COLORADO'S SCENIC BYWAYS

RESOURCE KIT

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- Byway Resource Protection - A Manual of Methods and Techniques (October 2000)
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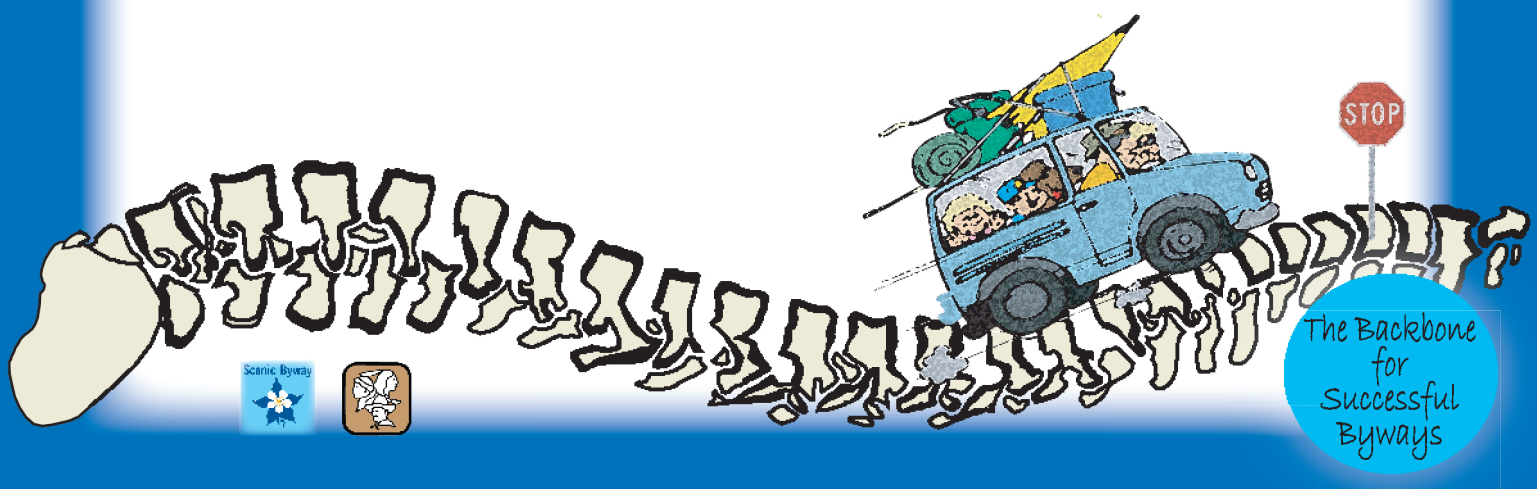

Colorado Scenic and Historic Byways

Byway Resource Protection

A Manual of Methods and Techniques

Prepared for

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Colorado Department of Transportation

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October 2000

Funded in part by a State Historical Fund grant from the Colorado Historical Society

Cover

Farm along Flat Tops Scenic and Historic Byway

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Unaweep-Tabeguache Scenic and Historic Byway

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I. Introduction

A. Protecting Byway Resources

Colorado's Scenic and Historic Byways Program simultaneously promotes economic development and the protection of intrinsic resources. These intrinsic resources may include scenic, natural, recreational, historic, cultural and archaeological attributes that are largely the basis for the byway's designation. Without the protection of these resources, byways run the risk of losing their most important attributes: the qualities that make them special.

Byway resources typically warrant protection for several reasons. The protection of scenic resources frequently results in the preservation of open space, wildlife habitat and specific natural resources. It may also provide opportunities for passive recreation and environmental education. Key elements of byway corridor management plans include tools that balance economic development with resource protection. This protection may be non-regulatory or regulatory in nature. Non-regulatory tools generally are more flexible and politically acceptable. Regulatory tools often depend on existing protection measures.

This workbook is intended to provide an overview of resource protection methods and techniques that byway organizations may consider in protecting important resources. Appropriate methods and techniques widely vary depending on local circumstances, the resource to be protected, available funding, and the existence of regulatory methods already in place.

Protecting byway resources is initially more dependent on planning than funding. Resource protection starts when planning identifies resources needing some form of protection. Planning addresses the existing condition

of a resource, its desired type and level of protection, and the method and techniques available to provide the needed protection.

Planning is also dependent on human resources: on people who develop visions about maintaining the quality of special places and take initiatives to protect those special places. The protection of intrinsic byway qualities starts with people who care for and value these resources.

B. State and National Regulations

Prior to the creation of the National Scenic Byways Program, some states informally or formally designated roads as "scenic byways," often as part of tourism or economic development efforts. Typically, no formal resource protection programs came with such designations. If they did, they were frequently special designations at the state, county, or local level. More recently, states like Colorado have established scenic and historic byways programs that encourage resource protection, but the protective means are typically voluntary.

With the creation of the National Scenic Byways Program, byway resource protection at some level is required, though the specifications are somewhat vague. Federal guidelines state that corridor management plans funded by the National Scenic Byways Program must address how "existing development might be enhanced and new development might be accommodated while still preserving the intrinsic qualities of the corridor" [*Federal Register, Vol. 60, No. 96, May 18, 1995, p. 26761, 9 (a)(5)*]. Prior to National Scenic Byway designation, the byway's corridor management plan must identify the means of assuring resource protection. Prior to All-American Road designation (the highest classification under the National Scenic Byways Program) the byway's corridor management plan must demonstrate that some protective mechanisms are already in place.

C. Creating Protection Programs

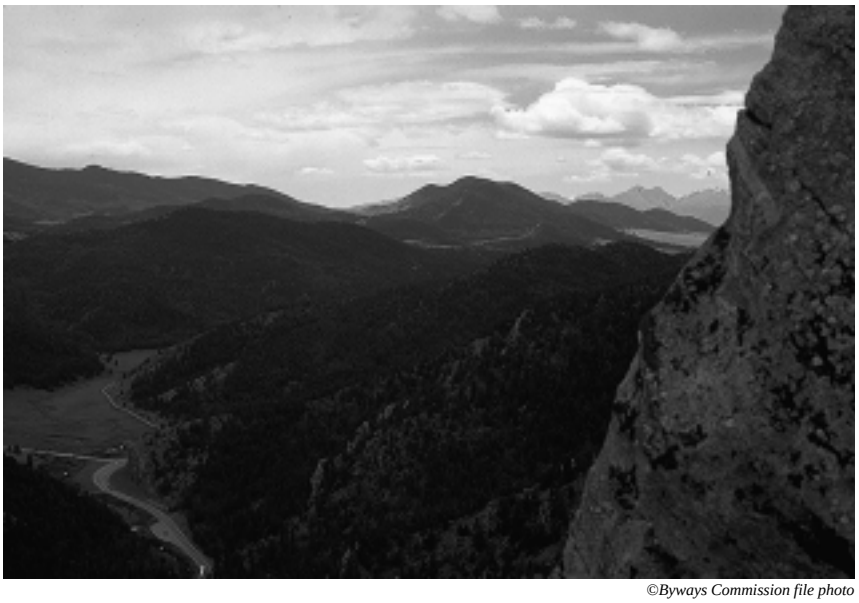
Byway organizations can create multi-faceted resource protection programs. Short-and long-term protection goals and objectives can be identified. Public involvement processes can be identified. More importantly, goals and objectives can be developed in cooperation with governmental jurisdictions, frequently with no expenditure of public funds. A publicized protection program also can enhance continuity and cooperation between public and private sector entities. Determining how stringent a protection program is should be the product of public/private partnership organizations starting at the local level.

Byway protection programs also inherit existing local, state, and federal programs protecting historic resources, wetlands, or species identified as rare, threatened, or endangered. Where byways travel through federally managed land, protective measures for certain resources may already be prescribed through land resource or general development plans, which are sometimes accompanied by environmental impact statements or assessments.

D. Regional Cooperation

Byways often traverse regions embracing not only resources in need of protection, but also multiple governmental jurisdictions. Cooperative efforts are particularly effective as they leverage regional support and coordination that may not be achievable at the local level. Byway corridor management plans are typically regional plans and provide excellent opportunities to promote regional resource protection. Intergovernmental agreements (IGAs) or memorandums of understanding (MOUs) can formalize multi-jurisdictional protection programs by clarifying roles and responsibilities.

Frontier Pathways National Scenic Byway, as seen from the top of Lover's Leap in Hardscrabble Canyon on Highway 96. This byway links a national forest, state park, two counties, and several municipalities.



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II. Non-Regulatory Approaches

Non-regulatory approaches for resource protection are popular because they typically lack the controversy that often surrounds regulatory approaches. Particularly in the west, and partly the result of extensive public domain, regulatory approaches are often viewed as forms of "takings". Many non-regulatory approaches rely on some level of acquisition and funds to accomplish protection goals.

A. Total Acquisition Options

The most effective way to protect a resource is to buy it. This assures permanent protection. It can also allow for and control public access. However, total acquisition may be expensive and the land must be managed and maintained. Tax revenues may also be lost. For these reasons total acquisition may be difficult or undesirable.

1. Fee Simple Acquisitions

Fee simple acquisition involves the outright purchase of all non-reserved rights to land. Organizations or land trusts (subsequently discussed) may acquire land in fee simple and then either hold the land in perpetuity or transfer the land to a governmental entity or community. Increasingly, communities are acquiring land for open space protection or other purposes using dedicated funding sources such as special taxes to finance the acquisition.

Fee simple acquisitions are often used to protect land that is in immediate threat of development. Short- and long-term planning should include a detailed inventory of potential acquisitions. In some cases less expensive acquisition options or protection alternatives can avoid the higher costs of fee simple acquisition.

2. Bargain Sales or Donations

A byway organization may be able to persuade a landowner to sell land at reduced value or to donate the land. Tax deductions may serve as an incentive to the landowner. This approach is sometimes used when land is appraised at a high value but the owner does not wish to convert the land to high value use, which often involves intensive development.

Acquisitions

Frontier Pathways, Custer County, Colorado

The Beckwith Ranch (pictured below), an historic property on a segment of the Frontier Pathways National Scenic Byway within Custer County, Colorado, was acquired by a non-profit organization called Friends of Beckwith Ranch. The group is now raising funds to restore the property and run it as a living history ranch.

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In some cases, the landowner may intend on retaining a portion of the land and wishes to provide some level of protection for the remaining land. Remaining land may be sold for limited development, for example, an agriculture use. The landowner may be able to receive a charitable tax deduction based on the difference between the value of the land if intensively developed as opposed to limited development. Taking advantage of bargain sales or donations, a byway organization can achieve significant resource protection goals at limited costs. Governmental entities generally are not well structured to receive donations. Byway organizations, land trusts, or similar organizations are more capable of serving as the receiving entities.

3. Time Buying Options

Carry-Back Financing

A byway organization may wish to acquire a property, but is unable to raise the necessary funds quickly. Time buying alternatives allow for acquisitions over time in a manner similar to conventional home mortgages. This is referred to as carry-back financing and the obligation can be secured by a mortgage, deed of trust, or land contract. The seller may benefit from deferred taxes.

The Trust for Public Land has an option with Idarado Mining Company to buy 3,200 acres in the historic Red Mountain Mining District in Ouray and San Juan Counties. The land is located along the San Juan Skyway.

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Options

A byway organization can obtain an option to buy a property or an easement at a future date. This provides the organization with more time to raise the funds. Obtaining the option prevents another buyer from acquiring the property in the interim.

First Rights of Refusal

A byway organization may acquire first rights of refusal, which assures the organization the first opportunity to accept or refuse the purchase of the property when it is available. The organization may benefit by this "wait and see strategy" or delay the purchase until absolutely necessary.

Leases

Leasing a property is another means of delaying its purchase until funds can be raised.

4. Land Banking

The process of acquiring and accumulating land prior to committing to its use is referred to as land banking. Open space programs often are a form of land banking. An organization can secure a property of potential value now and commit to its use at a later date or dispose of it. Land banks are excellent means of securing property quickly, but can be a costly way of maintaining current conditions if no plan or vision exists.

B. Partial Acquisition Options

Full acquisition of a property, including development rights, is not always needed to protect a desired resource. Other options are less expensive and involve fewer land management responsibilities.

1. Easements

Easements involve voluntary partial or limited acquisition of property or development rights. In this regard they are similar to purchasing develop-

ment rights (PDRs). Easements are popular and powerful ways of protecting resources without total acquisition. The individual selling the easement benefits from receiving receipt of the purchase price and his/her ongoing ability to continue with the present use of the land. Responsibilities for maintaining and paying tax for the land traditionally remain with the owner. If the easement is donated in qualified transactions, the landowner may receive tax benefits for the charitable donation. Donated land may also reduce estate taxes. This particularly benefits ranching and farming families who want to maintain ownership for future family generations, but cannot afford estate taxes.

There are two types of easements, traditional easements and conservation easements. Traditional easements allow the benefiting party to use the property in some manner, for example, accessing another property. Conservation easements restrict use of the land to conserve scenic, natural or other resources and do not necessarily permit access or other uses. Easements are particularly effective in conserving scenic open space or natural areas where access is not needed. It is a good method of conserving land and resources without taking the land off tax rolls.

Easements can be tailored to the specific circumstances of a landowner and the benefited party. The easement may be held or owned by a variety of organizations including governmental organizations or entities, conservation groups, or land trusts. They can be temporary or permanent. If permanent, the restriction becomes an attachment to the deed and a new owner must uphold the restriction. *Appendix A contains examples of scenic easements*.

Easements

Cape Cod, Massachusetts

The Town of Sandwich adopted a Conversation Restriction Program that gives property tax benefits to landowners who voluntarily establish conservation restrictions on their land. The Sandwich Conservation Trust is working with a landowner to protect 652 feet of frontage property along Route 6A— The Old King's Highway, a state recognized scenic byway.

Charleston, South Carolina

The National Trust for Historic Preservation developed an easement program along the Ashley River Road near Charleston. To address concerns that the easements were uniform and that no landowner contributed disproportionately, the easements were placed in an escrow account until all of them were in place. The Low County Open Land Trust now holds these easements, as well as others of historic and scenic significance.

Custer County, Colorado

A segment of Colorado's Frontier Pathways Scenic and Historic Byway traverses USDA Forest Service land embracing several historic homesteads. While the byway organization was developing a corridor management plan, a land trust was established by another entity in Custer County. The owner of a historic ranch along this segment of the byway granted a scenic easement to the land trust and this assured its protection in perpetuity.

2. Deed Restrictions and Covenants

Landowners can voluntarily place restrictions on future use of their own land by way of deed restrictions or covenants. A covenant is a notation on the deed. Deed restrictions may be thought of as contracts between adjacent property owners. The deed restriction remains with the land as changes in ownership occur. These restrictions are low cost means of protecting resources. They are restricted in application because the restriction can only be enforced by the adjacent landowners and will lapse if not enforced. Unlike conservation easements, they do not allow for charitable tax benefits.

3. Purchase and Sellback-Leaseback Agreements

An entity may purchase a property in fee simple, place development restrictions on it, then resell or lease the land back to private owners. The sellback-leaseback typically would be at a lower price since use of the land would be restricted. Sellback-leaseback agreements avoid the loss to tax revenues and reduce management costs for the community or byway while still protecting the byway resource.

This option also allows the community to recoup some of the cost of the property. Sellback-leasebacks can also be implemented relatively quickly and are useful if the property is under immediate threat of development. It is also an effective tool when a property owner is not interested in selling or donating a conservation easement.

Purchase and Sellback-Leaseback Agreements

Lexington-Fayette Urban County Government, Kentucky

The Lexington-Fayette County Urban Government received approximately $1 million of federal funding to acquire conservation easements or properties along the Old Frankfort Pike Scenic Corridor. Acquisition only of agricultural easements is preferred, but the Urban County Government will purchase the property, place an easement on it, and resell it if necessary. The dollars resulting from the sale of the easement-protected properties goes to funding additional easements and acquisitions along the corridor.

C. Other Non-Regulatory Approaches

1. Limited Development

Limited or protective development sometimes can be achieved by cooperatively working with a developer. For example, by siting houses on the edges of meadows and in less visible areas, a byway's scenic resource can be preserved. Limited development can also accommodate wildlife movement corridors. This option is only appropriate where development and the resource needing protection can be isolated from each other. Working cooperatively with a developer can limit the impact of development using non-regulatory means. This can be accomplished at no additional cost to the community, the byway, or the developer.

2. Land Exchanges

The USDA Forest Service and the Bureau of Land Management manage vast amounts of federal land in Colorado. Both agencies have land exchange programs whereby they can exchange federal and non-federal lands of equal value with communities, byway organizations, or others. A community or byway organization can encourage the Forest Service or the Bureau of Land Management to acquire land the byway wishes to protect. The community can also encourage the federal agency to not trade land the community wishes to protect. Using land exchanges, a community or byway organization can protect a resource at no cost to them. A downside is the complexity of the land exchange process. Organizations can quickly become frustrated.

3. Land Trusts

Land trusts are increasingly popular means of protecting resources. They can be local, regional, or national nonprofit organizations that work cooperatively with landowners and governmental entities to protect important resources for public benefit. There currently are over thirty land trusts in Colorado and many of Colorado's designated byways are located in areas where land trusts exist.

Land trusts provide the means of permanently protecting land by accepting it as a donation, acquiring the land, or working with landowners in negotiating development restrictions. Land trusts are particularly effective because they frequently meet the needs of their own communities or byway organizations. They can function as brokers in putting together land acquisitions and pooling resources with governmental entities on projects that could not be accomplished alone by either the land trust or the governmental entity. *Appendix B provides a list of Colorado's land trusts.*

4. Partnerships

Byway organizations can also partner with local, state, or federal entities in programs that protect mutually beneficial resources. Examples include partnerships with the Colorado Historical Society, the Colorado Division of Wildlife, the Colorado Division of Parks and Outdoor Recreation, the Colorado State Forest Service, the Colorado Department of Transportation, the USDA Forest Service, the Bureau of Land Management, the Bureau of Reclamation, the National Park Service, and the U.S. Fish and Wildlife Service. Partnerships also may include less obvious organizations such as utility companies that erect power lines or other visible facilities. A byway organization may be able to work with a utility company in minimizing visual impacts.

Partnerships

Top of the Rockies National Scenic Byway, Colorado

Public Service Company of Colorado proposed to replace an obsolete substation on Highway 24 near Gilman, which is part of the Top of the Rockies Scenic and Historic Byway. They were proposing to build a new substation up the hill from the existing one. After conversations with Eagle County and Top of the Rockies Byway Committee, Public Service agreed to camouflage the new substation using specific paint colors and creating a berm with Douglas fir and other deciduous trees. In addition, removal of the old substation opened up new views along the byway.

Unaweep-Tabeguache Scenic Byway, Colorado

The Unaweep-Tabeguache Scenic Byway Council partnered with the Nature Conservancy to build a rest area and interpretive site (pictured below) on State Highway 145 near Uravan. Interpretive signs provide information on the Nature Conservancy's work to protect the San Miguel River Corridor.

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5. Historic and Cultural Landscapes / Heritage Areas

Historic preservation is most often thought of as the preservation of historic structures. More recently it has also been used to protect landscapes of historic or cultural significance. The Colorado Historical Society defines historic or cultural landscapes as "geographic areas, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values." *Colorado Preservation 2000*, the statewide preservation plan, suggests that historic preservation must build on its past success while expanding its focus to protect historic cultural landscapes such as farms, ranchlands, mining dis-tricts, transportation corridors, parks and prehistoric sites.

A cultural landscape along the Los Caminos Antiguos Scenic and Historic Byway.

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It may be helpful to consider a variety of non-regulatory and regulatory mechanisms to preserve agricultural landscapes, for example. *Appendix C provides a description of non-regulatory means to preserve agricultural lands, and Large Lot /Agricultural Zoning is discussed under Regulatory Approaches.*

A group of state, federal and non-profit resource agencies in Colorado recently initiated the Colorado Heritage Areas Partnership, which also recognizes the significance of cultural or historic landscapes and their need for protection. Heritage areas are defined as "geographic areas sharing a heritage theme or themes based on the identification, enhancement, and interpretation of natural, cultural, recreation, scenic and related economic resources including traditional land uses and shared values of history, community identity and quality of life." Many of the goals of the Colorado Scenic and Historic Byways Program and the Colorado Heritage Areas Partnership are the same. Many of the individuals working at the state and

Orchards within the Palisade Heritage Area, one of six Colorado Heritage Areas designated since 1996.

©Colorado Heritage Area Partnership file photo

local levels participate in both programs. *Appendix D provides a description of Heritage Areas.*

At the federal level the National Park Service is actively involved in the preservation and protection of historic and cultural landscapes and can be a partner in such efforts. Recently, the USDA Forest Service significantly amended its visual resource management system, which evaluates potential visual resource impacts that may occur on forest lands. The older system was strictly based on modification from naturally appearing landscapes. Any modification that was not naturally appearing was considered an adverse impact. Thus historic and mining structures and related land modifications were considered adverse visual impacts. The new visual resource management system fully embraces the concept that historic and cultural landscapes may be visually appealing and an attraction to visitors.

In any case, the designation of a landscape as historic or culturally significant may open up funding avenues for their protection through acquisition or project-specific funding – through programs such as the State Historical Fund and the Great Outdoors Colorado Trust Fund. For more information, see the Colorado Preservation Network web site at http://www.copin.org.

6. Land Stewardship Trusts

Colorado owns approximately 3 million acres of state lands managed by the State Land Board. These lands are primarily managed to generate income for Colorado's public education program. The Colorado State Constitution was recently amended to require that 10 percent of these lands be placed in a Stewardship Trust. The Trust can provide some level of protection for designated lands. Any party can nominate lands for inclusion in the Trust. If important byway viewshed lands are state lands, the byway organization can nominate these lands for inclusion in the Trust at no cost to the byway. For additional information on the State Land Board's Stewardship Trust Program, see their web site at http://www.dnr.state.co.us/slb/.

