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**Continental Divide National Scenic Trail
Trailhead Design Guidelines**



Continental Divide National Scenic Trail

Trailhead Design Guidelines

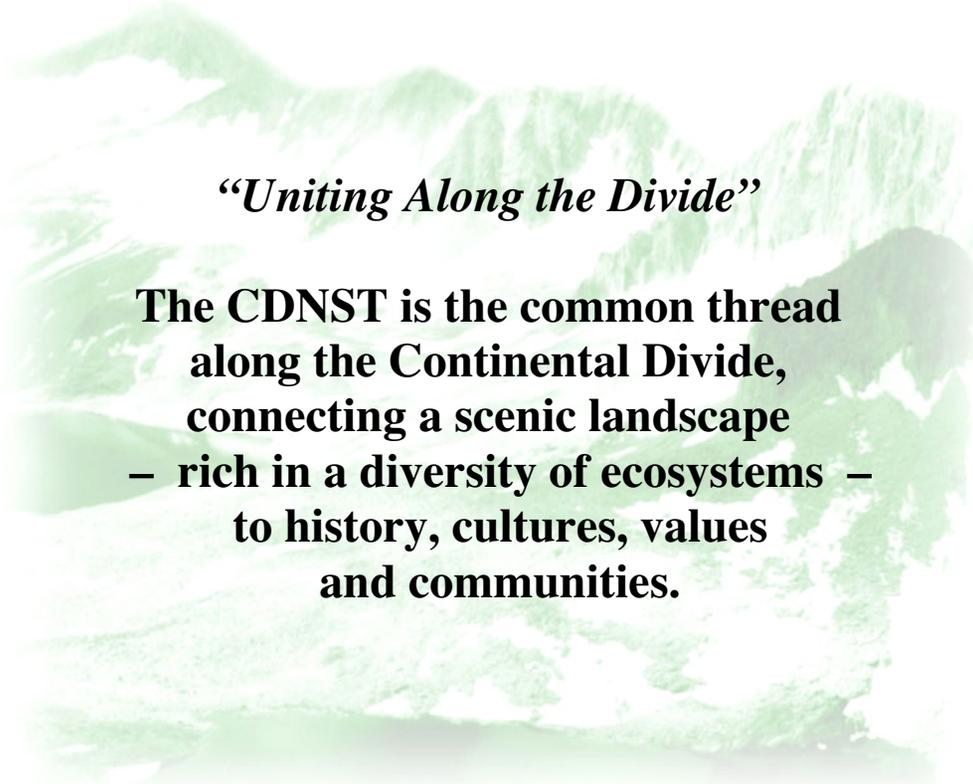
Prepared for:
United States
Department
Of Agriculture

Forest Service



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“Uniting Along the Divide”

**The CDNST is the common thread
along the Continental Divide,
connecting a scenic landscape
– rich in a diversity of ecosystems –
to history, cultures, values
and communities.**



Table of Contents

<i>Interpretive Theme</i>	i			
<i>Acknowledgements</i>	v			
Chapter 1: Introduction	1			
1.1 Why a Design Guide	4	3.2 Completing The Site Analysis	24	4.3 Grading
Audience	4	3.3 Minimizing Site Disturbance	26	4.4 Landscaping
1.2 A Positive Image	5	3.4 Sustainable Organization and Appearance	27	Plant Selection/Placement
1.3 Trailhead Levels/Locations	6	3.5 A Quality Visitor Experience	29	Visitor Considerations
		3.6 Considering the Facility/Use Program	32	Practical Considerations
		3.7 Rehabilitation/Restoration	36	4.5 Site Furnishings and Additions
		3.8 Planning and Design Components	38	4.6 Concessionaire Facilities
		3.9 Circulation Systems	39	4.7 Supplemental Facilities/Built Structures
Chapter 2: CDNST Image and the Design Process	9	3.10 Trailhead Portal Facilities	44	4.8 Signs
2.1 Evolution of Design	12	3.11 Grading	45	4.9 Summary
2.2 Past and Future	13	3.12 Landscaping	46	
2.3 Development Process Summary	14	3.13 Public Services	47	Chapter 5: Information Education and Interpretive Facilities
2.4 Recreation Opportunity Spectrum	16	3.14 Signs	49	5.1 Information, Orientation
		3.15 Existing Facilities	50	5.2 Interpretive Facilities
		3.16 Summary	50	
Chapter 3: Planning the Site	17			Chapter 6: Partnerships
3.1 The Influencing Factors	20	Chapter 4: Designing the Site	51	Chapter 7: Economics of Development
Overall Context	20	4.1 Circulation	54	Appendix
Ecosystems	21	Road Construction	54	Case Study: Monarch Pass
Cultural Resources	22	Roadway Systems	55	Bibliography
Today's Conditions	23	Parking Systems	56	
Man-Made Features	23	Pedestrian Circulation System	58	
		4.2 Trailhead Portal Facilities	59	



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Chapter 1
Introduction

"In wildness is the preservation of the world."

-Henry David Thoreau



1. Introduction

The Continental Divide National Scenic Trail (CDNST) offers a spectacular experience. This challenging and primitive trail follows over 3,000 miles of the Continental Divide, connecting five states and linking Mexico to Canada across America. The trail was established and designated by the National Parks and Recreation Act of 1978. Along the trail there are many trailheads where visitors leave their vehicles behind and experience some of the most beautiful environments in the world. These trailheads, managed by different agencies and entities, are vital access points for trail users and provide an excellent opportunity to introduce the trail to new visitors. Passers-by are initiated into the CDNST through the look, feel and information provided at each trailhead.



This document provides guidelines to help managers make decisions in a sustainable manner for major trailheads all along the CDNST. Overall principles given here relate to all trailhead sites. However, they also include more detailed guidelines specific to the highly varied settings along the Continental Divide.



1. Introduction

1.1 Why a Design Guide

Trailheads are important points along the Continental Divide National Scenic Trail (CDNST), because they set the stage for trail users and allow other people to experience the trail's setting. Casual visitors may even be encouraged to return and hike the CDNST. They also provide opportunities for partnerships to develop support for the trail's mission, and provide needed construction and maintenance dollars.



The visions for the trailheads are to:

- Provide positive first and last impressions for all trailhead visitors
- Establish the visitor experience; and
- Provide a sense of the quality and ideals of the managing agency.
- Provide consistency among CDNST trailheads

This document provides direction for the diverse agencies, entities and individuals involved in developing CDNST trailheads. It provides concepts for all trailheads, but focuses on the highly developed Level I trailheads because they require the greatest amount of planning and design.

Each trailhead will have unique qualities and issues that must be specifically resolved to fit that particular site. At the same time, each trailhead needs uniform design elements so visitors recognize that they are entering the CDNST and starting a very special experience. This guide provides the design framework to sensitively design each trailhead.

Concepts presented here are based upon those described in the U.S. Forest Service's *Built Environment Image Guide*. They have been refined, adapted and expanded to address the trailhead vision, issues and specific ecosystems of the CDNST.

The guide focuses on trailhead image, appearance and character. It provides consistent examples, measures and standards that allow everyone involved in a trailhead development project to grasp the importance of providing quality facilities.

Audience

This document is for anyone involved in planning and designing a trailhead along the CDNST. The document focuses on helping the creators, reviewers and especially the field staff and technicians who initiate and build projects and maintain or rehabilitate trailhead facilities.

1. Introduction

1.2 A Positive Image

Each trailhead needs to have a positive image. That means the trailhead will integrate built facilities with the landscape and the visitor will have a rewarding experience and be able to understand the qualities of that particular landscape. The site's ecological, scenic and cultural influences will be apparent in the design. These physical qualities will be remembered and enjoyed by trailhead visitors as a "sense of place."

Regenerative design – that which aligns human and natural systems to achieve a state of continual and healthy evolution – provides an effective way to think about the appropriate image for trailhead design. The goal is to combine landscape elements that will provide a stable ecosystem throughout time. The designer must manipulate landforms sensitively, select appropriate plants and materials, and site architectural elements to integrate them with the natural surroundings. In this, the designer's slogan should be "restore, reclaim, reuse, and recycle."

Results of this type of design will be an appearance that provides a sense of integrity between all the trailheads and the CDNST, and reinforcement of the CDNST's identity. This will support the Trail's cultural connections, because people value its rugged character, impressive scenery, wilderness associations and recreation value. Just as significant, it will visually convey the management entities' role as land stewards.

View from MacDonald Pass trailhead



1. Introduction

1.3 Trailhead Levels/Locations

There are three developed trailhead types:

Level I Trailhead

Trailhead and interpretive area located on a major mountain pass, where the CDNST intersects with significant highway crossings, or within a town's limits. The trailhead receives heavy traffic with multiple users that include national and regional travelers, usually within a rural setting.

Level II Trailhead

Trailhead off secondary highways or well traveled forest roads. The trailhead receives a moderate amount of traffic made up of regional and local travelers, yet remains in a roaded natural setting.

Level III Trailhead

Trailhead off well traveled forest roads or remote roads where 4-Wheel Drive vehicles may be necessary. The trailhead receives a minimal amount of traffic comprised of local users, and is located within a roaded natural setting.

North half of CDNST with Level I trailheads indicated by asterisks



1. Introduction



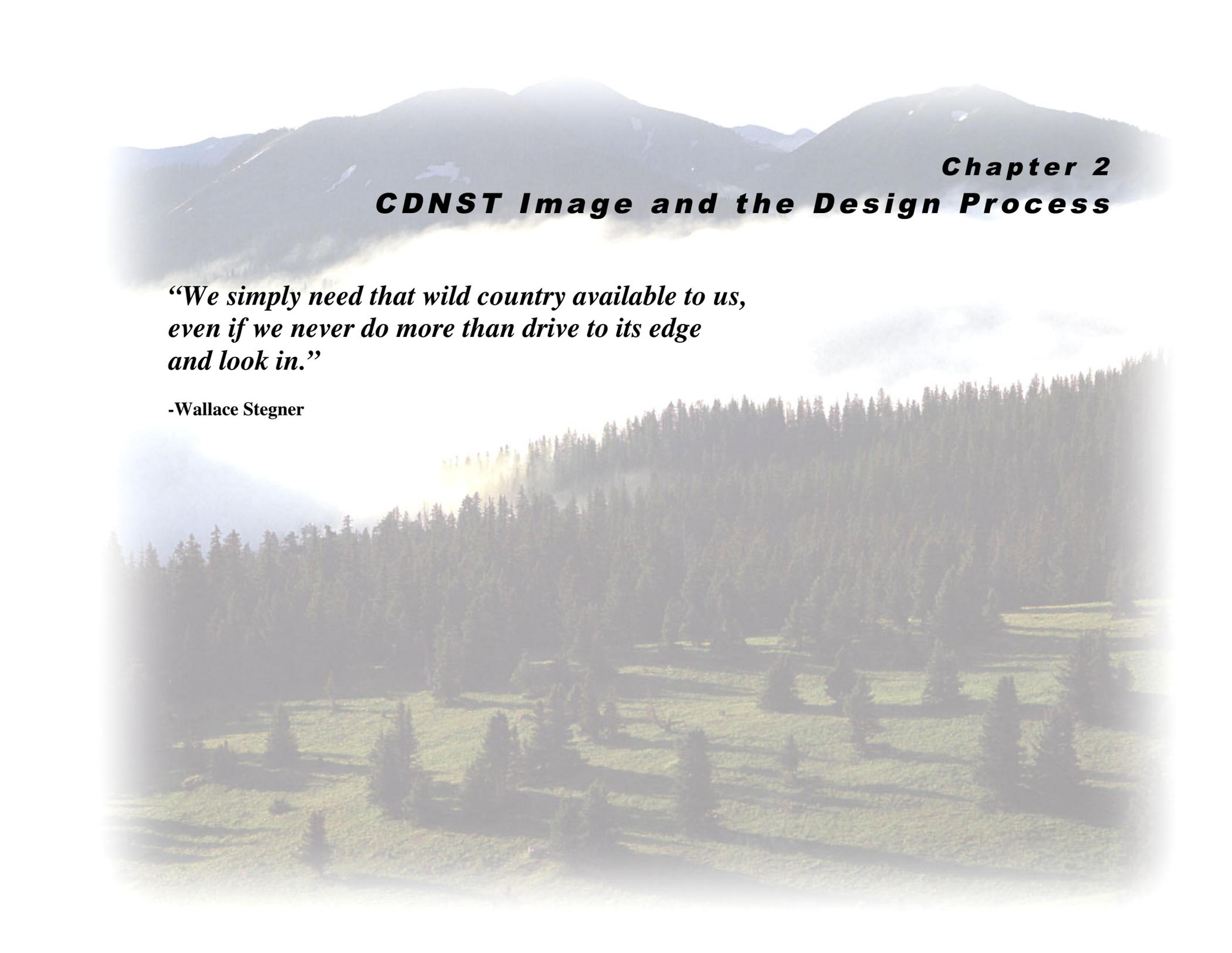
South half of CDNST with Level I trailheads indicated by asterisks

Existing or potential level I trailhead locations follow:

- Marias Pass (MT)
- MacDonald Pass (MT)
- Homestake Pass (MT)
- Chief Joseph/Lost Trail Pass (MT)
- Targhee Pass (ID)
- Togwotee Pass (WY)
- South Pass (WY)
- Rawlins (WY)
- Rabbit Ears Pass (CO)
- Muddy Pass (CO)
- Grand Lake (CO) *
- Berthoud Pass (CO)
- Herman Gulch (CO)
- Breckenridge (CO)
- Tennessee Pass (CO)
- Copper Mountain (CO)
- Monarch Pass (CO)
- Wolf Creek Pass (CO)
- Cumbres Pass (CO)
- Cuba (NM) *
- Grants (NM) *
- Pie Town (NM) *
- Silver City (NM) *
- I-10 (NM) *

**These trailheads may be located within or near town limits, and could include "Information Centers."*





Chapter 2
CDNST Image and the Design Process

*“We simply need that wild country available to us,
even if we never do more than drive to its edge
and look in.”*

-Wallace Stegner

2. CDNST Image and the Design Process

An established design process ensures that a common image is developed and maintained, and that quality standards are achieved. The Forest Service adheres to a rigorous facility development process, which has evolved and shaped the agency's image. This chapter discusses relevant aspects of that process.



2. CDNST Image and the Design Process

2.1 Evolution of Design

Most of the land along the CDNST is managed by the U.S. Forest Service, National Park Service or Bureau of Land Management. Each of these agencies has a tradition of low-impact design.

In the first half of this century, the U.S. Forest Service and the National Park Service adopted the rustic style, which had been developed from models such as Swiss chalets and 19th century Adirondack lodges. The rustic style heavily influenced the Civilian Conservation Corp (CCC), members of which are often considered early landscape designers in America. They had a tremendous impact on the cultural landscape in park settings. The CCC built beautifully hand crafted landscape facilities, implemented extensive native landscaping and created innovative irrigation systems.

They carefully sited roads to take advantage of quality views, sensitively built walls to screen parking lots and protect visitors at overlooks. Their constructions included context-sensitive walks, steps, light fixtures and special features such as amphitheatres, picnic shelters and benches.

The U.S. Forest Service's tradition of low-impact design was established by Arthur Carhart, the first Forest Service Landscape Architect (hired in 1919). Although employed by the Forest Service for only four years, he

developed recreation facilities in national forests in six states, from Superior Forest on Wisconsin's Lake Superior to the San Isabel in southern Colorado. Furthermore, his writings form the foundation of today's wilderness and recreation policies. He believed that the "rebuilding to the body and spirit was the greatest service obtained from our forests." Integral to this philosophy seemed to be his strategy of allowing the form and materials of a place dictate its design.

CCC-built picnic table uses local materials (courtesy Library of Congress, American Memory Collection)



2. CDNST Image and the Design Process

2.2 Past and Future

A period of modern design followed this initial era of developing rustic facilities that fit with their surroundings. Beginning in 1957, designers embraced simple forms, straight edges, and manufactured materials. Although this era produced many landmark structures, forest managers sensed that modern design, in general, was less evocative and sensitive to the forest settings. A slow shift began toward the principles of sustainable design.

Sustainable design has been attracting supporters over the past 30 years. Pioneered by landscape architects Ian McHarg and Phillip Lewis in the 1960s, it represents an ecological approach to planning and design. Sustainability emphasizes respect for the flows of wildlife, air, and water across the landscape. Formal guidance for using these principles in outdoor recreation settings has been provided by a 1993 National Park Service publication, *Guiding Principles of Sustainable Design*, and by the 2001 U.S. Forest Service *Built Environment Image Guide*.

Design for Scenery

The U.S. Forest Service has long paid attention to scenic qualities of its lands, first publishing *The Visual Management Guide* in 1974, updated to *Landscape Aesthetics: A Handbook for Scenery Management* in 1995. These publications have provided a system for determining the relative value and importance of scenery in establishing overall resource goals and objectives. The system is used in the context of ecosystem management, because ecosystems provide the environmental context for scenery.



2. CDNST Image and the Design Process

Design for Sustainability

Sustainable designers work with site resources, rather than imposing an artificial environment. The basic objective is to help visitors appreciate the natural and cultural uniqueness of a site by bringing them physically closer to it while staying within acceptable limits of change. Goals are to recognize cultural and natural contexts; treat resources as interdependent; promote local plant/animal species; develop in disturbed areas before undisturbed areas; and make a habit of restoration.

Design for Regeneration

John Tillman Lyle, who in the 1990's promoted the idea of regenerative design, has provided enhancement of sustainable principles. His philosophy entails working with natural processes and human influences, viewing the two together as an ecological system with inputs and outputs. Outputs – considered waste in traditional design – are used to replenish inputs and create a self-sustaining system.

Lyle's strategies include:

- Let nature do the work.
- Consider nature as model and context.
- Aggregate, not isolate functions.
- Seek optimum levels for multiple functions, instead of focusing on each function individually.
- Match technology to needs.
- Use information to replace power.
- Provide multiple means for site functions.
- Seek common solutions to unrelated problems.
- Manage storage and release (e.g. water, nutrients, heat) for long-term sustainability.
- Shape form to manifest process.

2.3 Development Process Summary

Typically, project development involves many steps, generally taken over several years as funds allow:

- Program planning
- Project planning
- Conceptual design
- Preliminary design
- Construction documents
- Construction
- Post-construction
- Successful funding roles/responsibilities

To ensure successful completion of a project, a development process involving the above steps should be tailored specifically to the project.

A typical process is summarized in the table on the next page.



2. CDNST Image and the Design Process

ITEM	← PHASES →					
	PROJECT ID/ PLANNING	CONCEPTUAL DESIGN	PRELIMINARY DESIGN	CONSTRUCTION DOCUMENT	CONSTRUCTION	POST- CONSTRUCTION
MAJOR TASKS	<ul style="list-style-type: none"> • Forest Plan Direction • Facility Master Plan Direction • Road Analysis (RAP) Direction • Interpretive Master Plan Direction • Forest Needs/ Priorities (INFRA documentation) • Project Concepts • Recreation Opportunity Spectrum (ROS) • Site Reconnaissance and Analysis • Establish Budget • Assign Interdisciplinary Design Team 	<ul style="list-style-type: none"> • Design Narrative or Prospectus • Design Guidelines • Interpretive Plan • Topographic Survey • Utility Survey • Base Map • Concept Site Plan • NEPA & Section 106 Compliance • Preliminary Cost Estimate • Identify roles & responsibilities, process, and decision-maker 	<ul style="list-style-type: none"> • Project Plan and Agreement • Preliminary Drawings and Site Development Plan • Engineering Report w/ Life Cycle Costs • Interpretive Exhibit Plan • Geotechnical Investigation • Well Drilling and/or Testing • Value Analysis • Preliminary Cost Estimate 	<ul style="list-style-type: none"> • AAP Listing • Preliminary Staking • Construction Drawings • Specifications • Government Provided Material • Value Engineering • Utility Negotiation • Permits/ Approvals • Final Cost Estimate • Bid Schedule & Type of Bid (IFB, RFP, 8(a), etc.) • Contracting (FS 6300-4) • Advertisement • Pre-bid Meeting 	<ul style="list-style-type: none"> • Contract Award • Pre-Construction Meeting • Contract Administration • Submittal Review • Inspection • Testing • Final Inspection • Punch List • As-Built Drawings • O & M Manual and Briefing/ Training • Exhibit Fabrication & Installation 	<ul style="list-style-type: none"> • Dedication, Celebration & Recognition • Operations & Maintenance • Monitoring • Post-Occupancy Evaluation • Enter data into INFRA
RESPONSIBILITY	Forest	Forest and/or Interdisciplinary Design Team	Forest and/or Interdisciplinary Design Team	Forest and/or Interdisciplinary Design Team	Forest (Support by Interdisciplinary Design Team)	Forest (Support by Interdisciplinary Design Team)
SCHEDULE	FY +4	FY +3 (Design: 10% complete)	FY +2 (Design: 30% complete)	FY +1 (Design: 100% complete)	FY 0 --> FY -1	On-Going



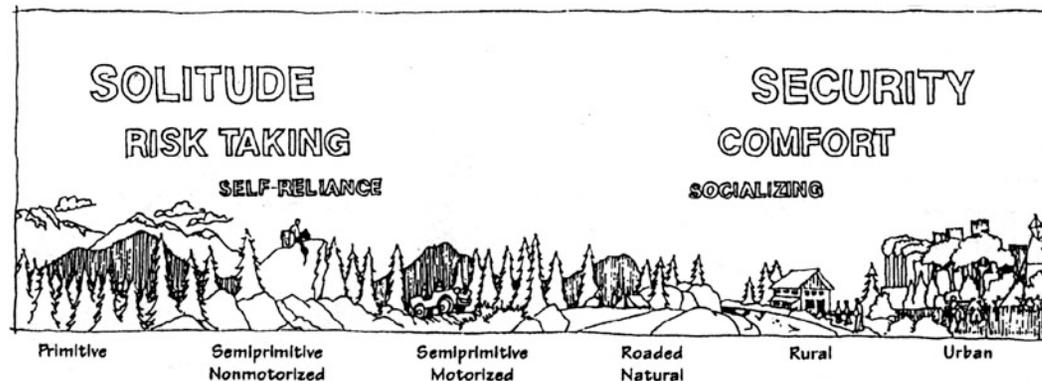
2. CDNST Image and the Design Process

2.4 Recreation Opportunity Spectrum (ROS)

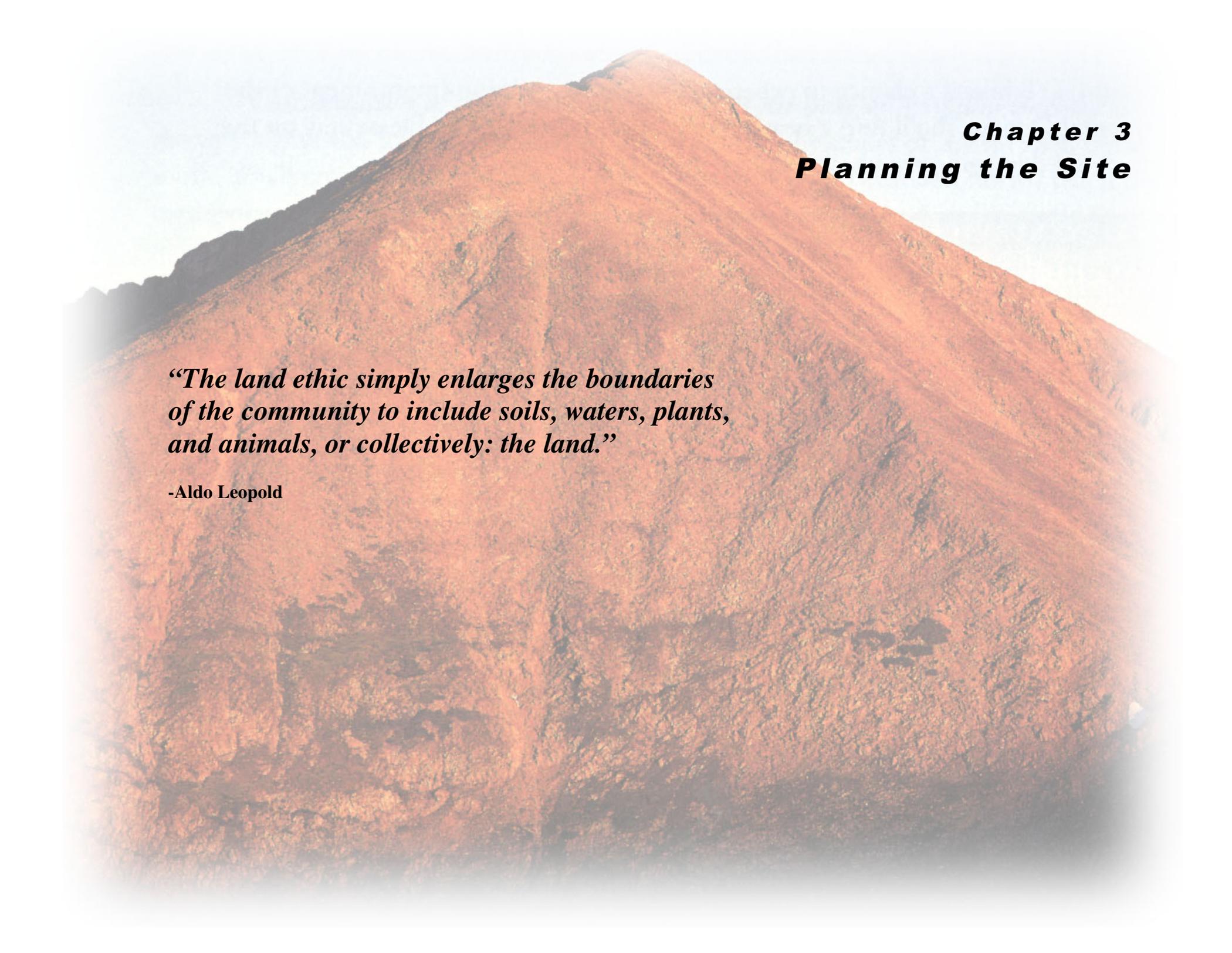
The Recreation Opportunity Spectrum is used by the U.S. Forest Service to help determine the scale, amount and type of development at different sites. ROS is based on the premise that people expect certain levels of development related to the character of the setting and the type of recreation they prefer. The trail itself is generally sited in primitive and semi-primitive non-motorized settings. However, the CDNST on occasion will traverse through more developed settings in order to provide for a continuous route from Canada to Mexico.

These settings generally have few constructed elements that are small in scale and made of natural materials. Many Level I trailheads act to transition people from rural or roaded natural environments to the CDNST's semi-primitive setting. These trailheads will have the highest number of users among the CDNST trailheads, and will require various site controls with durable facilities that are universally accessible. Level II and Level III trailheads will typically be located in roaded natural or semi-primitive areas, and serve a much smaller number of users with less elaborate facilities.

The challenge for a site designer will be to meet projected user needs using a minimum of constructed elements that blend in with or appear appropriate to the trail's setting.



