile, and the Bighorn Sheep Overlook. Refer to the Corridor Master Plan figure for visual clarification of locations and to the Tollgate Area/Typical Turnout Site Development Concept Plan for a prototypical sketch.

### Purpose

The turnouts identified are at locations that allow the visitor to leave the main travel lanes of the highway to view areas of particular interest. These areas are to be developed with the intent that an audio program would accompany the visitors to explain their journey up the mountain. Each turnout has its own theme, relating to Pikes Peak and the audio program would convey this information.

### Proposed Action

Each turnout is to be developed and signed to allow only a right ingress and egress, to ensure the safety of all users of the highway. The areas selected are existing widened and/or disturbed areas near locations with significant interpretive value. Improvements are needed to define them as official turnouts. Each turnout should be regarded individually, yet the design standards can be adapted to each site to provide continuity throughout the mountain.

### Phasing of Improvements

Phase 1 improvements for turnouts include the delineation of the roadway width and the signing of turnout locations. Phase 3 implements the full scale interpretive/viewing turnout improvements. The estimated cost for signing in Phase 1 is \$46,000. Costs for delineating the roadway width to accommodate the turnouts are included in the overall roadway improvement costs. The estimated cost for Phase 3 improvements is \$1,795,100.

### Site Design Guidelines

- Reevaluate and investigate in detail, the technical feasibility and desirability of siting the turnouts in the locations identified.
- Use previously widened and disturbed areas to accommodate the development of the turnouts.
- Minimize additional disturbance to the environment that surrounds the turnout location. Special care should be taken in the alpine tundra areas.
- Use native natural materials to construct the built site improvements. These include the small retaining wall, the inlaid native stone median and viewing lane delineation.
- Delineate the turnout locations clearly with architectural elements and signage to ensure the safety of the users.

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## PART TWO: MASTER PLAN AND GUIDELINES

- Accommodate shuttle buses in the design of the turnout lanes, and ingress and egress site distances.
- Direct traffic through the turnout in the intended direction of travel. Crow Gulch - uphill, Four Mile - uphill, Nine Mile - downhill, Old Ski Area - downhill, The W's - downhill, Seventeen Mile - downhill, and the Bighorn Sheep Overlook - uphill.
- Turnout locations and their thematic associations are as follows: Crow Gulch - the environment and geology; Four Mile Hill - geography, lower montane, and riparian life zone; Nine Mile - geography and montane life zone; the Old Ski Area - geography and upper montane life zone; the W's - geology and sub-alpine life zone; Seventeen Mile - geology, sub-alpine life zone; and the Bighorn Sheep Overlook - geography, alpine life zone, and Big Horn Sheep.
- Incorporate proper signage as necessary to orient and to ensure the safety of the highway user. Refer to Signage System section for guidelines.

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Part One: Executive Summary

Part Two: Master Plan and Guidelines

**PART THREE: IMPLEMENTATION PLAN**

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**INTRODUCTION**

The purpose of the Implementation Plan is to confirm the financial feasibility of providing the capital improvements identified in the master plan. In developing the Implementation Plan, various entities have been identified as potential funding sources. This plan does not obligate funds from these entities, but rather, it suggests a workable program of possible funding sources and responsibilities to implement the master plan.

The phasing program, financial aspects and potential funding mechanisms for the various components of the Pikes Peak Highway Recreation Corridor Master Plan are presented in the implementation program. To identify the amount and timing of "mountain-generated" revenue that can be dedicated to the master plan implementation, the financial operating characteristics and projections are presented first. Since the "mountain-generated" revenues cannot fund the entire program, other logical sources of funding support including the U.S. Forest Service (USFS), the City of Colorado Springs (other than the Highway Enterprise Fund), and private corporations or foundations are identified and matched with various project components.