7. Inventory and Protection Plans

A thorough inventory of all byway resources is a necessary first step to any planning projects. If such an inventory has not been conducted, a byway organization or community may not be able to make thoughtful decisions regarding resource protection. This inventory should also include a prioritization of resources that warrant protection and a timeline of critical steps. It is helpful to have a clear understanding of the evaluation criteria used by entities such as the Colorado Historical Society, which may ultimately help fund protection or encourage participation in some other manner. For example, buildings must be listed on the State or National Registers

The Peak to Peak Scenic and Historic Byway is conducting a detailed inventory of the visual and historic resources along the byway in order to develop a protection plan.

©Byways Commission file photo

of Historic Places in order to be eligible to apply for acquisition and development grants from the State Historical Fund.

Inventories such as detailed or sophisticated biological studies, can be extensive and expensive. But inventories can also be relatively simple assessments or polling of what resources people think are most important.

With a prioritized inventory of resources and an understanding of evaluation criteria used in protection, a byway organization or community may be poised to act quickly and effectively in protecting important resources. A word of caution—if the inventory includes privately owned lands, landowners become understandably concerned that regulations may follow.

8. National and State Registers of Historic Places

The National Register of Historic Places is the official list of the nation's historic and archaeological resources worthy of preservation. The program is administered by the National Park Service together with the State Historic Preservation Office, which in Colorado is housed in the Office of Archaeology and Historic Preservation at the Colorado Historical Society. The National Register is primarily a planning tool to encourage preservation without imposing regulations or restrictions on property or landowners. Listing on or eligibility to the National Register does provide limited protection from adverse impacts caused by federal agencies or from projects funded by federal dollars.

The State Register of Historic Places is the official list of Colorado's historic and archaeological resources worthy of preservation. The Colorado Historical Society's Office of Archaeology and Historic Preservation administers this program. Listing on the State Register also provides limited protection from state agency projects that might impact the property.

Inclusion on one of these lists is required in order to apply for funding from the State Historical Fund for acquisition and development, education and survey and planning projects. For more information on these programs, see the Colorado Historical Society's web site at http://coloradohistory-oahp.org.

9. Notification Programs

Notification programs are simply means of letting landowners know that their land has special or unique values and are worthy of protection. The

notification may simply be a letter followed by a personal visit. Though no formal or informal agreement may occur, a notification program is a good will effort in establishing relationships with landowners.

10. Working with Public Land Managers

The USDA Forest Service (USDA-FS) and the Bureau of Land Management (BLM) are key players and major supporters of Colorado's Scenic and Historic Byways Program. Both agencies have their own national designation program: the USDA–FS has its National Forest Scenic Byway Program and the BLM has a National Backcountry Byway Program. As a result, many of the state-designated byways also have USDA–FS or BLM byway designations. They must, however receive state designation before they can apply for designation under the federal programs. These national designations may lead to an increased effort by federal land managers to properly management and protect the byway.

Both the USDA Forest Service and the Bureau of Land Management have visual resource management systems used, in part, to designate management prescriptions for lands they oversee. National forests are required under their multiple resource mandate to prepare land resource management plans with accompanying environmental impact statements. Visual quality objectives are established for forest lands. A byway organization can effectively work with the Forest Service or BLM in encouraging the protection of scenic or other resources. A word of caution: many federal land managers work under a multiple resource mandate. A byway organization should not assume that untouched forest resources along a byway will necessarily remain untouched.

11. Design Guidelines

The term "design guideline" is widely used and means different things to different people. In some cases the term "design guidelines" refers to regulatory mandates regarding a variety of architectural, landscape architectural, or engineering elements. In the non-regulatory arena, "design guidelines" are guidelines that have been developed to promote attractiveness and unity in design expression or treatments. Guidelines may be used to promote continuity through the use of specific architectural, landscaping or structural materials, such as retaining walls or special plantings.

Design guidelines are also frequently used to encourage the use of quality historic preservation practices, including the integration of new development in historic districts or areas. Guidelines are also used in developing signage

programs. Byway organizations can effectively work within their organizations and with other organizations through the use of design guidelines.

12. Interpretive Information

Byway organizations and communities also can effectively use interpretive information to promote the protection of important byway resources. This can be done in a variety of ways using a variety of interpretive media. Interpretive materials can be used to both educate visitors about the significance and protection of byway resources as well as educate visitors about user ethics—for example, the "leave no trace" ethic. Interpretive materials and methods frequently include brochures, booklets and books, video tapes, audio tapes, interpretive signs and displays, visitor or interpretive centers, education and outreach programs and materials, media kits, and the like. Interpretive materials can be informative, entertaining, and compelling ways of explaining, exploring, and promoting byway resource protection.

Interpretive Information

Red Hills Area, Georgia

The Red Hills Scenic Byway organization in Thomas County developed an interpretive guide that provides byway information in a way that fosters a sense of ownership, appreciation, and need for protection of the byway's scenic, historic, cultural, and natural resources. The guide provides driving tour information keyed to resources along the byway.

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Interpretive signs along the West Elk Loop Scenic and Historic Byway provide information on the natural and human history, recreation, environmental ethics, and respecting contemporary lifestyles.

III. Regulatory Approaches

Historically, the development and use of large amounts of land has been controlled by governmental regulatory means. Most people are familiar with municipal or county zoning, subdivision regulations, or other growth management tools. These approaches frequently are inexpensive and relatively easy to implement.

However, regulatory approaches also are politically sensitive, and in the minds of some, constitute a form of "takings" or a loss of a private property rights. The takings clause of the Fifth Amendment of the U.S. Constitution and a similar clause in Colorado's Constitution states "nor shall private property be taken for public use without just compensation." A taking may refer to either a physical taking of property or a regulatory taking.

Pony Express emblem on an historic marker, South Platte River Trail Scenic and Historic Byway.

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Recent court cases have shown that a legitimate government objective can involve restrictions of private property rights for the protection of open space, scenic corridors, watersheds, agricultural lands, and endangered species. However, the U.S. Supreme Court has recognized takings involving the physical invasion of land, for example providing a public access easement across private land, or where private landowners are being deprived of all reasonable economic uses of their land. In these cases, the landowners must be fairly compensated.

A. Zoning Ordinances

Zoning is the simplest and most widely used regulatory land use tool. Generally enacted at the local level, zoning ordinances regulate permissible uses and densities for lands within the jurisdiction of the ordinance. Zoning is also often used to set building height restrictions, minimum setback distances from public rights-of-way, floor-area ratios, slope restrictions, and access requirements. There are several types of zoning ordinances that may be used to protect byway or community resources.

1. Euclidean Zoning

Euclidean zoning is the standard, most widely used form of zoning whereby a governmental entity divides land into separate districts and specifies permissible uses and densities. Typical land use categories include various types of residential uses, commercial, industrial, open space, and agricultural. Zoning is relatively easy to implement but tends to restrict "mixed uses" and flexibility.

2. Overlay Zoning

An overlay zone is superimposed over existing zoning and is typically used to protect natural, scenic, or historic resources present in one or more of the existing zones. This technique provides a very effective way of protecting a specific resource but add complexity for landowners, developers, and planners, since two levels of zoning must simultaneously be adhered to. Special review boards or commissions are sometimes established to assure compliance with overlay zones. Regulations range from the very specific to the very general. Success in the application of overlay zoning has varied, but they have been used very successfully in regulating scenic resources. *Appendix E provides samples of overlay zoning ordinances.*

Overlay Zoning

Shasta County, California

The Shasta County Scenic Highway Overlay District protects the visual quality along the designated scenic highway by only allowing development that does not compromise the natural appearance of the corridor. The ordinance does not regulate by means of site development standards, but through minimizing visibility of structures from the highway. The ordinance also requires clustering where possible, the retention of natural vegetation, minimizing grading, and burying utility lines where possible. Advertising signs are not permitted and signage size is regulated.

Santa Fe, New Mexico

Highway Corridor Protection Districts were established for two highways in Santa Fe to protect open lands and assure visual continuity. The Districts encompass lands within 600 feet of the rights-of-way on both sides of the highways. Development standards include minimum setbacks, maximum building heights, maximum densities, minimum open space, maximum landscaping, maximum floor area ratios, regulating loading and storage areas, as well as regulating access, landscaping, architectural, and sign standards. The ordinance also requires plans for mitigating adverse impacts from site-generated traffic.

Austin, Texas

Austin Texas created the Hill Country Roadway Ordinance that applies to all development within 1,000 feet of the rights-of-way along five roads in the community. A number of standards were established to "maintain the natural beauty of the Texas Hill Country" and to "allow people to live, work, and enjoy recreation within the area without reducing its natural beauty." Site planning information for development must include existing trees, proposed location of trash receptacles, the location of loading and parking areas and lighting, and the height of all new structures. The location

and extent of existing and potential scenic vistas must also be included. There are also low, medium, and high-density zones that consider slope in determining the maximum development density permitted for individual sites.

The ordinance also grants density bonuses for innovative site planning or architectural design that complies with at least six of twelve specific "performance incentive criteria." The criteria include, among others, preservation of scenic vistas, limitation of driveway access points, the installation or preservation of landscape areas, limitation of all construction to relatively flat areas, and the consolidation of small lots to create large parcels that encourage unified development and site planning.

3. Performance Zoning

Performance zoning is based on establishing performance standards or targets that a developer must meet or achieve. For example, a performance standard might allow a commercial use in a substantially residential area if the developer can mitigate adverse impacts through site planning and design. Public planners often like this approach because it places the burden of mitigation on the developer. However, establishing standards or targets can be difficult to do. They can also be difficult to evaluate for compliance. Though difficult to implement, performance zoning can encourage creative site planning alternatives.

4. Large Lot / Agricultural Zoning

Large lot or agricultural zoning is one means of protecting land from high density development by requiring minimum lot sizes of 35 to 80 or more acres. This ensures the preservation of some open space or agricultural land use qualities. In some instances it is an excellent tool for preserving agricultural land uses. However, the value of the land may depreciate if farmers cannot maintain viable operations. Entities can also be vulnerable to takings challenges if they significantly restrict economic use of land. Large lot zoning also disperses development and may extend service areas for certain governmental functions and utilities. Large lot zoning also may conflict with cluster zoning methods.

Agricultural landscape along the Colorado River Headwaters Scenic and Historic Byway.

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5. Cluster Zoning

Cluster zoning provides a means of clustering development on a small portion of a site, leaving much of the site undeveloped. It is very effective for establishing open space or for protecting sensitive scenic or natural resources. Though development is restricted on much of the site, the developer is allowed to build at higher densities than would be permitted under standard zoning. Therefore, the developer is not denied reasonable economic use of the land and a taking does not occur.

However, cluster development may not be marketable in certain locations or at certain times. Cluster zoning can also be effectively combined with conservation easements or density bonuses to protect large tracks of land. (Density bonuses are means of allowing developers to increase development density, for example, by meeting extra conservation criteria.) Cluster zoning can encourage creative development options. However, an additional burden is placed on planning staffs that must make several types of assessments for site plans.

Cluster Zoning

Routt County, Colorado

Routt County recently reviewed its open space and agricultural preservation options. The county enacted a Land Preservation Subdivision Exemption Ordinance encouraging developers to cluster development in contrast to large-lot development. The Exemption Ordinance provides developers with various bonuses and variances from existing subdivision regulations. In return for these incentives, conservation easements must be placed on the undeveloped land.

6. Planned Unit Developments

A planned unit development (PUD) is a tool allowing a developer to mix uses and densities not permitted by traditional zoning. In return, a community can enforce stringent site plan reviews that include the protection of key resources. In effect, a planned unit development is a zone-free area allowing a developer to mix uses and densities in non-traditional ways while responding to development constraints and resource protection needs.

Commercial, industrial, and residential uses may be sited close together, thus commute times and automobile pollution are reduced. However, in some cases, PUDs can result in excessive discretion by a planning staff and may do away with larger zoning goals within a community or region.

B. Subdivision Regulations

Subdivision regulations provide another effective means of protecting important resources. In Colorado, subdivision ordinances may apply to any land subdivided into less than 35 acres. Ordinances may include engineering requirements for utilities, roads, sidewalks, drainage systems, as well as setbacks, signage, and other development requirements. Subdivision ordinances may also require open space dedications, land banking, watershed protection, or the protection of scenic resources.

Subdivision Regulations

Monterey County, California

Monterey County enacted a Visual Sensitivity Zoning Ordinance as part of its development standards for subdivisions. The Ordinance requires developers to minimize visual impacts by clustering structures and using topography and vegetation to screen development. Access roads, utilities, and transmission lines also are addressed.

C. Environmental Ordinances and Conservation Areas

Federal, state, and local ordinances already may exist that provide certain levels of resource protection. For example, under federal law, the Clean Air Act mandates cooperation between federal and local government. The National Historic Preservation Act requires federal agencies to take into account the impact their actions might have on historic sites. Local governments can use federal regulations to establish ordinances that are more stringent than the federal regulations on which they are based. Some Colorado communities have established historic preservation and wetland ordinances that are more stringent than federal ordinances.

Located on the San Juan Skyway, Telluride is an example of a National Historic Landmark District, which provides a level of protection from federally funded projects. Local ordinances also provide protection for historic resources by requiring design review for new construction as well as alterations to existing structures.

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State natural areas ordinances may be used to protect resources. The identification of plant or animal species of state concern (in addition to the Rare and Endangered Species Act—U.S. Fish and Wildlife Service) can promote resource protection. Local governments may also create additional ordinances and establish

conservation areas. Pros include the ability to piggyback on to existing federal regulations. Cons may include community disdain for existing federal regulations and thoughts of expanding and adopting new regulations.

D. Critical Area Designations

A jurisdiction may create regulations that designate specific lands as environmentally sensitive that will be protected. Depending on the complexity of the project and agencies involved, environmental clearances or reviews may be required. Any federal action, such as a permit from the U.S. Corps of Engineers, usually triggers the National Environmental Policy Act (NEPA), which may require the preparation of environmental assessments and environmental impact statements.

E. Transfer of Development Rights (TDRs)

A transfer of development rights program allows the unused density from certain "sending parcels" to be transferred to "receiving parcels". The density of development in the receiving parcels may be allowed to exceed the established zoning—usually by about 25 percent. A TDR program largely relies on free market exchange, therefore a property in the receiving area must have a relatively high market value and enough demand to make purchasing additional development rights profitable. A TDR program is very effective in preserving environmentally or historically sensitive areas while insulating the acting entity or jurisdiction from potential takings claims. However, TDRs are highly complex and difficult both to create and maintain.

F. Sanctuaries for Existing Land Uses

New development, attracted to the lower prices of open lands, frequently pushes out existing uses that generate some form of a nuisance, for example, noise or odors. Restrictive ordinances are sometimes established to prevent nuisance litigation from newcomers. One tool uses "right to operate" ordinances that protect existing uses from nuisance suits or rezoning attempts. It also sends a message to developers that they cannot force out existing uses with new development. Sanctuaries can also encourage industrial or similar uses to remain where they are instead of relocating to pristine areas. Sanctuaries can help maintain the rural character of a byway. However, they only protect existing uses; they do not regulate new development.

G. Comprehensive Planning

A community or county comprehensive master plan is the basic planning framework guiding land use and development within the planning jurisdiction. The comprehensive planning process addresses a wide range of community

issues and attempts to protect or improve quality of life characteristics within a community or county. Plans often address community goals, land uses, densities, transportation, utilities and services, annexation policies, parks and recreation, open space, natural resource protection, economic development programs, and emergency services. Zoning and other ordinances are the primary regulatory tools to implement master plans. Byways frequently traverse several community and county planning jurisdictions and byway resources can be protected by comprehensive planning elements at the local and regional levels.

H. Capital Improvement Policies and Adequate Public Facility Ordinances

Related to comprehensive planning, capital improvement policies and adequate public funding ordinances can shape the direction of development, thus providing a means of resource protection. Communities often establish urban growth boundaries, annexation policies, subdivision regulations, and restrictions or provisions developers must provide as part of development proposals. Primary issues include which services such as water, sewer, fire, and police should be offered and where these community services should be extended. Through their comprehensive planning process, communities and counties can identify areas not suited for development and can use capital improvement policies to forge resource protection.

I. Exactions or Dedications

Many planning jurisdictions require developers to pay exactions (impact fees) and/or dedicate land for public use as part of development proposals. These are commonly justified as developers "paying their own way." They are founded on the principal that new development taxes existing services and amounts to an unacceptable burden. Developers can be required to dedicate open space, parkland, school land, and the like. Importantly, collected exactions must be used solely to mitigate impacts related to the new development that triggered the exaction.

J. Intergovernmental Agreements

Because byways frequently cross multiple jurisdictions, regional cooperation is often key to resource protection. Without regional cooperation, jurisdictions can unknowingly compete both for economic development opportunities and natural resource protection. Though not necessarily regulatory in nature, intergovernmental agreements (IGAs) or memorandums of understanding (MOUs) can be effective tools to foster regional cooperation among planning entities. IGAs can address such things as the planning, protection, acquisition, and management of resources as well as roles and

responsibilities among signing members. Any form of regional planning can greatly benefit byway resource protection. *Appendix F provides a sample intergovernmental agreement.*

Intergovernmental Agreements

Lake Michigan, North Shore, Illinois

In 1987, the Lake Michigan North Shore Management Board (NSMB) was established to develop a North Shore Management Plan to replace state-mandated shore land management regulations established by the Minnesota Department of Natural Resources. A Joint Powers Agreement was signed by all involved jurisdictions and the NSMB appointed a 16-member Citizens Advisory Committee and a 16-member Technical Advisory Committee to assist in developing the plan. The plan is carried out at the local level through amendments to local land use ordinances that conform to the Management Plan. The NSMN monitors plan implementation at the city, township, and county levels.

IV. Financing Resource Protection and Funding Land Acquisitions

There are a number of ways to finance resource protection and fund land acquisitions along byways. These include the National and State Scenic Byways Programs as well as other techniques and approaches including dedicated taxes, exactions, partnerships, tax preferences, and other sources.

A. National Scenic Byways Program

The National Scenic Byways Program (NSB), created by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and continued under the Transportation Equity Act for the 21st Century (TEA-21), provides funding for the planning and development of state scenic byway programs as well as individual byway projects. Administered by the Federal Highway Administration (FHWA), states and byway organizations can apply annually for funds to undertake eligible projects through a grant reimbursement program. States or local byway organizations are required to raise a 20 percent local match comprised of cash and/or in-kind services in order to receive the 80 percent federal contribution.

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Resource protection projects fall into two of eight categories of eligible grant projects: First, the *development and implementation of a corridor management plan to maintain the scenic, historical, recreational, cultural, natural, and archaeological characteristics;* and, second, the *protection of scenic, historical, recreational, cultural, natural, and archaeological resources in an area adjacent to a scenic byway*.

Under the second category, resource protection applies only to those properties that contribute to the intrinsic qualities for which the highway has been designated as a scenic byway. Generally, the properties must be adjacent to the highway but can also encompass sites that are not

The Gold Belt Tour, recently designated as a National Scenic Byway, has used ISTEA and TEA-21 grants to develop a variety of products including a corridor management plan, historic resources survey, as well as interpretive materials and signs (the latter pictured at left).

immediately adjacent to the roadway if they substantially contribute to the intrinsic qualities. Projects funded under the resource protection category can include use-restrictions that are in the form of easements, the purchase of a resource only after it has been determined that all other protection measures are unsuccessful, and rehabilitation or renovation of a resource if it is related to an interpretive site along the byway.

The National Scenic Byways Program has been an outstanding boon to state and local byway efforts. It has directly encouraged partnerships with federal, state, and local entities and agencies where joint funding is a win-win situation resulting in substantial project awards and benefits. In turn, newly founded partnerships are finding other ways of cooperative sharing beyond the initial NSB mechanisms.

Though the program is now highly competitive and gives funding priority to designated National Scenic Byways and All-American Roads, there still is adequate funding available for state designated byways. The National Scenic Byways Program has and continues to promote resource protection by the following means:

- Increasing people's awareness about the importance of resource protection and the need to balance protection with tourism and economic development.
- Developing and optimizing partnerships that share resource protection goals and concerns.
- Formalizing resource protection strategies in byway corridor management plans.
- Requiring levels of resource protection for all National Scenic Byways and All-American Roads.
- Providing funds to acquire key byway resources.
- Encouraging partnerships and joint ventures with state and federal land managers.
- Producing interpretive and educational materials that promote resource protection and visitor ethics.

Though land acquisition for resource protection is eligible under NSB byway funding, it has been rarely used. This is in part due to the requirement that acquisition be used only as a last resort to protect a property. The category

has also been a low priority to FHWA and it has seldom been pursued by byway groups. It is hoped that as the program matures and byway organizations implement diverse aspects of their corridor management plans, precedents are established and more land acquisitions for resource protection will occur.

In the first nine years of the program, Colorado received $7.8 million in federal funds for a total of 100 projects. For more information about the National Scenic Byways Program, see the web site at http://www.byways.org.

B. Transportation Enhancement Funding

The Transportation Enhancement Program (TE) was also created under ISTEA and continued under TEA-21. To help communities attain social, cultural, aesthetic and environmental goals, every state must reserve at least 10 percent of its surface transportation funds for designated transportation enhancements activities. The program provides substantial funding opportunities that promote creative multi-modal transportation links that can serve byway programs and regional transportation partnerships. Local communities and byway organization are again required to raise the 20 percent match and application processes and deadlines vary between Colorado Department of Transportation engineering regions. For more information, contact the CDOT engineering region nearest your byway.