ROS spans environments from primitive to urban

A large, reddish-brown mountain peak, likely Mount Fuji, dominates the background. The mountain's surface is textured with shadows and highlights, showing its steep, conical shape. The sky is a clear, pale blue. The overall scene is bright and clear.

Chapter 3
Planning the Site

“The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land.”

-Aldo Leopold

3. Planning The Site



This section provides guidelines to help successfully plan and locate each of the trailhead's facilities. Safety, attractiveness and the logical arrangement of uses are important factors to consider when creating a site plan. The plan should anticipate visitor needs from arrival through the time they leave the trailhead.

A thorough site analysis is vital to ensure the designer has the information needed to develop a sensitive site plan that respects natural and cultural resources, responds to needs of each partner and landowner and provides a quality visitor experience.

3. Planning The Site

3.1 The Influencing Factors

For each trailhead, the following factors should be evaluated in the site analysis.

- Natural resources
- Cultural resources
- Access, circulation and parking issues
- Land use, ownership and leases
- Utilities
- Interpretation and education
- Surrounding land uses
- Climate/severe weather conditions
- Accessibility

This section summarizes how each of these factors may influence the development of trailheads.

Overall Context

The Continental Divide Trail has great variety within its ecological context. The trail falls within two broad ecological/ cultural provinces, the *Southwest* and the *Rocky Mountain*. These two provinces, although different in certain respects, are mainly characterized by:

- Sparse rainfall
- Low humidity
- Abundant and intense sunlight
- Numerous rock outcrops
- Long dramatic views
- Wide open landscapes
- Limited protection from wind and sun



Cacti, yucca, and other low water-use vegetation characterize the Southwest province



The Rocky Mountain province has a range of conditions, but is typified by more abundant vegetation than the Southwest

3. Planning The Site

Ecosystems

Trailheads occur in several different ecosystems, but they tend to be at higher elevations where the weather is variable, the growing season short and the landscape is highly sensitive and recovers slowly when disturbed. A trailhead's design should be aware of the site's distinctive environmental characteristics that need to be integrated its design.

Within its two provinces, the Southwest (SW) and Rocky Mountain (RM), the trail passes through five ecosystems as described in the CDNST Comprehensive Management Plan:

- *Lower Sonoran (SW)*: This ecosystem occurs at the southern end of the trail where elevations are lower and water is particularly scarce. The landscape exhibits a desert environment predominated by grama grass interspersed with plants such as cacti and yucca. Sandstone rock outcrops dominate much of the landscape.

- *Upper Sonoran (SW)*: Occurs at elevations range from about 4,000 to 7,500 feet and the landscape is characterized by grasses as well as pinon pines, junipers, sages and large rock outcrops.
- *Transition (RM)*: This ecosystem includes the lower mountains and is dominated by an open canopy of ponderosa pines interspersed by shrubs and exposed rock formations.



Upper Sonoran ecosystem is forested in character, as are also the Transition and Boreal ecosystems

- *Boreal (RM)*: As one climbs higher in elevation, temperatures cool and precipitation increases. Douglas fir, lodgepole, bristlecone and limber pine as well as spruce and aspen dominate the forest, and are set among large rock outcrops.
- *Arctic Alpine (RM)*: Occurs above timberline, high in the mountains. The climate is harsh, winds strong and temperatures can be very cold. Precipitation is high, with about 40 inches a year, which sustains diverse and beautiful wildflowers.



Arctic Alpine ecosystem vegetation includes many types of wildflowers

3. Planning The Site

Cultural Resources

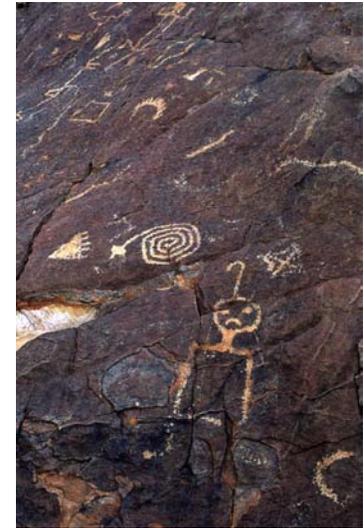
The cultural environment along the CDNST is often a clear expression of the unique cultures that settled in the area and their response to the landscape. The surrounding culture and the materials at hand often influenced landscape design in these areas.

Cultural influences around the CDNST are expressed through the cliff dwellings, pueblos, farms, ranches, mines and railroad sites. Early inhabitants took advantage of their surroundings by using local materials for construction, landscaping and siting structures to capture winter sun, protecting against summer heat, directing cooling summer breezes to building interiors and capturing water for irrigation.

In the Rocky Mountain Province settlers took advantage of natural materials with boulders, stone and wood dominating the design of walls, steps, seats, shelters and walks. Once the railroads came to the Rockies,

cast-iron and prefabricated materials were mixed with the native materials. In the Southwestern Province the Native American design ethic is layered with the influences from the Spanish– Mexican cultures. Landscape features are built of adobe (straw and clay), stone and tile with minimal use of wood.

All of these landscape expressions are specifically derived from the climate, geography, vegetation and scarcity of water.



Dish Array along CDNST in New Mexico



Homestead along CDNST

3. Planning The Site

Today's Conditions

Today, some trailheads are sensitively sited and relate well to the environment and local cultural influences. At other sites, the landscape has been compromised with extensive cuts, eroding slopes, large expanses of barren parking lots, and poorly integrated facilities. Radio towers, prefabricated buildings and a scarred landscape sometimes dominate the scene.

We have the ethic to improve upon these areas and to create a sustainable environment that shows a sensitive response to the natural, scenic and cultural environment and to the visitor.

Man-Made Features

As part of the analysis one should understand all the man-made influences that currently make a site functional or dysfunctional. These influences will contribute to the appearance and materials of trailheads. Designers and managers need to consider:

- Sensitivity to natural, scenic and cultural resources
- Safety
- Compatibility of uses (on and adjacent to the site)
- Adequacy
- Attractiveness and longevity
- Visitor experience
- Adjacent land uses, ownership and lease agreements
- Existing vehicle and pedestrian uses
- Type of roads available for trailhead access
- Other National Trail Systems



Certain trailheads currently do not reflect the CDNST's qualities



Large vehicles are common on highways that intersect the Level I Trailheads



3. Planning The Site

3.2 Completing the Site Analysis

Getting Started

- Consider the vision of the CDNST trailheads when evaluating the site.
- Keep sustainable ethics in mind.
- Define the province and ecosystem in which the trailhead is located.
- Create a site base map that illustrates the topography, other natural features and existing man-made features, and surrounding land uses and ownership.

Site Visit

- Visit the trailhead with individuals who understand the site's natural and cultural aspects.
- Visit the site during different seasons to understand use patterns and climatic conditions throughout the year.

Site Evaluation

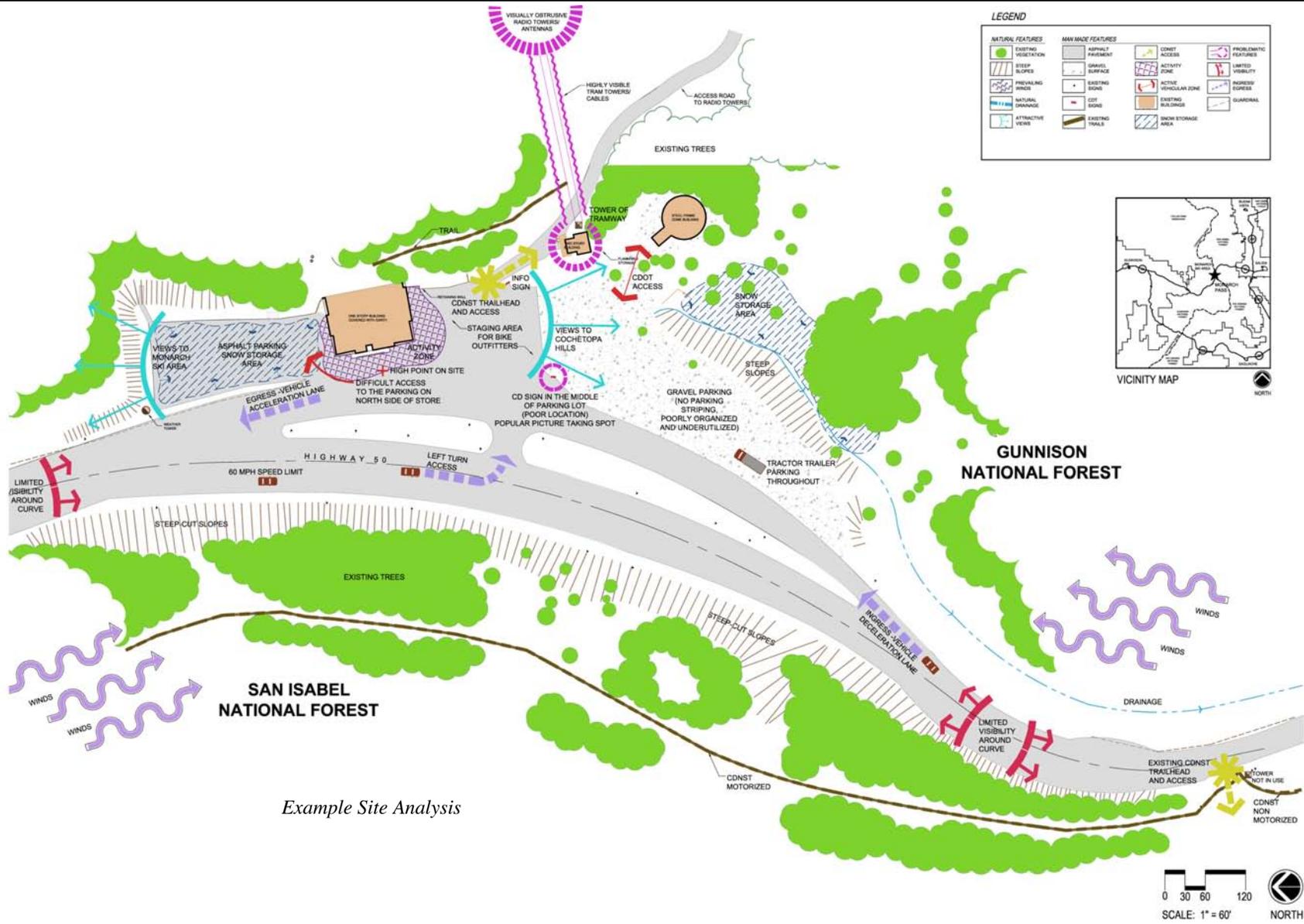
- Evaluate the site's natural, scenic and cultural resources.
- Understand site ownership and lease agreements.
- Evaluate access, circulation and parking uses and patterns. Contact managers of adjacent roads/access points to determine traffic volumes, safety, signage and circulation needs.
- Determine site utility and service facility locations, ownership, capacities, management and maintenance.
- Locate and evaluate all existing land uses for scale, adequacy and appropriateness.
- Determine compatibility of uses in relation to one another, to the site's ROS and to the CDNST.
- Examine CDNST connections to and through the site.
- Understand existing cultural influences and landscape character.

- At Level I and II trailheads, understand the quality of existing orientation and education/interpretation facilities.
- Anticipated use and traffic volumes.

Context

- Understand the surrounding context of the site. Determine trails, towns, ski areas, farms, ranches or other land uses and services that exist nearby.
- Define adjacent landowners' needs and desires, and adjust site requirements to fit both their needs and trailhead needs.
- Develop an analysis map that summarizes qualities to preserve/enhance and issues to address.
- Illustrate landownership.

3. Planning the Site



Example Site Analysis

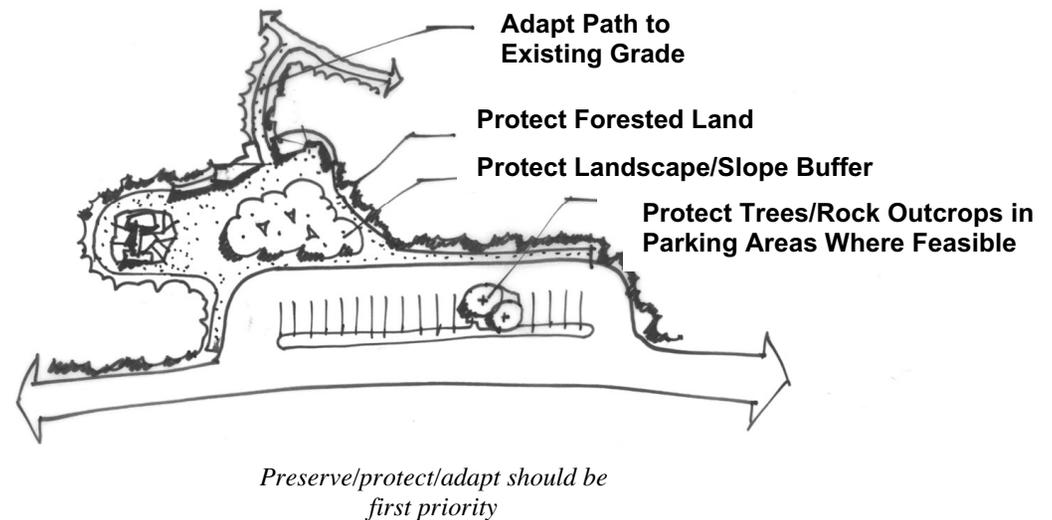


3. Planning the Site

3.3 Minimizing Site Disturbance

The natural character of the site should be retained to the greatest extent possible when developing the site plan. Sites that are disturbed should be restored and carefully integrated into the surrounding natural environment. One must consider all the natural resource elements (e.g., slopes, drainage, vegetation, water table/hydrology, geology, soils, wildlife) when determining the program and arranging uses on the site to minimize disturbance while providing needed facilities. Options for minimizing site disturbance include:

- *Reuse/Restore:* Use disturbed areas before constructing in undisturbed areas. Restore unsightly areas.
 - *Minimal Disturbance:* Avoid locating facilities in areas with steep slopes, high water tables, natural drainage corridors, significant tree stands, or key wildlife corridors/habitats.
 - *Adapt Grading:* Avoid creating steep grades, excessively cutting or filling slopes, creating sharp slope cuts, destroying vegetation, disturbing wildlife corridors and habitats, and concentrating waterflows.
- *Preserve/Protect:* Preserve natural features and resources where possible (e.g., drainages, vegetation, wetlands, slopes, rock outcrops).
 - *Retain/Enhance:* This strategy is generally applied to significant archeological and historic features.



3. Planning the Site

3.4 Sustainable Organization and Appearance

Thoughtful site planning will result in a trailhead that is enjoyable to use, attractive, educational and sustainable. The site plan should reflect the special setting, patterns, and conditions of each particular area. Individual elements should use building and landscape materials, and engineering methods that reflect the local area to create a high quality, lasting appearance. This will result in trailhead facilities that fit their environments, are truly beautiful and provide a positive “sense of place.”

Overall principles for site planning/design are:

- *Gentle*: Integrate and protect natural qualities of the site, gently place facilities away from sensitive resources, and use local features, materials and native landscaping.
- *Modest*: Keep the plan subservient to the landscape. The natural landscape should always dominate the scene.
- *Context*: Establish a landscape architectural style that fits into the ecosystem and cultural context at each particular trailhead.
- *Nature as Mentor*: Notice how seasonal rituals/change, sun, wind, temperature, slope, soils and moisture affect on-site processes and stability.
- *Permanence*: Use high quality, long-lasting local materials to give a sense of permanence and connect to geological processes of change.
- *People and Ecosystem*: Use visitor needs, patterns and habits to benefit the site rather than thinking about them as a detriment to long-term stability. At the same time, ensure impacts of visitor use on the local area are accounted for when thinking about individual site elements.
- *Sustainability*: Recognize and enhance ecological systems at the site, such as water flow, wildlife habitat corridors and cover.
- *Perceptions*: Use design elements that both fit and help shape visitors perception of the CDNST.
- *Maintenance*: Design site for low maintenance, but obtain maintenance commitment from agency managers.

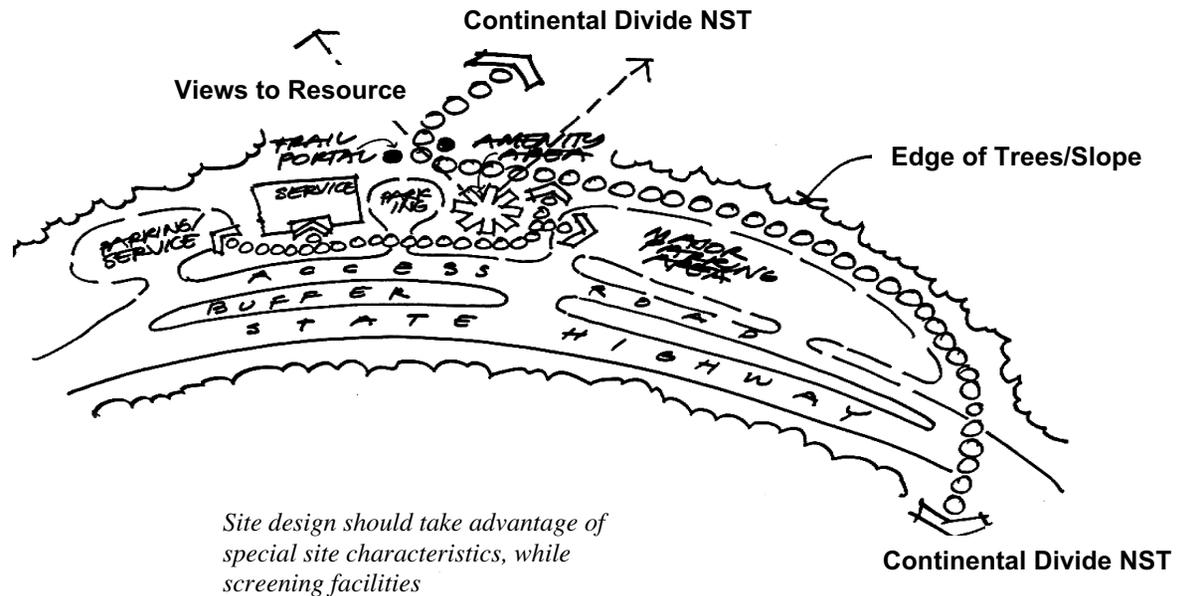


3. Planning the Site

Specific Site Plan Considerations:

- *Obscure:* Locate facilities at hillside edges, among trees and rocks or behind landforms rather than out in the open.
- *Upkeep:* Site facilities to minimize maintenance and management issues (e.g., fire, trash removable, restroom maintenance)
- *Protect:* Preserve natural corridors for site buffers, visual amenities and habitat.
- *Blend-in:* Provide natural-appearing grading and site-drainage.
- *Sustain:* Use drainage patterns to support vegetation and improve the site's aesthetics.
- *Water Processes:* Allow adequate space for water recharge/cleansing/infiltration.

- *Views:* Enhance and protect significant view corridors related to the site.
- *Wildlife:* Allow existing wildlife movement through site.



3. Planning the Site

3.5 A Quality Visitor Experience

Visitors to Level I trailheads will have different expectations and desires than those who visit more primitive trailheads. Some will be highway travelers who merely want to take a break before traveling on, while others will want to use the site as a starting or ending for their CDNST experience.

Visitors at larger trailheads may spend from five minutes to an hour at the site, while others will stay overnight or weeks at a time. All users will want to have comforts for basic needs; be protected from the elements and from adjacent roadways; and, understand the layout of the trailhead facility.

Often there are uses at larger sites that have nothing to do with the CDNST and take away from the visitor experience. These include concession facilities, maintenance areas and public utility access. These other uses will need to be accommodated, while also protecting the visitor's experience.

- *Visitor Needs:* Consider visitor movement patterns from before the user reaches the trailhead to the time that person leaves the site.
- *Visitor Use Sequence:* Create a logical arrangement of facilities. Carefully consider the order in which visitors should experience facilities.
- *Transition:* Arrange uses to help visitors transition from a roadway experience to a more primitive and natural experience.
- *Range of Use:* At Level I trailheads, encourage short trail use beyond trailhead site, usually up to 1/2 mile from the trailhead.



Trailheads should meet user needs while allowing the setting to dominate

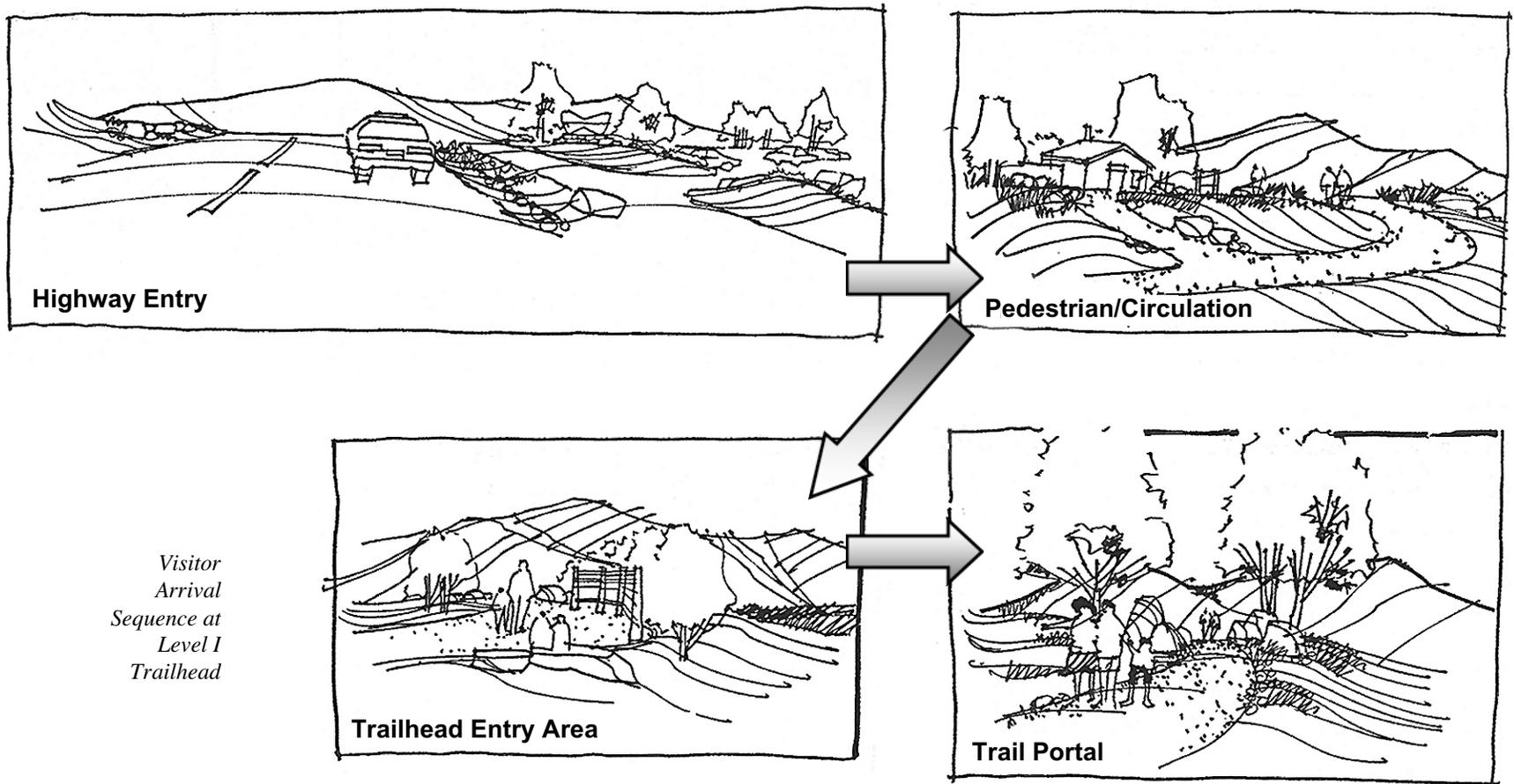


3. Planning the Site

- *Appropriateness*: When locating facilities, make sure visitors will feel comfortable while engaged in each experience (e.g., reading interpretive materials, waiting for a friend or crossing a road).
- *Compatibility*: Place compatible uses together and separate or screen incompatible uses. For example, information kiosks should be located at the trail entry while state highway storage facilities should be located out of a user's sight.
- *Attractiveness*: Screen unsightly facilities, such as maintenance areas.
- *Information*: Provide interpretive sign exhibits to orient and educate trailhead visitors about the CDNST and its environment.
- *Existing Facilities*: Reorganize existing haphazard site planned facilities so they work as part of the overall plan.
- *View from Trail*: Provide a positive impression of the trailhead for the CDNST user arriving from the trail. Help them gently move from a primitive environment to a more developed area.
- *Safety*: Ensure facilities are sited in safe areas in relation to dangerous elements such as traffic, rock fall zones and steep edges or cliffs.
- *Accessibility*: Provide for users with special needs by adhering to ADA Accessibility Guidelines for Buildings and Facilities (ADAAG) standards throughout the trailhead.
- *Arrival Sequence From Vehicle*: Especially at Level I trailheads, consider and plan the visitor sequence as the user arrives from the highway.
 - *Establish where directional signs are needed so the visitor can easily identify and reach the trailhead.*
 - *Establish safe access off the highway that leads smoothly into the parking lot. Ensure the access point provides attractive views and establishes a positive visitor experience at the entry and exit.*
 - *Place parking in a convenient area without distracting from the visual quality of the trail entry experience or other site uses. Sensitive screening is likely to be needed.*



3. Planning the Site



3. Planning the Site

3.6 Considering the Facility/Use Program

Before determining the appropriate arrangement of uses at a trailhead, uses needed and their scale/requirements must be determined. Given that every trailhead is different, it is important to recognize each site's unique aspects and limitations and understand that uses and activities at one site may not be appropriate at another site. Also, some trailheads are managed by multiple agencies, have special lease agreements or serve functions in addition to providing CDNST facilities.

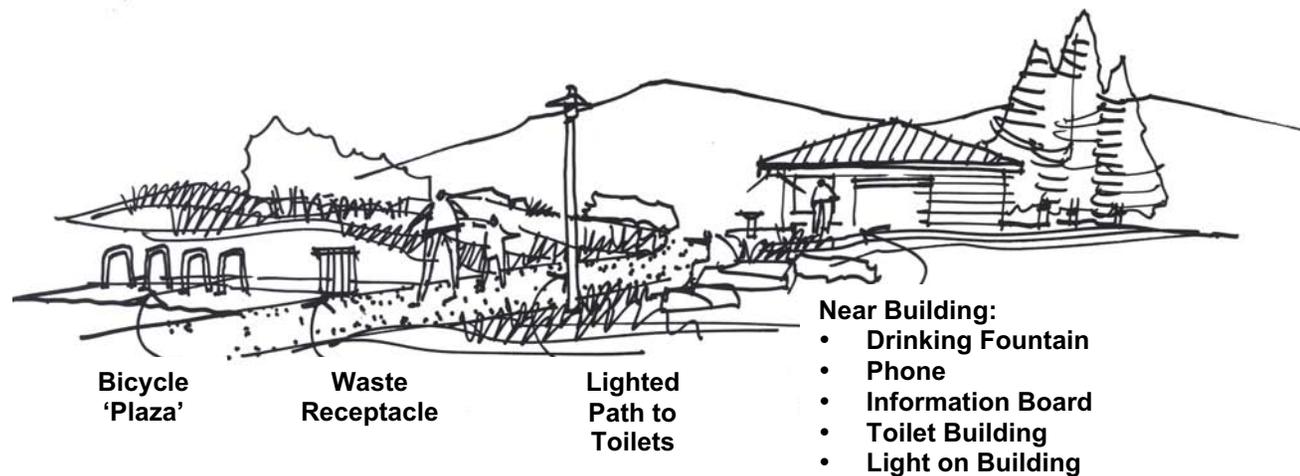
Following is a summary of facilities to include and considerations for developing a facility/use program.

