EVALUATION CRITERIA FOR SCENIC LOOP TOURS

by

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Preface

In this research, criteria were developed for designating and evaluating scenic loop tours based on roadway conditions, scenic beauty, number of local communities, population, and anchor attractions. Two existing scenic loop tours in Wyoming, the Cheyenne and Oregon Trail Loop Tour and the Base of the Bighorns Loop Tour were evaluated on the basis of the developed criteria. Recommendations were suggested to improve the value of existing scenic loop tours within Wyoming based on the results of this evaluation.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Scenic loop tours are generally along shorelines, lakes, outstanding edifices and notable geological features or through forests, parks and natural features. Scenic loop tours, as the name indicates, generally begin and end at the same point. In Wyoming, scenic loop tours were introduced by the Wyoming Transportation Department and the Wyoming Division of Tourism in 1988. This research was performed to evaluate the effectiveness of the scenic loop tour program in Wyoming.

BACKGROUND

The United States is a country with great diversity in culture and heritage. It is also a land which has a vast variety of wildlife, lakes, and scenic beauty. Tourism is important to the American economy; it creates jobs, retail sales, and even new business. The following facts reflect the importance of tourism [7]:

* Travel and tourism is a $350 billion a year industry - and the Nation's third largest retail industry (after auto dealers and food stores).
* Travel and tourism ranks as one of the largest employers in 37 out of the 50 states in the country. Travel and tourism comprises 6.7 percent of the Gross National Product and 13 percent of the services sector.
* In 1989, travel and tourism generated $42.8 billion in tax revenue and a total industry payroll of $73.5 billion. It is America's second largest employer (health care employment is the largest). About 5.8 million people are directly employed in travel and tourism, and another 2.5 million are employed indirectly in providing goods and services to the industry [7].

Promotional efforts on a national scale, aimed at international visitors, are expected to produce a solid payback for America's international balance of trade [7]. In 1989, travel services rendered to foreign visitors were America's largest "export." Based on information from the U.S. Travel and Tourism Administration (USTTA) [7], an average visitor spent $1,602 in the United States. Translated into specific terms, such travel involved $34.3 billion of expenditure in the United States and 570,000 new jobs. The USTTA also stated in the report that in 1989, 39 percent of the foreign visitors used a rental car for vacation purposes, while 31 percent used a personal automobile. About 69 percent of Canadian arrivals that year came by road. In

addition to this, with the value of the American dollar declining abroad, more and more american vacationers and tourists are staying home and seeing America first, some perhaps for the first time ever. An increasing number of retirees, for example, now have both the time and the resources to travel extensively. According to USTTA, the number of senior American citizens driving motorhomes has increased markedly in recent years. These numbers suggest a need to develop more tourist programs.

In an attempt to promote tourism in the United States, many programs have been undertaken by the federal government, tourism departments, and state departments of transportation. The scenic byways program is one of them. In this program, many existing roads have been designated as scenic byways. These roads are scenic and historic, and possess unique cultural features. The objective of designating roads as scenic byways is to preserve and promote the scenic quality of roads, and to improve the economy of the local communities through which they pass.

The purpose of a scenic loop tour, like a scenic byway, is to stimulate the economies of local communities. Hopefully tourists tend to extend their stay in order to enjoy loop tours.

OBJECTIVE AND SCOPE OF RESEARCH

The main objective of this research was to develop criteria for designating scenic loop tours and to use these criteria in evaluating the existing scenic loop tours to determine the effectiveness of the criteria.

Included in Chapter II is the pertinent background related to scenic loop tours in Wyoming and across the United States. A brief description of scenic byways and scenic loop tours in Wyoming is also included. Highlights of a nationwide scenic loop tours survey performed in this project are also included.

Chapter III includes a description of the components and methodology employed in this study. The study included evaluating existing loop tours by collecting historical accidents and traffic volume data and evaluating existing loop tour signs.

Chapter IV describes the evaluations of the Cheyenne and Oregon Trail Loop Tour and the Base of the Bighorns Loop Tour by using the criteria developed in Chapter III. Finally, Chapter V contains a summary of the findings, conclusions and recommendations.

CHAPTER II

LITERATURE REVIEW

Contained in this chapter are the reviews of applicable scenic loop tour literature. First, a literature review of the scenic byways present in the United States is discussed. Second, the definition of scenic loop tours and the existing scenic loop tours in the State of Wyoming are presented. This chapter concludes with the summary of results obtained from the nationwide survey.

SCENIC BYWAYS

"A scenic road or byway is a road having roadsides or corridors of high natural beauty and cultural or historic value. It gives the traveler glimpses of the nature, history, geology, landscaping, and cultural activities along the road. Campgrounds, picnic areas, or other recreational sites may be built within the scenic corridor, or the road may provide a pleasant access to such facilities" [4].

Scenic road programs have been in existence for some time in one form or another. A number of states have implemented programs for scenic roads under different names such as scenic highways, scenic byways, scenic backways, rustic roads, etc. Basically, the goal of all such programs is to preserve and promote the scenic quality of roads [4].

Much of the present enthusiasm for the development of scenic byways began with the report of the President's Commission on American Outdoors [7]. Based on 1986 market research, the Commission revealed that "driving for pleasure is second only to walking as a popular form of recreation activity by American adults." Americans seek a variety of the sights as they drive: glimpses of mountains, lakes and rushing streams; small towns and farms; wildlife; covered bridges; and a first-hand insight into the lifestyles of rural Americans [7].