Among the twelve activities eligible for TE funding are:

- Acquisition of scenic or historic easements and sites, including scenic land easements, vistas, and landscapes; purchase of buildings in historic districts or historic properties; preservation of farmland.

- Scenic or historic highway programs including tourist and welcome centers, construction of turnouts and overlooks, viewing areas, and designation signs and markers.

- Historic preservation including the preservation of buildings and facades in historic districts; restoration and reuse of historic buildings for transportation-related purposes; access and improvements to historic sites and buildings.

- Rehabilitation and operation of historic transportation buildings, structures or facilities including railroad depots, bus stations, rail trestles, tunnels and bridges.

- Archaeological planning and research.

- Conversion of abandoned railway corridors to trails, including acquiring railroad rights-of-way; planning, design and constructing multi-use trails; developing rail-with-trail projects; purchasing unused railroad property for reuse.

C. Annual Budgets

Some municipalities and counties set aside or earmark funds annually for the acquisition of desirable lands. However, this is fairly uncommon, as it requires fairly deep funding pockets. The Tabor Amendment also limits general funding for land acquisition programs. Communities and counties more and more often attempt to establish dedicated funding sources (explained in the next section).

D. Dedicated Funding Sources

In increasing numbers, municipalities and counties are collecting and using voter-approved dedicated funding sources to acquire open space, scenic areas, and sensitive natural resources. Dedicated sources may include sales or property taxes. Earmarking general funds may be considered a form of dedicated funding. Even relatively minor sales tax increases can generate substantial funds for acquiring land on an annual basis. Dedicated funding sources also can be used to purchase sensitive lands along byways. *Appendix G provides a summary of dedicated funding sources.*

E. Great Outdoors Colorado (GOCO)

The Great Outdoors Colorado constitutional amendment will provide over the next 20 years approximately $800 million for a host of projects including resource protection through direct acquisition or by indirect means. Based on past grants, it is clear that the GOCO program strongly favors partnerships where funding is jointly leveraged by several partners.

In addition to parks and recreation programs, GOCO also gives high priority to environmental education programs that in turn promote the understanding of sensitive resources and their need for protection. GOCO funding priorities also clearly favor projects that are well planned. Projects requiring further planning sometimes are awarded planning capacity grants to achieve this end. GOCO additionally offers “legacy grants”—typically large budget grants given to partnership groups for large-scale regional planning efforts and land acquisitions. For more information, see the GOCO web site at http://www.goco.org.

F. State Historical Fund (SHF)

The State Historical Fund was established by the passage of the 1990 constitutional amendment legalizing gambling in Central City, Black Hawk and Cripple Creek. The Colorado Historical Society administers the State Historical Fund, which requires a 25% cash match. The State Historical Fund has funded a wide variety of projects related to resource protection, specifically historic resources.

Project types include:

- Acquisition and Development, including all "bricks & mortar" construction projects.
- Education, including publications, videos, brochures, markers, exhibits and other interpretive programs.
- Survey and Planning, including a wide range of non-construction projects, such as surveys, registration and designation; comprehensive and project-based planning; preparation of preservation-related studies and reports; photo documentation projects, etc.

The Alpine Loop Byway organization and the Bureau of Land Management are using a State Historical Fund grant to stabilize historic mining structures such as the Empire Chief Mill near Lake City.

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Since the inception of the program in 1993, over 1,700 projects have been funded totaling $74.9 million. For more information on the State Historical Fund, see the web site at http://www.coloradohistory.org/shf.

V. Moving Ahead

Ideally, a byway organization should understand the need for a byway resource protection program. The organization should develop a byway resource protection plan that identifies what should be protected, with what priorities, and how it should be accomplished. The byway organization should assume the responsibility of implementing and safeguarding the plan, or create or rely on another organization to do this.

A. Common Challenges

As byway organizations start to create or move ahead with resource protection programs there are several challenges that are frequently encountered. These include the following:

- Byways frequently pass through several political or managerial jurisdictions. This complicates general coordination, planning, funding, and implementation of projects.

- Most byway organizations are largely composed of fairly casual groups of private sector volunteers. Many of these groups are understandably apprehensive about undertaking protection programs with governmental entities that also require long-term follow-up and management.

- Balancing resource protection and economic development is at the heart of Colorado's byways program. Preservation-minded individuals are frequently concerned about economic development. Conversely, recreation and tourism providers fear being over regulated.

- Many protection tools are legal in nature. Groups without legal counsel are apprehensive in tackling these endeavors.

B. Opportunities

Byway organizations also provide great opportunities to promote resource protection. These include the following:

- Byway organizations are frequently partnerships of both public and private sector recreation and tourism providers. The organizations promote cooperative planning and fund leveraging and often accomplish tasks that could not be achieved singly.

- Byway corridor management plans bring attention and focus thinking on resource protection needs.

- Well-prepared byway corridor management plans require the development of byway resource protection strategies. More specific resource protection plans are often developed as stand-alone documents after the completion of corridor management plans.

- The byway organization becomes both a short- and long-term funding receptacle for resource protection funding. As byway needs change, corridor management plans can be amended, and new resource protection efforts can be targeted. Current and thoughtful comprehensive resource protection plans attract funding.

Flat Tops Trail Scenic and Historic Byway

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Colorado Scenic and Historic Byways

Design and Planning Manual

A Primer for Byway Communities

Prepared for
Colorado Scenic and Historic Byways Commission

Prepared by
Colorado Center for Community Development
University of Colorado at Denver

December 2000

Colorado Scenic and Historic Byways

Design and Planning Manual
A Primer for Byway Communities

A Handbook on Design Guidelines and the Design and Planning Process for Scenic and Historic Byways

Prepared for

Colorado Scenic and Historic Byways Commission

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December 2000

Funded in part by a State Historical Fund grant from the Colorado Historical Society

Cover

Unaweep–Tabeguache Scenic and Historic Byway
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APPENDIX

Dedication

In memory of John H. Sem, avid community tourism development specialist and dedicated scenic byways consultant.

Acknowledgements

Much of the implementation material in this design manual has been adapted from a program developed by Hans and Anna Marie Bleiker, with the Institute of Participatory Planning, Monterey, California.

The following people made valuable contributions to the development of this publication: The late John Sem, of the byways consultant team at the Colorado Center for Community Development, University of Colorado at Denver; and Dick Ostergaard of the San Juan National Forest, USDA Forest Service.

Thanks also are owed to several local byways organization representatives in Colorado who reviewed and commented on the draft manual.

This manual is published by the Colorado Scenic and Historic Byways Program, Colorado Department of Transportation, 4201 East Arkansas Avenue, Denver, Colorado 80222-3400; telephone (303) 757-9786.

Design & Planning Manual:

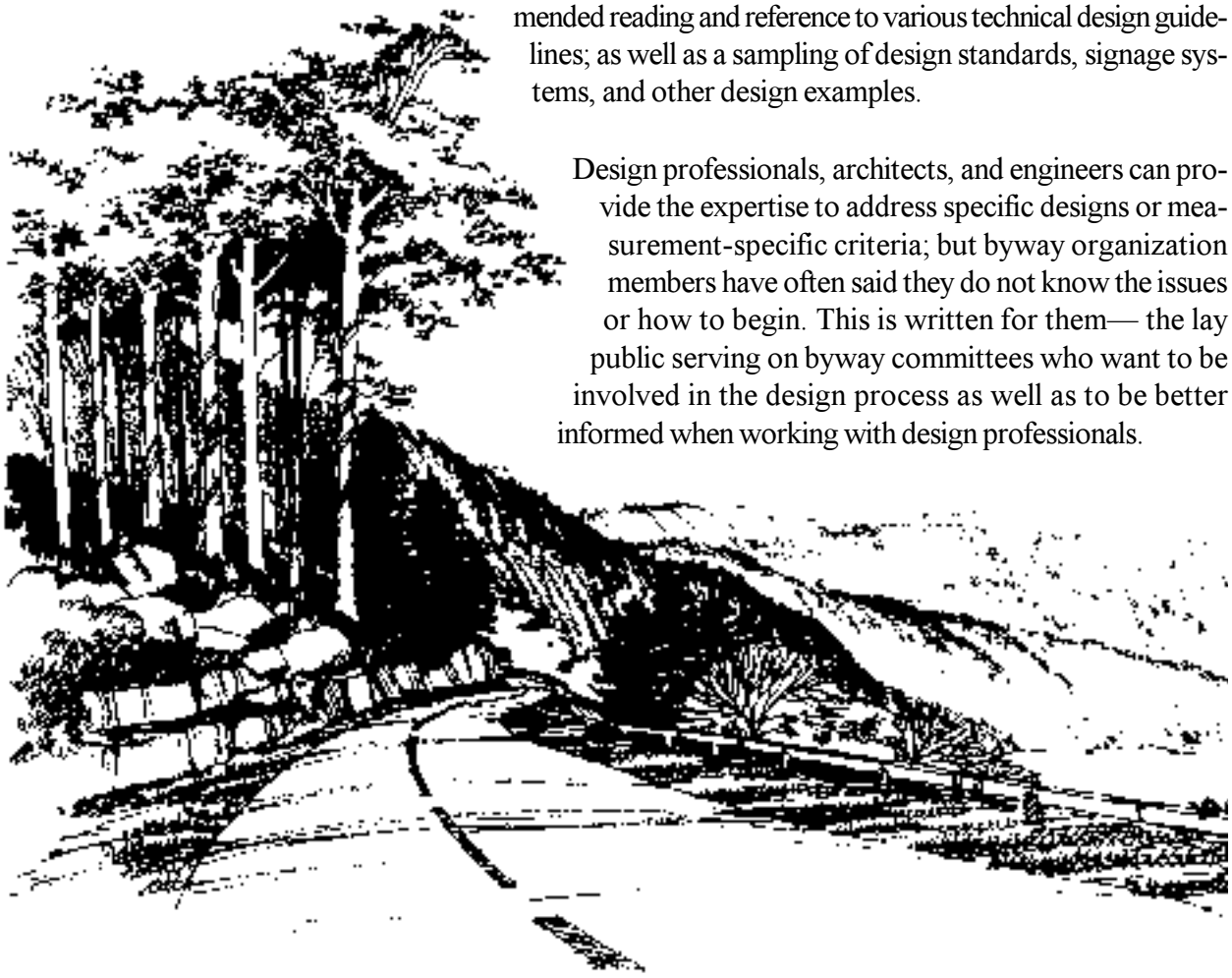
A Primer for Scenic And Historic Byway Communities

A. Purpose of this Manual

This manual is written as a primer for citizens serving on byway committees who would like some background and support in achieving design goals. Because of the abundance of technical design materials, this manual concentrates rather on a strategic approach to the design process.

The manual provides an overview of design and design guidelines, and how a strategic design process can address byway goals and visitor interests for a quality experience. Using a problem-solving approach, this manual presents a thorough outline of steps to implement the design process, as well as references to specific design and spatial considerations. At the end of the manual (Appendix), there is a hypothetical example of a byway design problem to which these steps have been applied. Also included is a section of recommended reading and reference to various technical design guidelines; as well as a sampling of design standards, signage systems, and other design examples.

Design professionals, architects, and engineers can provide the expertise to address specific designs or measurement-specific criteria; but byway organization members have often said they do not know the issues or how to begin. This is written for them— the lay public serving on byway committees who want to be involved in the design process as well as to be better informed when working with design professionals.



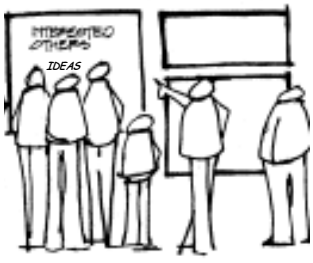
B. Introduction

About 80 percent of all American vacations involve vehicular travel, a percentage that is on the rise. Scenic viewing is the most significant recreational activity associated with these vacations. According to the USDA Forest Service, driving through scenic areas is the most popular activity within our national forests.

Visual perception is one of the most dominant factors in human cognition. In many activities, as much as 90 percent of what people learn is visual—based on what they see. A scenic byway is scenic because it offers variety in the landscape such as landforms, water forms, rock forms, and vegetation. These elements provide contrast while creating different settings and characteristics. Similarly, historic byways are also appreciated through the visual senses.

Scenic and historic byways are local, state, or federally designated vehicle-touring routes of striking visual character. For many byways, scenic quality is the most important essential quality. People specifically seek out these routes. When asked to define scenic quality, people often describe natural-appearing landscapes—landscapes not modified by man or managed in such a way as to appear natural. Our principal public land managers, the USDA Forest Service, the National Park Service (NPS), and the Bureau of Land Management (BLM), have for decades attributed scenic quality to natural-appearing landscapes. Increasingly, both the public and these agencies better understand the value of these landscapes and the need to preserve them.

There is an inherent subjectivity in determining or talking about scenic quality. As is often said, beauty is indeed in the eye of the beholder. One's perception of beauty is a factor of expectation and relativity. If a traveler has high expectations for stunning visual quality, anything less will appear unattractive. However what is "stunning" to one observer may not be to another. Appreciating such beauty is related to the observer's previous experiences and current expectations. Nevertheless, research indicates that variety in the landscape is one element that the public tends to prefer.



How does this discussion relate to design for scenic and historic byways? Through good design, a byway can highlight and preserve its scenic, historic and other "intrinsic" qualities. When residents, business owners, government officials, designers, planners, and engineers work together in a design process, the byway's intrinsic qualities can be enhanced, promoted, and preserved.

C. Design and Scenic Byways

What is design? How might it be applied to scenic and historic byways? What are some possible design issues?

Design—A Process that Communicates

Design is *the purposeful manipulation of line, form, color, texture or pattern, magnitude, and contrast*. Design combines the visual with the experiential—smell, sound, and other senses as well. This purposeful manipulation applies to any type of design, e.g., a piece of jewelry, a car, a house, a bridge, even an interstate interchange.

To design is to plan, to organize; it is the opposite of chance.

Communication is an essential role of design. Design can communicate facts, values, beliefs, patriotism, whimsy, sorrow—any number of emotions.

Design is subjective. Books, magazines, theories, and philosophies have been written about design for centuries. There are a variety of design professions, each specializing in one area. Landscape design is a professional practice, as are urban design and architecture. Planners are designers; so are engineers. Each specialty has its own approach to design. But above all else, *design is a process*. To design is to plan, to organize; it is the opposite of chance.

This manual presents a comprehensive eleven-step design process (see page six), which emphasizes the importance of participation and cause and effect relationships to the long-term success of a byway project. This comprehensive implementation strategy will help ensure that you accomplish your design goals.

What do you need to design? A small park, rest stop, or trail head? You might be interested in one design element of the byway—for example, developing a comprehensive signage program. Maybe you're creating a welcome center or information kiosk or an interpretive site. Perhaps you are searching for ways to enhance the byway, but simply don't know where to start. In any case, a good planning and design process is important.

Comprehensive Byway Design Solutions

It is important to talk about design in a broad context first, without taking a deliberately prescriptive approach. Design must be functional, so that the resource can be used and appreciated appropriately. Although it is true that "form follows function," form is more subjective and variable, while function should at least provide a technical solution. Form and function need to work together.

For greatest success, apply the design process to the entire picture of how the visitor will experience the byway. A comprehensive design strategy will con-

sider the entire byway, adjacent areas, commercial and non-commercial amenities, views, safety, architecture, water, habitat--the whole byway, how it *is experienced* and how it feels to the visitor. The best design solutions are a rich blend of influences.

For greatest success, apply the design process to the entire picture of how the visitor will experience the byway.

Good design is a sensory experience—i.e., how it looks, sounds, feels, moves, encloses, reflects light. Some sights or sounds may need to be screened; others enhanced. These are design issues.

What does the visitor hear along the byway or at a pull-off? What kind of sound is it? Leaves rustling? Water falling? Trucks entering the highway? Hawks calling? Do you smell the sagebrush? Can you feel mist in the air? Rocks warmed by the sun? *Move beyond the visual*.

Good design also considers the elements of the experience beyond the sensory—understanding and meaning as they may affect the intellect, emotions, the human spirit. Interpretation of the byway's features is critical to the whole experience. What feelings or sensations are evoked? Awe at the sight of a majestic peak? Contemplative serenity by a stream? *Dig deeper.* What else is there? Reflection at a battlefield? What new understandings, of past and present lifestyles, might be spurred by an effective interpretive program?

Deciding What to Communicate to Byway Visitors

Think about it this way: If design is communication, what do you want to communicate throughout the route in order to enhance the visitor's experience of the byway's most important features?

Interpretation is perhaps the byway's richest mechanism for interacting with the visitor, and thus integral to the experience. A good interpretive plan, along with a comprehensive corridor management plan, acts as an important framework for decisions on what and how to communicate. These two plans can thus be used to inform and integrate the design and planning process for all components of byway development. This approach will also reduce the risk that the byway could be seen as a hodgepodge of individual projects.

D. What are Design Guidelines?

Scenic and historic byways often bring together civil and transportation engineers with architects and landscape architects. Their professional collaboration is important to meet the stringent demands of roadway engineering and safety needs, as well as to provide aesthetics, function, and economic benefit. With so many issues and needs at stake, design can rapidly become extremely complex. Design guidelines have been developed in many disciplines to capitalize on what has been learned from experience and research. Such guidelines, when used cooperatively, can be an excellent tool for a byway's enhancement and protection.

Byway design may present extremes of scale, from lettering on signs to showcasing a grand vista. On the same roadway, design guidelines may address fence design or materials, roadside plantings, retaining wall materials, view protection, parking lot layout, and interchange locations. Such varied topics as marketing materials, colors of structures, interpretation, and actions to preserve scenic views may all be addressed by some form of guidelines. Also covered may be fundamental issues such as access by all visitors whether in wheelchairs or strollers. Use of multi-lingual brochures and international symbols may be called for in guidelines for communicating with non-English speaking visitors.

On the same roadway, design guidelines may address fence design or pole materials, roadside plantings, retaining wall materials, view protection, parking lot layout, and interchange locations.

Design guidelines can apply to historic structures and sites. If a structure is on a state or National Register of Historic Places and receives funding as a result of this status, regulatory factors (e.g., ordinances or resolutions) may apply to the structures or sites, or both.

The word "guideline" is typically construed to mean voluntary: something to be done or used if desired, but not required. The term is misleading. In many cases guidelines are, in reality, ordinances or regulations. Often non-professionals, professional planners, and engineers eye design guidelines with suspicion. In contrast to the concrete and steel of roadway infrastructure, design guidelines may be construed as fluff or nonessential, costly additions to roadway design and engineering—visible to, and appreciated by, too few to warrant the effort.

This manual looks primarily at *common design issues* encountered by byway organizations and supporters. It is *not* a detailed set of instructions or spatial standards. As we've stated, numerous references exist for that purpose. Two of the best are *Time-Saver Standards for Landscape Architecture* and *Architectural Graphic Standards*, in addition to *Flexibility in Highway Design* and other federal and state highway standards. Many of these resources are listed in Recommended References (Appendix), including several on interpretation and preservation of heritage and cultural landscapes, access for those with disabilities, etc.

STEPS TO IMPLEMENT THE DESIGN PROCESS

Most problem-solving or decision making models (including design processes) have similar components, often incorporating the steps listed below in one form or another. There is usually a "define the problem" component, a setting of goals and objectives, and some sort of analysis or evaluation.

One of the strongest aspects of the eleven-step process presented in this manual is the emphasis on the participation of those who are affected—even *potentially* affected. This process also encourages the planners and design team to thoroughly evaluate cause and effect relationships so that solutions finally implemented will more effectively solve the problem. This manual delineates detailed steps, expanding upon the commonly named phases of design used by many professionals: *analysis, program, concept, development, construction, and evaluation*.

This design process is a useful guide for projects of varying levels of detail, scope, and complexity. Use these basic steps whether establishing a design strategy for an entire byway, developing an interpretive program, or designing print materials—whatever the task at hand. The essential strategy is the same. A strategic planning outline incorporating these design steps will help you stay on course. An example of how such an outline might be applied to a particular design problem is included (Appendix, page A-1). See this example for ideas on when to involve professional design expertise (Appendix, page A-8).

Know the Steps

Phases	***Steps to Implement the Design Process***
Analysis	1. Pay Attention
	2. Define the Problem—Know What the Issue Is
	3. Assess What Happens if You Don't Do Anything
	4. Determine Who You're Likely to Affect
	5. Make Sure You're the Right Group
	6. Set Goals and Objectives
Program Concept	7. Explore Different Design Solutions, Based Upon a Design Program
	8. Analyze How it All Goes Together
	9. Identify the Potential Effects of Different Design Solutions
Development Construction	10. Decide What to Do and Adopt a Plan for Doing It
Evaluation	11. See How It's Working—Evaluate the Success of the Design

Design Process, Step 1
PAY ATTENTION

To begin the process, learn about byway design by observing other byways, corridors, historic roads, etc. *Pay attention*. An on-going responsibility, this step begins what is frequently termed the *analysis phase*. This phase generally involves clarifying the core issue(s) underlying the design problem, finding what has worked for others, and research for base information (e.g., number of people expected to use the design, seasonal variations if applicable, water drainage or other factors if a physical site is involved, etc.).

As part of your analysis, study byways from different regions, with unique qualities and features. Do not limit yourself specifically to scenic byways. Visit recreational sites and visitor attractions. Note how things are done there. Notice how signs and graphics are used. Evaluate museum displays. Pay attention to how parking lots do or don't work. Find elements that you like or don't like, that you are attracted to or disturbed by, and so forth. Analyze why. What attracts your attention? How does it work? How could it be improved? Take photographs, keeps notes, *use a sketchbook!*

You will be better prepared to find the right design for your application if you familiarize yourself with how other designers, engineers, architects, planners, etc., have solved various similar problems. Most of us learn from other people's work. Don't forget to pay attention to what design guidelines may be involved, if any, in your situation.