Level I Trailheads:

- *Basics*: Include these elements in a basic program for Level I Trailheads in "Rural" ROS areas:
 - *CDNST portal node*
 - *CDNST link through the trailhead (continuous linkage)*
 - *Vehicle circulation*
 - *Parking (auto and equestrian/oversized vehicle)*
 - *Signs (roadside, directional, information kiosk, interpretive)*
 - *Continental Divide sign (sites at Continental Divide)*
 - *Natural seating areas*
 - *Pedestrian circulation to key facilities*
 - *CDNST highway crossing*
 - *Buffer space (space to screen unsightly facilities and integrate elements into the surroundings)*

3. Planning the Site

- *Supplementals*: Recognize that additional facilities might be needed at some of the larger Level I trailheads. Consider the following additions:
 - *Toilets (non flush or flush)*
 - *Trash collection*
 - *Secondary CDNST portals*
 - *Defined picnic areas with tables*
 - *Concessions (e.g., food, gifts)*
 - *Lighting*
 - *Phone or 911 access*
 - *Visitor center or contact station*
 - *Amphitheater*
 - *Truck and bus parking*
 - *Equestrian accommodations*
 - *Drinking water*
 - *Scenic overlook*



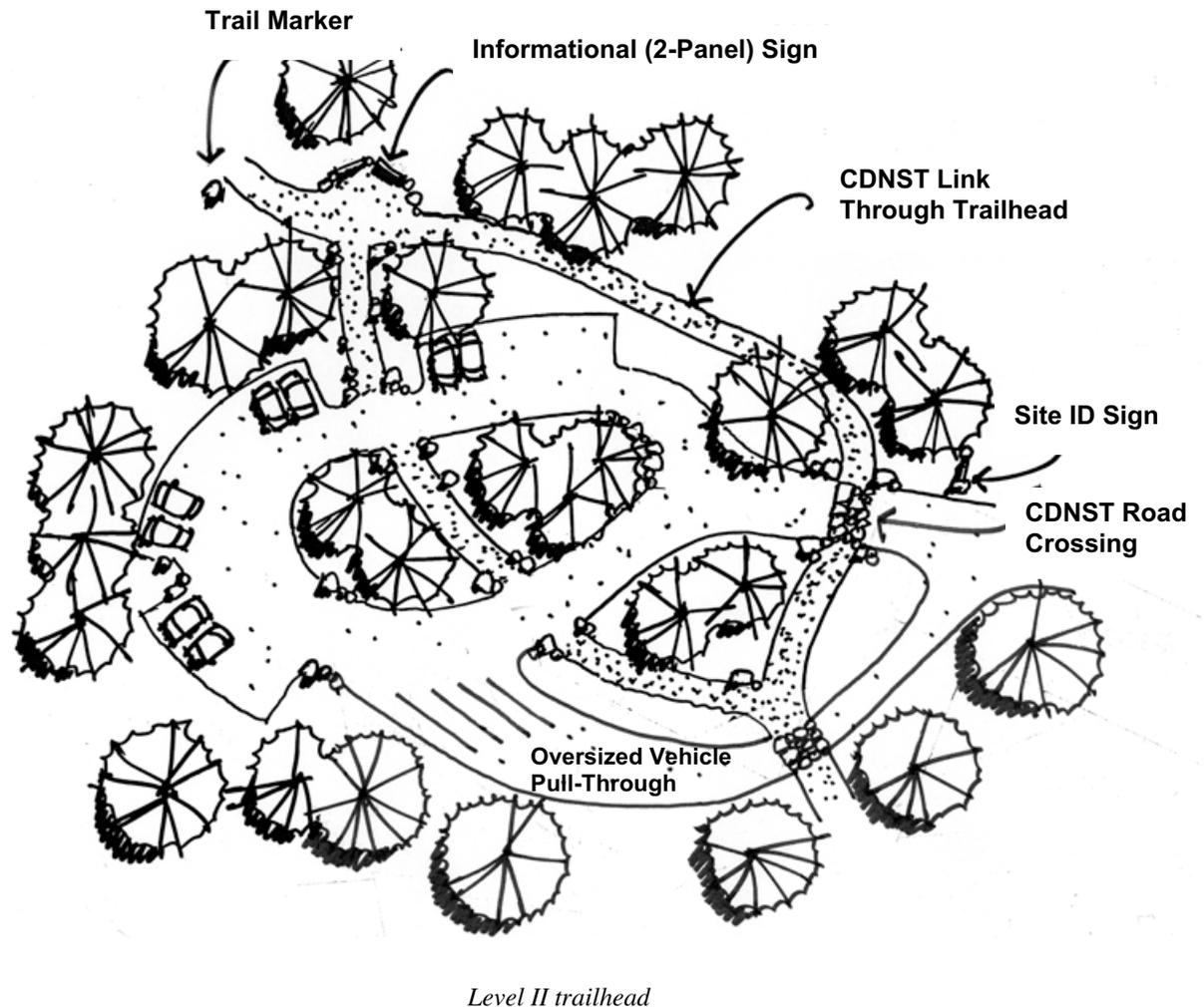
Range of site furnishings – Level I trailhead

3. Planning the Site

Level II Trailheads:

Because these trailheads are typically located in the “Roaded Natural” ROS areas, they are much simpler and have fewer users than Level I trailheads.

- *Basics:* Include these elements in a basic program for Level II Trailheads:
 - *CDNST link through the trailhead (continuous linkage)*
 - *Simple vehicle circulation*
 - *Parking (auto and equestrian/ oversized vehicle)*
 - *Signs (Site ID, roadside, 2-panel information/ orientation)*
 - *CDNST road crossing*
- *Supplementals:* Few additional facilities will be needed at Level II trailheads. However, the following should be considered:
 - *Trash collection*
 - *Natural seating areas*
 - *Informal picnic areas*
 - *Equestrian facilities*

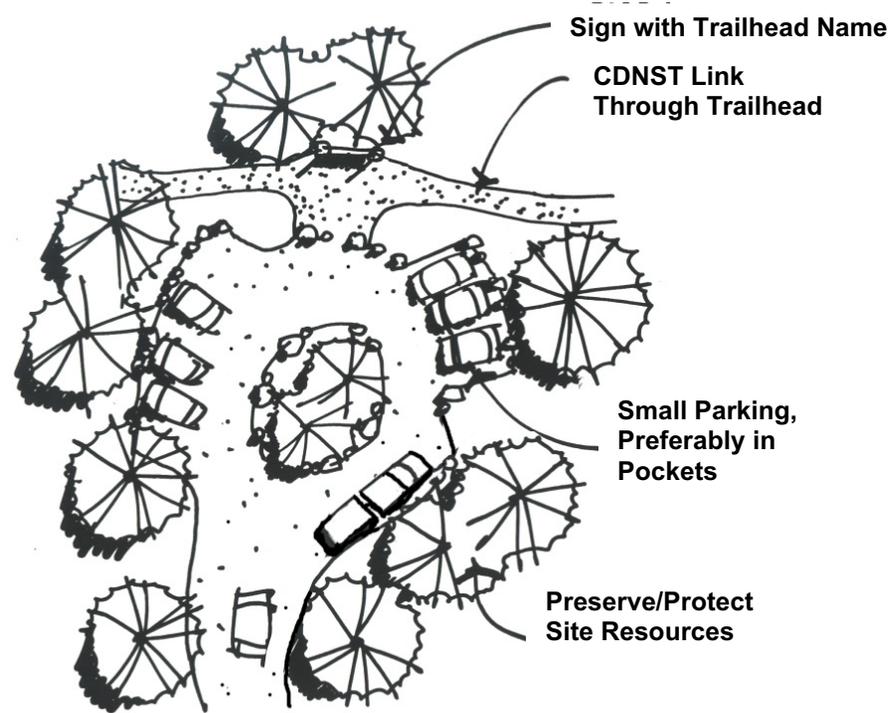


3. Planning the Site

Level III Trailheads:

These trailheads are generally located in the more primitive of the “Roaded Natural” ROS setting, and are very simple.

- *Basics:* Include these elements in a basic program for Level III Trailheads:
 - *CDNST link through the trailhead (continuous trail linkage)*
 - *Small parking lot (5-10 vehicles)*
 - *Minimal, informal parking for oversized vehicles*
 - *Signs (trailhead name, information/orientation – one-panel)*
- *Supplementals:* No additional facilities will be needed at Level III trailheads.



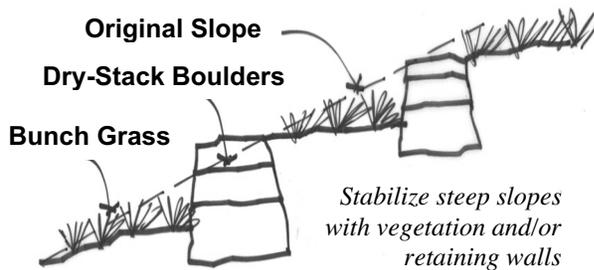
Level III trailhead

3. Planning the Site

3.7 Rehabilitation/Restoration

Much of the CDNST trailhead construction could involve rehabilitation of an existing site. Many trailhead locations previously served other uses – such as truck and trailer parking or gravel storage – and need to have restoration activities to transform them into sustainable components of their surroundings.

Problems to address might include highly compacted soil, exposed dirt areas, unstable slopes with limited vegetation, steep/exposed rock cuts, failing slope retention walls, too large a parking area and excessive cleared and graded areas.



- *Site Preparation:* Reclaim sites with compacted soil.
 - *Aerate, where possible, top 18" of soil to allow plant roots to penetrate.*
 - *Till subsoil to allow topsoil to bond with it.*
 - *Till organic matter, such as compost, into soil on sites with high gravel content; this will aid in moisture retention.*
 - *Supplement rocky/gravelly areas with layers of soil similar to that found in the local area, preferably from a disturbed nearby site. (6-8" on most sites; 4-6" on steeper slopes)*
 - *Grade fill slopes using stable material, and shore up with large rocks where needed.*
 - *Terrace slopes too steep for vegetation growth using rock walls for support.*
 - *Stabilize steep areas with trees cut down during construction, laying them horizontally along slope (perpendicular to water flow); this will slow water runoff.*
- *For grass seeding, grade slopes to no greater than 1.5:1, 2:1 on north-facing areas.*
- *Roughen or furrow ground surface to help retain runoff.*
- *Restore Vegetation:* Re-establish native plant patterns where site has been disturbed.
 - *Provide initial planting of native bunch grasses to prevent noxious weeds from moving in, and to provide shelter for perennials.*
 - *Use grass plugs planted 12-15" apart to quickly re-vegetate rehabilitation areas.*
 - *Save cut native grass turf from construction site for transplanting to rehabilitation areas.*
 - *Place new seed under erosion matting to conserve moisture and keep them in place.*
 - *Temporarily fence new shrubs and trees to prevent browsing by deer and elk.*

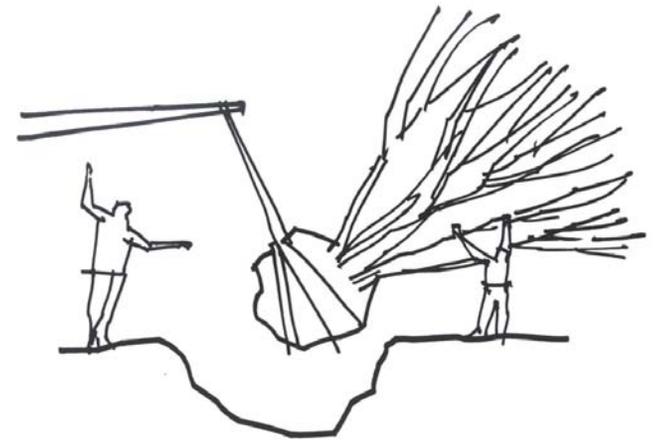
3. Planning the Site

New Construction

For sites that haven't been disturbed prior to constructing the trailhead, the focus should be on protecting existing features. This will result in minimal post-construction restoration/rehabilitation needs.

- *Establish Limits:* Disturb the smallest area possible, taking the time to fence off special features and areas outside of the construction zone.
- *Salvage/Reuse:* Save plants and native grasses removed during construction and use them to re-vegetate areas of the site.

- *Protect:* Focus on protecting healthy trees and mature shrub clusters.
 - *Create buffer to edge of roots around plants to be retained; roots generally extend to edge of furthest branches.*
- *Maintain:* If there is a drought during the first two years of planting, provide water to new plants.
- *Vegetate:* Develop site appropriate seed mix for reseeded.



Salvage existing plants when feasible



Fence around healthy trees/shrubs to protect them from construction activities

3. Planning The Site

3.8 Planning and Design Components

Each trailhead will require a different combination of components, the presence of which depend on the level of trailhead as well as specific user and site needs. These components need to be thought about during the planning process to ensure that they are located appropriately for the trailhead's physical characteristics, projected user needs and its place in the Recreational Opportunity Spectrum. They also need to be designed appropriately so that they fit with their surroundings and create an identifiable image and consistency of quality for the CDNST as a whole.

The adjacent chart details components that may apply to each level of trailhead, and the pages on which they are discussed. In general, this is a comprehensive list. However, certain trailheads might have unique needs that require a component not listed here.

<i>Trailhead Component</i>	<i>Level I</i>	<i>Level II</i>	<i>Level III</i>	<i>Page(s)</i>
Entry/Exit Roads	●	●	○	40, 54
Trailhead Roadway System	●			41, 54-55
Auto Parking	●	●	●	42, 56-57
Oversized Vehicle Parking	●	○	○	42, 56-57
Parking Lot/Road Edges	●	●		55
Pedestrian Circulation	●	●		43, 58
Entry "Gateways"	●	○		44, 59-60
Seating at Entry	●	○		44, 59-60
Trailhead Name Sign at Entry	●	●		44, 59-60
CDNST Marker at Entry	●	●	●	44, 59-60
ADA Accessibility to Entry	●	○	○	44, 60
Landscape Plantings	●	●	○	45, 61-66
Seating	●	●	○	67
Fencing	●	●		68
Road/Highway Crossing	●	●		68
Walls (Safety or Retaining)	○	○		69
Grading for Site Health	●	●	●	46, 70
Toilets and Other Built Facilities	○			47, 72-75
Waste Receptacles	○			69
Bicycle Racks	○			48, 71
Drinking Water	○			48, 71
Phone Service	○			48, 71
Lighting	○			48, 71
Concessionaire Facilities	○			48, 71
Roadside Directional Signs	●	●		49, 75, 76
Trailhead Directional/Safety Signs	●	●		49, 75, 78
Continental Divide Monument Sign	●	○		49, 75, 78
Information/Orientation Kiosk	●	●	●	75, 81-83
Interpretive Signs	●	○		75, 84-88

- Necessary Component
- Optional Component

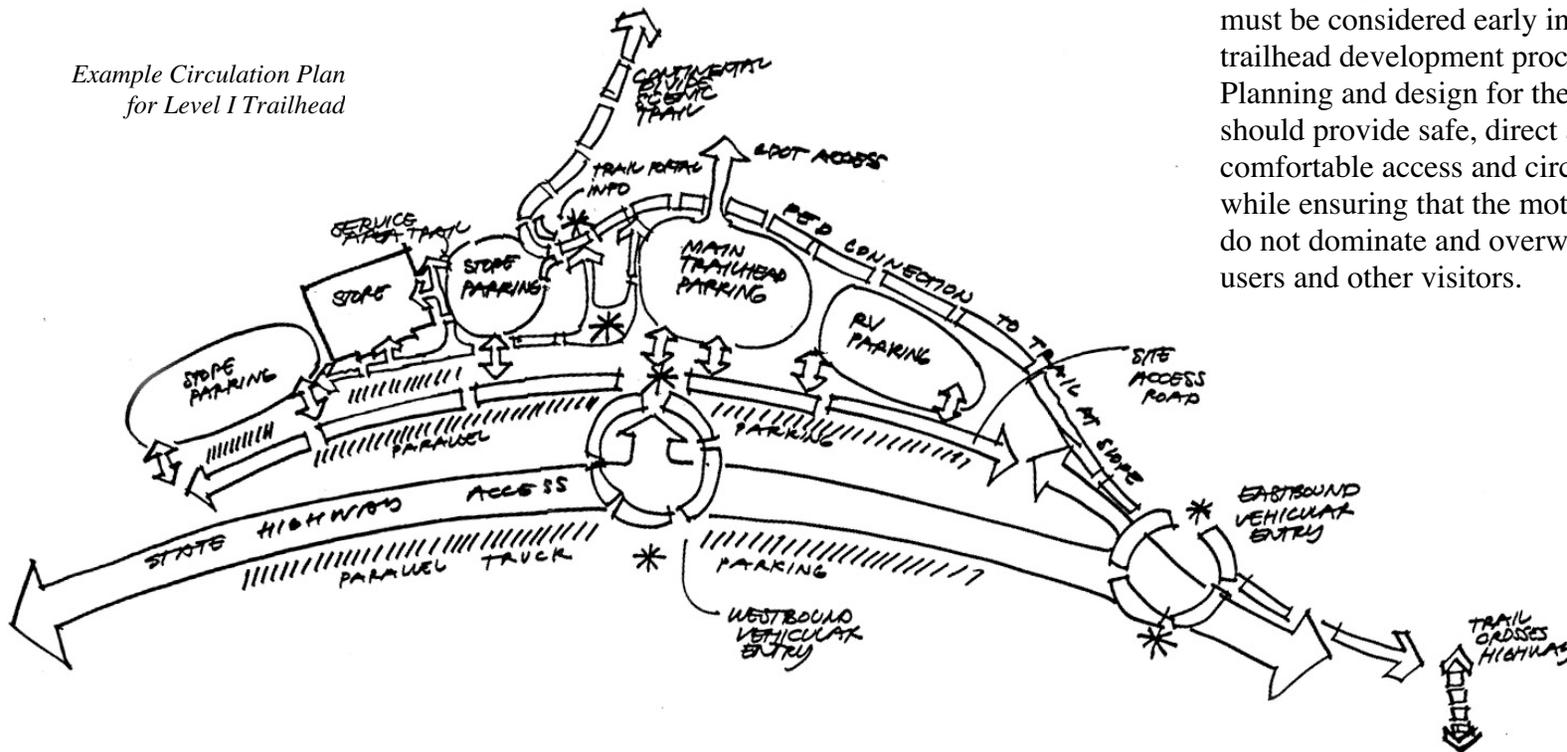
3. Planning the Site

3.9 Circulation

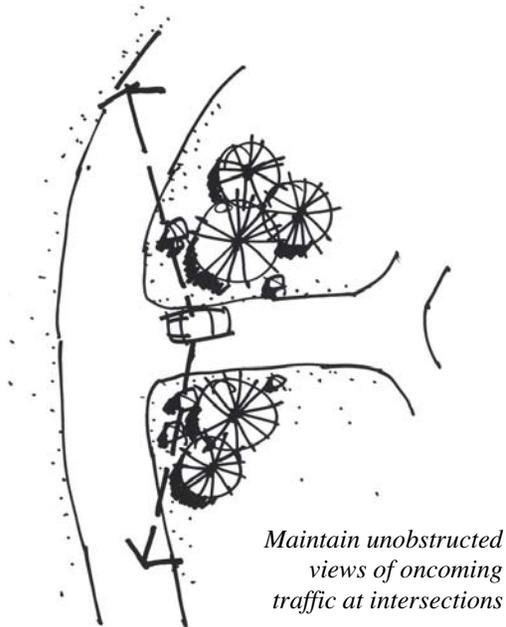
Roadways, parking and pathways must be carefully site-planned and designed to minimize noise, erosion and habitat degradation.

The movement and accommodation of many types of vehicles and users must be considered early in the trailhead development process. Planning and design for these uses should provide safe, direct and comfortable access and circulation while ensuring that the motorized uses do not dominate and overwhelm trail users and other visitors.

Example Circulation Plan
for Level I Trailhead



3. Planning the Site



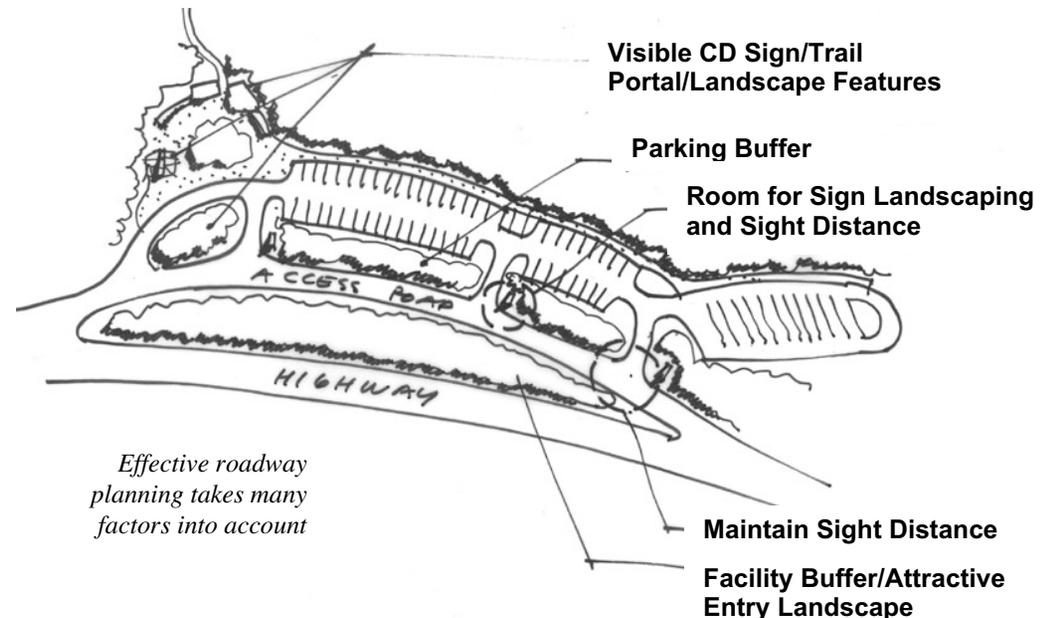
Entry/Exit Roads

- *Regulations:* To design roads off state highways, meet early with the MUTCD representative and use their highway standards. Some trailheads may need costly acceleration/ deceleration lanes.
- *Unobstructed Views:* Recognize site lines, distances and distractions when locating the access road. Make sure you can clearly see in all directions.
- *Multiple Access Points:* Realize that sometimes circulation works better with more than one entry and exit.
- *Information:* Ensure that directional signs communicate necessary information in advance of reaching the trailhead.
- *Trail Users:* Create safe access to the trailhead. Users (i.e. hikers, equestrians, cyclists) may be using the highway to access the trailhead. In these cases, they should enter the site at the vehicle access point.
- *Site Markers:* Reserve space for trailhead sign, CD sign and native landscaping at entry points.
- *Appearance:* Create a quality first impression by preserving, establishing or enhancing natural areas at site entries.
- *Trail Transition:* Create an attractive entry for the CDNST. The natural environment and native landscaping should dominate the trail user's experience when entering the trailhead.

3. Planning the Site

Roadway System

- *Preserve*: Design roads to save existing landscape features (e.g., rocks, trees, vegetation clusters).
- *Vehicle Types*: Accommodate all traffic uses anticipated (i.e. cars, trucks with trailers, 18 wheel trucks, RVs, buses, OHV's as appropriate, hikers, horses and bicyclists).
- *Safety*: Minimize conflicts between different uses: separate trucks, buses and RV circulation from auto traffic.
- *Large Vehicles*: Provide pull through vehicular circulation for large vehicles so they do not have to back up.
- *Information*: Provide wayfinding signs at key circulation points.
- *Connectivity*: Create easily legible circulation flow that connects compatible areas.
- *Compatibility*: Separate CDNST circulation from incompatible uses (e.g., maintenance supply areas, service areas, truck parking).
- *Landscaping*: Landscape road edges with native plants, rocks and logs in a natural-appearing way to prevent vehicles from driving off road.
- *Upkeep*: Ensure maintenance vehicles can access parking and service areas (e.g., restrooms, trash receptacles, septic systems).

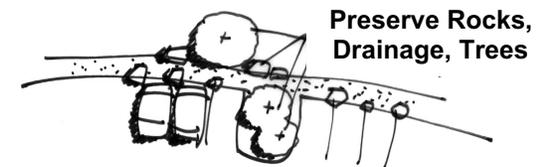
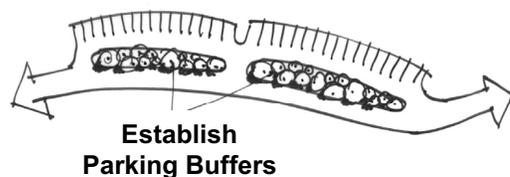


3. Planning the Site

Parking Systems

- **Disturbance:** Locate parking to minimize environmental impacts.
 - Use existing disturbed areas.
 - Select well-drained, gently sloping areas with few trees.
 - Avoid placing parking within healthy mature tree stands.
- **Visual Impacts:** Reduce the visual intrusion of parking.
 - Screen parking from the road and the CDNST.
 - Integrate parking into the landscape by using natural sloping edges, local boulders, mounds and/or vegetation.
 - Place large vehicle parking in areas that do not overwhelm the visual appearance of the trailhead.
- **Scale:** Reduce the scale of parking lots, while maintaining function.
 - Produce multiple parking areas.
 - Landscape with native materials.
 - Preserve trees, rock outcrops and other natural features in the parking lot.
 - Screen with local natural landscape materials.
 - Accurately determine parking/user demand; do not base on infrequent peak events.
 - Include informal overflow areas, when possible.
- **Compatibility:** Separate large vehicle parking away from automobile/motorcycle parking.
- **Circulation Safety:** Provide pull through parking for oversized vehicles and equestrian loading.
- **Separation:** Provide separate parking areas or designate parking locations for different uses (e.g., restaurant parking vs. trailhead parking).

Reduce visual impacts of parking through creating buffers, keeping lots small, and preserving existing features



3. Planning the Site

Pedestrian Circulation System

There are two types of pedestrian circulation systems at the trailhead: the CDNST system that passes through the trailhead, and the pedestrian system that links trailhead facilities.