**PIKES PEAK HIGHWAY FINANCIAL OPERATING CHARACTERISTICS**

VISITATION AND REVENUES

The visitation and budget characteristics of the Pikes Peak Highway for various years and projections for Year 5 and Year 10 of the master plan are summarized in Table 3.1. Actual data is shown for 1990 and 1991 and budgeted data is shown for 1993. The 1992 data is not shown since it would be a mixture of actual to date and remaining budget data. It should be noted that it appears that the 1993 budget revenue figures may be conservatively stated since visitation is above the 1991 level and some income is accruing from the newly instituted North Slope access fee. Nevertheless, in this analysis, the official 1993 budget figures were used. To the extent that these budgeted revenues are exceeded, it could add to fund balances which in turn could be used to offset unanticipated costs, provide flexibility in year-to-year spending within phases, or accelerate equipment replacement or other capital needs. Comments on some specific elements of Table 3.1 are warranted.

**VISITATION**

Auto visitors are projected to increase at an accelerated rate to a maximum of 340,000 in Year 10. This would regain the peak visitation of the 1970s and appears to be a reasonable goal. It is a level that has proven to be physically accommodated on the mountain and handled within the general staffing and expense structure of the Highway. To achieve this level will require a 3.0 percent annual growth rate over the 1991 actual visitation. In comparison, growth between 1983 and 1991, has averaged a 3.3 percent compounded growth rate.

Although little growth in visitation is expected from other sources, the Cog Railroad, Hill Climb, and others have been included in the analysis as they are important to the revenue forecasts. North Slope visitation is the number of fishermen projected by the Division of Wildlife and may be conservative in not considering other recreational use. Hikers are estimated based on summit visitor surveys and include participants in the marathon.

**REVENUE**

Revenues for 1990, 1991, and 1993 are actual or budget figures, and the corresponding revenue per visitor in various categories has been calculated. The projections are baseline forecasts and do not include any enhancements to the current fee schedule--this will be discussed separately later.

- Auto Revenue per visitor is projected to decline from the 1993 budget to be more like past experience. At a maximum rate of \$5.00 per person, a projection of \$4.50 reflects a greater mix of children and tour bus patrons than assumed in the 1993 budget.
- North Slope Visitor Revenue reflects the current fee of \$1.25 per visitor, although no income from this source is budgeted for 1993.

PART THREE: IMPLEMENTATION PLAN

Table 3.1  
VISITOR AND FINANCIAL CHARACTERISTICS  
PIKES PEAK HIGHWAY

	<u>Actual</u> <u>1990</u>	<u>Actual</u> <u>1991</u>	<u>Budget</u> <u>1993</u>	<u>Projected</u> <u>Year 5</u>	<u>Projected</u> <u>Year 10</u>
<b>Visitors</b>					
Auto	211,823	253,043	243,200	280,000	340,000
Cog Railroad	186,000	186,000	190,000	200,000	200,000
Hill Climb	11,000	11,000	11,000	11,000	11,000
North Slope	0	0	0	23,000	23,000
Hikers	25,000	25,000	25,000	25,000	25,000
<b>Total</b>	<b>433,823</b>	<b>475,043</b>	<b>469,200</b>	<b>539,000</b>	<b>599,000</b>
<b>Revenue per Visitor</b>					
Auto	\$4.41	\$4.48	\$4.91	\$4.50	\$4.50
Cog Railroad	\$0	\$0	\$0	1/	1/
Hill Climb	\$0	\$0	\$0	1/	1/
North Slope	\$0	\$0	\$0	\$1.25	\$1.25
Hikers	\$0	\$0	\$0	1/	1/
Concessions	\$0.50	\$0.55	\$0.64	\$0.70	\$0.70
<b>Total Revenue</b>					
Auto	\$ 933,327	\$1,133,374	\$1,193,400	\$1,260,000	\$1,530,000
Cog Railroad	0	0	0	0	0
Hill Climb	0	0	0	0	0
North Slope	0	0	0	28,750	28,750
Hikers	0	0	0	0	0
Concessions	217,490	259,141	300,000	377,300	419,300
<b>Subtotal</b>	<b>\$1,150,817</b>	<b>\$1,392,515</b>	<b>\$1,493,400</b>	<b>\$1,666,050</b>	<b>\$1,978,050</b>
<b>Other Revenue</b>					
Interest	77,141	65,995	66,000	75,000	75,000
Miscellaneous	100,842	(119,710)	60,000	60,000	60,000
<b>Total</b>	<b>\$1,328,800</b>	<b>\$1,338,800</b>	<b>\$1,619,400</b>	<b>\$1,801,050</b>	<b>\$2,113,050</b>

1/ No revenue in baseline; could add additional fees of about \$250,000 in total as proposed in section on Enhanced Revenues.