Design Process, Step 2
DEFINE THE PROBLEM—KNOW WHAT THE ISSUE IS

What do you see here?

Think about what your design is intended to do, what problem you are trying to solve, and what the design is intended to accomplish. In other words, *define the problem—know what the issue is.* The basic step of defining the problem is not done often enough. Rarely does any group of people have the same idea or opinion of what the real issue is.

This step is critical because everything else must in some way address or respond to that issue. Attention to this fundamental element may reveal that your problem is something different than you originally thought or is more complex than you imagined. This step will help you design more effectively and implement the design more strategically. This is particularly true if you are working with a committee or within an organization. Agreeing on the core issue from the start will minimize confusion, misunderstanding, and miscommunication. Achieving *agreement* is important throughout the process.

For example, imagine that you are designing an informational kiosk. What is the issue—that there isn't one? Or is there another issue underlying the need for a kiosk? Maybe no one stops along the byway, they simply pass on through and take their money with them. Maybe there is an existing information center that is poorly lit or hard to get to.

Similar questions could reveal a whole series of design solutions. If the core issue is economic development, then the design solution might include a way to market the town through the kiosk's display and location near shopping opportunities. Designing the physical kiosk, which in and of itself is a problem-solving process, may only be one of many solutions toward addressing the "real" issue.

Perhaps undesirable or unattractive development is encroaching on your byway. Your ultimate goal may then be preservation of the byway's natural or "intrinsic" qualities. The design approach to preserving or enhancing *scenic* values may differ from one used for cultural or archaeological preservation.

Once you're confident that you've accurately defined the problem, you will proceed with Step 3 and then on to the other steps of the strategic design process.

First, let's think about byway design issues a little more.

"Association with beauty can enlarge man's imagination and revive his spirit. Ugliness can demean the people who live among it. What a citizen sees everyday is his America. If it is attractive, it adds to the quality of his life. If it is ugly, it can degrade his existence."
(USDC 1966)

E. The Visual Landscape of Scenic Byways

A scenic byway encourages us to view the landscape through new eyes. To a byway designer, the landscape is the raw material used to entice the visitor. Careful and sensitive manipulation of that landscape can produce exciting and varied byway experiences.

The landscape can inspire or overwhelm, embrace or frighten. We usually think of "landscape" as something visual—something we see, its form or color. But it's more. Landscape combines, interacts, meshes with, and rests upon a host of other factors. Landscape includes the whole environment—urban and rural, natural and artificial, and climate, geology, geography, history, and culture.

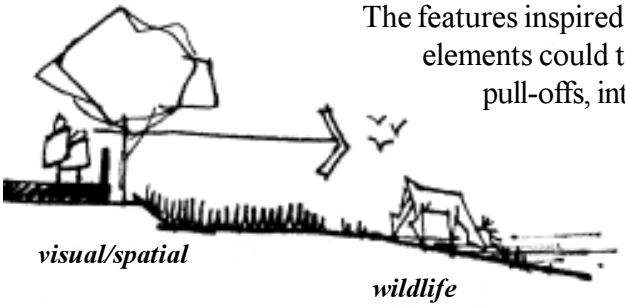
To enhance the byway visitor's experience, think about the inspiring aspects of the site—its uniqueness and character. Observe how trees, rocks, buildings, or other elements are grouped. Look at the spaces they create or enclose. Note where the sun hits, where it is moist and damp, where it is rocky or windy. What kind of plants live there? During what time of year? *Keen observation helps inspire good design*.

F. The Intrinsic Qualities of Scenic Byways

Look at the byway's native or "intrinsic" qualities for design inspiration. Single or combined qualities may suggest a theme or a unique approach. Design continuity along the route may be developed through the use of colors, materials, plants, graphic elements, etc.

For an overly simple example, imagine a byway that has both a river and a strong historic component. River or water-related activities might suggest design themes (e.g., fish, wildlife, canoes, etc.). Design themes might also be suggested by historic events (e.g., mining, battle, settlements, transportation systems, industry, and so forth). The inspiration for the color palette might come from any of the above components or directly from nature and the landscape/skyscape of the byway. Building materials, colors, and styles may reference some historic period or unique theme.

The features inspired by the intrinsic qualities and converted into design elements could then be used as design elements at gateways, parks, pull-offs, interpretive sites, trails, trailheads, for brochures, etc.



Six Intrinsic Qualities

(Adapted from the Colorado Byways Resource Manual.*)*

The National Scenic Byway Program, administered by the Federal Highway Administration, identified six intrinsic qualities that distinguish scenic byways: *Scenic, Historic, Cultural, Recreational, Archaeological, and Natural*.

While these were developed for the national program (designation at the national level requires the presence of at least one of the six qualities), the intrinsic qualities represent a comprehensive yet simple approach to defining the essential character of any scenic byway. Most byways will have more than one.

Study the qualities unique to your byway. These qualities should easily provide inspiration for design concepts, themes, and details. Familiarity with a byway's intrinsic qualities can suggest interpretive possibilities or locations for trails, but can also suggest themes for colors, materials, or architectural style and detail.

Scenic Qualities. These are visual resources, composed of multiple elements, such as fields, buildings and structures, rock forms, landforms, water, vegetation, distant mountains, skylines, and sky that constitute the view from the road. Scenic qualities include the ordinary as well as the spectacular. The composition of features in a view should evoke a sensation.

The western states are blessed with much that is scenic, from spectacular jagged peaks, to the extraordinary beauty and vastness of the plains—but try to look beyond the obvious.

Historic Qualities. These are legacies from the past. Historic sites or landscapes may be structures or sites that include buildings, bridges, or burial sites. Historic sites may be less tangible and include entire farming or ranching communities, transportation or other infrastructure systems, or development patterns (historic downtowns, for example). Many modifications to the natural environment may have historic qualities.

Throughout the West historic features abound: from pioneer trails to cattle trails and cowboys; orchards to sugar beets, hard rock mining to hot springs; forts and battle sites; trading posts and rendezvous sites, stage stops, and sod houses; ancient arts and unique communities.

Cultural Qualities. These are the unique and distinctive expressions of community life. Art museums, libraries, and county courthouses are all examples of traditional cultural qualities. Local festivals and celebrations belong in this category. Think of peach or apple festivals, Old West celebrations, Independence Day events, animal drives, or celebrations of local heroes.

Cultural qualities may also have evolved from an economic or physical resource; mining or logging, for example. Many railroad towns have beautiful Victorian homes. Each town has a certain unique feel about it.

Cultural qualities may include traditional cultures and communities. Consider Hispanic or Native American settlements, Asian, or other immigrant communities; even artist and music colonies.

Recreational Qualities. These are traditionally associated with nature-based recreation—hiking, skiing, boating, hunting, guiding, fishing, camping, etc. Recreationalists may use bicycles, all-terrain, and other off-road vehicles, balloons, and hang gliders too.

Consider the amenities users might appreciate—paths, signs, benches, picnic and rest spots, convenience facilities, etc. These uses and qualities may contribute to byway design in a number of ways. These uses may be something to advertise and promote, or discourage and redirect.

Archaeological Qualities. These include past cultures and communities, and artifacts, ruins. Ancient rock art, dinosaur bones, and cliff dwellings may come to mind. Archaeological sites are extremely sensitive—make sure you work with qualified professionals. [*Note: The Native American Religious Restoration Act prohibits the disturbing of any Native American burial sites. Contact local authorities before proceeding.*]

Natural Qualities. These provide opportunities to experience landscapes that are not artificial. Think of watershed systems, alpine tundra, wetlands, erosion-formed rock features, prairie, or desert systems. Are there qualities—colors, materials, themes, etc., that you can use?

G. The Context and System of the Byway

Think about the byway as a system that includes the physical road, road right-of-way, and the scenic areas seen from the roadway. This is what forms the byway corridor and provides the context for the byway. The corridor creates the framework of the visitor's experience. It is within this corridor that the visitor enjoys views and vistas, relaxes, and recreates.

The physical nature of the corridor defines the byway. Mountain valleys enclose, rolling hills expand, bluffs form edges, and so forth. Some elements expand the view; others restrict it. Travel the byway numerous times. Travel at different speeds with different kinds of transportation and from different directions. Go during different times of the year, in different kinds of weather. Evaluate the byway at every turn, at the peak of its hills and in the valleys. Note the spectacular, the plain, and the mundane. Evaluate elements in the foreground, shapes and forms in the middle ground, and color and scale in the background.

Design Process, Step 3
ASSESS WHAT HAPPENS IF YOU DON'T DO ANYTHING

What happens if you don't solve the problem or address the issue? What will the consequences be? As obvious as this may seem, it's important to ask explicitly. The answer should be thorough, but not exaggerated. This "do nothing" alternative is almost always an option, but usually not the best one.

Answering this question helps determine the seriousness of the issue. Understanding what will happen if nothing is done to solve this problem often leads to significant insights of the issue(s)—and who's involved. Sometimes you may have to choose to do nothing— for example, after you discover the cost of construction and maintenance. Can you really take care of it? Some byways build signage, picnic areas, visitor centers, etc., and then find that they cannot afford to maintain the facilities.

Design Process, Step 4
DETERMINE WHO YOU'RE LIKELY TO AFFECT

Most of what we do is based upon the relationships we have with people. Nurture these relationships.

Knowing who is involved or potentially affected by the design issue you wish to address is a critical element of implementing a design solution—one that you cannot afford to overlook. Sometimes these interests are called "stakeholders," but common procedures identifying stakeholders often address only the most obvious of potential interests.

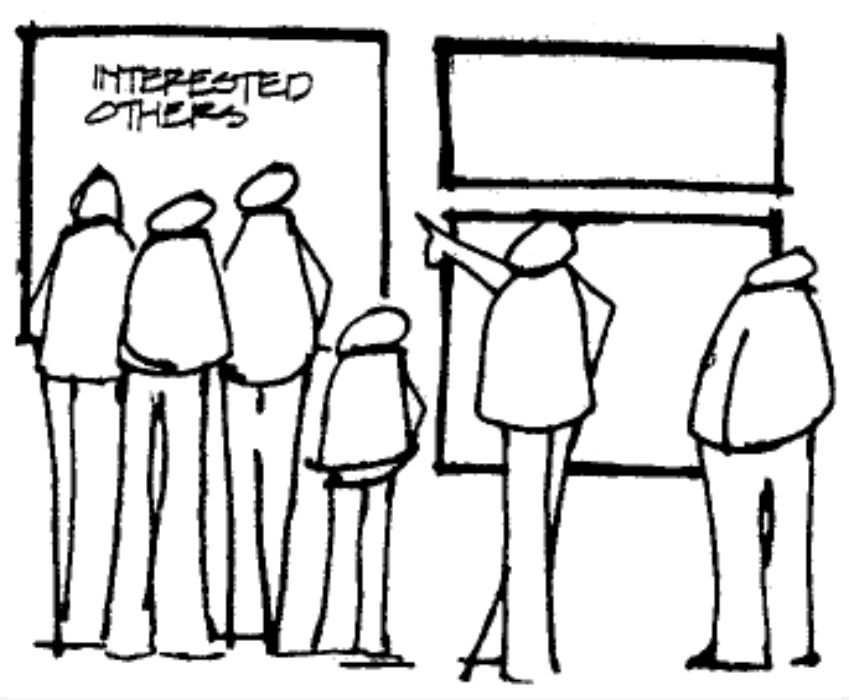
Know who you're affecting, or are likely to affect. Try to understand them. Communicate with them. Let them know what you're up to. Let them know what you think the problem/issue is. See if they agree or how they disagree. Don't get too carried away with your design solutions until you are sure you have developed some level of understanding and agreement with them. Be prepared for some give and take.

Who and what these interests are will depend on the nature of your design issue. If you are beginning a comprehensive design strategy, you may affect a whole range of interests. The range of people or interests you may need to work with can include various federal agencies, such as the Bureau of Land Management. State interests could include the Department of Transportation or the Historical Society, among numerous others. Regional and local interests could be chambers of commerce, local governments and local elected or appointed officials, special districts, etc. A more complete list of all levels of affected interests is presented at the end of this section.

Most of what we do—whether in the design world or in other aspects of our lives—is based upon the relationships we have with people. Nurture these relationships; work with people. Explain the need so that they understand it, and agree with you—or at least agree to not disagree. You'll be surprised at how much more you'll get accomplished.

Why are we discussing this in a design guide? Because design is complex. Successful design is not just creating a good parking lot. It is building a parking lot that works for vehicles and pedestrians, for visitors and residents, that provides good drainage, is well landscaped, etc. Designing and building a parking lot, for instance, can involve a whole host of interests: designers, engineers, planners, regulators, contractors, lighting specialists, city councils or planning commissions, business associations, transportation departments, or different departments within a public land management agency. Remember that design is a communication process.

Try to understand where all these people or interests are "coming from." Each one will have a certain set of concerns, beliefs—values. Be sensitive to those values. Be particularly sensitive to the values of stakeholder/interests/people who have the potential to dismantle the project. Disagreement with your design, your project, or your process may have nothing to do with your project in and of itself. The objections may be to some other value-related issues; for instance, a belief that you're promoting growth, supporting government interference, or encouraging too many tourists. Be sensitive and respectful of others' point of view.



Stakeholders or potentially affected interests could include:

- The "public," potential visitors, customers
- Transportation agencies, e.g., county, state, or federal highway departments (anything having to do with the road and its right-of-way)
- City and/or county planning departments and commissions (for zoning, land use, design, landscape issues)
- Elected officials, e.g., city council members and mayors, county commissioners (to inform and for political support)
- Public resource managers, e.g., Bureau of Land Management, Bureau of Indian Affairs, Department of the Interior, Department of Agriculture, U.S.D.A. Forest Service, state or federal parks departments, natural resource departments and wildlife divisions, fish and game divisions, etc. (when dealing with public lands)
- Law enforcement officials, e.g., sheriff department(s), emergency services, state patrol (for safety and security)
- Power, water, and other utility companies (for service provision or line locations)

For local support and assistance, or who may be otherwise affected:

- Community leaders, e.g., downtown business or development associations, shopping center or mall managers, community activists, local artists, etc. (for local support and assistance)
- Community organizations, e.g., Lions, Rotary, Elks, Boy/Girl Scouts, etc. (for local support and assistance)
- Tourism businesses, e.g., shops, restaurants, motels, hunting/ outfitters, river guides, campgrounds, etc.
- Tourism organizations and committees
- Other business owners, employers, employees
- Economic development organizations or committees
- Conservation organizations, e.g., land trusts, Audubon Society, Ducks or Trout Unlimited, Wilderness Society, etc.
- Local and regional media, newspapers, radio, and television
- Landowners
- Developers
- Chamber(s) of commerce
- Residents

H. The Visitor Experience of the Byway

What are the possibilities for enhancing the visitor's experience? Byway communities can provide visitor services—information, maps, interpretation, food, rest, entertainment, services, products, etc., which relate to the byway in a direct or thematic way. The coherency provided by communities along the byway that work together can make the byway visit more enjoyable and can often extend the length of stay.

A well-thought out interpretation plan for the byway as a whole is an excellent vehicle for coordinating the efforts to manage the visitor experience. Such a plan, along with a comprehensive corridor management plan, essentially identifies where you want the visitor to go, what you want them to see and understand, ponder, respect; even what behavior you want to encourage.

> ***"The driver is soothed by roads with restful features. Variety in a landscape keeps the driver looking for new vistas and fresh glimpses of nature—an invitation to shop and linger." (USDC, 1966)***

Through the interpretive and the management plans, you identify strategies to help match visitor expectations with byway resources, and balance the visitor's interests with your need to communicate certain things. You stand a better chance of strengthening the byway's identity and image, and anticipating what your actions at any particular site may mean in relationship to other sites. Interpretive goals (discussed in greater detail in the next section) can help you your prioritize when resources are limited.

Along the route there may be picnic and rest stops, or camping facilities. Trailheads at pull-offs can both inform and enhance the visitor experience. Are there other recreational opportunities? What kind, where, and at what time of year? Some locations may need special treatment—a historic site, unique geological feature, a rare species of tree, even an industrial feature like a working or abandoned mine.

Think about the complete experience, the problem you're trying to solve, and what you want to accomplish. Is better economic opportunity a goal? Then make sure there are things to spend money on. Guides and outfitters, resorts, restaurants can all capitalize on some element that represents the byway's legacy. Consideration of these factors may contribute to your design solutions.

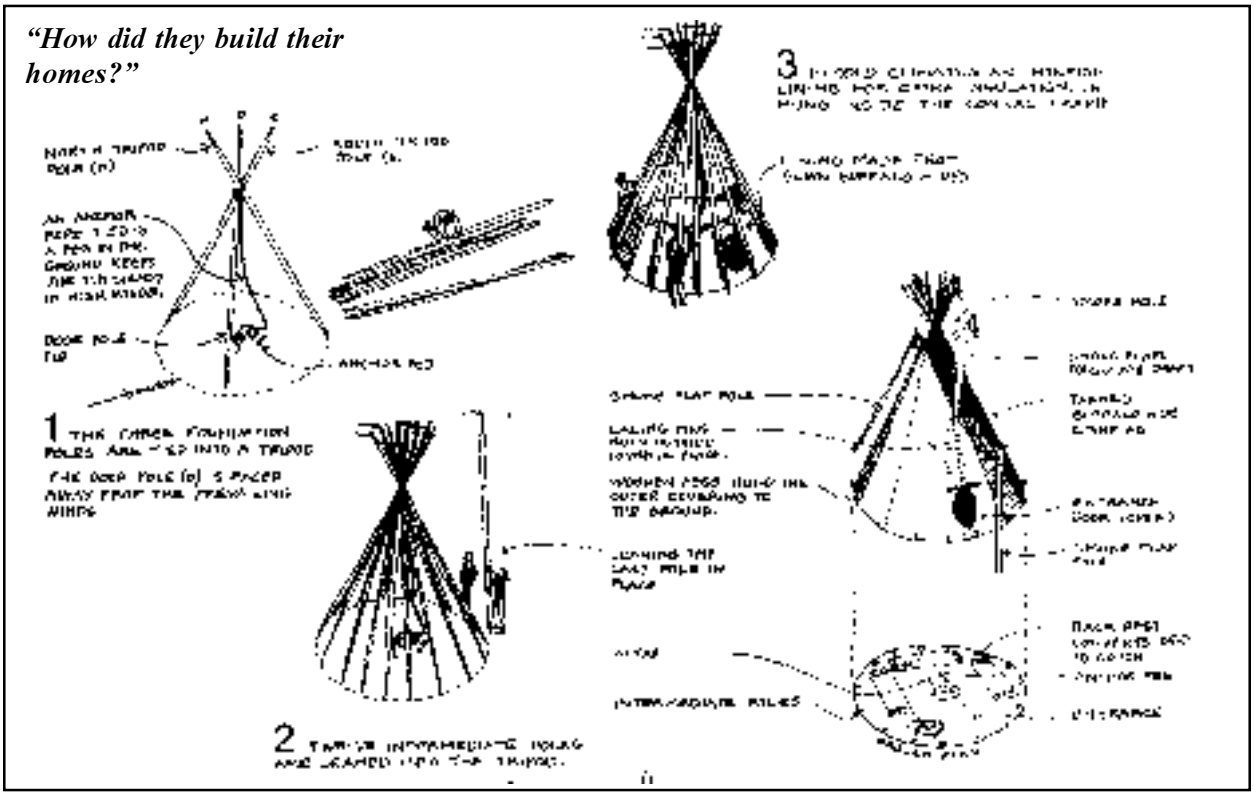
> ***An example:*** We know of an Old West fort along a historic trail. The fort itself is an extraordinary visitor attraction. After touring the site we found no place to buy anything or even get something to drink. Some kind of extension of the fort experience might have been fun. Perhaps we could have gotten a better sense of the historic trail we were on and a sense of what it might have felt like 150 years ago. Maybe a unique camping experience. Or a specially-designed interpretive hiking trail. We might have needed provisions!

As we continued along the byway portion of this historic trail, we wanted to know more about the events and people from the trail days. It is worth noting that this is a beautifully marketed byway. Unfortunately, what is "on the ground" in terms of services, visual aids, amenities, interpretive sites, pull-offs, trails, etc., is sadly missing. Don't let your marketing people get too far ahead of you!

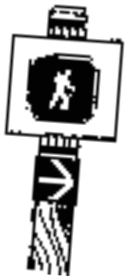
...this is a beautifully marketed byway. Unfortunately, what is "on the ground"...is sadly missing... Don't let your marketing people get too far ahead of you!

Some of you may be less nostalgic. There are other experiences you would enjoy more. Think about how to incorporate the byway's themes with features along the way. Think about appropriate amenities. As we said, take notes, pictures, and sketchbooks.

"How did they build their homes?"



The Interpretation of the Byway



To a large extent, this design primer is about *interpreting* the byway. Interpretation is perhaps the byway's richest mechanism for interacting with the visitor. The objective of interpretation is to enhance the visitor experience by providing educational information for greater understanding and appreciation of the significance of the byway's intrinsic qualities. Well-designed interpretation balances the visitor's interests with the need to communicate certain information. An interpretive plan, along with the corridor management plan, can serve as a framework for the decisions and priorities on the interpretive information needed, as well as the justification for much of the physical improvements.

Interpretation may educate about the area's history, geology, wildlife, or unique scenic features in a variety of forms. Topics can include historic sites, natural or artificial features, plants, the formation of streams and waterfalls, rock art, and so forth. Interpretation can be used to influence visitor behaviors, such as the proper use of recreational trails or appropriate behavior in wildlife habitats, archeological sites or other fragile areas.