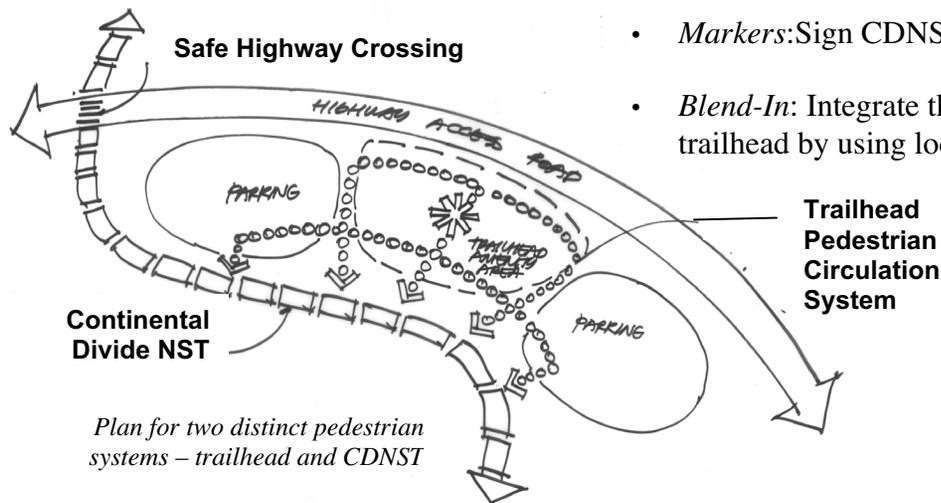
- *Overall:* Decide if a pathway system is needed. Small-scale trailheads, with limited facilities, may not need a pathway system.
 - *How many people are being planned for?*
 - *What activities will they be doing?*

Circulation for CDNST

- *Configuration:* Link the CDNST through the trailhead, and develop any missing links at the trailheads.
- *Clarity:* Make CDNST circulation obvious, avoiding stress/confusion.
- *Separate:* Locate the trail so it is distinct from other pathways at the trailhead yet links to that system.
- *Safety:* Create safe and distinct trail highway crossings with crosswalks, safety signs or pedestrian signals.
- *Markers:* Sign CDNST entry points.
- *Blend-In:* Integrate the trail into the trailhead by using local materials.

Circulation for Large-scale Trailheads

- *Configuration:* Identify facilities to be connected, and provide minimum number of paths.
- *Efficiency:* Position paths to provide the shortest distance between facilities. This will minimize “social” or unwanted paths.
- *Adjacent Uses:* Avoid cases where paths would disturb resources or users (e.g., picnic sites, rest areas).
- *Disturbance:* Minimize disturbance to the site: locate pathways away from wetlands, steep slopes or densely vegetated areas; avoid rock outcrops, and mature tree stands.
- *Blend-In:* Integrate pathways into the natural environment by using materials present in the local environment.
- *Accessibility:* Connect all trailhead facilities with an accessible route.



3. Planning the Site

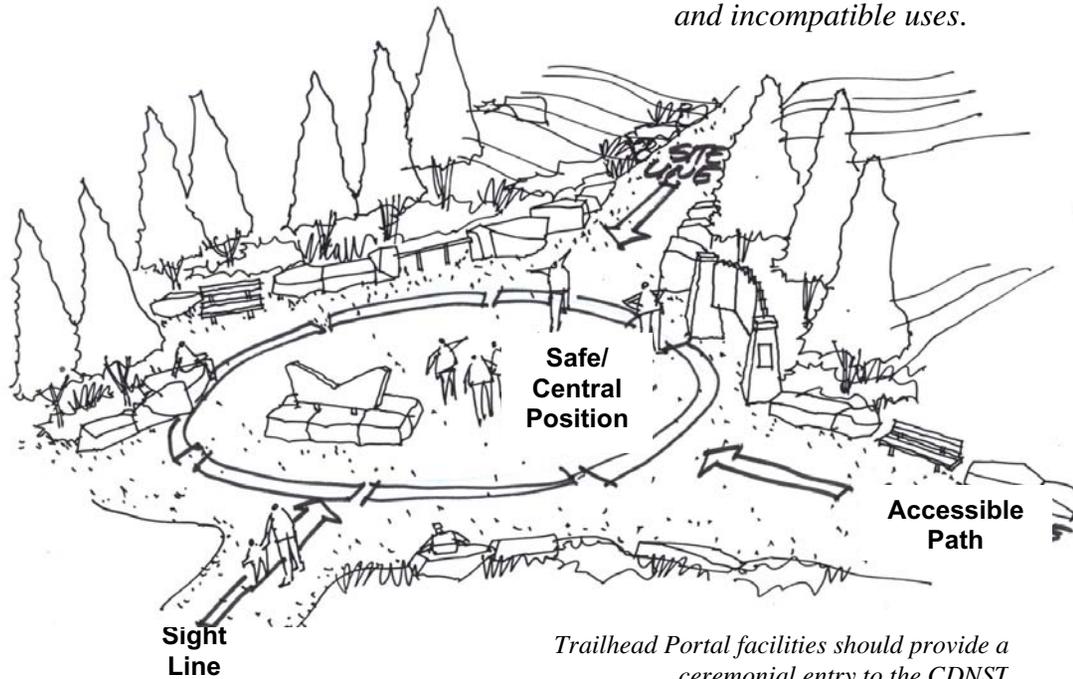
3.10 Trailhead Portal Facilities (Level I Only)

When crossing from a Level I trailhead to the CDNST, a trail user should feel a sense of passage from a more rural/urban place to a primitive setting.

A modest cluster of trailhead facilities should be developed at a Level I trailhead to provide a ceremonial entry to the CDNST. These facilities should be placed in an attractive setting with simple amenities that reinforce the natural characteristics of the site.

- *Program:* Include the Continental Divide sign, an orientation, education and interpretive signs, a small waiting area and a distinctive stone entry portal at the trailhead.
- *Position:* Select a site that takes advantage of unique scenery and has an attractive and safe setting to enhance photo opportunities.

- *Efficiency:* Keep this cluster of facilities small, compact and integrated into adjacent facilities.
- *Distance:* Cluster these facilities near the CDNST entry with a clear visual connection to the Trail.
- *Blend-in:* Develop a site character that uses natural slopes, existing vegetation and local materials.
 - *Integrate the facilities into the site so they become a mere extension of the existing environment.*
 - *Buffer surrounding unsightly and incompatible uses.*



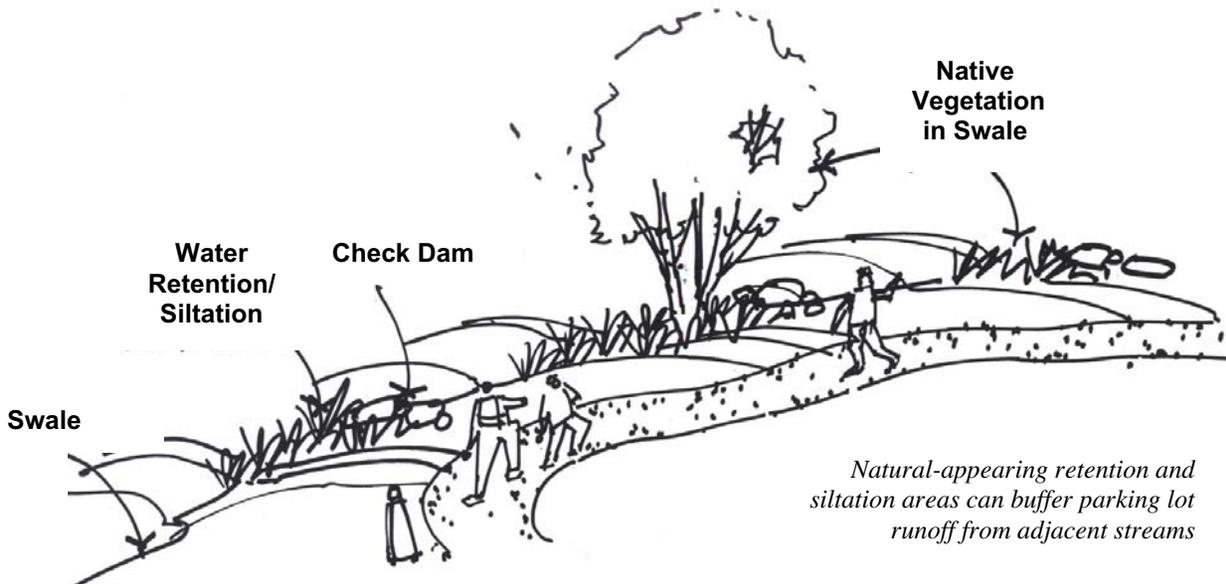
Trailhead Portal facilities should provide a ceremonial entry to the CDNST

3. Planning the Site

3.11 Grading

Grading at trailheads should blend topography into the surrounding landscape, prevent erosion, and provide an opportunity for water to soak into the ground.

- *Grading:* Place site elements to adapt to natural topography to minimize disturbance from grading.
- *Preserve Terrain:* Retain, where possible, natural site landform and drainage patterns; this will minimize site disturbance and damage to surrounding vegetation.
- *Drainage:* Sensitively control runoff.
 - *Create small natural appearing check dams within drainages.*
 - *Create natural appearing retention and siltation basins with slow drainage releases. Utilize these basins for pollution management for parking lot runoff.*
- *Drainageways:* Design drainageways, to appear as natural depressions in the landscape that allow for water infiltration and absorption.



3. Planning the Site

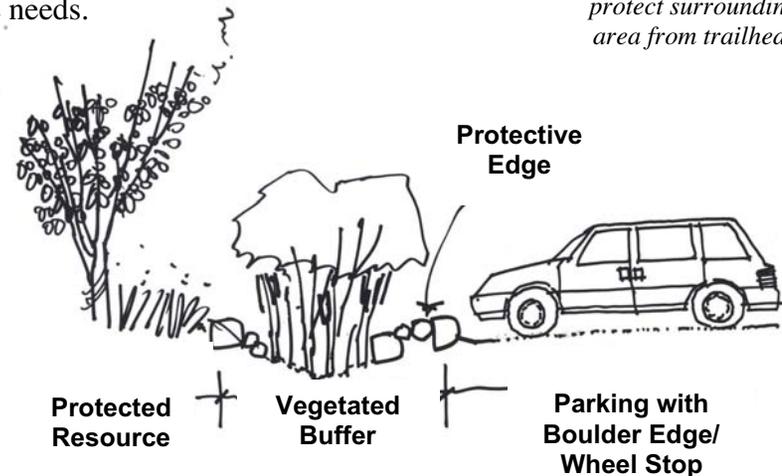
3.12 Landscaping

Appropriate plantings are essential to creating a sustainable trailhead. They provide both buffer and habitat for wildlife, shelter users from sun and wind, slow runoff, prevent erosion, and clean runoff from parking lots and roads. They also are used in design to provide edges, textures and screens; pedestrian circulation cues, links to surrounding views, spatial definition; and as character givers, softeners, unifiers, symbols and ornaments.

- *Natural Landscaping:* Use plants and other landscape construction materials in a way that blends into the surrounding landscape.
- *Local:* Make use of only native plants that occur in the surrounding area.
- *Buffer:* Use plants to create edges and reduce impacts to wildlife and water runoff.

- *Preserve:* Retain existing plant materials as best possible.
- *Visitor Needs:* Use plants to create comfortable microclimates and provide an attractive environment.
- *Practicality:* Understand snow removal and fire prevention needs in planting design.
- *Upkeep:* Alter environment around new plantings to retain moisture and reduce maintenance needs.

Use plants and other edges to buffer and protect surrounding area from trailhead



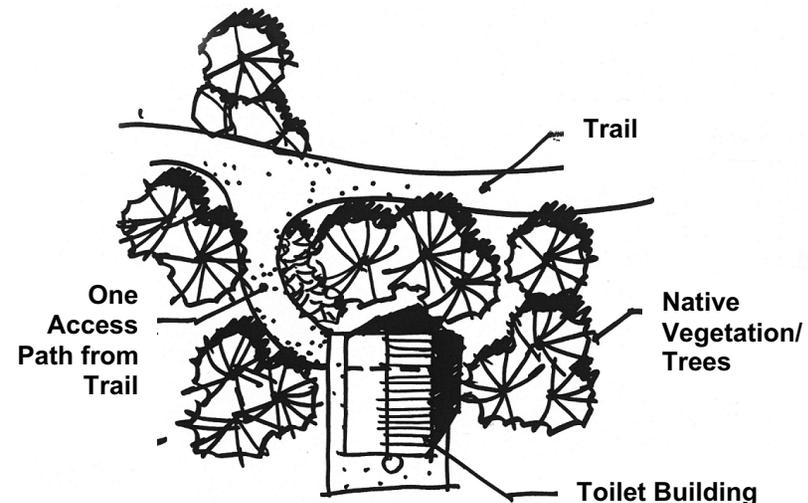
3. Planning the Site

3.13 Public Services (Level I Only)

Level I trailheads may include toilet facilities at various levels (i.e. compost, flush, vault). Optional facilities at existing Level I trailheads may be provided by concession holders, and might include drinking water, lighting and phone service. One should carefully consider if these additional facilities are appropriate. The placement and maintenance of these facilities in remote and environmentally challenging places along the Continental Divide can be difficult and invasive to the natural site character. In addition, they could attract visitors not interested in the CDNST, but who view the site as a “rest area.”

- *Shared Facilities:* If site has toilet facilities managed by another entity, attempt to arrange for CDNST visitors to use that facility.
- *Viable:* Determine if toilet facilities are needed based on past use, and whether they can be maintained.

- *Position:* Locate toilet facilities at Level I trailheads to fit with the character of the site and minimize use by non-CDNST visitors.
- *Information:* Provide simple directional signs and a path to toilets.
- *Obscure:* Minimize the visual impact of toilet facilities by placing them among trees and shrubs or hiding them behind rocks or other landforms; however, use sun and prevailing breezes for functionality.
- *Operations:* Make toilet facilities accessible to maintenance vehicles.



Place toilet facilities within vegetation or behind landforms

3. Planning the Site

Concessionaire Facilities

Certain site furnishings and services, while not provided by the managing agency as part of the trailhead, may be desired by adjacent concession operators. When placing these items, concessionaires should meet the following requirements.

- *Bicycle Racks:* If bicycle racks are provided, locate to minimize pedestrian/bicycle conflicts.
- *Water:* If drinking water is provided, place the dispenser (fountain or spout) along an accessible route
 - *Location should avoid drawing additional traffic into the trailhead parking lot.*
 - *Comply with state and Forest Service requirements for providing safe drinking water.*
- *Phones:* If phones are provided, place them along an accessible route near urban elements, such as the parking lot or any restaurant/shop facilities.
- *Lighting:* If lighting is provided, it should remain minimal, relate to site structures such as restaurants, and be sited to avoid disturbing wildlife. Lighting should also follow “dark sky” principles, which advocate preserving views of the stars by using down-light fixtures and installing lighting only when absolutely necessary.



3. Planning the Site

3.14 Signs

Several different kinds of signs should be considered for CDNST trailheads. These include highway roadside, trailhead safety/directional, site identification, and the Continental Divide “point of interest” sign.

Signs on National Forest sites should conform to EM-7100-15, *Sign and Poster Guidelines for the Forest Service*.

Agency Site Id Sign

- *Conform:* Utilize appropriate agency site identification signs.

Traffic Control Devices (Level I and II)

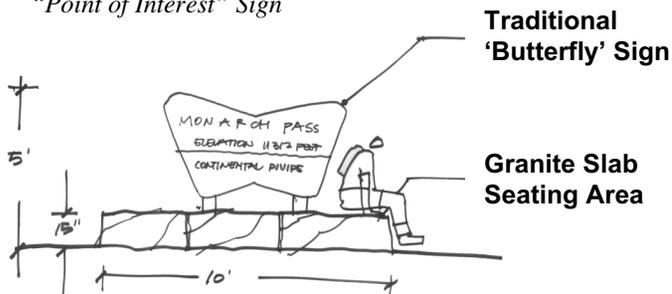
- *Regulations:* In accordance with MUTCD, work with local and state agencies to appropriately locate directional signs, and determine wording and graphics.
- *Position:* Place signs to ensure safe access and circulation to and through the site.
- *Economy:* Use the minimum number and smallest size signs that will make the site safe and easily understandable.

Continental Divide Site ID Sign (Level I and II)

This sign is often a major landmark for visitors. Here people gather to take family pictures and demonstrate they have reached a summit. Hikers and non-hiking visitors alike take pictures at these signs.

- *Position:* Place the sign in an attractive location that complements the local area’s environment and natural scenery.
- *Accessibility:* At high use sites, provide an accessible route to the sign and its base where people can gather for photo opportunities.
- *Safety:* Ensure the sign is placed in a setting that is safe
- *Blend-In:* Integrate signs into the local environment.

Typical Level I CD
“Point of Interest” Sign



3. Planning the Site

3.15 Existing Facilities

At some sites, numerous facilities already exist and must be incorporated into the site plan. The types of supplemental uses vary considerably. Certain Level I trailheads have such facilities as restaurants, gift shops, ski lifts, power poles, radio towers and state highway maintenance structures.

Some of these facilities may be appropriate and should be integrated into the site. In other cases, they should be screened and separated from CDNST visitor use areas.

Consider the following when developing the site plan:

- *Possibilities*: Understand which facilities must remain and work with others to remove extraneous facilities.
- *Upkeep*: Understand each entity's needs related to access, circulation, maintenance and management.
- *Suitability*: Integrate remaining compatible facilities into the overall site plan and separate and screen incompatible facilities.

3.16 Summary

Effective site planning requires the planner to consider many factors to ensure that visitor needs are met from arrival through departure from the trailhead. This chapter has provided tools for analyzing the site and its users' needs, as well as advocated minimizing site disturbance and rehabilitating or restoring natural functions at degraded trailhead sites.

Once a site plan has been created, the planner is ready to move on to detailed design of its features. The next chapter, *Designing the Site*, discusses design considerations and standards that will help create a distinctive CDNST image.



Chapter 4
Designing the Site

*“Beauty is not found in the excessive,
but in what is lean and spare and subtle.”*

-Terri Tempest Williams

4. Designing the Site

4.1 Circulation

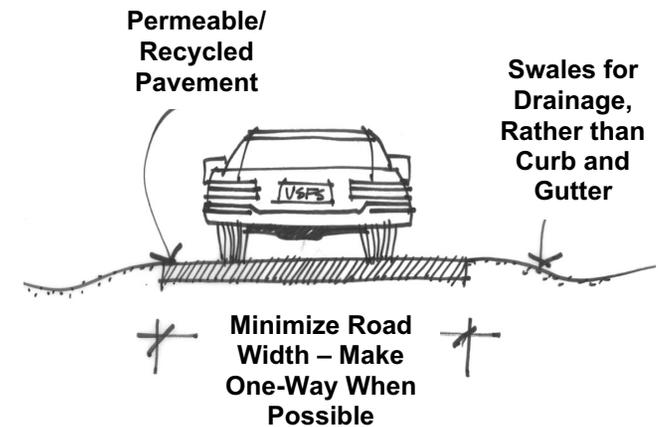
Roadways, parking and pathways must be carefully designed to minimize noise, erosion, and habitat degradation. The size and scale of these facilities should provide safe, direct and comfortable access but not dominate and overwhelm trail users and other visitors.

Materials chosen should blend into the surrounding environment as much as possible and minimize surrounding environmental impacts.

Road Construction

- **Surfacing:** Provide paved surfaces at Level I and II sites only when traffic volumes, maintenance or environmental impacts warrant (e.g., dust, excessive surface deterioration, high use). Level III sites should be unpaved.
 - *Unpaved:* Use crushed gravel from the local area .
 - *Paved:* Use permeable surfaces, such as “gap-graded mix” asphalt with 1/2-1” aggregate sieve, or geo-block or grasscrete type products.
 - Use recycled materials such as asphalt, crushed concrete or gravel not needed at another site.
- **Grading:** Keep road grades to 8% or less unless steeper grades, for small distances, help minimize disturbance.

- **Drainage:** Avoid curb and gutter. Design a drainage system that spreads runoff rather than concentrates flows.
- **Operations:** Ensure roads and paths are wide enough for maintenance vehicles to access the trailhead toilets and other service areas.



Roads should have minimal impact on the environment

4. Designing the Site

Roadway System

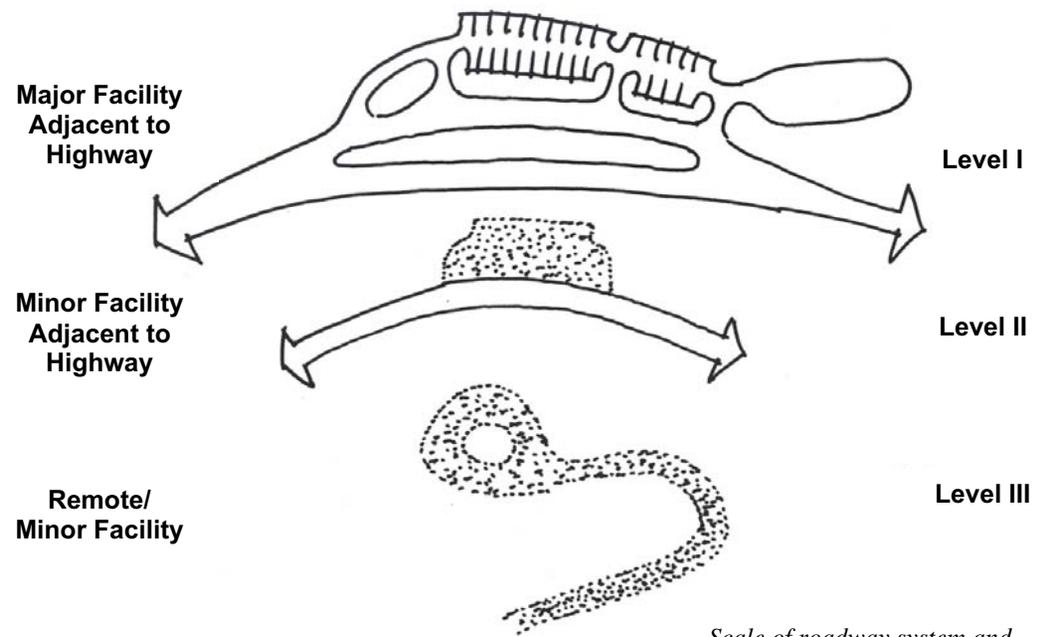
Roadways will be a very different scale for Level I, II and III trailheads.

Level I trailheads will most likely have an extensive paved access road system, typically accommodating entry from an adjacent high-speed road.

Level II and III trailheads will have minimal roads. Level III trailhead roads will at most have only a short gravel or dirt access from the main road.

- *Lengths and Widths:* Minimize the amount of road and the widths yet design for safety.
 - *Use a minimum of paved area, but ensure road has simple access routes maneuverable for large vehicles.*
 - *Consider providing a little more road system if it makes the situation much safer (e.g., keeps trailhead traffic from having to enter highway or frontage road to access other parking areas).*

- *Minimize access to parking from high-speed roads; if trailhead has more than one parking area provide internal circulation between the lots.*
- *Consider multiple access roads in higher volume areas to ease circulation and keep roads narrow, but balance with potential need for acceleration and deceleration lanes.*
- *Consider one-way circulation to minimize road widths.*
- *Trailhead road widths are primarily based on traffic volume, speed and terrain. Usually two-way trailhead roads are 22' to 26'. One-way roads can be 12' when no parallel parking is provided.*



Scale of roadway system and parking for each trailhead level

4. Designing the Site

Parking Systems

As with roadways, parking lot size will vary between Level I, II and III trailheads.

Level I trailheads will typically have a large paved parking lot that can accommodate passenger vehicles, as well as trailers and other large vehicles.

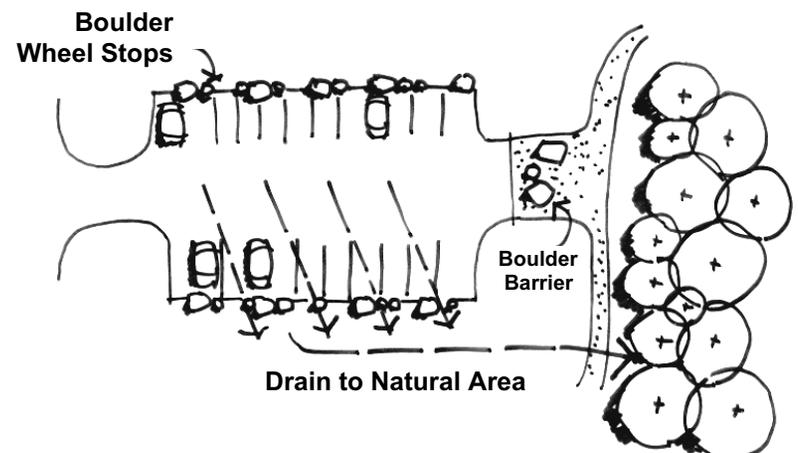
Level II trailheads will have a smaller parking lot, probably gravel, large enough to accommodate trailers.

Level III trailheads may consist of dirt or gravel informal parking for only five to six passenger vehicles and trailer parking.

- *Layout:* Keep the parking lot layout simple and clear.
- *Parking Stall Size:* Consider the 3 basic dimensions:
 - *Length/width of parking stalls.*
 - *Width of the aisles.*
 - *Angle between stall and aisle.*

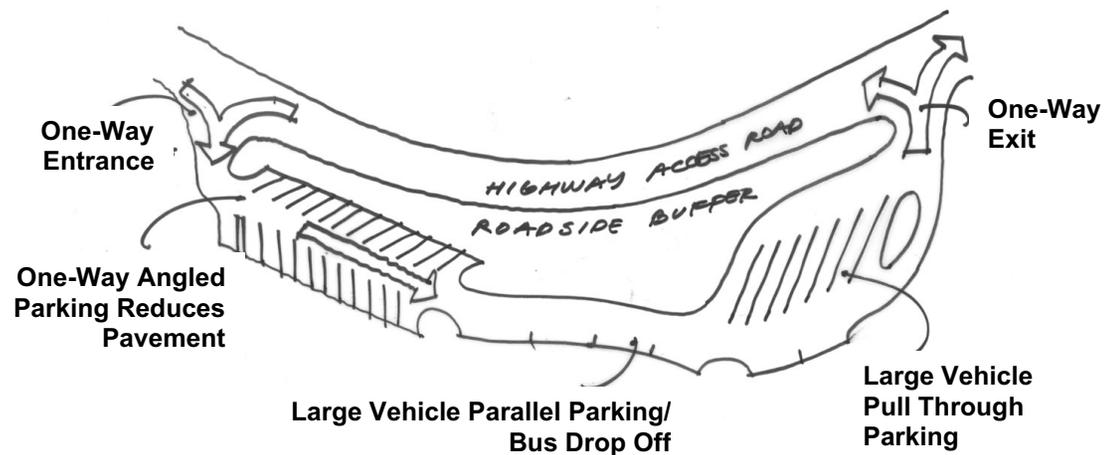
- *Lot Shape:* Consider shape of the parking lot:
 - *With long narrow spaces consider one-way angle parking.*
 - *With wide areas consider perpendicular parking.*
- *Vehicle Types (Level I only):* Separate parking areas by vehicle type and vehicle maneuverability.
- *Seasonal Parking (Level I only):* Provide summer overflow parking to use for snow storage in the winter.
- *Snow Removal (Level I only):* Plan snow removal as part of the parking lot and roadway system design, and review with maintenance managers.
 - *Do not use median or planting strips, as they complicate lot clearing.*
 - *Provide snow storage area adjacent to lot, or in a portion of the lot.*
 - *In larger lots, create parking schedule, so that lot can be completely cleared over consecutive days.*

Use boulders to prevent cars from leaving lot, and drain runoff to buffer area



4. Designing the Site

- **Parking Space Sizes (Level I, II only):** Provide areas for cars to back up, and pull-through areas for RV's, horse trailers, buses and large trucks.
 - Provide smaller areas for paved and striped lots rather than unpaved, unmarked lots.
 - Typical parking space sizes:
 - Cars: 10' width 20' length
 - Oversize vehicle pull through: 12' width/40-50' Length
 - Place accessible spaces near the site's accessible route with a 5' aisle on one side, at a rate of 1 per 25 regular spaces.
 - One-way angled parking reduces the size of parking access lanes.
 - Use creative methods to accommodate large vehicles; for example, allow oversize vehicles to parallel-park on one side of an aisle while using angle parking for cars on the other side.