Source: City of Colorado Springs and Hammer, Siler, George Associates

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## PART THREE: IMPLEMENTATION PLAN

- Concessions Revenue per visitor is projected to increase from \$0.50 per visitor (all visitors) to \$0.70 based on the new agreement with ARA, the concessionaire.
- No per-visitor projection revenues are shown in the baseline for Cog Railroad passengers, Hill Climb participants and spectators, or hikers although these could be a source of additional revenues.

### OTHER REVENUE SOURCES

Other revenue includes interest on the enterprise fund reserves and \$30,000 from the City's Lodgers and Auto Rental Tax. The latter is to partially account for the loss of revenue and the cost of hosting the Hill Climb. In the past, the bed tax had contributed up to \$400,000 per year to the highway operation but that subsidy was withdrawn when the highway began operating on a break-even basis a few years ago.

### ENHANCED REVENUES

Although not reflected in Table 3.1, there is a logic and opportunity to enhance revenues through a special facilities improvement fee or other negotiation of support from users of the mountain. Specifically:

- The Cog Railroad passengers do not pay an access fee for the mountain, as a result of a 1963 agreement between the U.S. Forest Service (USFS) and the owners of the railroad. At that time, the railroad gave up ownership of five acres of land at the summit to allow reconstruction of the old Summit House which was destroyed in a fire. We recommend that the city negotiate with the Cog Railroad for an access fee of at least \$1.00 (as has been suggested in the past). There are unresolved legal issues concerning whether such a fee can be assessed or must be voluntarily negotiated, but the recommendation is founded on the premise of financial equity in sharing the cost for access to the mountain--particularly if the funds are used to pay for new and improved facilities at the summit, the only portion of the mountain usually accessed by the railroad passengers.
- The Pikes Peak Hill Climb is a major contributor to the Colorado Springs area economy, both in terms of its generation of visitors and economic activity and its national and international exposure for the community. Nevertheless, it makes no direct financial contribution to the enterprise fund itself beyond the \$30,000 in lodger's tax revenue that is indirectly attributed to Hill Climb activities. We recommend that this event's fees be structured in a way that, in effect, amounts to the usual \$5.00 fee for each of the Hill Climb's spectators and participants, or

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## PART THREE: IMPLEMENTATION PLAN

approximately \$55,000. This could be done in any or a combination of several ways.

- The spectators and participants could be charged the normal fee.
- The Hill Climb Association could be charged an equivalent rent for the venue (as most other public facilities would charge a promoter).
- In recognition of the contribution of the Hill Climb to the area's tourism, the Highway's allocation from the bed tax could be increased.

By charging an effective fee of \$1.00 to Cog Railroad passengers (who do not use the road) and \$5.00 to Hill Climb visitors (who do use the road) and some fee to other organized users of the mountain (such as the Marathon) which in turn charge a fee, the revenues shown in Table 3.1 could be increased by approximately \$250,000 per year.

### EXPENSES AND NET REVENUES

#### EXPENSES

Expenses of operating the mountain are shown in Table 3.2. Based on 1990 and 1991 actual expenses and 1993 budget figures, Year 5 and Year 10 expenses have been projected in four categories.