Interpreting a byway, trail, historic site, etc., is also a problem-solving process unto itself. Excellent texts exist that go into a considerable detail about successful interpretation (some are listed in Recommended References). In general, it is necessary to develop a plan that addresses why "it" needs to be interpreted (*define the problem*), who the interpretation is for (define the audience and consider *potentially affected interests*), what will be interpreted and where, when the interpretation is likely to be seen or used, and what method of interpretation will be used (*goals and objectives, alternatives*).

"An educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information."

—a classic definition of interpretation, by Freeman Tilden, 1957.

Good interpretation is provocative, often interactive, and exhibits the following four characteristics: It is *pleasurable*—commanding attention because it is inviting; *relevant*—both personable and meaningful enough to make an emotional and intellectual connection; *organized*—so that it is easy for a visitor to engage and understand its message; and *thematic*—to have lasting power. (Ham, 1992)

Develop a unifying theme or series of themes that ties together the byway. A theme is a central message and provides continuity and organizational structure. It's what you want the visitor to take away with them. It should focus attention on what may be special, unique or distinctive along the route—qualities or features that differentiate the byway from other routes and provide opportunities for distinguishing, authentic experiences. If there are only one or two things that you'd prefer the visitors remember after they've left, what would they be?

Sub-themes that are site specific will often be appropriate. If there is a historic trail, consider creating a theme and using it elsewhere in a way that helps the

visitor understand what life was like along that trail. How did they travel? What did they look like? How did they cook? What did they hunt? Many things can be interpreted, cultural histories, economic history, geologic histories, archaeology—use your imagination and be creative.

Be aware there are numerous tools available to the interpreter. In addition to signs at various key locations, additional tools include: demonstrations, workshops, and presentations; tours and walks; articles in technical and popular magazine articles, newspapers, and newsletters; radio and television features, and short-range radio message repeaters; conferences and seminars; specially-made walking tour cassettes, video tapes, or television programs; exhibits at fairs, museums, and visitor centers; as well as the common range of marketing tools. Think about how well different tools will work together.

The Sequence of Experiences Along the Byway

Along with your assessment of the various features and sites along the way, it cannot be emphasized enough to make sure you take time to imagine the sequence of all the experiences the visitor encounters throughout the entire byway. What happens while driving along the route? Can you lead the traveler through a sequence of experiences? Are there places to watch the sunset? Is the byway experienced differently from different directions?

Keep in mind that key question: How do you want the byway to be remembered when the visit is over? What do you want people to be aware of, and how can you augment that? Think in terms of the viewer, whether in motion, in a vehicle, or on foot. Is there somewhere to buy coffee or local art? Is there lodging or a bike trail available? Are there signs that lead there? Is information presented in the logical order and location and level of detail in which it will be needed by the visitor? Are there safety issues? Think about seasonal changes, too. Use a design theme to tie these elements together. Coordinate art, signs, plant materials, etc., as much as possible.

Such exploration may point to the particular type of visitors who might be interested in your byway. This sequential evaluation may also point the way for locating or improving pull-offs, interpretive sites, campsites, selective pruning or landscaping, or commercial areas.

Design Process, Step 5
MAKE SURE YOU'RE THE RIGHT GROUP

Once you have clarified the issues around the problem and identified the stakeholders or interests who might be affected, *make sure you're the right group* to be solving this problem. Is there general agreement among the interest groups on this matter? Do you have or do you need statutory authority? Do you have or do you need administrative or fiscal authority?

Make sure you have stakeholder(s) or representative(s) in your work group and that they take information back to their appropriate groups. Two-way communication is very important. Not all issues for each group will be addressed but most common issues for the whole group must be.

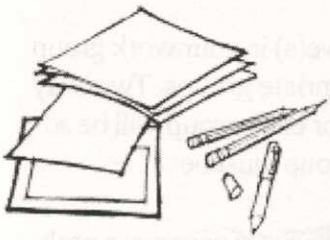
Think about these questions and be honest. Sometimes we perceive a problem before someone else does, but fixing it is someone else's responsibility. Determine whether your responsibilities in this issue overlap or conflict with the responsibilities of any other group, agency, or organization, and whether those responsibilities are real, potential, or imagined.

Evaluate your strengths and weaknesses as they pertain to the issue or project. Don't let your ego get in the way.

Your group should decide how you're going to make decisions. Consensus? Note that consensus decision-making is extremely powerful, but difficult and time-consuming to achieve. Majority vote? How will those out-voted feel or react. *Decide how you will decide.*

Additionally, you need to decide how you will involve your stakeholders in your process. More than one type of approach may be needed. A variety of methods are often used, including public meetings and hearings, informal group meetings, neighborhood discussion groups, focus groups, surveys, one-on-one sessions, open houses, newsletters and publicity, and mailings. Each method has its advantages and disadvantages. For more information about stakeholder involvement, look for materials on "citizen participation," "community involvement," and similar topics.

Design Process, Step 6
SET GOALS AND OBJECTIVES



At this stage of the design process (yes, we are still designing!), you may be looking at a huge range of diverse issues that may seem overwhelming. So far, you have defined your design problem/issue, confirmed whether your group is the right one to solve the problem, assessed what is likely to happen if you *don't* do anything, and determined who is likely to be affected. Let's talk now about *setting goals* and *objectives,* culminating everything you've learned during the *analysis phase* of design.

Make a comprehensive list of the goals that have to be achieved for the design to be successful—that is, for the problem to be solved. This list will necessarily be specific to the design issue at hand. Design projects encompassing the entire byway are likely to have a broader set of goals than a smaller, site-specific project. But always, for greatest success, consider how your goals and objectives will affect the entire picture of the visitor experience along the byway. Be careful not to overlook one design project's impact on the function of other sites, facilities, or planned improvements.

Translate each goal into *operational objectives*; that is, do-able, measurable steps to achieve the goals. Ensure that each goal and objective clearly relate to the problem you are trying to solve. Explain your goals and objectives to your stakeholders and potential stakeholders. Some negotiation may be necessary, but don't give up.

For example, let's assume your goal is to design a welcome center. As an active member of the community, your long-range goal is sustainable economic development. How will you know if you have achieved the goal? What objectives will you need to measure your accomplishments? In addition, how will the new welcome center affect other byway goals and objectives—for instance, the traffic flow to the next closest byway improvement?

Ensure that each goal and objective clearly relate to the problem you are trying to solve.

Your objectives may include things like:

- increasing the number of visitors by a certain percentage
- having visitors spend more time along the byway—a targeted amount per visitor on average
- increasing local sales tax revenues a minimum of 15 percent
- creating a certain number of new jobs

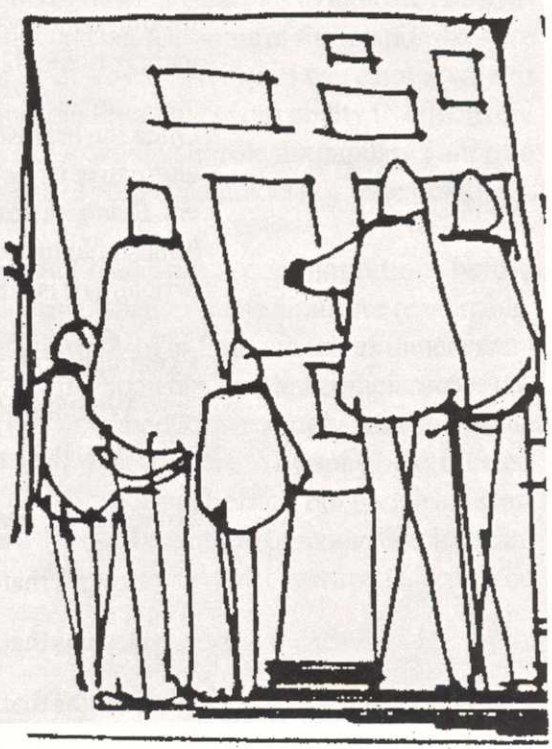
- seeing well-managed natural resources along the byway (resource managers can help you develop measurable objectives)

Does the creation of a welcome center have a direct relationship to the objectives of the design solution? It might. Creating a well-designed welcome center may provide enough enticing information about products, events, and services that are available locally that the visitor stays longer and includes area activities in their plans.

Expand your objectives into *specific actions* that will achieve your objectives. For example, if your objective is, "To increase local sales tax revenues by a minimum of 15 percent," how could it be translated into do-able tasks? Actions need to be further defined; for example:

- creating more opportunities for visitors to spend money
- exploring entrepreneurial opportunities for small businesses
- providing entrepreneurial training for locals
- developing activities for families
- developing or "packaging" attractions for increased overnight visitation

Meeting each of these objectives in the design process and/or with the design solution(s) itself will help ensure success. Again, keep in mind the overriding issue or problem your design is intended to address. Evaluate and re-evaluate the goals and objectives for this design project. How does your design relate to your goals; and do the goals really address the problem? And are there any ramifications for other elements of the byway experience?



Design Process, Step 7
EXPLORE DIFFERENT DESIGN SOLUTIONS, BASED UPON A DESIGN PROGRAM

For the next step, many designers develop a program that incorporates specific elements on which the project design will be based. These specific elements are those you consider essential to any design alternative that might be explored to meet your goals and objectives. This clarifies your basic assumptions and priorities, e.g., number of people to be served, number of parking spaces or bathrooms required and optimal size if a physical facility is involved, and any fundamental requirements of applicable design guidelines. This is what is usually referred to as the *program phase* of design.

Once the brainstorming's done, it is time to assess how viable each design alternative is.

Now you're ready for the fun part. Brainstorm and be creative. *Explore different design solutions, based upon your design program*, describing the full range of alternatives that could meet the requirements just identified. This begins the *concept phase* of the design process, in which alternate designs are identified and evaluated as to their potential effects.

Use big, thick magic markers or crayons (that will help keep you from becoming too rigid right off the bat). Play with all kinds of possible solutions—don't think about feasibility, practicality, or constructability. Allow yourself to think freely. Design—and creative thinking—often begins with ideas that are wild, unrealistic, unworkable; but sometimes wild ideas eventually become commonplace. That's why every idea needs to be voiced, no matter how ridiculous it may seem at first. Remember that most of us have a knack for immediately thinking of why some new idea won't work. It is tactically inappropriate to do so during brainstorming.

Once the brainstorming's done, it is time to assess how viable each design alternative is. Some alternatives will be more feasible and effective than others. Don't mislead yourselves about what will or will not work. Be open and honest. No matter how elegant a design might be, if it doesn't truly solve the problem or is infeasible, it needs to be discarded.

Eventually your stakeholder/interests will need to understand:

⇒ What the alternative designs are, and

⇒ Why they are being discarded.

For instance, designs to discard will be:

✓ Designs that don't realistically achieve the goals and objectives.

✓ Designs that are unworkable even if aesthetically popular.

✓ Designs that are beyond your ability.

New ideas often generate some criticism or ridicule. Few innovations are born fully developed. Focus on the positive aspects and allow the design team to refine good ideas; don't narrow down your options too soon. This is true even when working with consultants: Make sure you're given plenty of design alternatives to consider.

Design Process, Step 8
ANALYZE HOW IT ALL GOES TOGETHER

This step is to make sure you—the design team—are still on the right track. You need to make sure that you are choosing from among good solutions, given the overall vision for the byway.

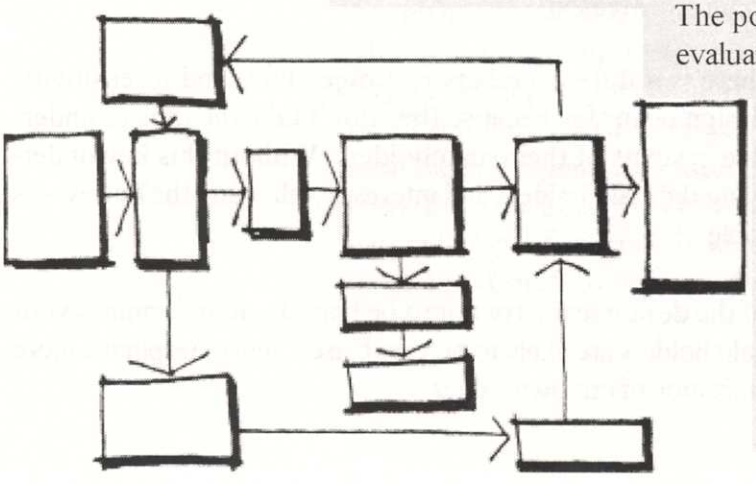
How does everything fit together? What are the relationships between your design alternatives and the issues you've defined? Will the various project components integrate well, or will there be unanticipated effects somewhere else along the byway? Chances are more than one of your interest groups is going to want to know.

For example, understand and be able to explain:

- how the "problem" or issue came about.
- what is likely to fix, eliminate, or help solve the problem, and
- what your alternative design solutions might affect and how.

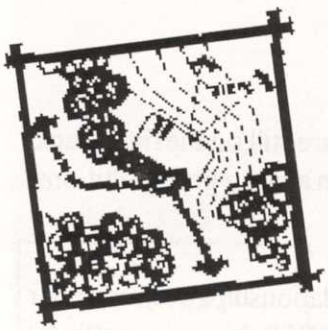
Use bubble diagrams or other illustrations to indicate relationships between elements.

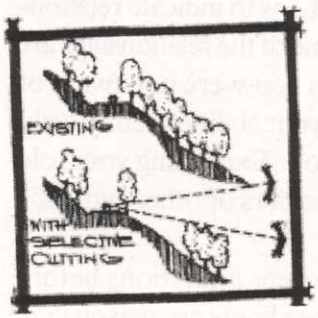
Be thorough. Use bubble diagrams or other illustrations to indicate relationships between elements. You might find out that some of the relationships are beyond your control. Or you may discover issues you were not aware of before. If the extent of your responsibilities limits your ability to effectively solve the problem, you may need to expand your role. Expanding your role may require the agreement of some of your stakeholders or other entities.



The point is, do not accept limitations before evaluating whether those limits are reasonable. Many of us limit ourselves unnecessarily. Sometimes we are complacent or uninformed, or we simply are used to the way things are. You may be criticized for rocking the boat, but rock it anyway. Don't be afraid to be innovative, but learn from others' successes and failures. You are a leader.

Design Process, Step 9
IDENTIFY THE POTENTIAL EFFECTS OF DIFFERENT DESIGN SOLUTIONS





Identify the potential effects of the different design solutions, whether positive or negative. Consider effects on the immediate problem, and on the overall byway experience. Compare those effects with the way things will be if you do nothing at all.

Make certain your stakeholders and interest groups understand "what," "why," and "to whom" the impacts will occur. The stakeholders must understand how they will be affected so they will not be uninformed or misinformed and unhappy with the result of the design process.

Evaluate the alternative designs from the stakeholders' and interests groups' point of view. Be aware of and sensitive to their value systems. Ask questions. Listen to them. Be even-handed and fair, as well as responsive, sensitive, compassionate, and empathetic.

This doesn't mean you have to completely agree with all your stakeholder groups. You do, however, need to understand their values and points of view. If there are major discrepancies between your views and theirs, try to sort out whether:

- Their values are different than yours;
- They don't understand the alternative design solutions;
- They don't grasp the impacts;
- They make trade-offs differently; or
- There is some other reason.

Know that there is a difference between objectivity and insensitivity. Sometimes design teams fail because they don't take the time to understand the value systems of their stakeholders. Without this key understanding, serving the stakeholders and interests well—and the byway—is nearly impossible.

As a leader of the design team, try not to be biased—it undermines your credibility. Stakeholders are likely to be very biased; few of us pursue more than the maximization of our own values.

Design Process, Step 10
DECIDE WHAT TO DO AND ADOPT A PLAN FOR DOING IT

Before making a final design decision, review what you've done. Make sure there are no serious misunderstandings about the design solution(s), the problem and related issues (Steps 1–4), your ability to solve the problem (Step 5), your goals and objectives (Step 6), alternative designs (Step 7), and any systemic issues and potential effects (Step 8–9). As part of Step 5, don't overlook your ability to maintain your involvement and manage this project. What additional authority might you need? What kind of funding or staffing will be needed over the life of this project?

Once a design decision is made, adopt an action plan to implement the design decision... specifying who does what, and by when.

At this point, you'll be ready to *decide what to do and adopt a plan for doing it*. Determine which one of the design options is the most appropriate solution given your goals, the best option to meet the majority or the most important of the needs. Throughout this process, you will have determined who needed to be involved in each aspect of the design and its implementation. It will have become obvious who needs to formally make the final design decision(s), if it is not you and your organization.

Adopt an Action Plan to Implement the Design Decision

Once a design decision is made (and all interest groups are well informed), adopt an action plan to implement the design decision. How do you ensure the design will translate "on the ground"? Your strategy should include a well thought-out sequence of actions and necessary resources needed to reach the goal—create your "To Do" list. Incorporate a series of tasks and timelines into an action plan specifying *who* does *what*, and *by when*.

As you now move into what is commonly termed the *development phase*, take time to determine that you have the most pertinent information necessary for developing your design concept in more detail. You'll need to confirm that you'll have whatever you will need, including any appropriate technical and professional expertise. Eventually, your design will need to be laid out so that a qualified party can construct or produce it from working drawings and/or specifications—in what is typically termed the *construction phase* of design. Carefully incorporate the multitude of tasks necessary for

Steps and tips for preparing an action plan are:

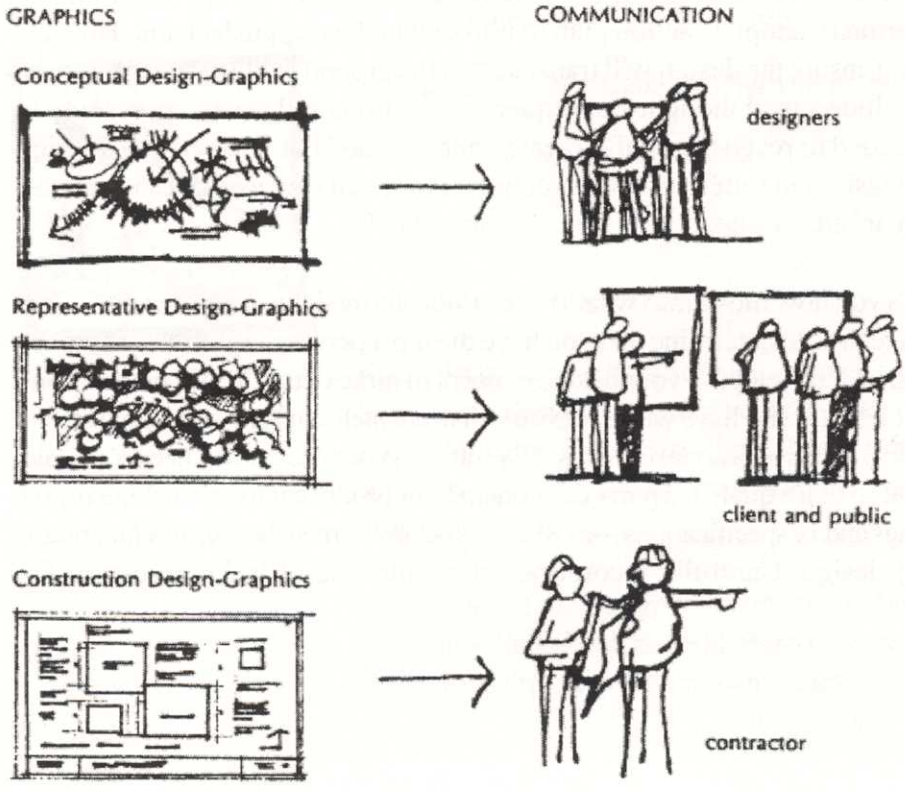
1. Brainstorm a list of all tasks that need to be completed if the goal or major tasks are to be achieved, no matter how obvious they might initially seem.

2. Sequence the tasks starting with those that need to be completed first, through the final tasks.

3. Assign responsibilities for completing each task on the list. This is a good time to identify any additional resources or support needed to complete each assigned task. Make sure the plan includes any formal approvals which may be required from authorities, stakeholders, and/or local government constituents.

4. Estimate how much time each task will take to complete and set a realistic target date for completion. As a rule of thumb, avoid going with an optimistic time limit that assumes that everything will go smoothly. Use a time estimate which falls between the most likely and the most pessimistic outcome. Applying such a rule will avoid pressure and frustration later.

5. Finally, make sure it is clear to everyone involved what their roles and responsibilities are, including who will coordinate progress on the overall action plan. Decide upon a process for re-evaluation and revision of this plan if necessary at some future date.



A sample action plan can be found on page A-8 in the Appendix.

Perhaps now would be a good time to look at a few additional design considerations that may be helpful for specific components of a byway project.

From *Line to Design: Design Graphic Communications,* by Scott VanDyke.

Example of a Strategic Planning Outline For Implementing the Design Process

Note: This example, albeit over-simplified, should give you a feel for how the process would work. We've used a hypothetical problem that involves one of a byway's resources that is being vandalized, and the byway group wants to design an effective solution. This example illustrates strategic planning for implementing the design process outlined in this manual. (See the corresponding sections of the manual for more explanation on the eleven steps.) Ideas on when to involve professional design expertise can be found on page A-8.