- **Parking Lot/Road Edges (Level I, II only):** Contain traffic flow using simple barriers.
 - Place boulder clusters or raised logs along road and parking lot edges within visually or physically confined settings (i.e. adjacent to a sheer drop or set in a forest).
 - Create mound next to roads and parking lots adjacent to open areas. Keep slope 3 to 1 or less.
 - Minimize use of prefabricated items, as much as possible.

Large Vehicle Pull Through Parking

Efficient parking area design can reduce surface area

4. Designing the Site

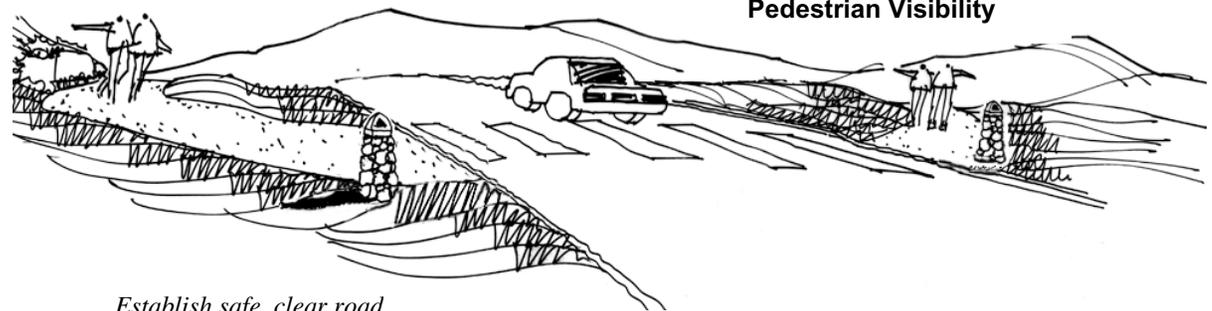
Pedestrian Circulation System

Level I trailheads will have a more extensive trail system that connects the parking lot with CDNST entry point, as well as the Continental Divide sign and other site amenities.

Level II and III trailheads will have minimal pedestrian circulation, as the trail entry will typically be directly adjacent to the parking lot.

- *Surfacing:* Minimize hard-paved surfaces to reduce visual impacts, and drainage problems. Only use paved trails in very high use areas.
 - *Unpaved:* Use crushed gravel from the local area
 - *Paved:* Use permeable surfaces such as permeable asphalt.
- *Minimize Footprint:* Keep trail widths as small as possible for the amount of pedestrian use expected.
 - Provide minimum 60" width for accessibility.

- *Slope:* Adapt to natural topography wherever possible, and keep grades to 5% or less for Accessibility. Short distances of up to 30 feet may be graded up to 8.33%.
- *Cross-Slope:* Provide path cross-slope minimum of 1% for drainage, maximum of 2% for safety.
- *Shoulders:* Slope trail shoulders gently away from path, and provide a log railing or rock-wall next to steep down-slopes or sheer drop offs.
- *Markers (Level I, II only):* Use rock or other local materials to mark trail location/entry when it crosses a road.
- *Safety (Level I, II only):* Stripe or otherwise indicate location where trail crosses a paved road to promote user safety. *Coordinate with local DOT for proper markings.*



Establish safe, clear road crossings for the CDNST

4. Designing the Site

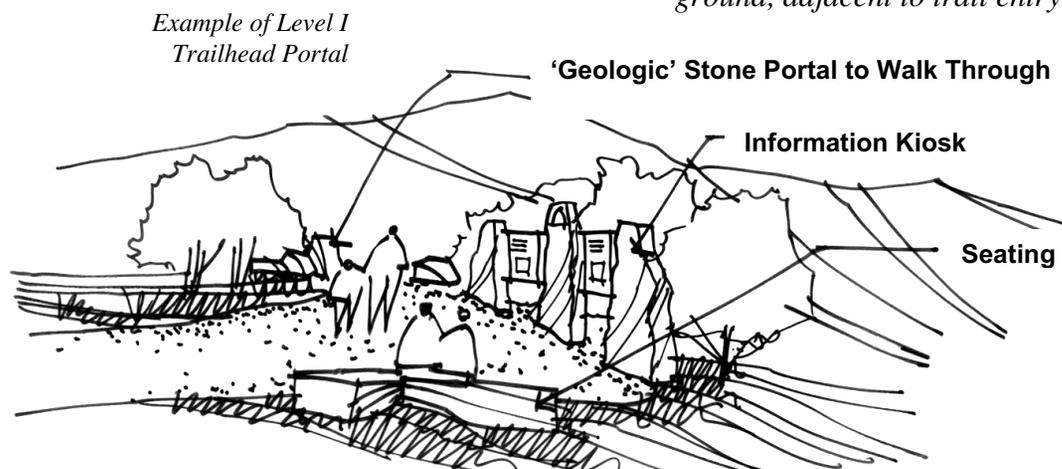
4.2 Trailhead Portal Facilities

Because first impressions are lasting, entry points to the CDNST at large trailheads should express the place and spirit, and the character of its architecture and landscape.

Level II and III trailheads have much smaller portals, with very few constructed elements.

Level I Trailheads will have:

- *Main Portal “Gateway:”* Create a distinctive structure through which users pass from trailhead to trail.
 - *Construct trail entry from local rock or distinctive materials .*
 - *The design should fit into the natural surroundings, yet appear intentional.*
 - *Give it large enough mass that users feel a transition to the CDNST. A good rule of thumb is 6’ tall and 6’ wide*
 - *Attach CDNST Logo to gateway, at least 30” off the ground, adjacent to trail entry.*
- *Secondary Portal “Gateway”:* Consider providing secondary portals to designate the entry to the CDNST where the trail may be difficult to find at a trailhead (e.g., highway crossing, off to the edge of the parking area).
 - *Make similar to main portal gateway but of a smaller scale.*
- *Waiting Area:* Provide a waiting area of at least 150 square feet near the main portal.
 - *Build-in a small seating area made of local materials, such as rock, wood or logs.*
 - *Make seating approximately 18” high and a minimum of 30” deep and 48” wide. These dimensions can vary if rocks are used.*
 - *Some with backs for ADAAG*



4. Designing the Site

- **Accessibility:** Construct accessible trail from parking area to portal, minimum 60" wide with an overall grade under 5% and maximum cross slope of 2%.
 - *Grade short sections up to 8.33% for a maximum of 30 feet.*
 - *Use porous paving such as crushed local stone—not asphalt.*
 - **Materials:** Build portal facilities with natural materials already present at or nearby the trailhead.
 - *Trails/waiting areas should be built out of crushed local stone.*
 - *Permanent elements should be constructed from rock, or timber/logs depending upon the province.*
 - **Information:** Provide information that allows users to understand and appreciate the CDNST.
 - *Locate information/orientation kiosk next to waiting area, at least 24" off trail.*
 - *Indicate trailhead name for hikers entering from CDNST.*
- Level II, and III trailheads will have:**
- **Site Identification:** Include a site identification sign with trailhead name (see section 4.8).
 - **Waiting Area (Level II only):** Provide a waiting area of at least 50 square feet at the trailhead entry. No seating is required, but can be desirable.
 - **Information:** Provide information sign that facilitates user understanding of the CDNST.
 - *Level II will include information on the trail between the two adjacent trailheads, as well as safety and logistical information.*
 - *Level III will include safety and logistical information only.*
 - **Materials:** Build markers and signs with natural materials compatible with the setting.
 - *Waiting areas should be built out of crushed local stone.*
 - *Sign elements should be constructed from rock, or timber/logs depending upon the province.*

4. Designing the Site

4.3 Grading

Major grading activities will likely take place only at Level I trailheads, as they are the places most likely to be significantly changed. However, these principles also apply to Level II and III trailheads when grade changes are necessary.

- *Roads:* Keep road grades to 8% or less unless steeper grades, for small distances, will help minimize site disturbance.
- *Graded Slopes:* When cut/fill is unavoidable in open areas, grade slopes to tie into surrounding terrain in a naturalistic manner.
 - *If slope can be vegetated, use geotextile over native seed to prevent erosion and encourage better seed germination.*
 - *If sheer rock, create rock cuts that look similar to other local rock outcroppings.*
- *Drainageways:* Create a natural appearing drainage system.
 - *Avoid curb and gutter. Design a drainage system that spreads runoff rather than concentrates flows.*
 - *Where drainageways are needed, design them to appear as natural depressions in the landscape that allow for water infiltration and absorption.*
 - *Provide gently sloping drainages with vegetated side slopes no greater than 3 to 1.*
 - *Landscape drainages so they function as a screen, provide wildlife habitat and control erosion. Drainages are often excellent areas for planting trees, shrubs, grasses and flowers.*
- *Roughen Ground:* Roughen or furrow ground surface in revegetation areas, to help retain runoff.

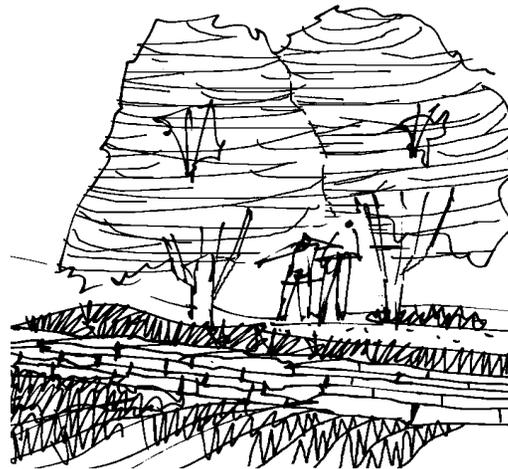


4. Designing the Site

- *Walls (Level I only):* Construct rock walls to protect visitors from steep drop offs, and to retain steep slopes.
 - *Terrace slope if wall is greater than 6 feet tall; avoid walls taller than 6 feet.*
 - *Provide natural material seating as part of wall, whenever possible.*
 - *Approximately 18-24" tall, minimum 12" deep.*
 - *Use dry-stacked sandstone in the Southwest province.*
 - *Use dry-stack rock or rockery terracing in the Rocky Mountain province.*



Rockery terraces are less visually intrusive than walls for slope retention



Dry-stack sandstone for walls in Sonoran province



Build dry-stacked walls out of large rocks in Rocky Mountain province

4. Designing the Site

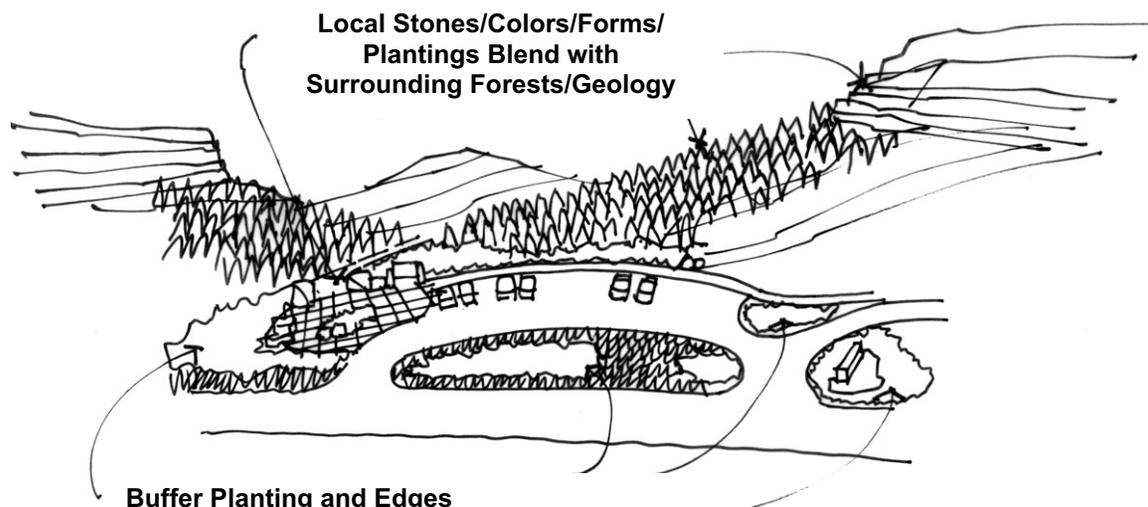
4.4 Landscaping

Additional plant materials, other than those for restoration/rehabilitation activities, may be used at Level I trailheads only.

Plant Selection/Placement

- **Locating Plants:** Choose appropriate location for plant growth characteristics.
 - Evaluate exposure to wind and sun, and slope direction, as water and sun vary greatly from south- to north-facing slopes.
 - Snow-plowing.
- **Plant Species:** Select native plants present in the local area.
 - Consider all survival parameters for individual plant species: water, sun, elevation, snow-pack, shelter from wind, and room to grow.
 - Look at surrounding slopes with the same sun and wind exposure as the trailhead to determine which native plants to use.

- Take into account habitat, shelter and food needs of local wildlife when choosing plants.
- Nursery supplied materials should come from similar climatic settings.



- Native Plantings from Adjacent Area
- Create Modest Depression to Collect Water for Plantings

Effective plant selection and placement reduces maintenance and contributes to sense of place



4. Designing the Site

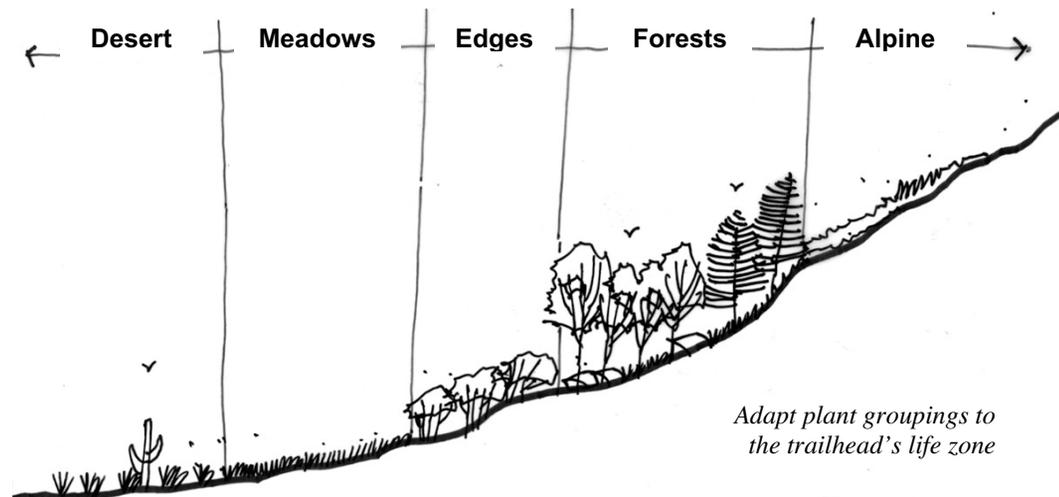
- *Groupings*: Design plantings that group native plants together in a manner that mimics the way they grow in local area.
 - *Include species that recover quickly after such cyclical disturbances as drought, heavy snow or fire.*
 - *Provide balance of different plants active during seasons.*
 - *Cluster plants with natural companions to sustain their health.*
 - For example, certain plants add nutrients for others (i.e. legumes add nitrogen), some protect delicate plants from sun or wind and others distract pests or lure beneficial insects.
- *Harvest Water*: Use techniques to direct and retain runoff for new plantings to reduce or eliminate the need for irrigation.
 - *Direct runoff to new plants using gently sloping swales.*
 - *Create low spots to direct runoff to new trees, shrubs and flowers.*
 - *Terrace slopes (gently) to slow runoff and allow it to soak in.*
 - *Place plants next to rocks that will drain natural runoff onto roots.*



Harvest water for new plantings by creating swales that direct and retain water

4. Designing the Site

- *Select a grouping appropriate to the life zone:*
 - *Lower Sonoran* groupings typically have mixture of Chihuahuan grasses, yucca, cactus and desert shrubs.
 - *Meadows* in Upper Sonoran, Transition, and Boreal (middle) ecosystems usually have mixed perennials and grasses.
 - *Edges* between meadow and forest usually contain short to tall growing shrubs (i.e. serviceberry).
 - *Forests* in middle ecosystems typically have more than one tree species, and usually have an understory of shade-tolerant shrubs (i.e. broom huckleberry) and perennials (i.e. columbine).
 - *Alpine* areas typically have low growing shrubs, grasses, and perennials.

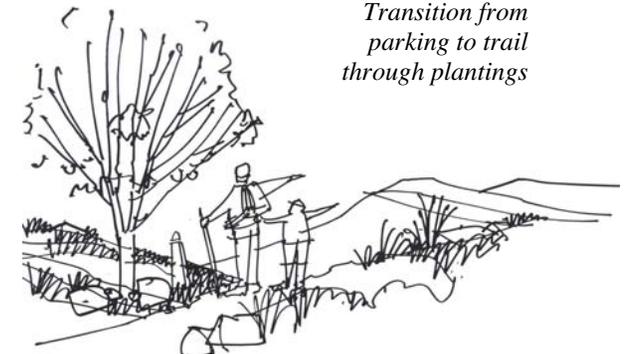


4. Designing the Site

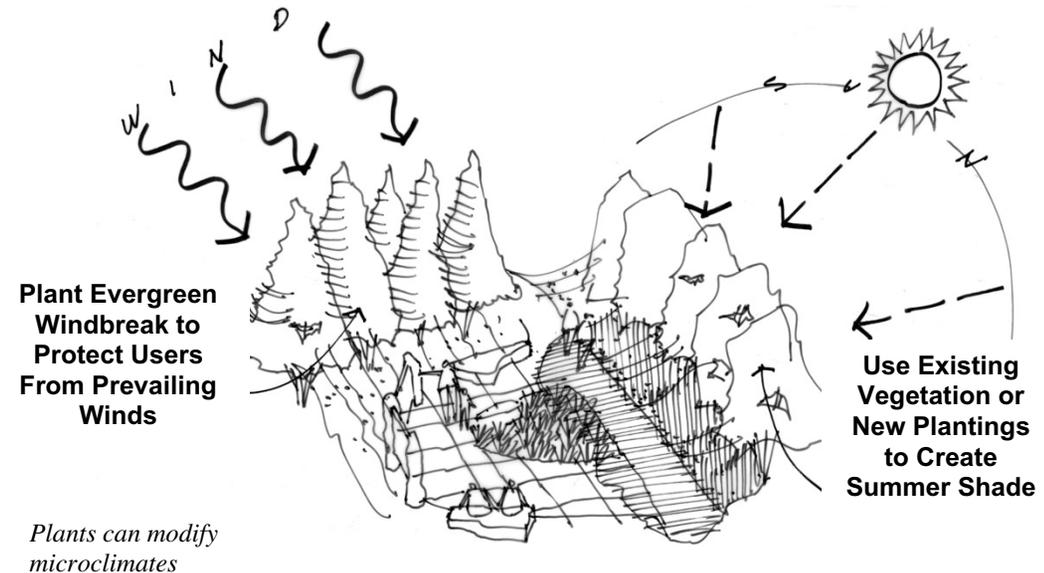
Visitor Considerations

- **Microclimate:** Moderate climatic qualities through planting design in high-use locations.
 - Consider where visitors need shade, sun, and protection from winds when placing plants.
 - Use trees, in appropriate ecosystems, to provide shelter from sun and wind.
- **Visual Qualities:** Use planting design to improve visual experience of the trailhead.
 - Preserve/protect natural landmarks, such as specimen trees, groves, and mature plants.
 - Reveal and frame quality views using shrub and tree plantings
 - Hide distracting views, such as maintenance areas or distant intrusions, using shrubs, trees and landforms.

- Transition from the parking lot to its surroundings through planting design, e.g. progress from short to tall plants in a forested area or dense to sparse in a desert area.



Transition from parking to trail through plantings



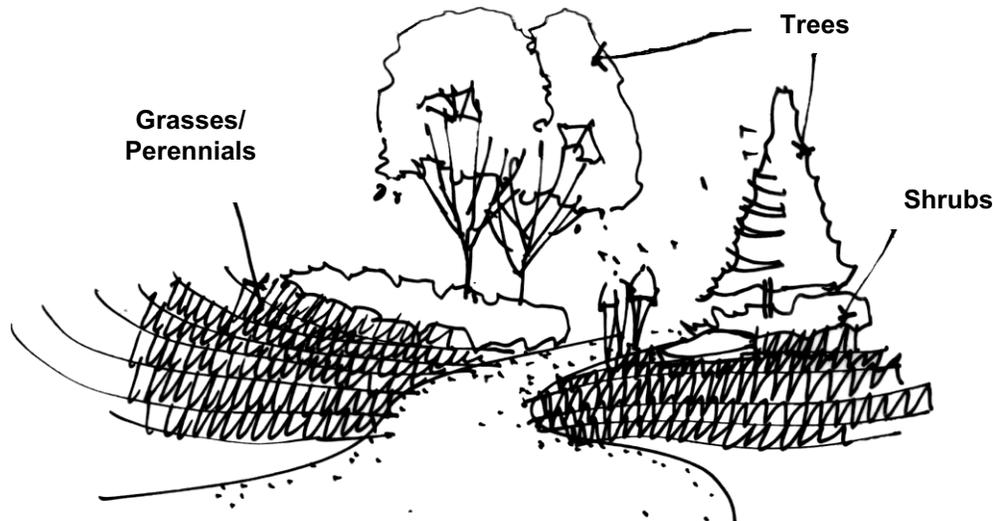
Plant Evergreen Windbreak to Protect Users From Prevailing Winds

Use Existing Vegetation or New Plantings to Create Summer Shade

Plants can modify microclimates

4. Designing the Site

- **Movement:** Guide visitor movement using planting design for both visual cues and physical barriers.
 - *Mark directions and points of entry using, in a natural-appearing way, native plantings that draw people because of character, color or massing.*
 - *Use natural-appearing native shrub or tree plantings to prevent visitors from walking off designated paths into ecologically sensitive areas.*
- **Awareness:** Design plantings in a way that heightens visitor awareness of the local environment.
 - *Provide a microcosm of local plant patterns as a means to educate visitors about conditions along the CDNST.*
 - *Recognize the sensory qualities of local native plants, placing those that have special qualities of color, sound, smell, or motion near visitor facilities in a natural-appearing fashion.*
 - *Use plants that provide food or shelter for wildlife.*



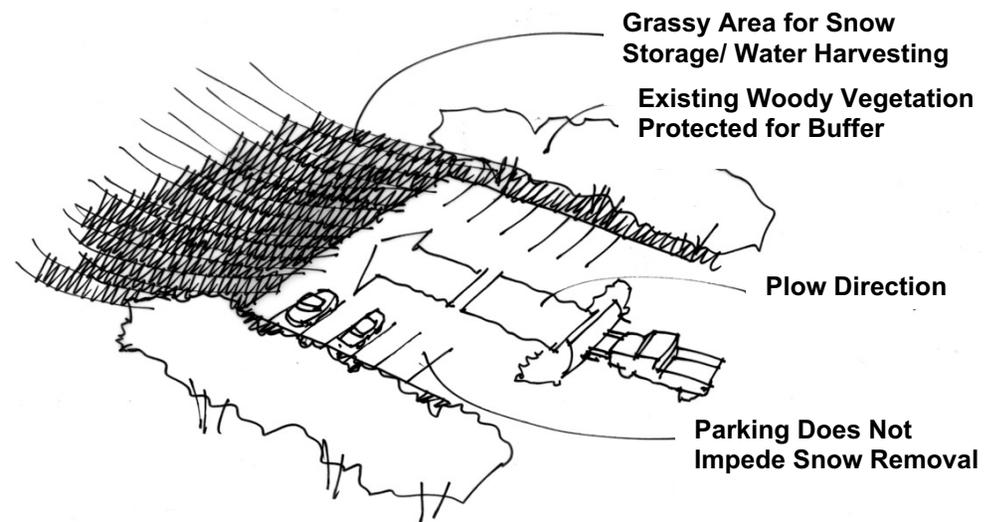
Use native plant grouping to define key access points

4. Designing the Site

Practical Considerations

- **Snow:** Design plantings for snow-removal patterns.
 - *Vegetate snow storage areas with grasses and perennials.*
 - *When larger plantings are near these areas, protect them from snow-removal activities.*
- **Moisture Retention:** Prevent fast runoff and evaporation to allow new plantings to settle in faster.
 - *Cover ground around new plantings with mulch created from trees removed during trailhead construction, or from nearby area.*
 - *Lay trees that were cut down for construction along contours (horizontally) to slow runoff.*
 - *Roughen or furrow ground surface to help retain runoff.*
 - *Avoid using raised containers for plants, such as planters or pots. These dry out quickly and plants contained in them will require a high level of maintenance.*
- **Fire:** Recognize the trailhead's ability to act as a firebreak in certain circumstances.
 - *Understand that roads and parking lots can act as a firebreak.*

Proper design for snow removal will prevent maintenance problems



4. Designing the Site

4.5 Site Furnishings and Amenities

Modest furnishings to accommodate basic needs of visitors should complement the simplicity of the trailhead's purpose, and the focus on sustainability of design.

Level I trailheads will use furnishings and other additions throughout the site to provide a comfortable environment for users, yet fit into the natural environment. Furthermore, waste receptacles, parking/road edges and fencing will encourage the larger number of users at these sites to not litter or damage surrounding areas.

Level II trailheads will have minimal site furnishings, but will still use parking/road edges and fencing to keep users out of sensitive areas and adjacent privately owned land.

Level III trailheads will likely not use site furnishings or other additions to fit with their primitive setting. Also, the low number of users at these sites does not warrant these types of additions.

Rock used in construction is an important aesthetic factor, as sedimentary, igneous and metamorphic rocks are all present along the CDNST. As a result, the type of rock that dominates a trailhead site may not be present a short distance away.