- Personnel. Personnel expenses have been projected at the 1990 levels to be conservative rather than the lower figures of 1991 and 1993. The highway staff believes that the increased visitation can be accommodated with the existing staffing with current maintenance practices. In actuality, the roadway maintenance staffing could be reduced, but these savings are reflected in a separate line item, as noted below.
- Operating Costs. This includes supplies and contract services associated with operating the highway. The budget for 1993 is higher than recent years' figures because it includes some funding for master plan studies. Some of the operating costs are variable with visitation levels, but much is associated with administration and would be relatively fixed. The projections assume a rate of growth in the 1991 actual costs equal to one-half the rate of growth in visitation.
- Capital Expenditures. Capital expenditures include major maintenance, facility improvements, and equipment purchases. This item varies from year to year depending on actual revenue availability and the need to replace or repair items. In the future, much of the improvements called for in the master plan would fall into this category. Therefore, this baseline projection has been reduced to \$150,000 per year for routine equipment and maintenance so that the costs of major facility

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## PART THREE: IMPLEMENTATION PLAN

improvements or construction would be covered in the subsequent analysis of the master plan's funding needs.

- Maintenance Savings. The master plan calls for improvement of the gravel roadway and eventual paving, both of which will reduce the maintenance costs. In actual practice, this savings would be reflected in reduced expenditures in the above three categories, but it is shown separately here for clarity. Based on the engineering analysis, the savings would be \$125,000 per year over the present costs for the gravel roadway improvements and a total of \$375,000 per year once the roadway is fully paved.

### NET INCOME

Based on the revenue and expense projections described above, the net revenues generated in Year 5 will be \$642,300 and by Year 10 will have grown to \$1,155,000. This increase is due to an increasing visitor count with an essentially fixed expense base (excluding, of course, implementation of the master plan itself). As noted in Table 3.2, revenue enhancements could add about \$250,000 yearly to each of the projected figures.

### REVENUE AVAILABLE FOR MASTER PLAN IMPLEMENTATION

Because the Pikes Peak Highway operates as an enterprise fund within the City of Colorado Springs, all net revenues generated must be reinvested on the mountain and cannot be used to support the City's general fund or other enterprise funds. Therefore, all of the net revenue generated as projected above would be available to implement the master plan. In order to match funding availability with the recommendations of the master plan, the amount of revenue available in each phase has been calculated by interpolating the visitor growth within each five-year period and making certain assumptions about when the maintenance savings would begin based on the phasing plan for various improvements. The results of this calculation are shown in Table 3.3.

Phase 1 of the master plan does not necessarily start with 1993 as Year 0; however, it is assumed in the calculation that there would be essentially no net income (as reflected in the 1993 budget) until Year 1, so the five-year interpolation period is still valid. Also, annual revenues equivalent to Year 10 would continue beyond Phase 3; however, these funds have not been considered available for master plan implementation, except for those elements which may be funded through bonds with a repayment schedule extending beyond Year 10 (specifically, as discussed later, the highway paving and a portion of the Summit House reconstruction). Thus, after Year 10, a significant annual surplus should accrue to make further improvements and enhancements or permit a reevaluation of the fee structure.

PART THREE: IMPLEMENTATION PLAN

**Table 3.2  
EXPENSES AND NET INCOME  
PIKES PEAK HIGHWAY**

	<u>Actual 1990</u>	<u>Actual 1991</u>	<u>Budget 1993</u>	<u>Projected Year 5</u>	<u>Projected Year 10</u>
<b><u>Revenue</u></b>	\$1,328,800	\$1,338,800	\$1,619,400	\$1,801,050	\$2,113,050
<b><u>Expenses</u></b>					
Personnel	\$ 650,140	\$ 622,622	\$ 623,276	\$ 650,000	\$650,000
Operating	491,257	459,906	713,302	483,783	533,103
Capital	106,850	213,259	279,600	150,000	150,000
Maint. Savings	0	0	0	(125,000)	(375,000)
<b>Total</b>	<u>\$1,248,247</u>	<u>\$1,295,787</u>	<u>\$1,616,178</u>	<u>\$1,158,783</u>	<u>\$958,103</u>
<b><u>Net Income</u></b>	\$80,553	\$43,013	\$3,222	\$642,267	\$1,154,947

Note: Revenue enhancements would add about \$250,000 per year to the projected figures.