Steps to Implement the Design Process	Example Actions, Decisions, Etc.	By Whom*	By When
1. Pay Attention *(Manual Page 7)*	**Actions:** Research, observe, and analyze what has worked for others in similar situations (beginning the *analysis phase* of design). Develop/collect and analyze base information that will be needed to design a solution to the problem, including vandalism records, all existing foot traffic patterns, other nearby public attractions, visitor and resident population projections, relevant archeological expertise.	All group members, as applicable. **See page A-8 for ideas on when to involve professional design expertise.*	First month and on-going (for each step)
2. Define the Problem—Know What the Issue Is *(Manual page 7)*	**Problem to be solved** (undesirable situation)**:** Rock art, an important intrinsic resource for the byway, is being vandalized. **Issue(s):** The rock art, in a formation on National Forest land, is accessible via state and county roadways to members of the public under conditions in which damage can be easily done.	Group	Second month
3. Assess What Happens If You Don't Do Anything *(Manual page 12)*	**Assessment:** More than likely, the vandalism will not stop; it might even get worse. Irreplaceable resources will be lost. Also, someone could get hurt trying to climb on the rock formation.	Group	Second month
4. Determine Who You're Likely to Affect *(Manual page 12)*	**Determination:** The landowner and other landowners nearby (private or public land management agencies); whoever maintains and patrols the road system; possibly the schools, youth clubs, etc.; tour group operators and others marketing the site/area; the visitors; the people who are doing the vandalism; and law enforcement.	Group	Second month

Steps to Implement the Design Process	Example Actions, Decisions, Etc.	By Whom	By When
5. Make Sure You're the Right Group *(Manual page 19)*	**Mission of your group** (reason to exist)**:** To promote and protect the byway and its intrinsic resources. **Determination:** Your group would be the right group to solve this problem, since the issue falls within your group's mission, and key stakeholders are involved. You have the support of the local business association (in fact, a member of the Chamber of Commerce sits on your committee). You've been keeping the county government well-informed of your activities. You also have a Forest Service archeologist on your committee, and a close working relationship with the State Historic Preservation Office due to a previous grant project.	Group	Second month
6. Set Goals and Objectives *(Manual page 20)*	**Action:** Set and adopt goals and objectives (and explain them and how they will solve the problem to any stakeholder groups not in attendance), such as: **Goals** (desired future state)**:** Elimination of vandalism of the rock art, while maintaining the public's ability to appreciate the historic resource. **Objectives:** • 75% reduction in evidence of vandalism by the second season. • 100% reduction in evidence of vandalism by the third season. • Successful reseeding of unauthorized foot trails by third season. • All visible signs of unauthorized foot trails gone by fourth season.	Group; and the group's Chair or other delegated member(s) will contact absent stakeholders	Second month
7. Explore Different Design Solutions, Based Upon Your Design Program *(Manual page 22)*	**Actions**: Develop your design program containing the essential elements that you determine must be contained in any design solution you explore in order to meet the stated goals and objectives (*program phase of design*). Brainstorm to generate and explore different design alternatives that will meet the goals and objectives (*concept phase of design*), such as: • Use whatever barriers necessary to physically restrict access, i.e., fence, plexiglass, etc.	Group	Second month

Steps to Implement the Design Process	Example Actions, Decisions, Etc.	By Whom	By When
	• Reseed unauthorized footpaths. • Hide the rock art by completely covering it. • Direct traffic (and therefore foot traffic) to other areas of the byway. • Post signs warning of danger. • Post signs warning of high fines. • Increase visual monitoring/patrols of the site. • Add interpretive exhibit(s) that highlight the uniqueness and significance of the site and the damage caused by vandalism. • Develop a program to change local public awareness, in close conjunction with interpretation efforts. • Add night lighting. • Allow access only with an authorized guide. • Install video cameras. • Do nothing. Once the brainstorming is done, do an initial assessment as to whether any alternatives should be eliminated as unacceptable (making sure you still have plenty of design alternatives to consider); such as: • Covering the rock art would be unacceptable since it would defeat the purpose of maintaining the public's ability to appreciate the resource. • Doing nothing should be ruled out, given the outcome of Step 3. • Increasing patrols, night lighting, and video cameras were suggested for elimination due to lack of resources and power at the site, but that decision was postponed due to successful use of volunteer patrols elsewhere and the possibility of solar power.		
8. Analyze How It All Goes Together *(Manual page 23)*	**Action:** Revisit your original goals and objectives and the overall vision for the byway. With those freshly in mind, make sure you are choosing from among good alternatives. Will all the design components integrate well, or will there be unanticipated negative effects? Is there any piece of the	Group	Second month

Steps to Implement the Design Process	Example Actions, Decisions, Etc.	By Whom	By When
	puzzle missing, such as future Forest Service plans for the area? If convenient traffic access is redirected elsewhere, might there be more opportunity for determined vandals at the original site? What are the chances that a new interpretive exhibit will attract the attention of more potential vandals that would not otherwise have discovered it?		
9. Identify the Potential Effects of Different Design Solutions *(Manual page 24)*	**Action:** Identify the effects (positive or negative) of the design alternatives, such as: • Fencing off the area and installing plexiglass barriers would be fairly effective (though not 100%) at keeping people away, but would significantly change the integrity of the site; on the other hand, strategic placement of natural-materials barriers and signage could help keep people on an authorized trail to an appropriate viewing area (affecting unpremeditated vandalism), in conjunction with reseeding of unauthorized footpaths. • Redirecting automobile traffic will reduce or eliminate the site's foot traffic access, could be expensive, could provide a better alternative as far as parking and viewing areas. • Adding an interpretive exhibit could influence potential vandals, help raise public awareness and educate visitors, impact the integrity of the site depending upon placement and design (though less so than fencing), cost more or less than fencing but less than redirecting traffic, compliment a program to change public awareness (through schools, organizations, the media, etc.). • Posting signs warning of danger and/or of high fines per se has not been found to be particularly effective, could be done with relatively little cost and so as to minimize impact to the integrity of the site. • Night lighting might discourage illegal activities after dark but would also contribute to light pollution and disrupt nocturnal animals.	Group	Second month

Steps to Implement the Design Process	Example Actions, Decisions, Etc.	By Whom	By When
	• Increasing visual monitoring/patrols could be prohibitively expensive if involving only law enforcement, have been successfully supplemented by strategic use of volunteers who "adopt" a site and visit it in official vehicles particularly at times of high volume traffic, could raise issues of liability and vehicle maintenance costs. • Allowing access only with an authorized guide would be very effective if affordable and if access could be controlled (but would either be realistic in this case, given the traffic volume and location?). • Video cameras could identify and perhaps deter offenders, but the costs v. benefits would need to be evaluated.		
10. Decide What to Do and Adopt a Plan for Doing It *(Manual page 25)*	**Decision:** After reviewing the thorough assessment and analysis through the nine steps completed so far, with the knowledge and support of stakeholders, potentially affected interests, etc., the group makes a decision (by vote, the selected decision-making process in this case), being explicit about the reasoning for the choice of approach; such as: *Strategies* (choice of approach to achieve goals) and preferred *action(s)*: Overall, the group decides that a combination of the following three options would provide the best balance of effectiveness and affordability, as well as timeliness of initial results; specifically: *Strategy #1:* Reduce motivation for vandalism by enhancing meaning and understanding of the resource (one step of a public awareness effort). *Action #1:* Install interpretive signage at a nearby pullout. *Strategy #2:* Increase the presence of the land management authorities in a cost-effective way to improve the likelihood of negative consequences of vandalism. *Action #2:* Initiate monitoring patrols by officially-sponsored volunteers.	Group	Second month

Steps to Implement the Design Process	Example Actions, Decisions, Etc.	By Whom	By When
	Strategy #3: Use phasing to address other concerns while moving forward with these two steps—steps that can be successfully completed in time to make the most of the momentum, enthusiasm, and energy of the group. *Action #3:* Prepare a recommendation on the project's second phase. For example, a subcommittee will report back in six months with a recommendation on a second project phase incorporating natural-materials barriers along with reseeding (involving landscape design), plus a pilot project for a public awareness program (that would use some of the materials produced for the interpretative exhibit, involving graphic and multimedia design). The group will consider at that time whether its objectives regarding reclaiming of unauthorized foot trails will have to be revised.		
	But before moving forward on an action plan to implement the decision, the group follows up by explaining the reasoning of the decision to any stakeholders not present for the vote.	Chair and vice chair will contact absent stakeholders	Second month
	Action Plan: Adopt an action plan (yes, a plan within a plan) as your "To Do List" that incorporates a series of tasks to achieve the results anticipated, specifying *who* does *what*, and *by when;* such as:	Group	Second month
	• Obtain authorization, permits, and/or partnership agreements from the:	Chair and...	Third month
	Forest Service	...Forest Service rep.	
	Colorado Department of Transportation	...Chamber rep.	
	County	...County rep.	
	Nearest state welcome center	...Chamber rep.	
	State Historical Preservation Officer	...local historical society rep.	

Steps to Implement the Design Process	Example Actions, Decisions, Etc.	By Whom	By When
	• Develop and distribute a Request for Proposals for the interpretive exhibit design and production.	Executive Committee	Third month
	• Begin work on recommendation for project's second phase.	Vice Chair and archeologist rep.	Fourth month
	• Obtain funding.	Chair, Chamber rep.	Fourth month
	• Interview and hire firm(s) for the interpretive exhibit work.	Executive Committee	Fifth month
	• Recruit volunteers: Contact local organizations that might have members interested in the volunteer monitoring patrols (i.e., senior citizens, historical or archeological associations, National Forest "friends" associations, etc.)	Chair, For. Serv. rep.	Sixth month
	• Design the interpretive exhibit(s)—applying the eleven steps of this strategic design process to this task (involving yet another plan within a plan), including preparation of construction drawings and specifications.	Designer of interpretive firm, working with the group	Sixth month
	• Procure materials, produce and install interpretive exhibits; and apply for inspection by appropriate officials.	Interpretive firm	Eighth month
	• Train and deploy volunteer patrols.	Forest Service	Ninth month
	• Report recommendation on project's second phase to whole group, and review goals and objectives before deciding on the next step.	Vice Chair and archeologist rep.	Ninth month
	• Celebrate project completion with a dedication ceremony.	Group, volunteers, public officials, school classes, the public	Tenth month

Steps to Implement the Design Process	Example Actions, Decisions, Etc.	By Whom	By When
11. See How It's Working—Evaluate the Success of the Design *(Manual page 44)*	**Action:** Watch to see how your solution is working, and devise ways to monitor and evaluate the success of the chosen design over time; such as: Hold an annual meeting at the end of each peak visitation season devoted to resource protection and visitor management issues including vandalism, reviewing your initial objectives and the results of the following: • Take photographs of the rock art before the project and again at the end of each peak visitation season, and record a count of the instances of apparent vandalism. • Report the number of instances of vandalism according to Forest Service/volunteer records. • Log systematic observations on key visitation days of foot traffic patterns and how the interpretive exhibits are used.	Group	Eleventh month

When is it time to involve a professional designer?

Here are some thoughts to help you decide. When you get to the point of designing a physical product involving measurement-specific criteria—particularly a structure for which safety becomes an issue to be incorporated into construction drawings and specifications—a professional designer's services will be critical. Funding agencies may have requirements for the use of professional expertise in product design.

However, how soon you involve such professional expertise often can be a matter of balancing resources with needs. Does the project budget include adequate funding for this purpose? If not, is there relevant professional design expertise among your group members? How about within an interested community organization that might donate services? Another possibility might be a university-based technical assistance program that offers design services at below-market costs for community projects with limited funding.

You may want to wait until you are sure you know what you want to do (Step 10) before hiring a professional designer. But keep in mind that design expertise may help you in choosing the best approach. Involving a designer in the generation of alternatives (Step 7) may result in options that you might not have thought of otherwise. Design expertise might be useful when the group is identifying potential effects of the alternatives (Step 9). And it's conceivable that a designer's assistance during the group's initial search into what has worked elsewhere (Step 1) may save you considerable time and money. In summary, it may not be critical or realistic to involve a professional designer until after Step 10; but, ideally, tapping design expertise may be helpful in many of these strategic design process steps if you have the resources available.

Recommended References

- **Bell, Simon, *Elements of Visual Design in the Landscape*, E&FN SPON, London, 1993.**

  Written in part as a design guide for professionals working in forestry, E*lements of Visual Design* suggests an understanding of landscape from a visual as well as function point of view. The core of the text is called Variables, and includes an exploration of relationships and positions, direction, shape, density, and color.

- **De Chiara, Joseph and John Hancock Callender, ed., *Time-Saver Standards for Building Types*, Second Edition, McGraw-Hill Publishing Company: New York, 1980.**

  A comprehensive source of reference material dealing with the functional analysis and standards of all major types of buildings.

- **De Chiara, Joseph and Lee E. Koppelman, ed., *Time-Saver Standards for Site Planning*, McGraw-Hill Publishing Company: New York, 1984.**

  Provides basic design criteria, analytic methods, and construction details for all phases of site development.

- **Dodd, Jeremy, *Landscape Guide, Volume 1 Soft Scape*, and *Volume 2 Hard Scape*, PSA Projects, Gower Publishing Company Limited, 1990.**

  Volume 1 evaluates planting design principles and includes practical advice on plant selection and planting techniques. Landscape assessment, growth conditions, planting design, and plant materials are covered.

  Volume 2 evaluates surfaces, fences, enclosures, and materials.

- **Duerksen, Christopher J., *Aesthetics and Land-Use Controls: Beyond Ecology and Economics*, American Planning Association, Planning Advisory Service Report Number 399, 1986.**

  Of particular interest to the byway planner are chapters devoted to view protection and sign regulation. View protection includes the legal aspects, innovations, and entryways for scenic roadways. The sign chapter discusses legal issues regarding signs and billboards, issues dealing with satellite dishes and communication antennas, and regulating newspaper vending boxes and news racks.

- **Federal Highway Administration, *Scenic Byways*, US Department of Transportation, 1988.**

  This handbook gives an overview of the national scenic road program and is a guide for developing state and local byway programs.

- **Harris, Charles W., and Nicholas T. Dines, ed., *Time-Saver Standards for Landscape Architecture: Design and Construction Data*, Second Edition, McGraw-Hill Publishing Company: New York, 1998.**

  A broad practical introduction to what landscape architecture is as an applied art and science. A thorough reference to a wide range of dimensional standards and common practices, used by most design professionals. It provides necessary dimensions and construction methods for projects involving grading, drainage, landscaping, outdoor lighting and other site utilities; vehicular and pedestrian circulation (streets, parking, sidewalks, etc.); and bikepaths, basketball courts or other outdoor recreational facilities.

- **Hough, Michael, "Tourism: Searching for the Differences," *Out of Place: Restoring Identity to the Regional Landscape*, Yale University Press: New Haven, 1990.**

  An analysis of economic and preservation issues.

- **Hunter, Carol, *Everyone's Nature: Designing Interpretation to Include All*, on behalf of the Colorado Division of Wildlife, Falcon Press Publishing Co., Inc.: Helena and Billings, Montana, 1994.**

  Designed to help those responsible for creating access to outdoor recreation facilities (parking, pathways, restrooms, ramps, doors and handles, drinking fountains, lighting, etc.) and programs (communication guidelines for blind, deaf, learning-impaired; sensitivity training for staff; etc.). Includes a sample evaluation using the Georgetown Wildlife Viewing Area.

- **Landscape Institute, Institute for Environmental Assessment, *Guidelines for Landscape and Visual Impact Assessment*, E&FN SPON, London, 1995.**

  This text provides in-depth guidelines for evaluating landscapes and discusses a methodology for enhancing visual impacts. *Guidelines* include the integration of landscape and visual issues with the development process, the importance and method for conducting visual impact assessments, and reviews the components of an Environmental Impact Statement.

- **Lerner, S., *Archaeology and Historic Preservation*, contact the national Trust for Historic Preservation, 1785 Massachusetts Avenue NW, Washington, DC, 1994.**

  Archaeology and Historic Preservation covers basic archaeological concepts, state and local issues, site protection, public programs, and important legislation.

- **Lynch, Kevin, *Site Planning*, MIT Press, Cambridge, Massachusetts, 1984.**

  This is *the* classic text for landscape architects, covering the field in depth. *Site Planning* provides an excellent historical perspective of landscape design. Site analysis, methodology, and design is covered in detail. Roads and other infrastructure are also discussed.

- **Marriott, Paul David, *Saving Historic Roads: Design and Policy Guidelines*, John Wiley & Sons, Inc., New York, 1998.**

  With an eye toward preservation while maintaining highway safety, the author explores alternatives to the destruction of historic roads. Recommendations for changing policy, transportation laws, and engineering practices are examined in detail. *Saving Historic Roads* is thorough, well documented, and nicely illustrated.

- **Mastran, Shelly, *Protection of America's Scenic Byways*. Contact the National Trust for Historic Preservation, 1785 Massachusetts Avenue NW, Washington, DC, 20036, 1994.**

  A description of the national, state, and local scenic byway program. Explains corridor management planning and protection strategies, and uses case studies for illustrations.

- **Motloch, John L., *Introduction to Landscape Design*, Department of Landscape Architecture, Texas A&M University, Van Nostrand Reinhold, New York, 1991.**

  A fascinating and informative inquiry into the meaning of landscape and how people relate to those landscapes. Motloch's takes a provocative look at the relationships between order and meaning, the built and the natural environment, and the synergism of art, humanity, and ecology. An extremely useful and well illustrated book, *Introduction to Landscape Design* opens the door to the delight and complexity of the land around us.

- **Reznikoff, S.C., ed.,** ***Interior Graphic and Design Standards,*** **Watson-Guptill Publications, New York, NY, 1986.**

  Self-contained, comprehensive data source that both reflects and supports the many complex areas of expertise encompassed, first, by contemporary interior design practice, and, second, in a curriculum that supports a fully professional education for interior design.

- **Root, James B.,** ***Fundamentals of Landscaping and Site Planning,*** **AVI Publishing Company, Inc., Westport, Connecticut, 1985.**

  Written as a core curriculum for landscape architecture, the text includes a discussion of the earth sciences, horticulture, and design basics. Basic geology, soils, natural processes, and plant life are covered under the earth sciences. Horticultural practices are covered, particularly the establishment of grasses, ornamental trees, and shrubs. The basics of site planning are covered, including the concept of contours and methods for organizing the landscape. Design principles of composition are introduced.

- **Rutledge, Albert J.,** ***A Visual Approach to Park Design,*** **Garland STPM Press, New York, 1981.**

  A look at park—and space—design from the point of view of users and users' behavior. Very helpful in thinking through the behavior that is implied by various design elements.

- **Simonds, John,** ***Landscape Architecture,*** **McGraw-Hill.**

  A well-illustrated text that provides insight into the effect of humanity of the landscape and the landscape on humanity.

- **Smith, Thomas P.,** ***The Aesthetics of Parking: An Illustrated Guide,*** **American Planning Association, Planning Advisory Service Report Number 411, 1988.**

  A useful resource for designing parking lots with aesthetic qualities that are still functional. Smith describes the visual problem with surface parking lots and suggests alternatives. A significant section of the book deals with site planning standards, including issues that deal with layout, circulation, lighting, signs, entrances, and angled parking.

- **Stipe, Robert E., and Antoinette J. Lee, eds.,** ***The American Mosaic: Preserving a Nation's Heritage,*** **International Council on Monuments and Sites, Washington, DC, 1987.**

This publication is designed to be read by preservationists, policy-makers in preservation, as well as a wider general audience. The book describes the structure of the American preservation system, what is preserved, and why and how the preservation movement arrived at its present situation. The book also looks at the strengths and weaknesses of the movement and issues integral to its future.

- **Tilden, Freeman, *Interpreting Our Heritage*, The University of North Carolina Press: Chapel Hill, NC, 1957.**

  A classic resource in the field of interpretation.

- **US Department of Commerce, *A Proposed Program for Scenic Roads and Parkways*, The President's Council on Recreation and Natural Beauty, 1966.**

  A delightful look at the past and how the national byway program was conceived and begun.

- **Uzzel, David, ed., *Heritage Interpretation, Volume 1: The Natural and Built Environment,* and *Volume 2: The Visitor Experience*, Bellhaven Press: London, New York, 1989.**

  The first volume handles the environmental perspective within interpretation. It tackles such topics as interpretation through cross-cultural perspectives as well as various views of interpretation and related training. The second volume focuses on visitor management and visitor experiences as the heart of interpretive objectives. It provides a comprehensive review of interpretive philosophy, theory, practice, and research on the effectiveness of interpretive techniques. Subjects include the promotion, marketing, and funding of interpretation, integrated heritage management, and the infrastructional facilities and services required to complement interpretive facilities.