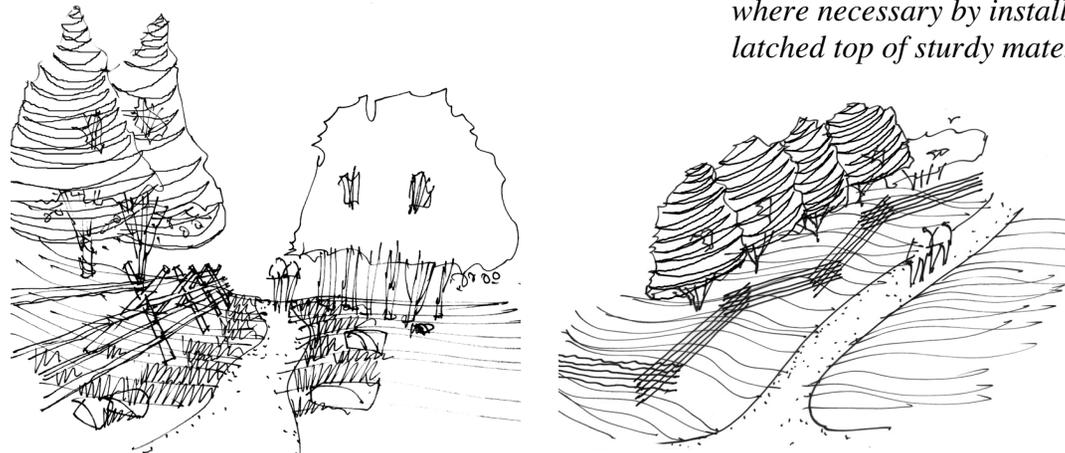
- *Materials (Level I only):* Construct site furnishings out of the types of natural materials present in trailhead's vicinity.
 - *Focus on materials best adapted to harsh weather conditions.*
 - *Minimize use of prefabricated items, as much as possible.*

- *Seating (Level I only):* Provide seating areas made of large rocks or timber/logs to allow visitors to relax and take in the trailhead and its surroundings. These should be constructed to ADAAG standards:
 - *Use logs from area, preferably from trees cut down during trailhead construction, approximately 18-24" thick.*
 - *Use local rocks large enough to accommodate several people.*
 - *Place rocks at least half into ground to give natural appearance.*
 - *Avoid picnic tables; instead use clustered large stones, logs or grassy areas for picnicking.*
 - *Use of benches, where appropriate.*



4. Designing the Site

- *Fencing and Gates (Level I, II only):*
Consider using fences as one method to contain traffic flow and grazing animals in open areas.
 - *Keep fences to a minimum, as they can distract from the surrounding environment.*
 - *Consider fencing when needed to keep vehicles from entering open or sensitive areas.*
 - *Think about fencing services that need protection from visitors.*
 - *Fence cattle from the trailhead in areas that are subject to grazing.*
 - *If using fencing, consider simple buck & pole or log worm fences in stony areas and log post and rail – 3 rails – in other areas. These should be culturally consistent with surroundings.*
 - *Consider wildlife movement through the site for fence location.*
- *Road/Highway Crossing (Level I, II only):* Identify areas where the trailhead crosses a roadway.
 - *Stripe and provide signs according Manual of Uniform Traffic Control Devices (MUTCD) standards, coordinate with local DOT officials.*
 - *Consider secondary portals at the highway/trail juncture.*
- *Waste Receptacles (Level I only):*
Provide waste disposal places to discourage visitors from leaving trash elsewhere on the site.
 - *Use receptacles that are modest and blend into surroundings, when necessary.*
 - *Prevent wind from blowing trash out of the bin by providing a semi-open top or closed top.*
 - *Promote “pack it in / pack it out philosophy when trash receptacles are not used.*
 - *Provide bear-proof receptacles where necessary by installing a latched top of sturdy materials.*



Construct buck & pole or log worm fence in stony areas that are difficult to dig post-holes

4. Designing the Site

4.6 Concessionaire Facilities

Facilities provided by concessionaires, or near concession facilities are likely to only be used at Level I trailheads. These sites are the only scale that will support concession activities, and thus are the only ones that will need more extensive amenities both for convenience and for safety.

These types of facilities are not appropriate for Level II and Level III trailheads because of their more primitive setting.

- **Bicycle Racks:** Construct to provide blend into surroundings.
 - *Use racks that are modest with color to blend into the trailhead.*
- **Water Dispensers:** Drinking fountains or other types of water dispensers should be simple and accommodate both trail users and trailhead visitors.
 - *Make approximately 40" tall and accessible.*
 - *Include a fountain and water hydrant to accommodate both day visitors and trail users wanting to fill water bottles.*
 - *Attach dispenser to base that blends with the trailhead environment, typically wood, mortared stone or against a building.*
- **Phone Service:** Address safety first, then convenience.
 - *Provide access to area emergency (911) services.*
 - *Provide phone receiver with amplification for hearing-impaired users.*
- **Lighting:** Carefully evaluate the need for lighting in these intrinsically dark locations.
 - *Use minimal design that relates primarily to site structures used after dark such as restaurants.*
 - *Use down lighting cutoff fixtures to minimize glare, per "dark sky" recommendations.*
 - *Avoid lighting areas that would result in disturbing wildlife.*
 - *Place lights only along primary circulation routes.*
 - *Provide between .5 and 1 foot-candles of illumination.*
 - *Create clear, recognizable, unambiguous lighting patterns.*
 - *Install intermediate-height landscape lighting (10-15') to maximize coverage and safety, and minimize vandalism.*



4. Designing the Site

4.7 Supplemental Facilities/Built Structures

The natural and cultural context that guide site planning and designed elements should inform the design of built structures. Buildings should be resource efficient, constructed of long lasting and easy to maintain materials, and fit harmoniously into their context.

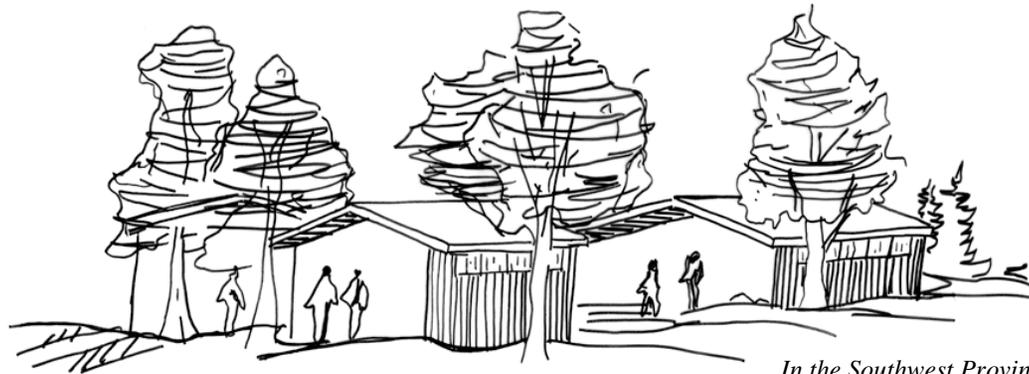
Steep, rugged topography with large vegetation forms and harsh winters should have large-scaled building forms with a vertical emphasis.

Warmer areas with subtle topography, finer-scaled vegetation and intense sunshine should have moderate-scaled structures with horizontal emphasis.

The ideal is to use building materials indigenous to the trailhead site, and augment only with materials that contribute to an ecologically sound design. Refer to the Forest Service's *Built Environment Image Guide* for additional examples.



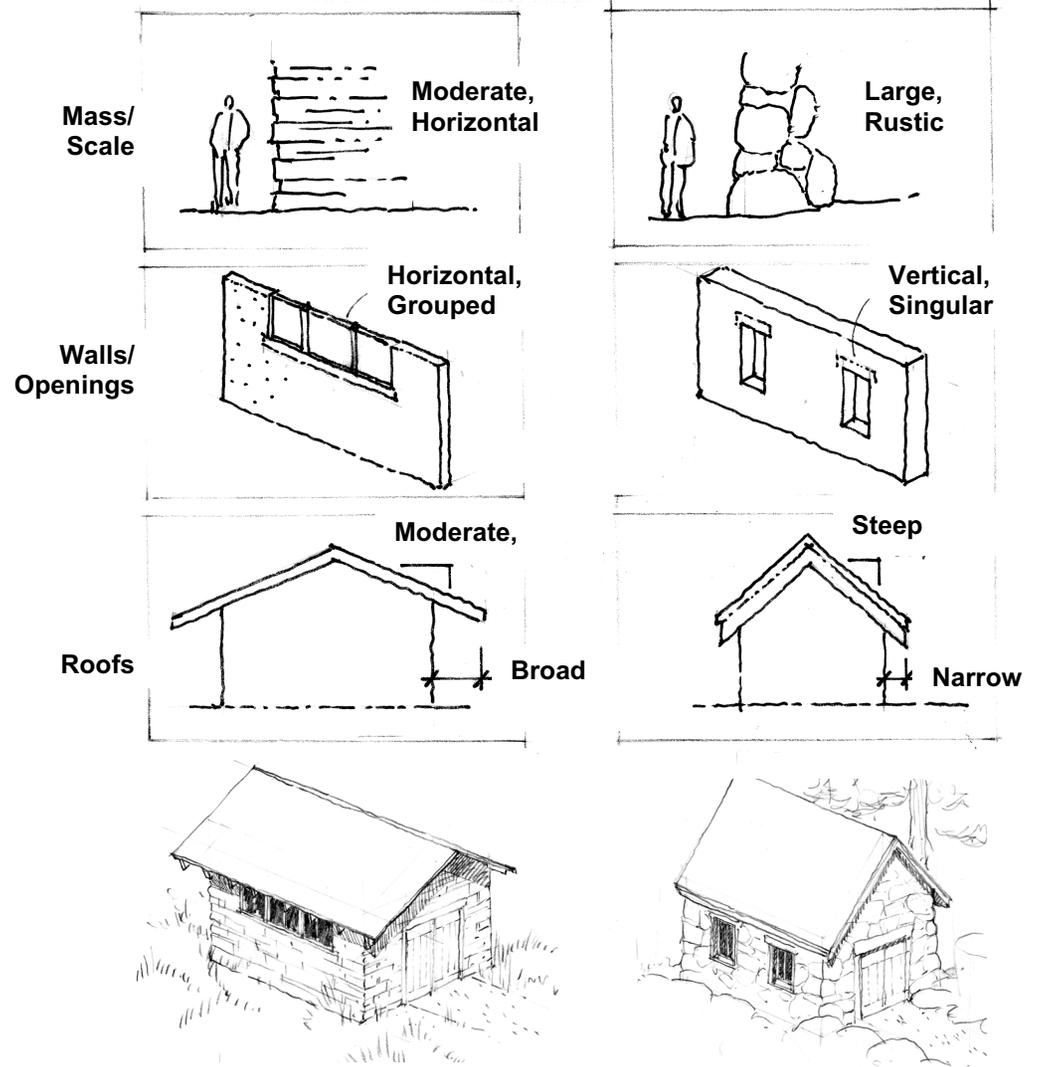
In the Rocky Mountain Province, use singular structures among its taller vegetation and steep topography



In the Southwest Province, use smaller structures within its lower vegetation and less dramatic topography

4. Designing the Site

- **Scale/Mass:** Scale buildings to fit their natural context.
 - *Southwest:* Use horizontally oriented materials of moderate scale, including dry-stacked sandstone, adobe or masonry.
 - *Rocky Mountain:* Use oversized materials, such as rubble rock and heavy timber.
- **Walls/Opening:** Walls and windows should reflect building scale/mass and fit the climate.
 - *Southwest:* Make walls modest depth and group windows to create horizontal emphasis.
 - Windows should not extend to wall edges and corners, to maintain feeling of mass.
 - *Rocky Mountain:* Construct deep walls with vertically oriented windows.
- **Roofs:** Construct roof to regulate temperature and withstand climate.
 - *Southwest:* Make moderately pitched, with broad overhangs for added shading.
 - *Rocky Mountain:* Use steep pitch to shed snow, and modest overhang.



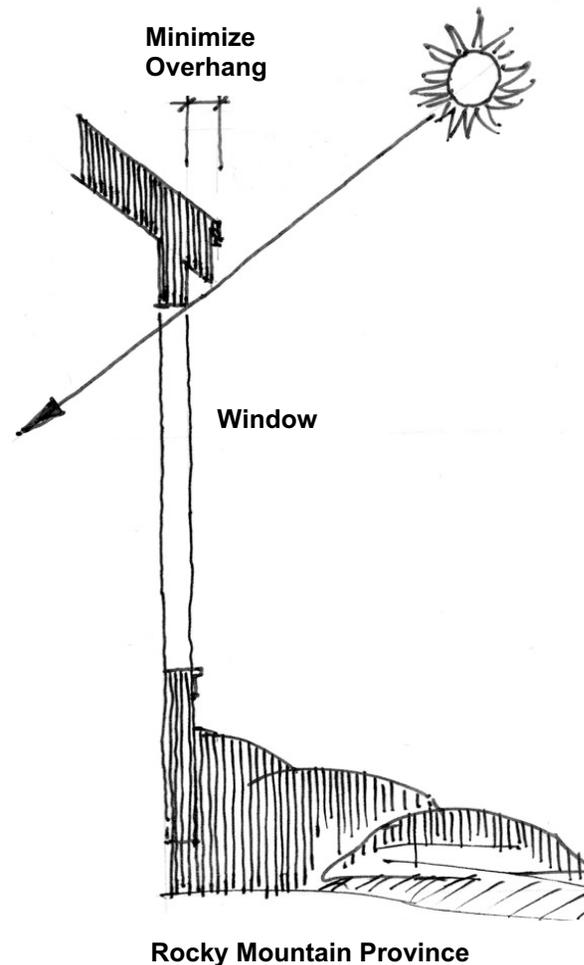
Southwest building concepts

Rocky Mountain building concepts

4. Designing the Site

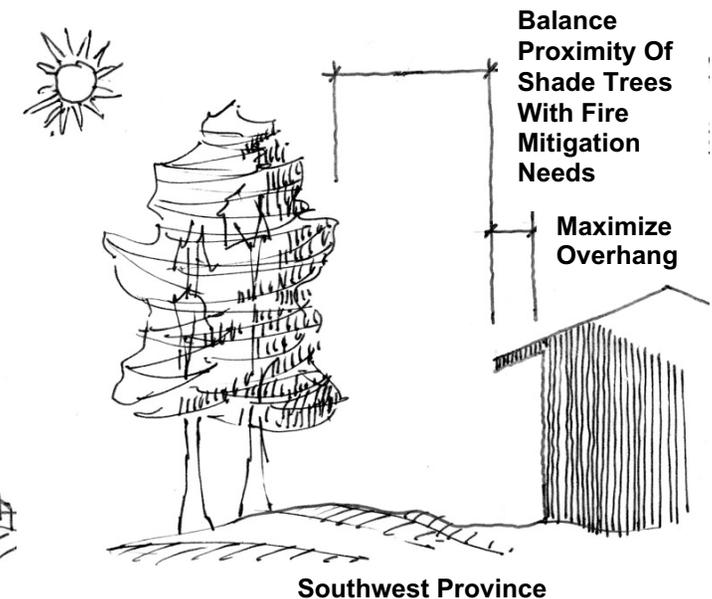
Sustainability

- *Reuse*: Recycle or adaptively reuse a building for a new purpose rather than building anew.
- *Recycle*: Seek building materials with high-recycled content when natural building materials must be augmented.
- *Embodied Energy*: Use materials that are energy-efficient to produce and transport.
- *Daylight*: Introduce light into interior spaces through careful placement of windows.
- *Eaves*: Consider length and placement of a fixed roof overhang to determine the amount of light entering a building at different seasons or times of day.
- *Cooling*: Locate deciduous trees, where suitable, on a building's south side to reduce summer solar gain.



Consider overhang dimensions to determine amount of light entering building

- *Safety*: Use natural, nontoxic building materials.
- *Upkeep*: Employ materials with integral colors that weather rather than materials that must be painted/stained.
- *Fire-Resistant*: Consider wildfire potential when selecting building materials, especially roofing.



Locate trees on south side of a building to moderate summer temperatures

4. Designing the Site

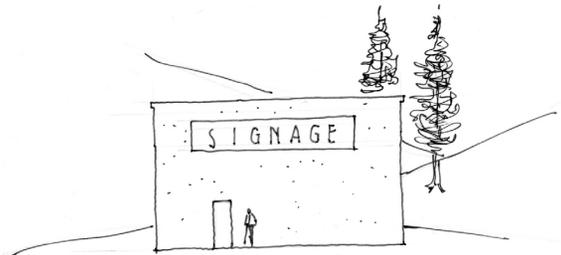
Building Rehabilitation and Restoration

In altering existing built elements, seek opportunities to employ principles previously described to integrate the existing structure and site elements into the natural context.

Specific opportunities may include the following:

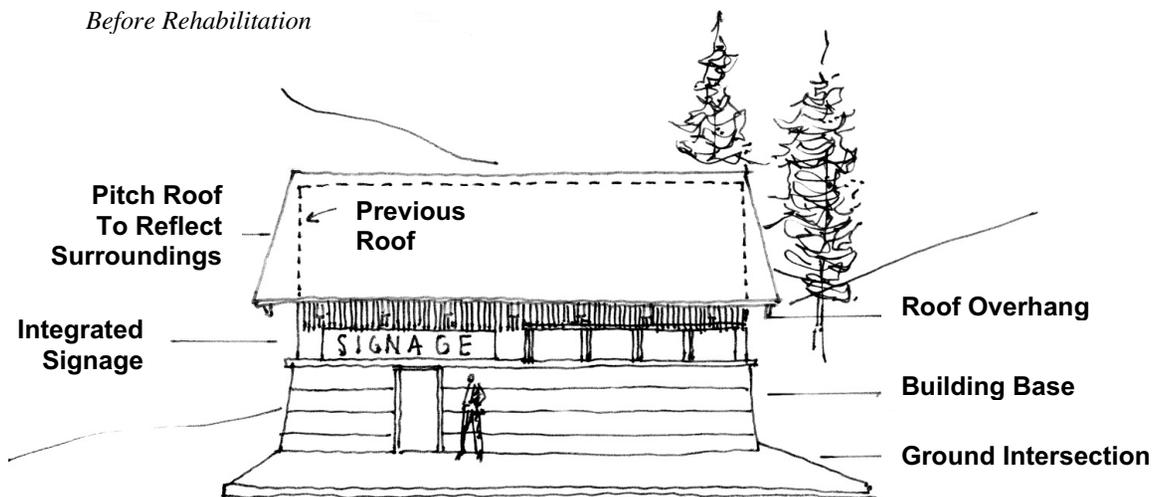
- ***Material/Color:*** At a minimum, employ new exterior materials and colors that fit with the scale, texture and color of surrounding vegetation and geology.
- ***Building/Ground Intersection:*** Improve integration of building with its site by adding a 'base' to the bottom portion of the wall. Extend any special treatment into the ground plane surrounding the structure. This may be achieved by a change of material, or elevation.

- ***Openings:*** Where appropriate locate openings that help to scale the structure to its site, as well as to take advantage of solar access for daylighting and heating.



Before Rehabilitation

- ***Signage:*** Where possible, relocate and/or revise signage to integrate with the scale and character of both existing and new structures.
- ***Roof:*** With this highly-visual building element, it is important to seek opportunities to adjust its profile, pitch, overhang, and material. Choose such aspects that echo characteristics of the surrounding context.



After Rehabilitation

4. Designing the Site

4.8 Signs

Several kinds of signs should be considered for each trailhead. However, Level I trailheads will have much more extensive signage than Level II and III trailheads.

Level I trailheads will include highway/roadside signs that identify amenities onsite. They will also have a site identification sign at the trailhead's entrance, a special attraction sign at the Continental Divide, and directional signs to help people navigate the trailhead site.

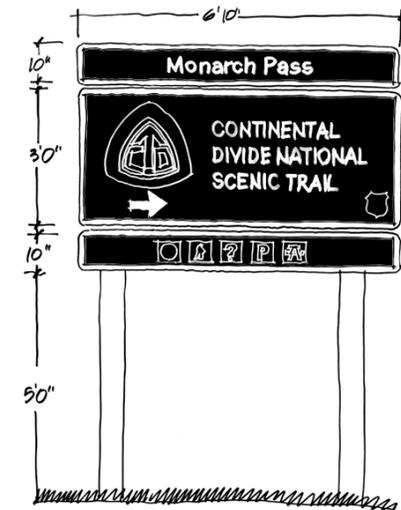
Level II trailheads will have roadside signs to identify trailhead location, but these signs will not indicate site amenities. On-site signage will usually consist only of a site identification sign (see section 4.2).

Level III trailheads, because of their small-scale and primitive setting will have very little signage – usually only a site identification sign (see section 4.2).

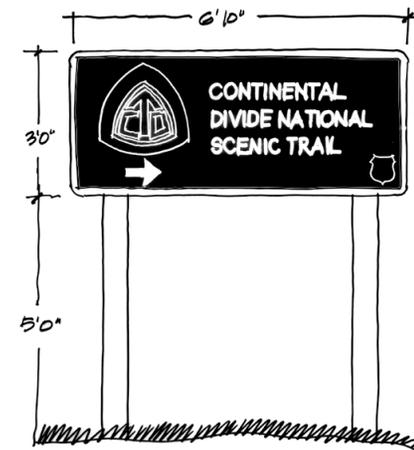
All signs should conform to the Sign and Poster Guide for the Forest Service, and also MUTCD standards:

Highway/Roadside Signs (Level I, II only)

- *Size:* WSR-1A – 46” wide by 24” tall.
- *Materials:* Reflectorized wood, aluminum or fiberglass.
- *Colors:* Brown background with white lettering, color CDNST logo, and white Forest Service shield.
- *Structure:* Metal or wood posts.
- *Content:* Level I includes top panel with Pass/trailhead name; both Level I and Level II trailheads will have a main panel stating “Continental Divide National Scenic Trail.”
 - *Main Panel:* Use 3” capital letters, and include CDNST logo (18” tall) and Forest Service’s shield (4” tall).
 - *Level I trailheads may include bottom panel indicating amenities such as parking, or information using standard symbols.*



Level I Roadside Sign



Level II Roadside Sign

4. Designing the Site

Site Identification Signs

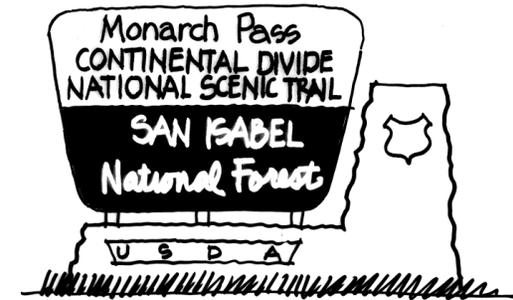
Include a site identification sign at all trailhead entries.

Level I and II:

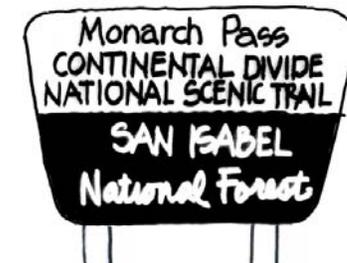
- *Size:* RS-3 or RS-4 – 78” wide by 48” tall or 93” wide by 60” tall.
- *Materials:* Reflectorized wood, aluminum or fiberglass.
- *Colors:* Top: brown letters on yellow-cream background; Bottom: yellow-cream letters on brown background.
- *Structure:* Metal or wood posts.
- *Base:* (Level I only) Form substantial base out of durable materials, typically rock or sandstone.
- *Content:* Top: pass name (sentence case), and “Continental Divide National Scenic Trail.” (uppercase). Bottom: forest name.
 - *Place agency banner and shield on base.*

Level III:

- *Size:* SA-1 or SA-2 – 38” wide by 40” tall or 48” wide by 52” tall.
- *Materials:* Reflectorized wood, aluminum or fiberglass.
- *Colors:* Top: yellow-cream letters on brown background; Bottom: brown letters on yellow-cream background
- *Structure:* Metal or wood posts.
- *Content:* Top: “National Forest,” (cursive) and “Continental Divide National Scenic Trail.” (uppercase). Bottom: trailhead name (uppercase).
 - *Place directional arrow below trailhead name*



Level I site identification sign



Level II

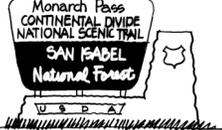
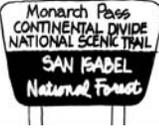
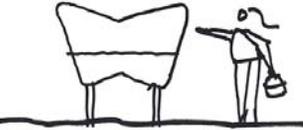
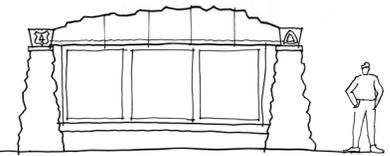
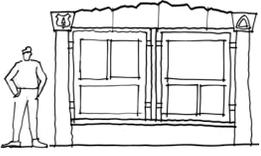
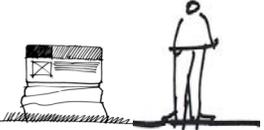
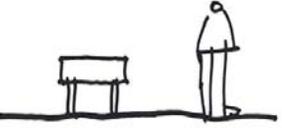


Level III



4. Designing the Site

Sign Hierarchy

	Level I	Level II	Level III
Roadside Signs			Not Required
Site Identification			
Special Attraction (Continental Divide)			Not Recommended
Trailhead Kiosk			
Interpretive Signs			Not Recommended
Trail Marker			

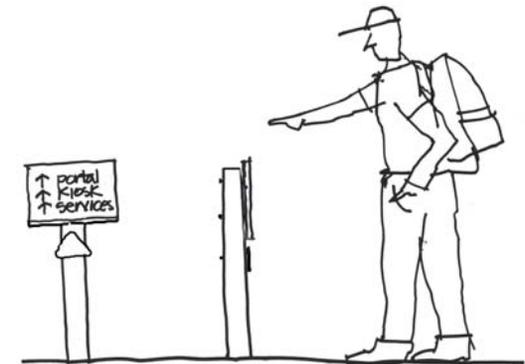
4. Designing the Site

Trailhead Site Guide/Safety Signs (Level I only)

- *Appropriate Amount:* Minimize confusion and maximize user safety through sign placement. Good site layout minimizes the need for signs. However, locate signs at all junctions.
- *Location:* Mount 2'6" from the road/trail's right edge and 40" above average maximum snow level.
- *Materials/Structure:* Construct sign of metal or wood. Mount on metal or wood post(s) or on a tree.
- *Colors:* Use brown background with white lettering for guide signs.
- *Content:* Use capital letters, minimum 1". Provide information about:
 - Potentially hazardous elements
 - Parking area circulation for cars and large vehicles
 - Trailhead Portal location
 - Include 3 1/2" CDNST logo/ marker below guide sign, at least 30" off the ground.

Special Attraction Sign at Continental Divide Monument Sign (Level I only)

- *Materials:* Construct sign out of fiberglass or plywood, mounted on wood or metal post.
- *Colors:* Use brown background with reflective white lettering.
- *Content:* Provide the mountain pass name and elevation, agency shield, and U.S. Department banner.
- *Base:* Form base out of durable materials, typically rock or sandstone.