Source: City of Colorado Springs and Hammer, Siler, George Associates

**Table 3.3  
REVENUES AVAILABLE FOR  
MASTER PLAN IMPLEMENTATION  
PIKES PEAK HIGHWAY**

Phase 1 (3 Years)	\$1,002,000
Phase 2 (3 Years)	1,976,000
Phase 3 (4 Years)	4,454,000
<b>Total</b>	<u>\$7,432,000</u>

Source: Hammer, Siler, George Associates

**FUNDING OF MASTER PLAN COMPONENTS**

The revenues generated by on-mountain activities for the enterprise fund will be significant, but they alone are not enough to cover the total cost of all of the facilities called for in the master plan, nor should they be expected to since there are other beneficiaries of the master plan improvements. The USFS, the City of Colorado Springs (other than the Highway Enterprise Fund), ARA and private corporations and foundations, all can and should play significant roles in the implementation. A role on each plan element is suggested in Table 3.4.

There may be a number of additional sources such as the City of Colorado Springs Department of Transportation, Division of Wildlife, and Intermodal Surface Transportation Efficiency Act (ISTEA) funds that may support a portion of individual components. These and any other sources should be used to the greatest extent possible.

As stated in the section on Revenue Available for Master Plan Implementation, \$7,432,000 in on-mountain revenues may be generated during the ten year master plan period. Additional on-mountain revenue could be available from enhanced revenues and bonding a portion of the revenue stream beyond the ten-year period. After applying these revenues to the \$23,237,800 overall cost of the master plan, approximately \$11 million would need to come from other sources.

**Table 3.4  
POTENTIAL FUNDING SOURCES BY ELEMENT  
PIKES PEAK HIGHWAY**

<u>Project Element</u>	<u>Highway</u>	<u>USFS</u>	<u>ARA</u>	<u>Other City<sup>1</sup></u>	<u>Foundation/ Corporate</u>
Erosion Control	●	●		●	
Transportation	●				
Summit House	●		●		○
Glen Cove	●	○	●		○
Tollgate	●				○
Visitor Facility	○	●			○
Other Projects <sup>2</sup>	●	●		●	

- Primary Responsibility
- ◐ Shared Responsibility
- Other Possible Sources

1. Other City refers to City of Colorado Springs sources other than the Highway Enterprise Fund.
2. Other Projects include the improvements at Elk Park, Halfway Picnic Area, Crow Gulch, Old Ski Area, Devil's Playground and signage.

Source: Hammer, Siler, George Associates

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PART THREE: IMPLEMENTATION PLAN

**PHASING OF MASTER PLAN IMPLEMENTATION**

Based on an analysis of allocating the available revenues from the Highway Enterprise Fund and involving other entities in funding the program of improvements, a logical phasing plan was developed. This plan presented in Table 3.5 identifies the master plan elements and their associated costs by phase.

Table 3.5  
**PHASING AND COST OF PLAN ELEMENTS  
PIKES PEAK HIGHWAY**

<u>Plan Element</u>	<u>Cost</u>	<u>Phase 1</u>	<u>Phase 2</u>	<u>Phase 3</u>
Transportation	\$4,141,100	\$276,000	\$0	\$3,865,100
Summit House	\$5,227,900	\$4,403,600	\$824,300	\$0
Glen Cove	\$899,300	\$0	\$0	\$899,300
Tollgate	\$775,800	\$0	\$775,800	\$0
Visitor Facility	\$3,110,700	\$57,500	\$3,053,200	\$0
Other Projects	\$607,500	\$156,700	\$177,100	\$273,700
Erosion Control	\$8,475,500	\$3,415,500	\$2,563,800	\$2,496,200
Grand Total	\$23,237,800	\$8,309,300	\$7,394,200	\$7,534,300

Source: Project Team; Compiled by: Hammer, Siler, George Associates