List of Additional Recommended References

- **Arendt, Randall, et al., *Rural by Design*, Lincoln Land Institute of Land Policy, Environmental Law Foundation, Center for Rural Massachusetts, American Planning Association, Planners Press: Chicago, IL, 1994.**

- **Federal Highway Administration, *Community Guide to Planning and Managing a Scenic Byway*, US Department of Transportation.**

- **Federal Highway Administration, *Flexibility in Highway Design*, US Department of Transportation.**

- **Ham, Sam, *Environmental Interpretation: A Practical Guide for People With Big Ideas and Small Budgets*, University of Idaho, North American Press: Golden, Colorado, 1992.**

- **National Park Service, *Guidelines for Planning, Designing and Producing Wayside Exhibits*, 1992.**

- **Oldham, Sally G., *Thinking Beyond the Pavement: Context Sensitive Design for Scenic Byways Managers; A Resource Guide to Sources of Information to Encourage Highway Design Compatible with Intrinsic Resource Preservation*, on behalf of the Maryland State Highway Administration, Oldham Historic Properties, Inc., 1999.**

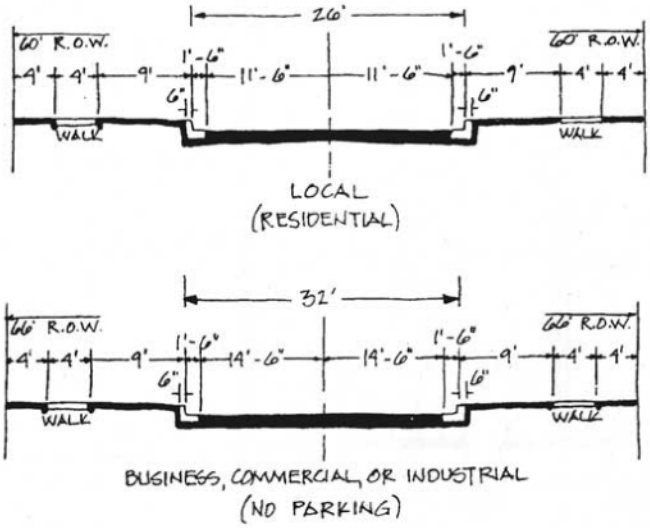
- **PLAE, Inc., *Universal Access to Outdoor Recreation: A Design Guide*, on behalf of the USDA Forest Service, MIG Communications: Berkeley, California, 1993.**

- **Seaway Trail, Inc., *Landscape Design Manual for Seaway Trail Tourism Information Kiosks and Display Units*, New York Department of Transportation.**

- **USDA Forest Service, *Interpreting the Scenic Byway*, Forest Service Interpretive Services, National Scenic Byway Conference Proceedings, 1993.**

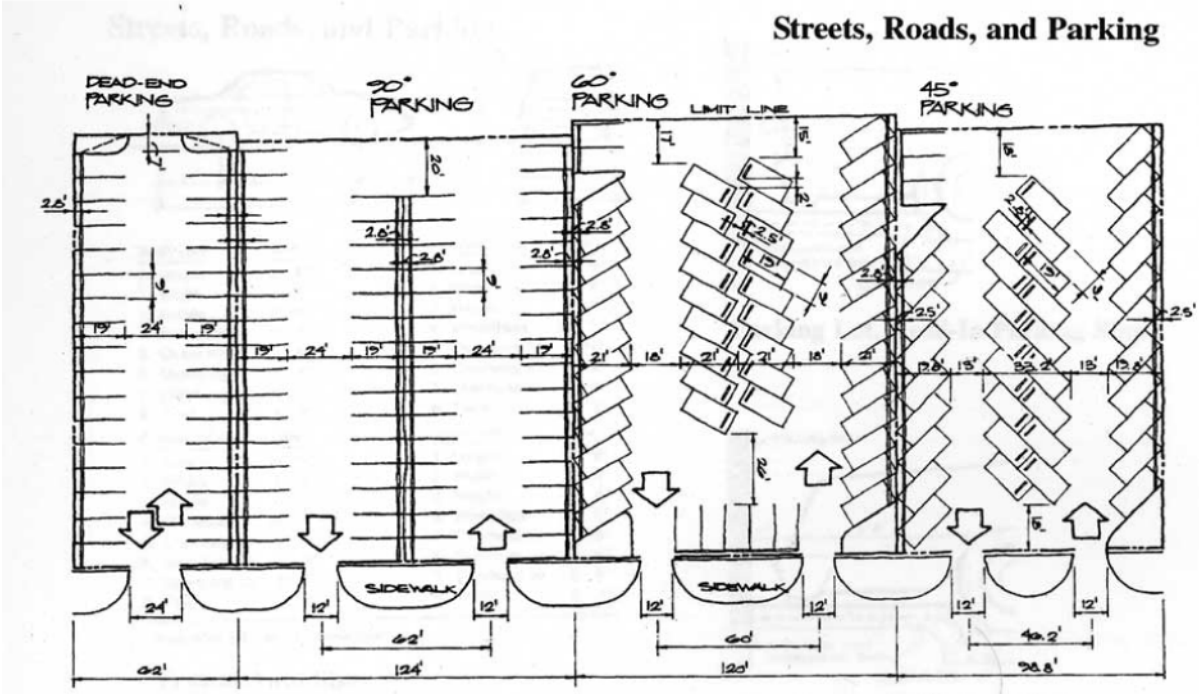
Examples of Auto, Bike and Pedestrian Standards

Streets, Roads, and Parking

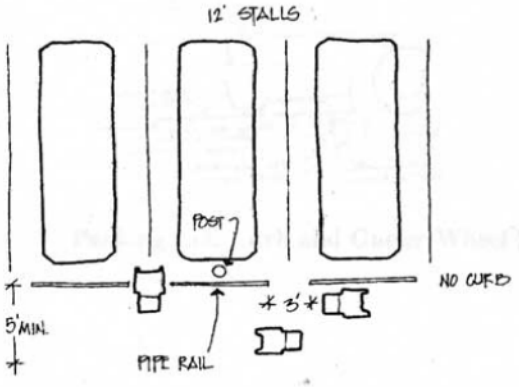


Typical Residential/Commercial Street Sections

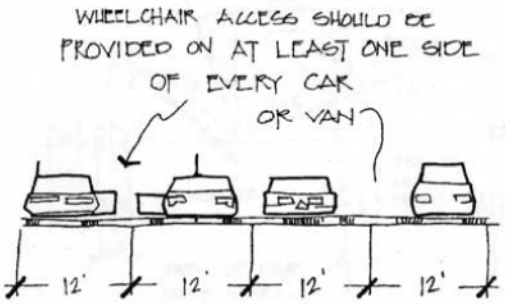
Examples of Auto, Bike and Pedestrian Standards (cont.)



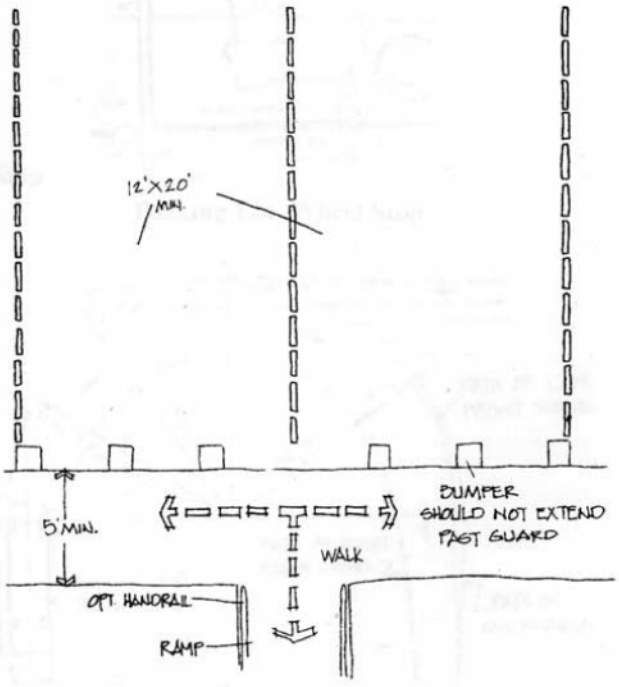
Parking Lot Configurations



Curbless Parking Stalls for the Handicapped



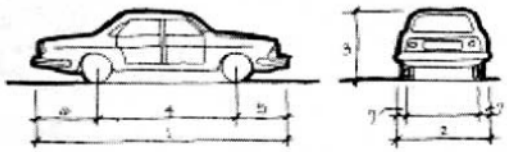
Parking Stall for the Handicapped: Section



Parking Stall for the Handicapped: Plan

Examples of Auto, Bike and Pedestrian Standards (cont.)

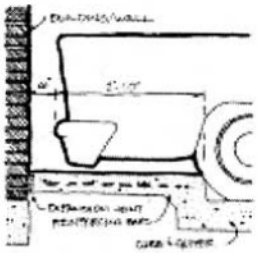
Streets, Roads, and Parking



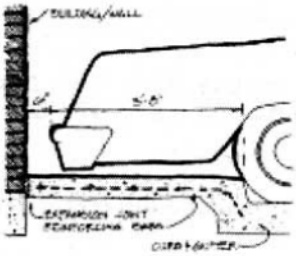
Small Cars	Size	Standard Auto	Size
1. Length	15' 5"	1. Length	17' 9"
2. Width	5' 10"	2. Width	6' 8"
3. Height	4' 10"	3. Height	5' 2"
4. Wheelbase	9' 2"	4. Wheelbase	10' 7"
5. Overhang (f)	2' 6"	5. Overhang (f)	2' 10"
6. Overhang (r)	3' 9"	6. Overhang (r)	4' 4"
7. Overhang (s)	0' 7"	7. Overhang (s)	0' 9"
8. Track	4' 9"	8. Track	5' 2"
Compact Cars	**Size**	**Large Auto**	**Size**
1. Length	16' 11"	1. Length	18' 0"
2. Width	6' 3"	2. Width	6' 8"
3. Height	5' 1"	3. Height	5' 4"
4. Wheelbase	10' 1"	4. Wheelbase	10' 8"
5. Overhang (f)	2' 7"	5. Overhang (f)	2' 10"
6. Overhang (r)	4' 3"	6. Overhang (r)	4' 6"
7. Overhang (s)	0' 9"	7. Overhang (s)	0' 8"
8. Track	4' 11"	8. Track	5' 3"

Dimensions will vary with model/year

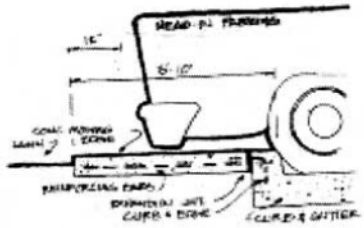
Typical Auto Sizes



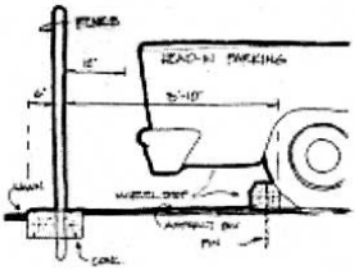
Parking Lot, Head-In Parking Stop



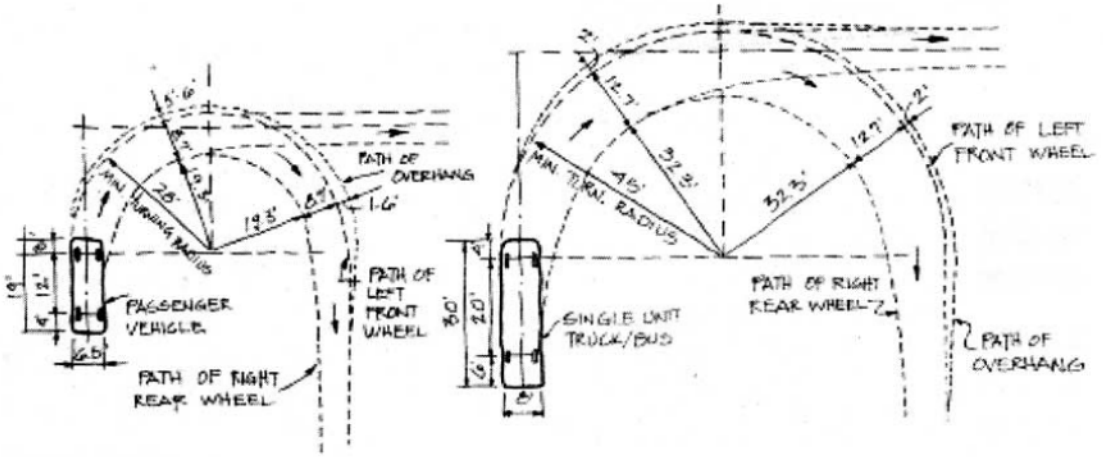
Parking Lot, Back-In Parking



Parking Lot, Curb and Gutter Wheel Stop

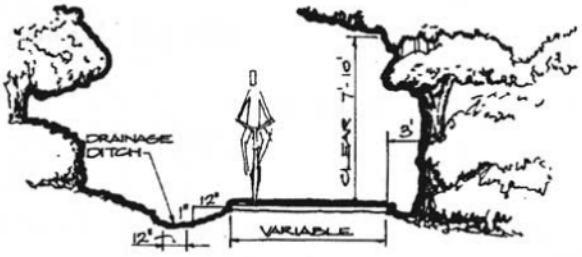


Parking Lot, Wheel Stop



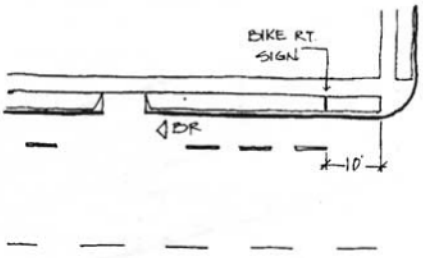
Turning Radius

Examples of Auto, Bike and Pedestrian Standards (cont.)

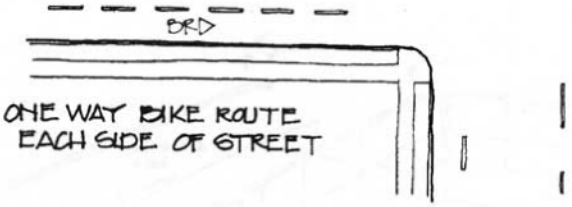


Clearing and Drainage: Typical Section

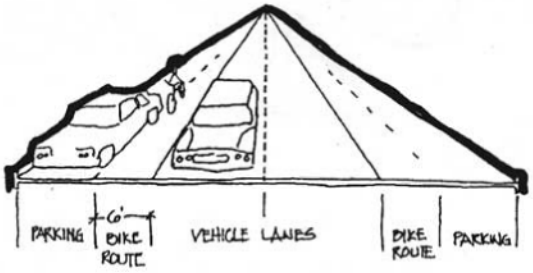
Bicycle Systems



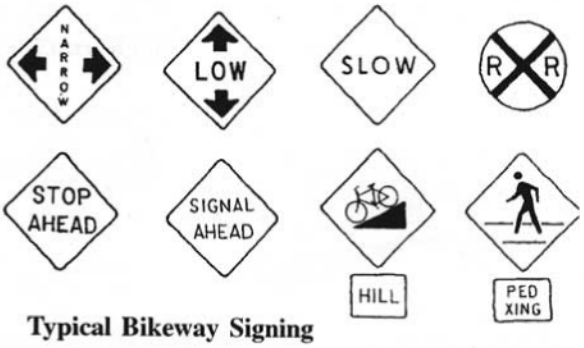
Bicycle Lane in Residential Street



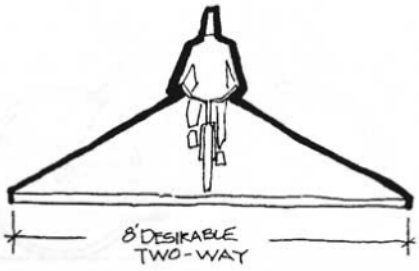
One-Way Bike Route Each Side of Street



Interior Bicycle Lane



Typical Bikeway Signing

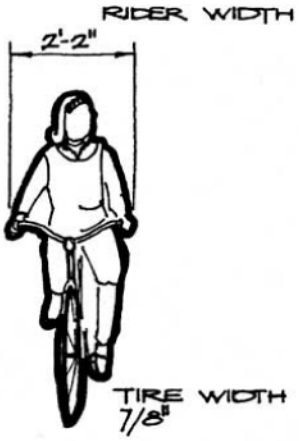


Typical Bicycle Lane

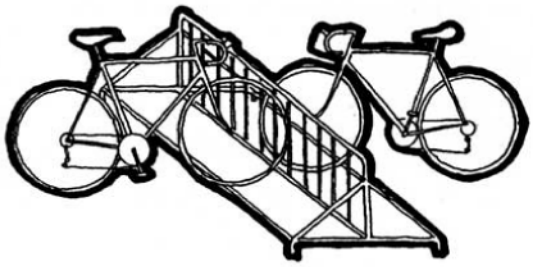
Sign Graphics, Typical

Examples of Auto, Bike and Pedestrian Standards (cont.)

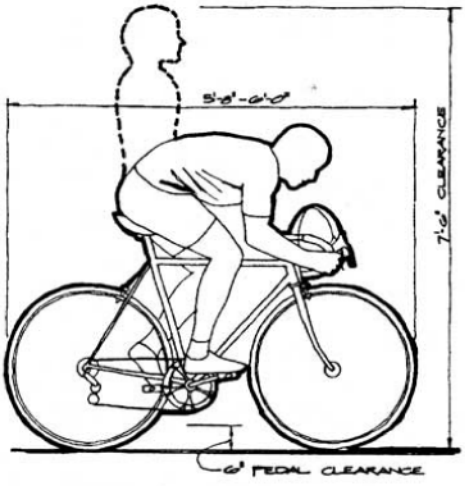
Bicycle Systems



Rider Width, Typical

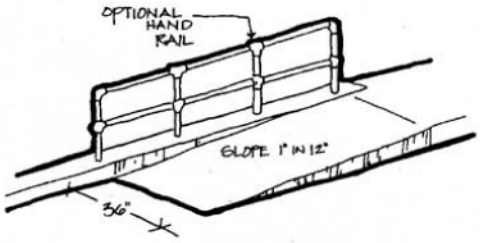


Bike Rack, Typical

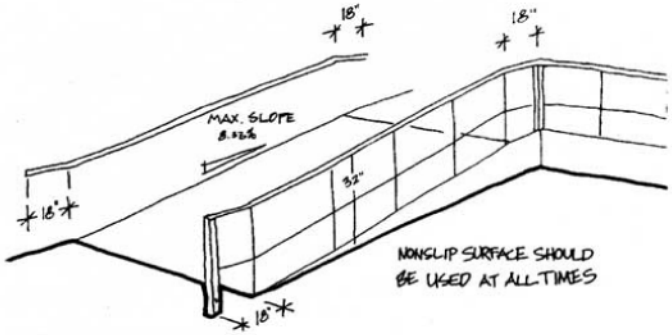


Rider Profile, Typical

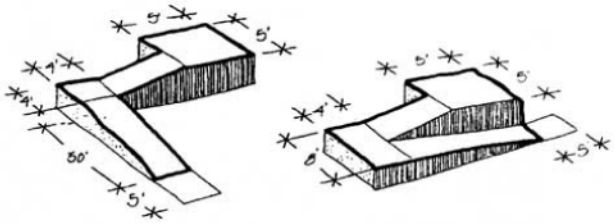
Pedestrian Walkways



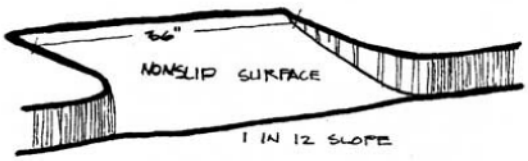
Ramped Curb with Handrail

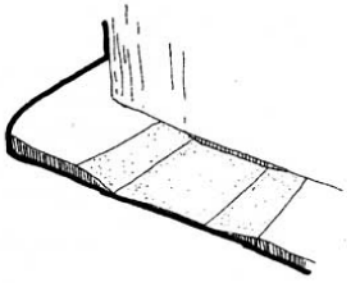


Typical Entry Ramp



Typical Ramp Systems

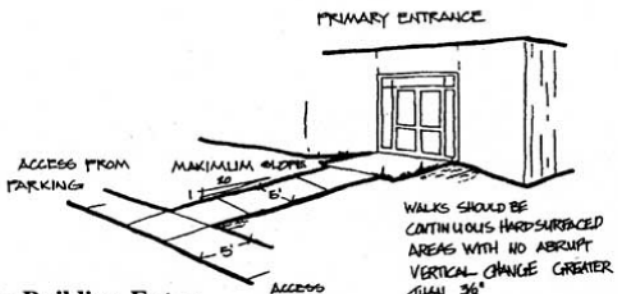




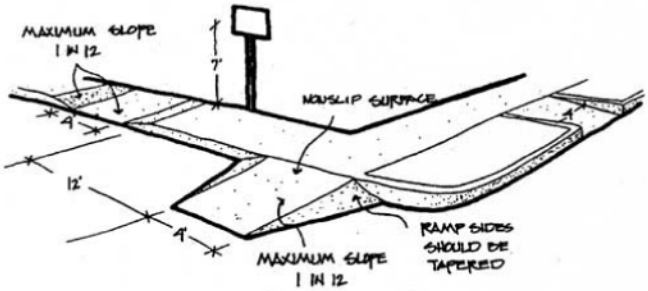
Typical Curb Cuts

Examples of Auto, Bike and Pedestrian Standards (cont.)