Front View

Side View

Site Directional Sign



The special attraction sign at the Continental Divide should be built out of durable materials.



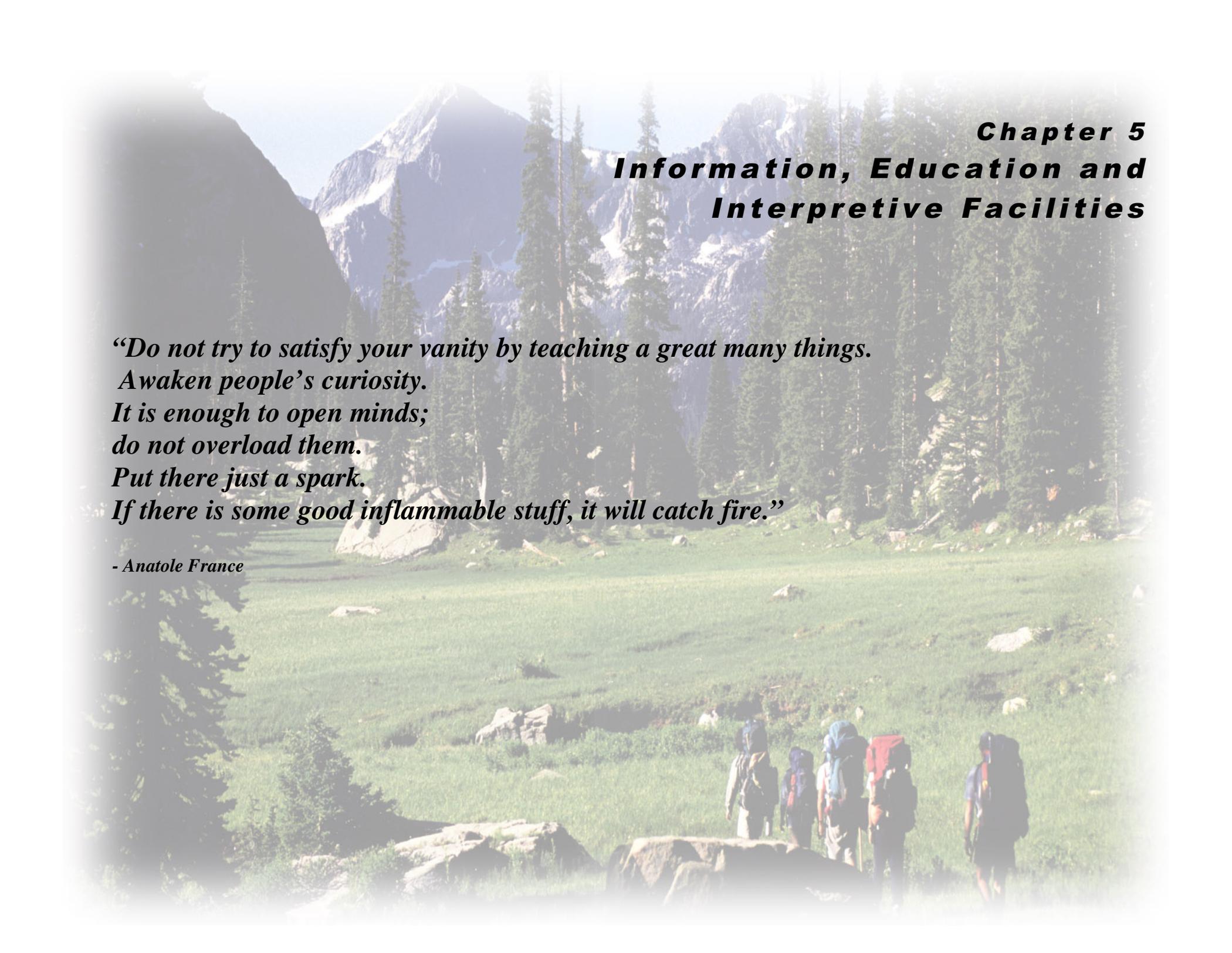
4. Designing the Site

4.9 Summary

Detailed design elements help define individual trailhead character and create a common feel to all of the CDNST trailheads. Roads, parking, trailhead portals, walls, and site furnishings should be constructed of similar materials throughout the trailhead system, but be adapted to their local environment. Appropriate landscaping materials and grading assist in maintaining site health and blending the trailhead with its local setting. Consistent sign design allows users to easily identify trailhead location and features. This chapter has provided guidance for these topics, while allowing some flexibility for the trailhead designer.

The next chapter, *Information, Education and Interpretation Facilities*, continues the sign discussion by providing standards for interpretive facility site planning and design, and interpretive panel content.





Chapter 5
Information, Education and
Interpretive Facilities

*“Do not try to satisfy your vanity by teaching a great many things.
Awaken people’s curiosity.
It is enough to open minds;
do not overload them.
Put there just a spark.
If there is some good inflammable stuff, it will catch fire.”*

- Anatole France

5. Information, Education and Interpretive Facilities

5.1 Information, Orientation

As the gateways to the CDNST, the Level 1 trailheads located along highways are prime locations to provide information and orientation to the CDNST, interpretation of on-site attributes, and the mission of the agencies and partners.

These guidelines should be used to define standards and maintain consistency in development of interpretive media. Guidelines should be adhered to throughout media development phases.

Adherence to high quality design standards is critical to the success of interpretive media. Visitors are more inclined to read information and abide by agency regulations if it is presented clearly, attractively, and professionally.

Site Planning

- *Universal:* Develop trailhead information/orientation kiosks at all Level 1 trailheads.
- *Position:* Locate the kiosk in an attractive setting near the main portal to encourage visitors to read the panels before hiking or while waiting for others.
- *On-Trail:* Develop, where possible, modest interpretive panels along the initial stretch of the trail interpreting attributes of significance.
- *Other National Trails:* Coordinate information/orientation with other national trail systems where necessary (i.e. Nez Perce National Historic Trail (NHT), Lewis and Clark NHT, and the Oregon Trail.)
- *Other Locations:* Work with partners to provide orientation panels or kiosks in locations outside of the CDNST corridor.
 - *Encourage visits to the CDNST where appropriate, by placing panels or kiosks at visitor centers, chambers of commerce, and agency offices. Possible locations include local airports, community visitor centers, and Inter-state Welcome Centers.*



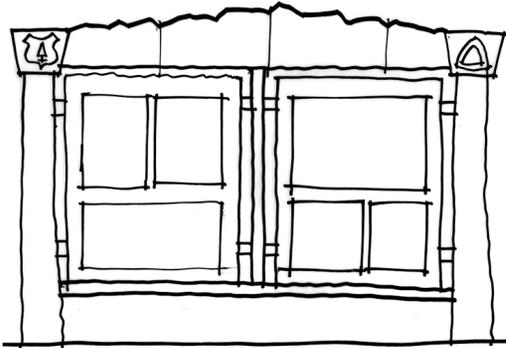
5. Information, Education and Interpretive Facilities

Overall Design

- *Consistency:* Create a sign structure/base based on the Built Environment Image Guide with consistent design elements used across the CDNST. Panels need to be informative and attractive, with content that follows themes detailed in the CDNST Interpretive Plan.
 - *Materials:* Fabricate all signage with similar materials and colors using computer digitized printing within high-impact styrene or embedded fiberglass.
 - *Flexibility:* Include panels that can be rotated within information kiosks. These can also contain an area to include regulations, fire orders, etc. as needed.
 - *Legitimacy:* Avoid tacked up regulations on paper/posters, as they often lack professionalism. (i.e. Fire orders, other special orders, announcements, etc.)
 - *Blend-in:* Coordinate interpretive media harmoniously with the environment using design elements consistent with the Recreation Opportunity Spectrum, the Built Environment Image Guide, accessibility guidelines, local resources, e.g., native rock bases for waysides, etc. and limit impacts to cultural and natural resources.
 - *Trail Identity:* Identification of the CDNST or agency is not required on interpretive signs. To foster the CDNST image, use consistent graphics formats and styles for all media. They should follow a design theme. Graphic standards should reinforce the theme and create a unique identity throughout.
 - *Upkeep:* Design all sign facilities to be easily used and maintained, and be vandal resistant.
- Information/Orientation Kiosk Layout**
- *Display:* Use a three-panel kiosk at Level I trailheads, a two-panel kiosk at Level II, and a one-panel at Level III.
- For Level I trailheads:**
- *Center Panel:* Include trail map (from previous trailhead to next trailhead), inset map of entire trail, regulations and safety information, and a special graphic collage of photos covering this section of trail.
 - *Left Panel:* Identify activities and opportunities found in adjacent communities and public lands.
 - *Right Panel:* Introduce the CDNST theme and engage the visitor to the adventure that lies ahead.
 - *Other:* Consider location for seasonal messages.



5. Information, Education and Interpretive Facilities

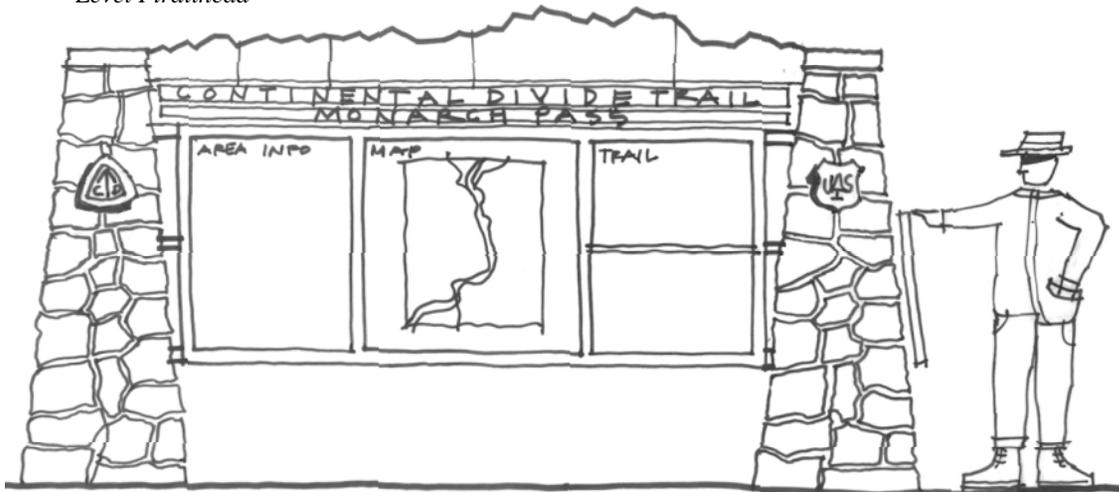


Example 2-panel sign for use at a Level II trailhead

Sign Content

- *Focus:* Introduce visitors to major interpretive themes.
- *Accessibility:* Adhere to Smithsonian Institution accessibility standards when creating interpretive media. Provide written material in large print and audio format as appropriate.
- *Partners:* Include sponsorship recognition panel.

Example 3-panel sign for use at a Level I trailhead



- *Logos:* Incorporate the CDNST logo, and Agency logo/shield on all media. Use additional logos – i.e. CDTA, wolf logo for wilderness, Colorado Trail – as appropriate. Employ a unified design for all wayside and orientation kiosks.
- *General Information:* At a minimum, include a CDNST map, safety orientation, user ethics, and travel management information.
 - *Information for users, including regulations, safety, uses allowed, trail etiquette; provide area for messages that change.*
 - *CDNST story, information on local flora/fauna, partner information, and sources for further research*
- *Orientation:* Orient the visitor to activities available on the CDNST, and other trail systems where applicable.

5. Information, Education and Interpretive Facilities

5.2 Interpretive Facilities

The overall purpose of interpretation is:

- To assist the visitor in developing a keener awareness, appreciation, and understanding of what they are viewing or experiencing;
- To accomplish management goals that encourage thoughtful use and minimize human impact; and
- To encourage an understanding of agency goals and objectives.

The primary purpose of this interpretive effort is to foster conservation values through written media and interpretive exhibits. Interpretive goals focus on management and what the Agency desires for the visitor experience while visiting the CDNST and hiking the trail. This effort will help develop appreciation and support for resource management.

Interpretive Goals

The following interpretive goals are established to:

1. Provide orientation and information to the CDNST, including its history and mission.
2. Provide a safe, convenient, and enjoyable visit to the CDNST.
3. Enhance the understanding of the role of human use in shaping the past and present local landscape and environment and provide a context for understanding contemporary landscapes and natural resource issues.
4. Improve understanding of the role of the Agency's missions in the conservation and interpretation of natural resources.
5. Enhance the visitor's experience through a coordinated consistent presentation along the trail.
6. Encourage better awareness and appreciation of the CDNST and other natural and cultural resources that results in a stewardship ethic to sustain and protect the CDNST.
7. Foster partnerships that strengthen ties to communities and other local initiatives that improve interpretive services, cost effectiveness and efficiency, and provide message consistency.



5. Information, Education and Interpretive Facilities

Interpretive Objectives

What we want the visitors to know, feel, experience, and do while visiting the CDNST or upon their return home.

At the conclusion of their visit to the CDNST, our desire is that the majority of visitors will:

- Learn about recreation opportunities and develop respect and a sense of stewardship for the CDNST;
- Leave the CDNST with a sense of appreciation for the vast number of mountain experiences and recreational pursuits available;
- Understand the significance of natural events in the environment;
- Understand that the CDNST is managed by several different Federal agencies and their missions are varied;
- Recognize the historical significance the Continental Divide had in the development of our country.
- Understand CDNST mission.

Overall Interpretive Theme

A central theme helps tie together the information and ideas that are presented to visitors. The theme is the principle message about the topic that we want to get across to our audiences. Themes are the plot to the movie, the moral of the story. They answer the question, “So what?” or “What’s the big deal?” They can be expressed in complete sentences, as opposed to topics that are general categories of ideas. The theme provides the foundation for all presentations, no matter what media is used.

The central theme is:

“Uniting Along the Divide”

The CDNST is the common thread along the Continental Divide, connecting a scenic landscape – rich in a diversity of ecosystems – to history, cultures, values and communities.



5. Information, Education and Interpretive Facilities

Subthemes

Sub, or supporting themes relate to and support the central theme and focus on specific topical information. The sub-themes are linked specifically to certain resources and can be the focus for telling the story of those resources at appropriate sites or media products.

Biodiversity

- The rich public lands surrounding the CDNST contain scenic landscapes, diverse typography, plant and wildlife species specific to the Continental Divide, all to be managed for sustainable use to provide for future generations.
- Wildfires are part of the mountain ecosystem and have been extremely significant in the recent past, taking life, destroying property, and changing the landscape.

Recreation Experience

- The CDNST provides recreational opportunities as it transects the U.S., crossing diverse landscapes, rich in plant and animal species, beautiful scenery, and the evidence of human life from the past and present sustained for future generations.
- Nationally significant recreation opportunities exist along the CDNST, predominantly hiking and equestrian uses.
- Growing recreation demands and sustainable land use challenge resource managers.

Human and Landscape Connections

- The vast of array of landscapes the CDNST crosses carry the memories of Native American life, Westward expansion, and the forging of a country rich in natural resources – water, timber, wildlife, plants, and minerals.

- Cultural and human experiences along the Continental Divide provide a glimpse into the past and picture of the future relationships between land and people and sustainable resource management.
- This rich mountain environment has challenged and attracted people over centuries to climb the mountains, fish the waters, and reflect in the extraordinary scenery.

Headwater Challenges

- Managing water quality and water yield ensures a healthy and sustainable water supply for agriculture and domestic use to the east and west sides of the Continental Divide.

Specific goals and themes should be developed by Trailhead or Social Resource Unit tiered down from those presented here. See the CDNST Interpretive Plan for examples.



5. Information, Education and Interpretive Facilities

Information/Orientation and Interpretive Panels

Layout

- *Information/Orientation:* Use portrait orientation.
- *Interpretative:* Use landscape orientation.
- *Size:* Use 36” x 24” size signs.

Format

- *Corporate Image:* Include an agency identifier/shield along the lower right side of panel. Partners may be recognized to the left.
- *Titles:* The titles should be a statement of a theme. For example, “Salvaging Blowdown – A Tremendous Renewable Resource” sets the stage for talking about how trees are a renewable resource
- *Layout/Design:* In general, signs should contain 1/3 graphics, 1/3 text, and 1/3 blank space.

- *Margins:* Margins on text should be flush on the left side and ragged on the right.

- *Simplicity:* The main body of text should be no more than two paragraphs of three or four short sentences. Keep text to 150 words.

- *Typeface*:* Use simple serif typeface or sans serif, upper and lower case, with a minimum 18 point type size on signs.
Recommended sizes:
 - *Titles:* 72 – 60 point
 - *Subtitles:* 48 – 40 point,
 - *Body Text* – 24 point
 - *Captions:* 18 point.

*(Complies with suggested sizes for visually impaired as per National Park Service Recommendations.)

Sign Content

- *Focus:* Motivate trail users with interesting themes, tiered from the CDNST Interpretive Plan.
- *Accessibility:* Adhere to Smithsonian Institution accessibility standards when creating interpretive media. Provide written material in large print and audio format as appropriate.
- *Logos:* Incorporate the CDNST logo, Agency logo and shield on all media. Identify to the Forest/Park BLM Unit. Use additional logos – i.e. CDTA, Colorado Trail, etc. – as appropriate. Employ a unified design for all interpretive panels.
- *General Information:* Develop a specific interpretive theme and goals tiered from the CDNST Interpretive Plan.
- *Partners:* Include sponsorship recognition at bottom of panel.



5. Information, Education and Interpretive Facilities

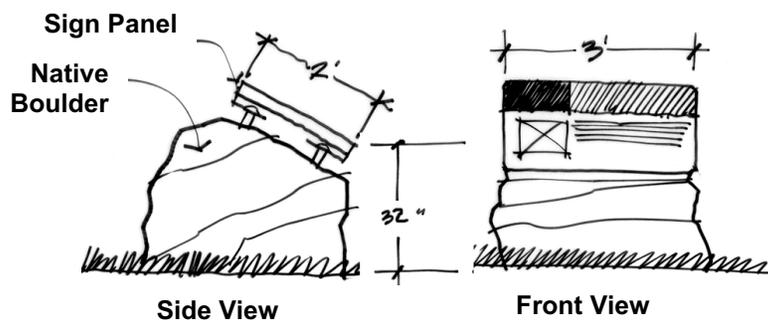
Construction

Level I Trailheads

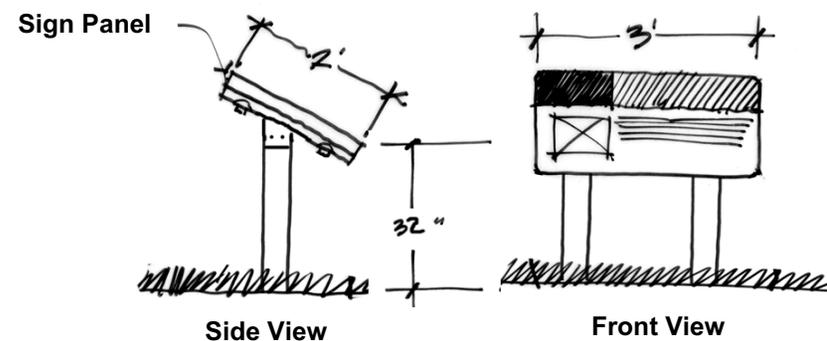
- **Materials:** Use durable, materials that can withstand temperature extremes and freeze/thaw cycle.
 - Typically vandal-resistant signboard on steel frame.
 - Use local stone or large logs removed for construction for sign base at Level I trailheads
- **Colors:** Base sign colors on colors of surrounding landscape:
 - Southwest: Typically sandy-brown, sandstone, gray-green hues.
 - Rocky Mountain: Typically granite, green, mid-to-dark brown hues.
- **Structure (Level I):** Mount sign in a manner appropriate for its location and climate:
 - Southwest: 30 degree angle on a sandstone structure that will withstand harsh wind and sun patterns, front height of 32".
 - Rocky Mountain: 30 degree angle on a log or stone structure, front height of 32".
 - Arctic Alpine in Rocky Mountain: 30 degree angle on a rock structure that will withstand harsh wind, sun and snow patterns, 32" front height.

Level II Trailheads

- **Materials:** Construct out of durable, vandal-resistant materials that can withstand temperature extremes and freeze/thaw cycle.
 - Typically vandal-resistant signboard on steel frame.
- **Colors:** Same as Level I trailheads.
- **Structure:** Mount sign in a manner appropriate for its location and climate:
 - 30 degree angle using wood or metal structure that will withstand harsh wind and sun patterns, front height of 32".



Use local stone for interpretive panel base (Level I)



Use wood or metal posts for interpretive panel base (Level II)



Chapter 6
Partnerships

*“When one tugs at a single thing in nature,
he finds it attached to the rest of the world .”*

-John Muir

6. Partnerships

Healthy partnerships can make the difference between a really successful trailhead and one that is not valued highly by its community. Partners collaborate on construction, maintenance and promotion issues and help involve the local community.



6. Partnerships

Collaborating for Success

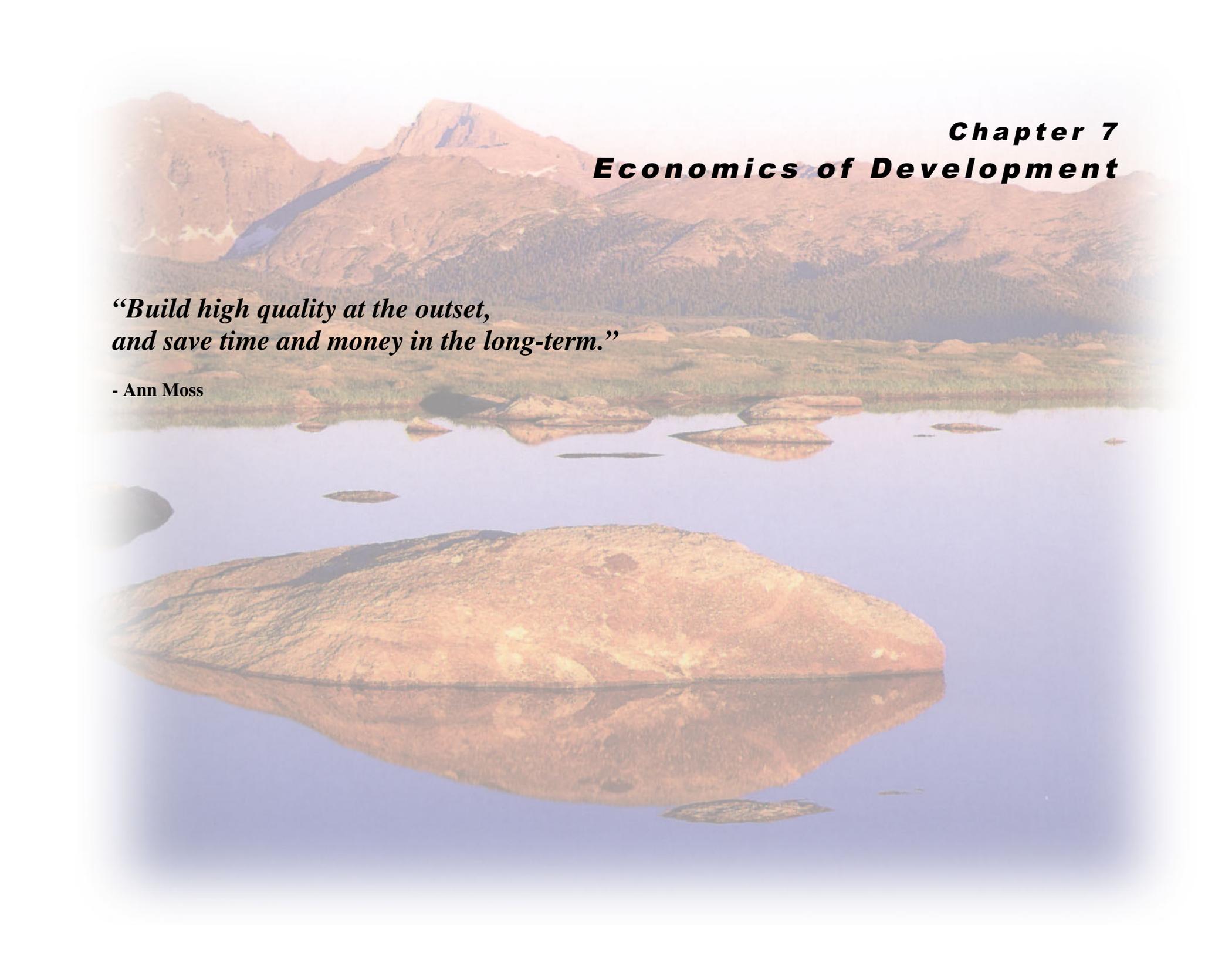
Trailhead locations exist within a larger context of neighbors, adjacent communities, public agencies, non-profit organizations and trail-users. Collaboration with these groups can provide an advocacy and support structure that is stronger than what any one entity can provide. The more people are interested in the trailhead, the better it will be maintained and the less likely it is to be vandalized.

Furthermore, additional fiscal resources are available beyond traditional funding by working with partners to raise funds.

Guidelines for forming and maintaining successful partnerships follow.

- *Stakeholders*: Identify all parties that might hold a stake in the trailhead. Examples are:
 - *Public land managers (adjacent Forest Manager, Bureau of Land Management, National Park Service, county open space)*
 - *Local Department of Transportation*
 - *Continental Divide Trail Alliance*
 - *Local communities*
 - *Local chamber of commerce*
 - *Trail user groups*
 - *Public land advocacy groups (i.e. Volunteers for Outdoor Colorado)*
 - *Concessionaires*
 - *Business/corporate sponsors*
 - *Civic organizations*
 - *Other*
- *Acknowledgment*: Provide opportunities to recognize corporate donors in a manner that is compatible with the trailhead vision, and appropriate to the managing agency policies.
- *Multiple Use*: Find opportunities for creating shared facilities with shared maintenance and construction costs.
- *Education*: Engage local schools and nature groups to create educational programs that involve the trailhead.
- *Volunteers*: Create Adopt-a-Trailhead program to attract local sponsorship. This program would organize volunteers who perform trailhead maintenance.
- *Community*: Accommodate neighboring landowners, public land managers and communities by working with them from the beginning of the development process.
- *Common Ground*: Establish goals, actions and policies that mutually benefit all partners.



A scenic landscape featuring a large, smooth, reddish-brown rock in the foreground, partially submerged in a calm lake. The lake reflects the rock and the surrounding environment. In the background, there are rolling hills and mountains, some with patches of snow or light-colored rock. The sky is a pale, hazy blue.

Chapter 7
Economics of Development

***“Build high quality at the outset,
and save time and money in the long-term.”***

- Ann Moss

7. Economics of Development

To ensure a trailhead is successful throughout the years, life-cycle costs and durability of construction materials must be considered during the design process. If done properly, the trailhead will fall within both its design and construction budget, and be sustainable over the long-term.