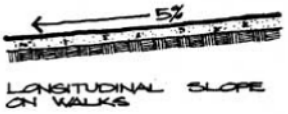
Pedestrian Walkways

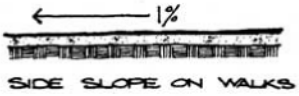


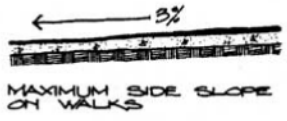
Accessible Building Entry



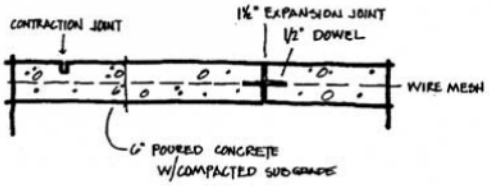
Typical Curbed Ramp Approach



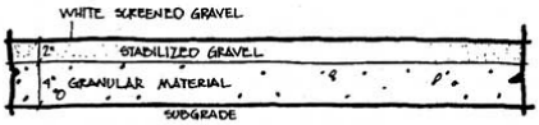




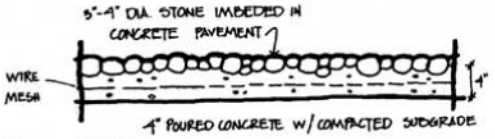
Slope on Walks



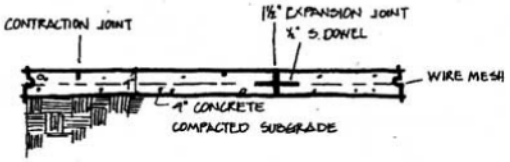
Poured Concrete Walk, 6"



Stabilized Gravel Walk

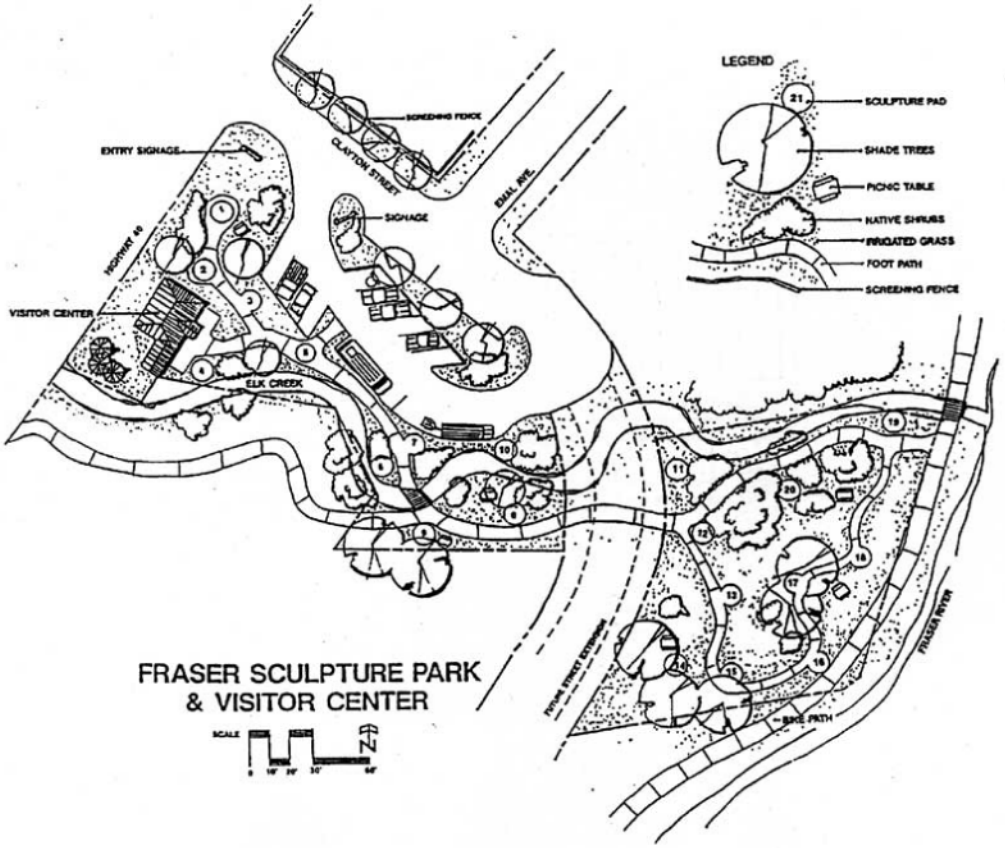


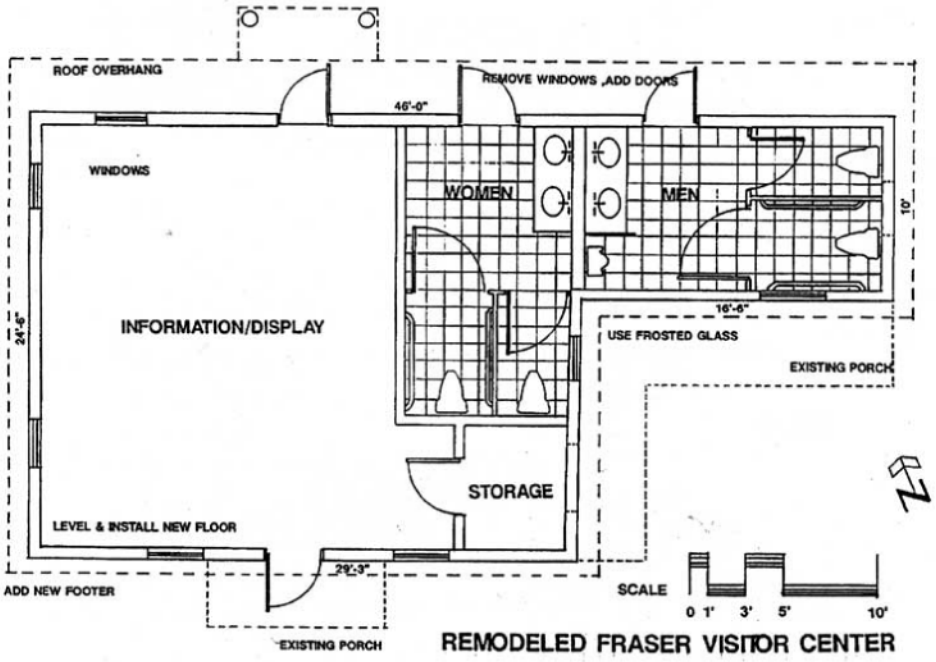
Stone Walk



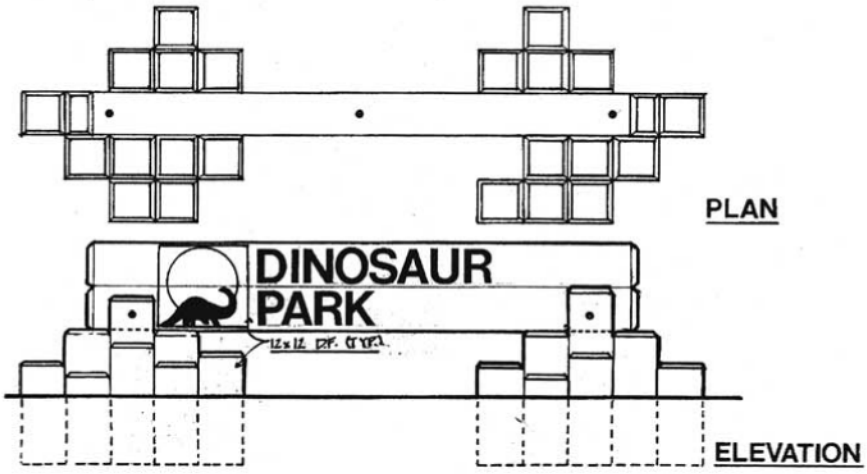
Poured Concrete Walk, 4"

Examples of Visitor Centers and Special Attractions

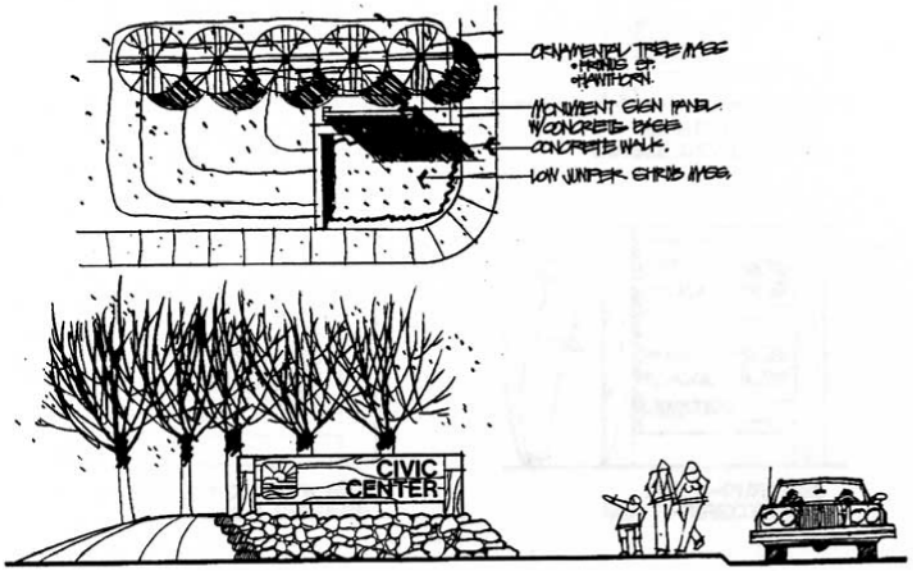




Samples of Image Signs

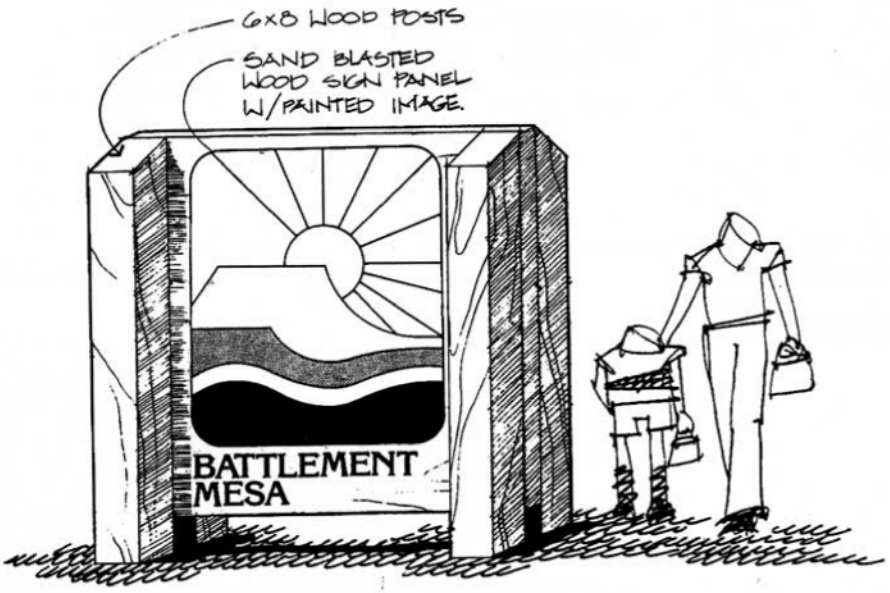


Examples of Signage Systems



BATTLEMENT MESA

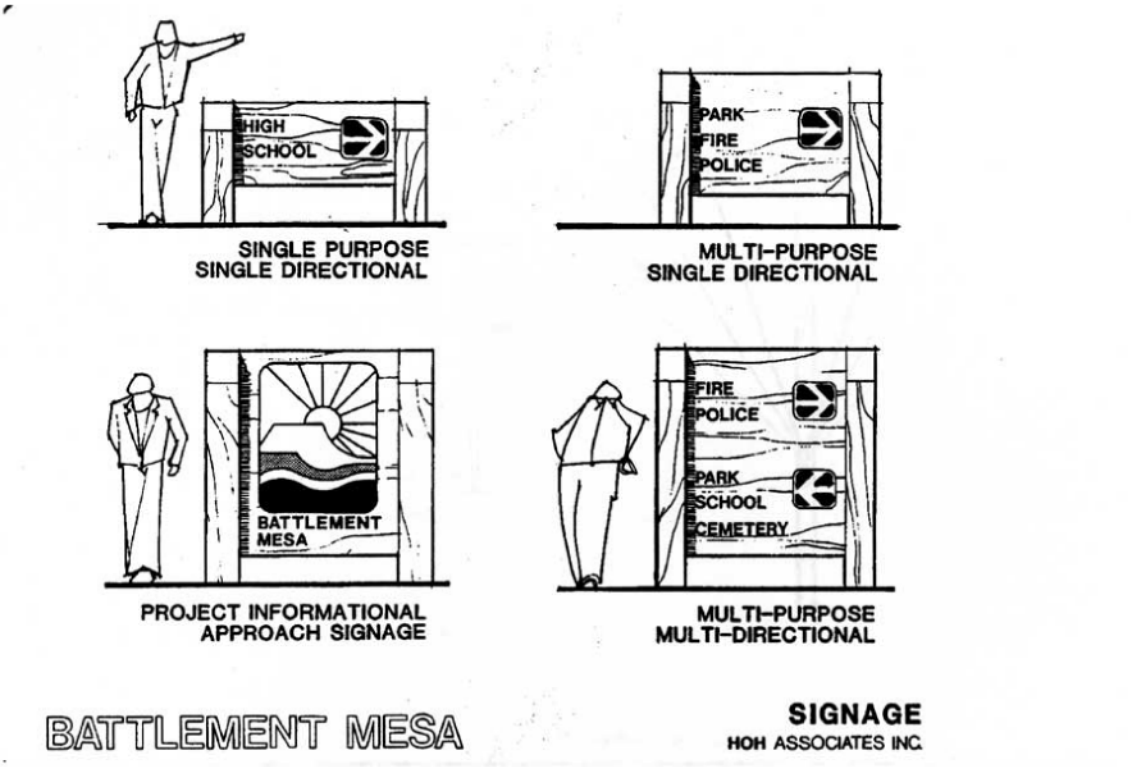
ENTRIES SIGNAGE
HOH ASSOCIATES INC

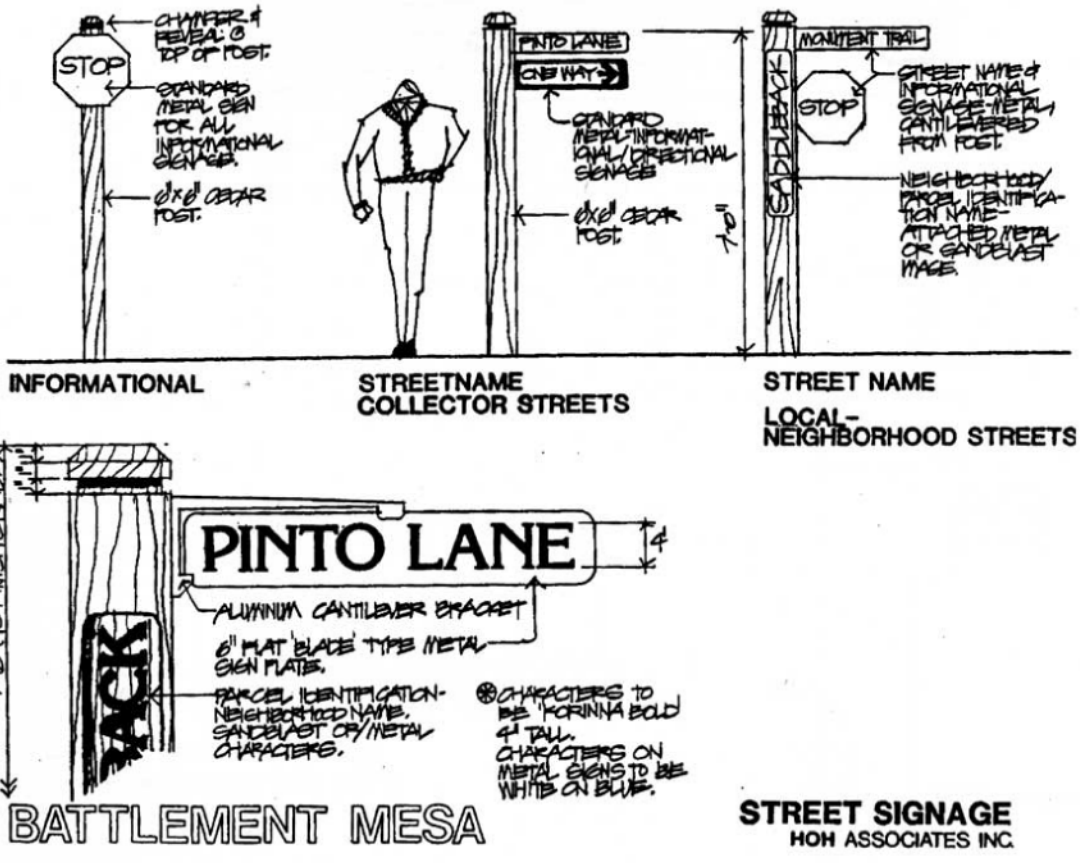


BATTLEMENT MESA

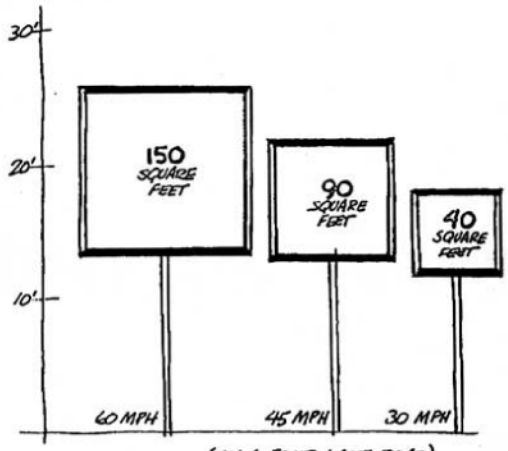
PROJECT APPROACH
INFORMATIONAL SIGNAGE
HOH ASSOCIATES INC

Examples of Signage Systems (cont.)

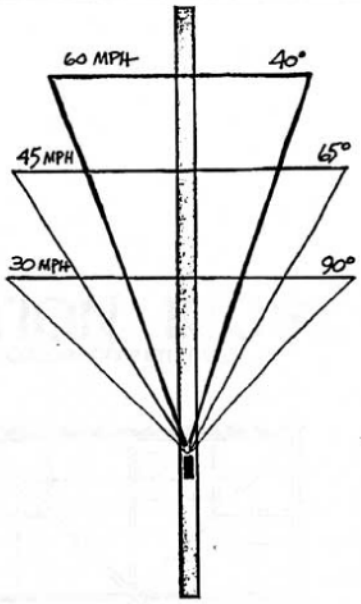




Size of Signage



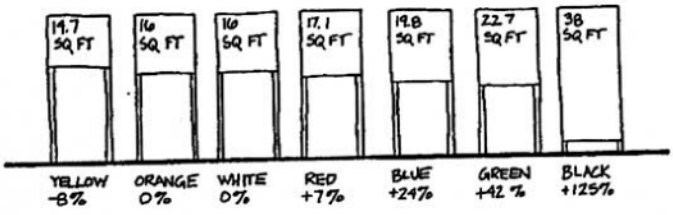
DRIVING SPEED AND LANES OF TRAFFIC DETERMINE HEIGHT AND SIZE OF GRAPHIC



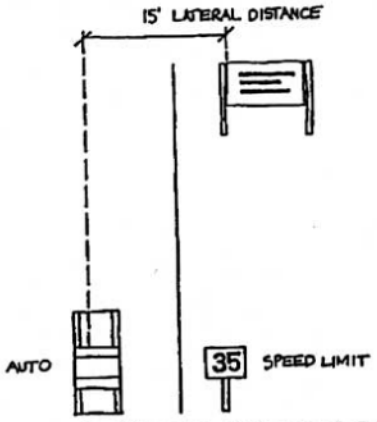
ANGLE OF VISION

Motorist Legibility Analysis

Number of Lanes	Speed (MPH)	Reaction Time (Seconds)	Distance Traveled during Reaction (Feet)	Letter Height (Inches)	Total Area of Sign (Square Feet) Commercial Industrial	Institutional Residential Agricultural
2	15	8	176	4	8	6
	30		352	7	25	18
	45		528	10	50	36
	55		704	14	100	70
4	15	10	220	4	8	6
	30		440	9	40	28
	45		660	13	90	64
	55		880	17	150	106
6	15	11	242	5	13	10
	30		484	9	140	28
	45		726	14	100	70
	55		968	19	190	134
Freeway	55	12	1,056	21	230	162



The percentage of area a colored sign has to exceed a white sign to be equally conspicuous is shown here.

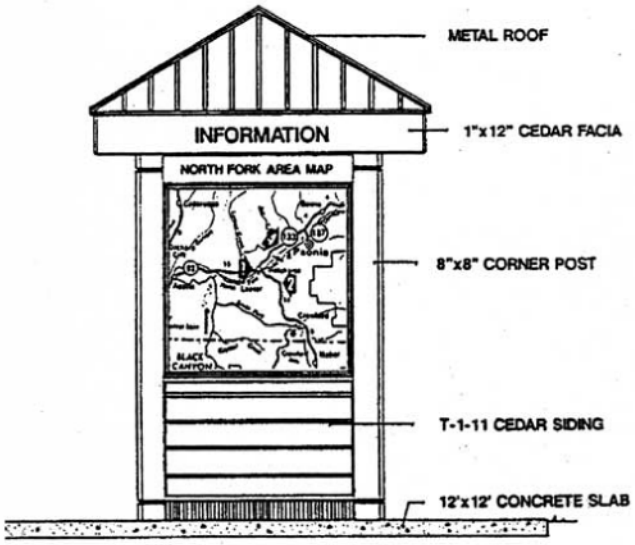


Here is an example of the size of sign needed in relation to speed reaction time/distance traveled.

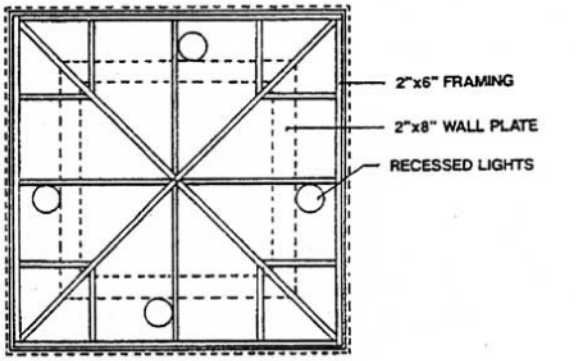
Example of Information Kiosk

NORTH FORK INFORMATION KIOSK

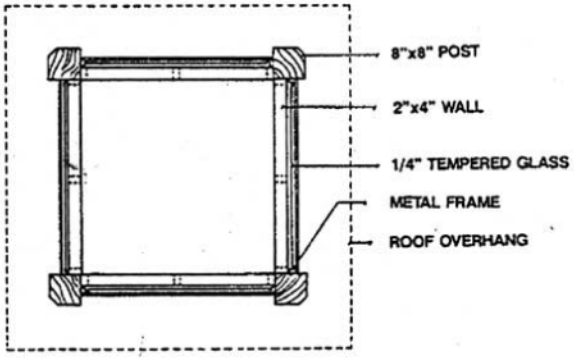
COLORADO INITIATIVES



ELEVATION
SCALE 3/4"=1'-0"



PLAN VIEW
ROOF FRAMING



PLAN VIEW
WALL FRAMING