7. Economics of Development

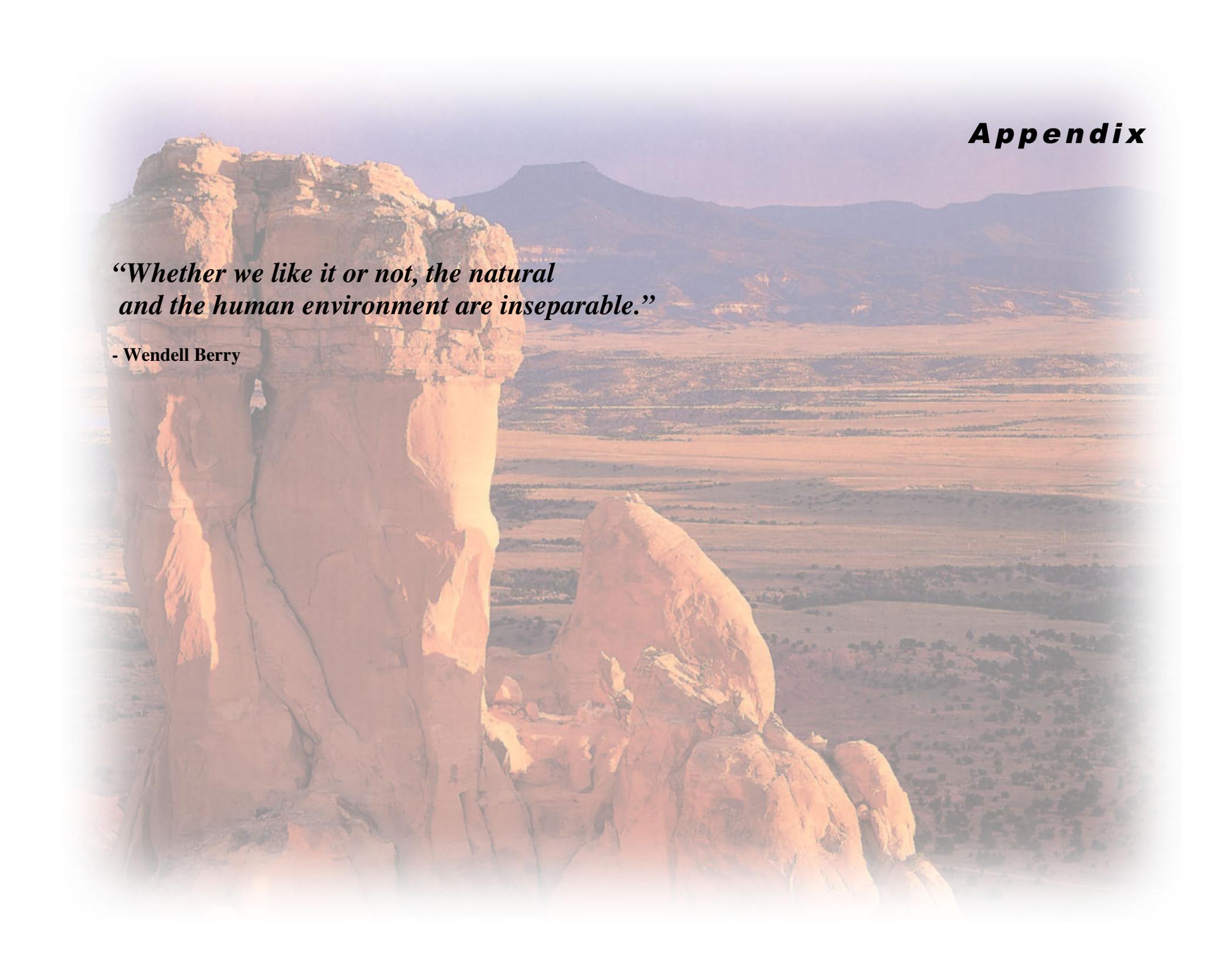
Costs required to build and maintain a trailhead over the long-term will determine its overall success for both the Agency and trail users. Well-designed trailhead facilities built out of long-lasting materials that fit with their environment will require minimal maintenance. They will require less effort and money for long-term maintenance, while remaining in good condition. This will convey a positive image of the Agency, and result in trailheads that seem as unchanging as the CDNST itself.

Sustainable designs are usually less expensive – if not at the time of construction then over the long-term – than those that use conventional engineering methods. By working with natural landscape patterns, there will be fewer site alterations and associated costs. Since most materials – meaning vegetation and building supplies – can come from the local area, there will be less need to purchase and transport these items over long distances.

Guidelines for considering economic issues of development follow.

- *Continuous Evaluation:* Estimate costs throughout the design process to ensure the design fits within construction and maintenance budget.
- *Long-Term:* Consider life-cycle construction and maintenance costs when designing facilities.
 - *Minimize upkeep by using long-lasting materials, even if this increases initial construction costs.*
- *Sharing:* Collaborate with partners early in the design process to determine common uses and appropriate cost sharing.





Appendix

*“Whether we like it or not, the natural
and the human environment are inseparable.”*

- Wendell Berry

Appendix A: Case Study – Monarch Pass

Monarch Pass is a Level I CDNST trailhead facility that straddles the Continental Divide in the Sawatch Range of south central Colorado. This high mountain pass is located along U.S Highway 50, 24 miles west of Salida and 38 miles east of Gunnison.

Situated at 10,500 feet elevation in the Boreal ecosystem of the Rocky Mountain province, vegetation is dominated by lodgepole pine and spruce fir/forests. Precipitation at this elevation is high with snowfall in excess of 80 inches per year. Snow persists from fall to late spring. On clear days this location affords excellent views to the Monarch Ski Area to the north and the Cochetopa Hills to the south.

The facilities at Monarch Pass occupy a relatively flat clearing on the east side of the highway. The road configuration consists of four lanes with accel and decel lanes into the roadside facility.

Facilities

Compared to other CDNST trailhead facilities Monarch Pass is highly developed and includes both public and private facilities. These facilities include:

- The Monarch Crest gift shop, restaurant and restrooms
- An aerial tram providing scenic rides up the adjacent peak
- A Colorado Department of Transportation (CDOT) sand storage facility
- Large public parking and access to the adjacent San Isabel and Gunnison National Forests
- Trails and four-wheel drive access roads
- Continental Divide sign
- Offset radio and satellite antenna farm



*Monarch Pass
parking and
concessionaire
facilities in
December 2002*



Appendix A: Case Study – Monarch Pass

Issues

Due to incompatible uses and extensive site development and disturbance Monarch Pass presented numerous obstacles for redevelopment as a quality CDNST trailhead facility. Issues at the site included

- Existing development has been haphazard and poorly conceived.
 - There is no separation of uses or structure to the development pattern.
 - Facilities dominate the landscape including radio/satellite transmission towers and the aerial tram towers above the site.
 - Road cuts and site development have resulted in excessive scarring.
 - The architecture of the buildings do not relate to one another, the site or the Rocky Mountain province.
 - Parking and circulation is disorganized, resulting in inefficient parking and hazardous conditions for drivers and pedestrians alike.
 - Public access to existing four-wheel drive roads must be maintained.
- Large portions of the site are inaccessible during the winter and late spring as a result of snow accumulation and storage.
 - The trail crossing at Highway 50 is unsafe and poorly defined. High speeds and short sight distances make crossing the highway a perilous undertaking for pedestrians, cyclist and equestrians.
 - The site receives heavy truck, bus and RV traffic.
 - CDOT operations necessitate easy access to and from their sand storage facility throughout the year.



Concessionaire facilities dominate the site



Highway crossing for the CDNST is not well defined, which is made worse by deep snow



Parking areas must accommodate large snow plows

Appendix A: Case Study – Monarch Pass

Project Purpose

The purpose of the Monarch Pass and Continental Divide National Scenic Trailhead design is to provide an attractive, interesting and maintainable facility for visitors and recreational users of the site.

Sketch of Monarch's planned trailhead with CD monument and information kiosk



Planning and Design Goals

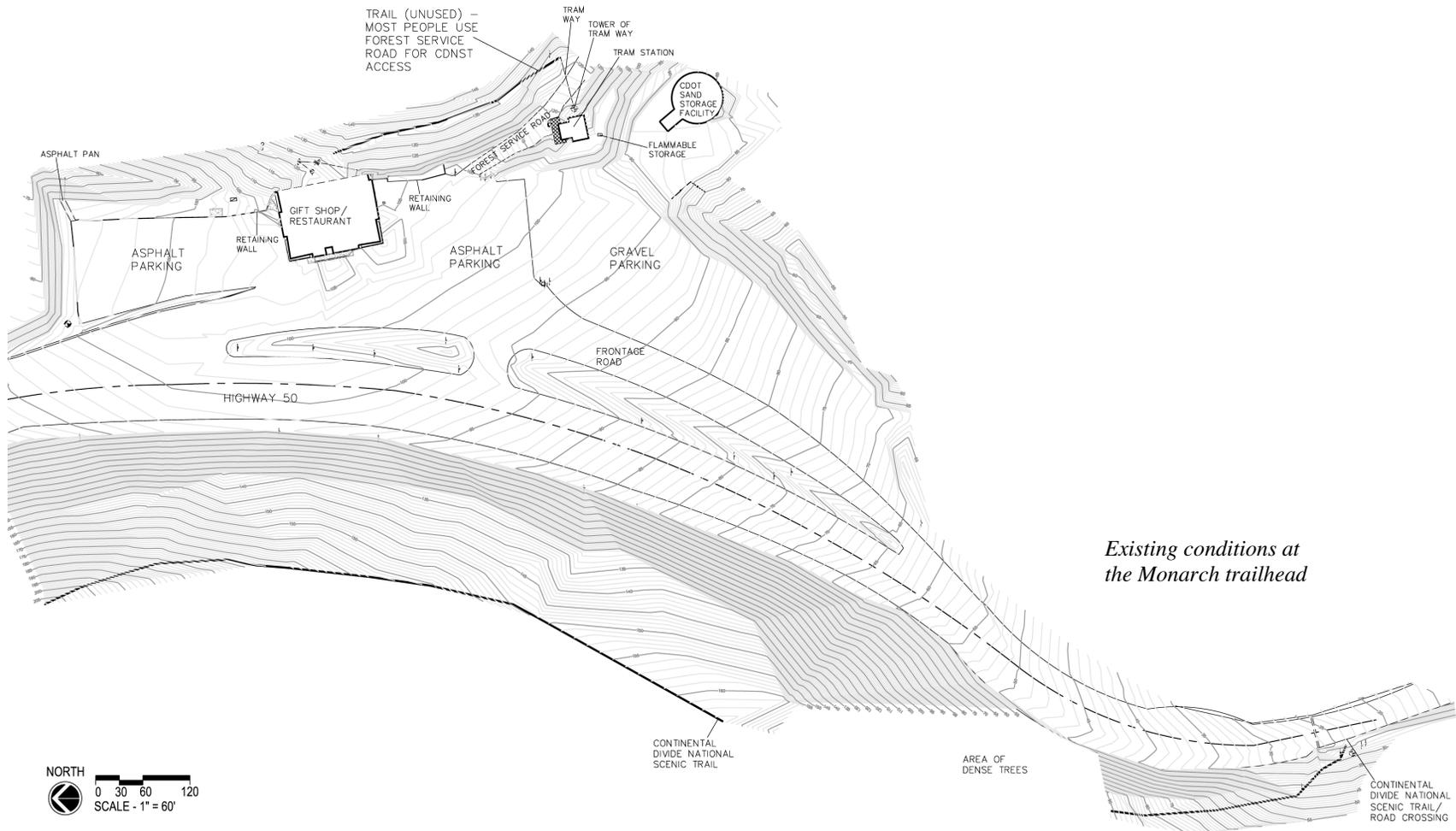
Specific goals of the design were to:

- Provide an interesting and attractive site to emphasize the Continental Divide crossing.
- Instill a greater awareness of the existence of the Continental Divide crossing and CDNST. Encourage people on the highway to want to stop at the site.
- Provide a quality photographic opportunity for visitors.
- Provide safe and easy egress on and off the highway.
- Provide a trail crossing at the safest point along the highway.
- Establish an attractive identity for the CDNST.
- Entice people onto the trail.
- Establish a portal providing a link between the built environment and the natural environment.
- Provide a variety of interpretive and educational opportunities.
- Discourage motorized use along the trail through design.
- Provide a trailhead environment that feels like an extension of the surrounding landscape.

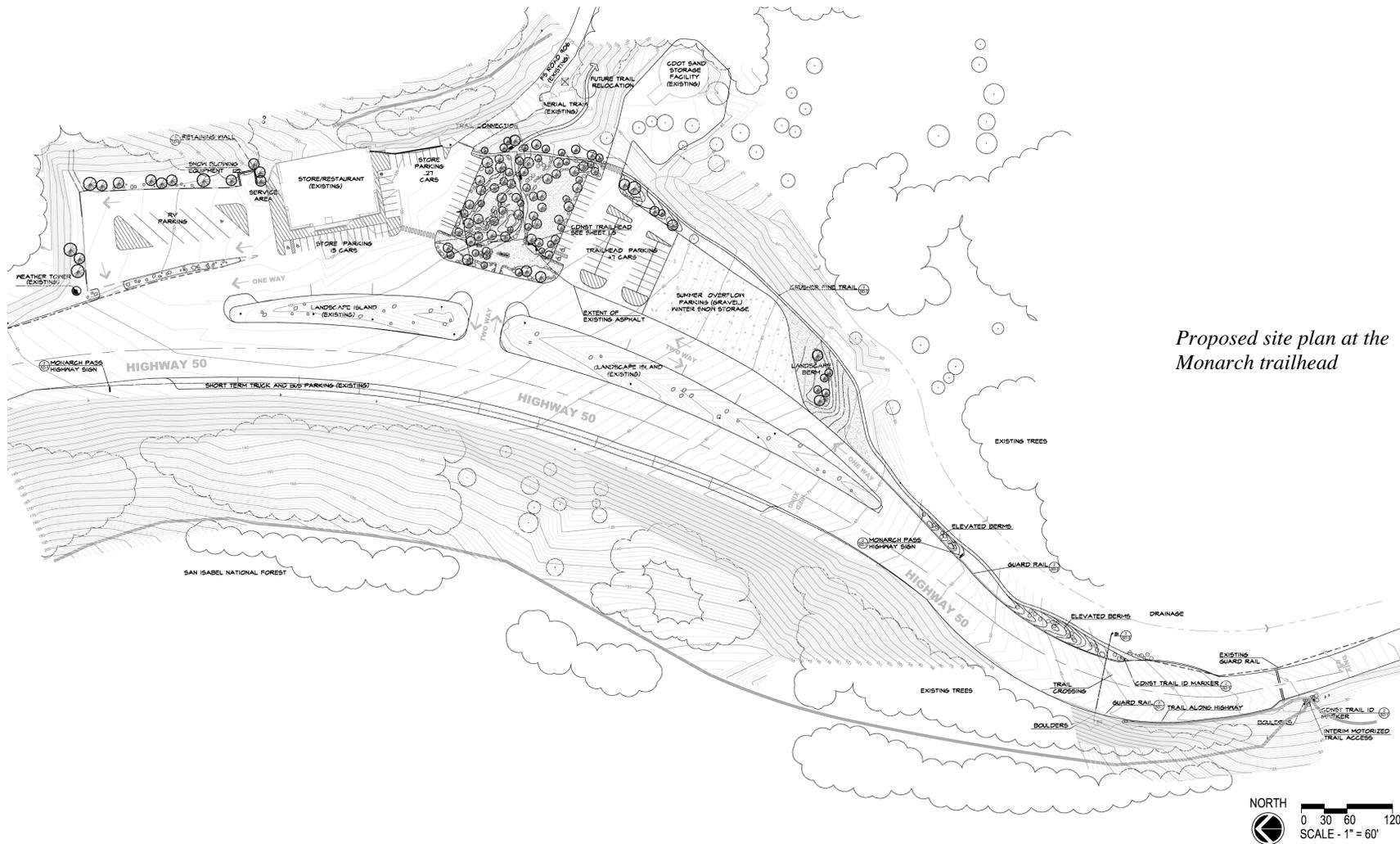
Guideline Implementation

In this particular case, existing uses and facilities at the site were established. As a result, little could be done to alter the composition or location of facilities on the site. However the dispersed development pattern offered ample opportunities for reorganization of site circulation and restoration of the natural landscape.

Appendix A: Case Study – Monarch Pass



Appendix A: Case Study – Monarch Pass



Proposed site plan at the Monarch trailhead



Appendix A: Case Study – Monarch Pass

Organization and Appearance

Working with the existing infrastructure, improvements were made to the site's organization and appearance through the following interventions:

- Reintroduction of the surrounding native spruce/fir forest into the prominent central portion of the site.
- Landscape islands were incorporated to separate use areas and parking.
- Boulders were placed in natural occurring groupings to reflect the surrounding landscape.

Visitor Experience

Incompatible uses and facilities occupying the site necessitated a clear and understandable message and entry experience for potential trail users from the highway to the trailhead. The visitor experience was improved through:

- The incorporation of trailhead and facility identification signage along the highway.
- Improved wayfinding by clearly establishing access locations and improving directional signage.
- Improvements to the arrival sequence by incorporating indigenous elements into the landscape.
- Providing connections to encourage use of adjacent facilities and services.
- The use of interpretive signage and areas of special interest along the trail encouraging visitor exploration.

Appendix A: Case Study – Monarch Pass

Circulation & Parking

Significant changes to the site circulation and parking will be implemented to provide better organization and utilization of the site. These improvements will include:

- One-way site ingress and egress to better organize vehicular flow through the site.
- Separation of parking lots by use and utilization of previously disturbed and unusable areas.
- Designated locations for different types of vehicles (cars, trucks, busses and RVs), allowing easy access to and from parking areas.
- Screening of parking lots from adjacent roads.
- Definition of parking and use areas with natural landscape elements including boulders and trees.

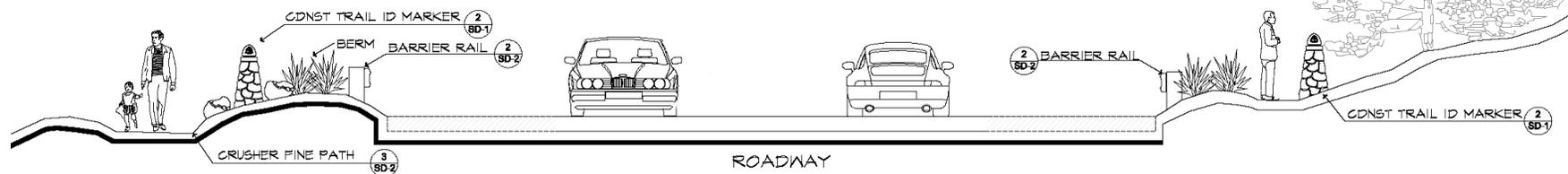
Pedestrian Circulation

Careful consideration was given to the interface of pedestrian and vehicular circulation at the site. Pedestrian circulation was improved by:

- Separating the CDNST from parking and unrelated facilities with natural appearing landforms and screening.
- Establishing a distinct trail crossing at Highway 50 in a location identified as having the longest sight lines and the fewest visual distractions. In addition, pedestrian crossing signage and guardrails separating the trail from the highway have been incorporated.

- Placement of trail identification markers at prominent CDNST connections. Markers would be constructed of native stone.
- Locating trails within the site providing good connectivity, safe and easy access.
- Utilization of natural crushed stone surfacing to blend with the surrounding environment.

Road section with pedestrian safety improvements



Appendix A: Case Study – Monarch Pass

Site Rehabilitation and Restoration

Due to the disturbed nature of the site, the following rehabilitation and restoration efforts are recommended:

- Existing railroad tie retaining walls will be replaced with dry-laid stone walls comprised of native stone.
- Unused areas of the existing gravel parking lot will be restored with native landscape.
- The concrete and stucco facades on existing buildings will be covered with a concrete veneer stone to match native stone found on site.

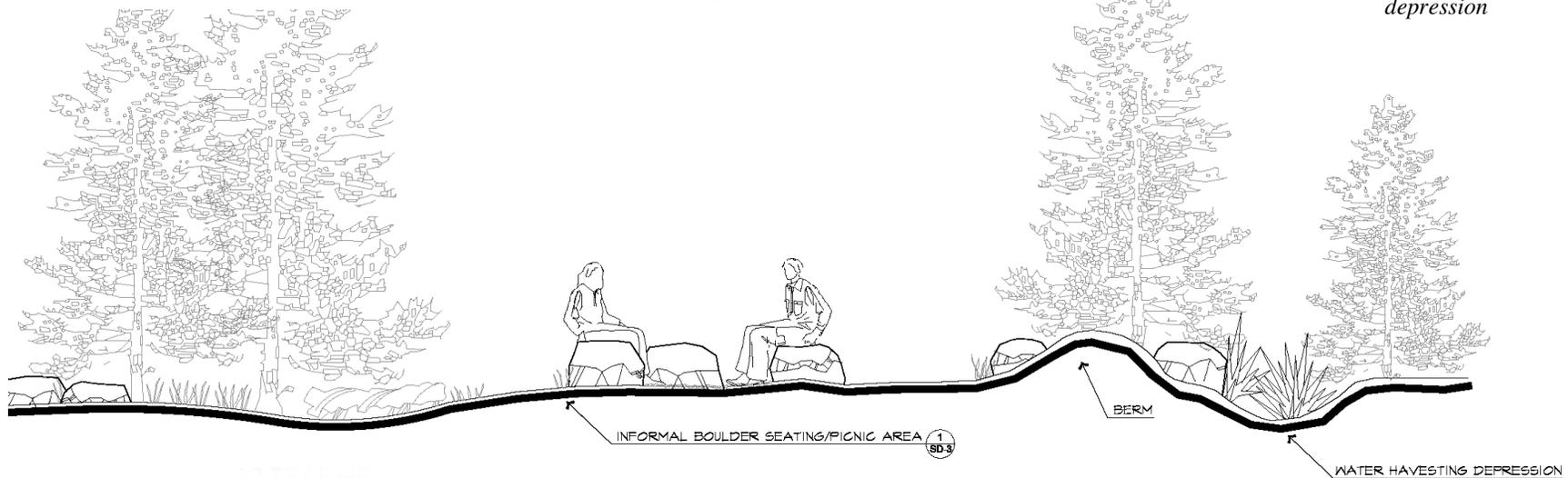
Landscaping

The landscape within the trailhead area is comprised of indigenous materials common to the area including vegetation, boulders and natural occurring landforms. Specific aspects of the plan include:

- Spruce/fir pines of various sizes planted in natural appearing groups.
- Development of low areas to collect water harvested from adjacent slopes.
- Utilization of boulders and landform to organize the site and delineate spaces.

- Establishment of buffers to screen undesirable or incompatible aspects of the site.
- Locating landscape elements as to not interfere with snow removal operations.
- Selection of grasses and wildflowers to provide minimal maintenance and offer interest throughout the season.

Section of trailhead area with plantings and water harvesting depression

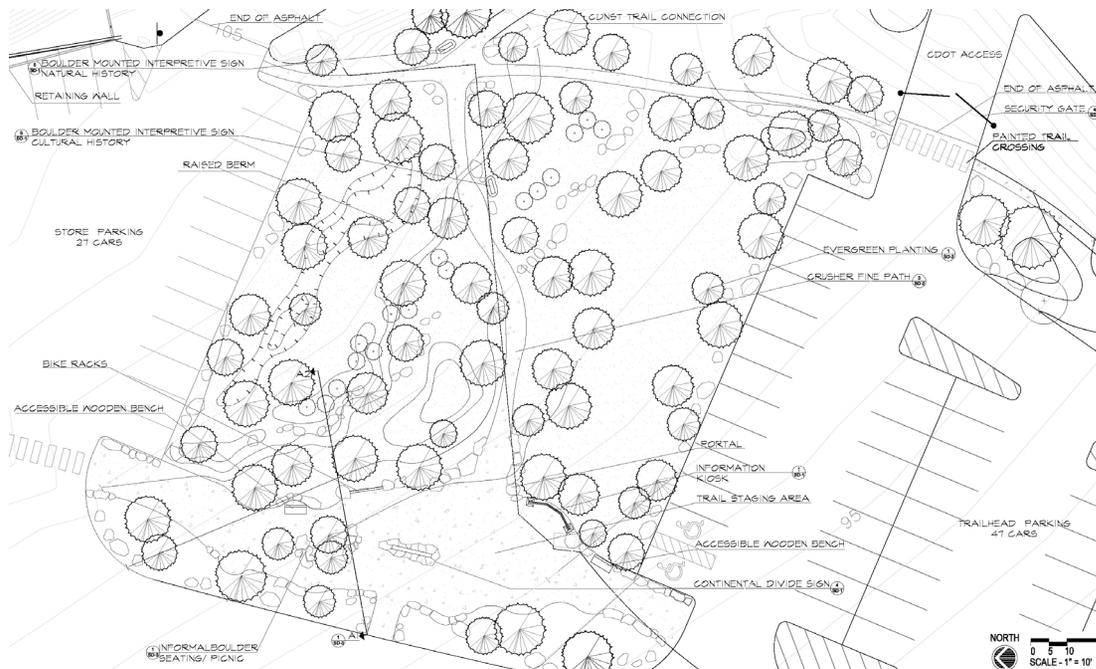


Appendix A: Case Study – Monarch Pass

The Trailhead

The trailhead was developed to provide for a variety of users and incorporates the following elements:

- The trailhead area was established at a prominent location in the center of the site and incorporates natural elements of the surrounding environment including boulders, trees, native grasses and wildflowers.
- Trailhead facilities include a staging area, informational/regulatory signage, an informal picnic area, a portal and a Continental Divide sign.
- A portal constructed of granite boulders was established at the trailhead to create a sense of departure from the built environment to the natural environment.
- A three panel information sign incorporating elements of the CDNST identification markers will be established at the trailhead. This sign will be constructed of native stone and will feature a cutout corten steel diagram of the mountain ranges that comprise the Continental Divide.
- Informal picnic areas will be constructed of large boulders with screening vegetation.
- Site furnishings including accessible benches and bike racks will also be provided.
- A secondary trailhead facility is located on the west side of the highway. This scaled-down trailhead incorporates smaller elements of the main trailhead including a portal, signage and CDNST identification.



Site plan of planned improvements to Monarch's trailhead



Appendix B: Bibliography

Government Publications

The Continental Divide National Scenic Trail Comprehensive Plan, USDA Forest Service, 2002

Built Environment Image Guide, USDA Forest Service, 2001

Partnership Guide, USDA Forest Service, 1999

ROS Primer and Field Guide, USDA Forest Service, 1990

Guiding Principles of Sustainable Design, US National Park Service, 1994

Landscape Aesthetics: A Handbook for Scenery Management, USDA Forest Service, 1995

The Visual Management Guide, USDA Forest Service, 1974

Other References

Dorward, Sherry, 1990, *Design for Mountain Communities: A Landscape and Architectural Guide*, New York: Van Nostrand Reinhold

Lyle, John Tillman Lyle, *Regenerative Design for Sustainable Development*, New York: John Wiley & Sons, Inc.