The Intermodal Surface Transportation Efficiency Act of 1991 allocated $50 million for the Scenic Byway Program. The grant funds are authorized for the planning, design, and development of state scenic byways programs. In addition, an interim scenic byways grant program is funded at $30 million to allow states to undertake scenic byways projects. Scenic byways, additionally, may be funded through the 10 percent of Surface Transportation Program (STP) funds set aside for enhancement activities [5].

Even before the presidential commission on scenic byways, many states had designated scenic roads in their states by different names. After the first meeting of scenic byways in 1989, many states started to propose several scenic roads for scenic byway designation. Utah, Colorado, Maryland, North Carolina and Wyoming have developed active scenic byway programs. Summaries of the scenic byway programs developed in various states are discussed below [3]. Contained in Appendix A are the criteria developed for Utah, Colorado, North Carolina, and Wyoming scenic byways.

Utah's Scenic Byways

Scenic byways in Utah were initiated by a local government group known as the Five County Association of Governments in 1985. At present there are 27 scenic byways and 58 scenic backways in the State of Utah. Scenic backways are similar to scenic byways except they are generally not paved and often require a high clearance vehicle. Utah has developed two separate criteria for designating scenic byways and scenic backways. The designation of scenic byways and backways in Utah is a joint program of the U.S. Forest Service, Bureau of Land Management, National Park Service, Association of Governments, Utah Department of Transportation, Federal Highway Administration, Utah Travel Region, and Utah Travel Council [3].

Colorado's Scenic Byways

The existing literature indicates that Colorado has a very strong interest in promoting tourism [3]. The economy of Colorado is highly dependent upon its natural and cultural attractions. Over 26 million tourists visited the State in 1988, contributing over $5.6 billion to Colorado's economy [3]. Even before the advent of a formal scenic byways program, several communities had sought recognition for scenic drives. Colorado's first scenic byway, Independence Pass, was declared in 1970s by the Colorado state legislature. Later in 1989, the Scenic and Historical Byways Commission developed five criteria for the designation of scenic byways. At present, there are about 30 byways in Colorado's scenic byway program. The state's official logo sign, featuring the Colorado columbine, is the trailblazer sign on these byways [3].

Maryland's Scenic Byways

Tourism ranks as the second largest employer in Maryland. In 1988, 33 million tourists visited Maryland contributing some $2.7 billion to the state economy [3]. Active implementation of the scenic

byways program began in 1988. A team of highway officials assessed the safety and scenic qualities of the state roads, choosing the best to be included in the program. County officials, members of the tourism industry, citizens and state legislators were not included in the selection process or in the design of the scenic byway program. At this time, no special improvements are planned for the Maryland Scenic Routes. Plans are proposed to incorporate amenities such as picnic areas and interpretive sites along these routes [3].

North Carolina's Scenic Byways

Tourism is an important industry in the state, ranking as its second largest employer behind manufacturing. North Carolina officials expect tourism to take over as the #1 employer by the year 2000. Some 61 million tourists contributed $6.2 billion to the state's economy in 1988.

North Carolina first took on the task of designating scenic byways in 1964, after the President's Council on Recreation and Natural Beauty recommended a national program of scenic roads. The program was not fully operational until the fall of 1988. The Landscape Unit of NCDOT created a Scenic Byways Task Force and developed criteria for selecting roads for scenic byways. In 1990, North Carolina set afoot plans to incorporate 1,500 miles of scenic byways in about 30 segments dispersed geographically around the state [3].

Wyoming's Scenic Byways and Backways

The Wyoming Scenic Byways and Backways program is targeted to promote and enhance tourism and the understanding and appreciation of the State's heritage in concert with the preservation, protection and enhancement of the State's scenic, historic and cultural resources [9]. As in Utah, Wyoming byways and backways differ in road condition and available services. Scenic byways include roads which can be safely traveled in a standard passenger car or recreational vehicle while scenic backways may require high clearance or four-wheel drive vehicles over a portion or all their length. The U.S. Forest Service has designated seven National Forest Service Scenic Byways totaling a length of 387.5 miles in the State which are mainly located within the forest boundaries. The U.S. Bureau of Land Management has designated three back country byways in the State. These routes are located on country roads, and consist of ungraded or graded, gravel and/or paved roads (197 miles). Nominations for additional scenic byways and backways are currently in progress [9].

In addition to scenic byways, many states have developed several other programs such as the scenic loop tour program to draw tourists into their states.

SCENIC LOOP TOURS

In the late 1980s, the Wyoming Division of Tourism initiated a scenic loop tour program. Initially, this program consisted of three loop tours located in different parts of Wyoming. Later in 1992, this program was expanded and an additional three loop tours were added. Figure 2.1 shows the general locations of all six loop tours. The Wyoming Division of Tourism developed a brochure containing descriptions of each tour. These brochures are normally distributed to tourists at Tourist Information Centers located throughout the State of Wyoming. Information about loop tours are also printed in newspapers and in Wyoming state maps available at information centers. A short description of the major points of interest on each Wyoming Loop Tour follows [10]:

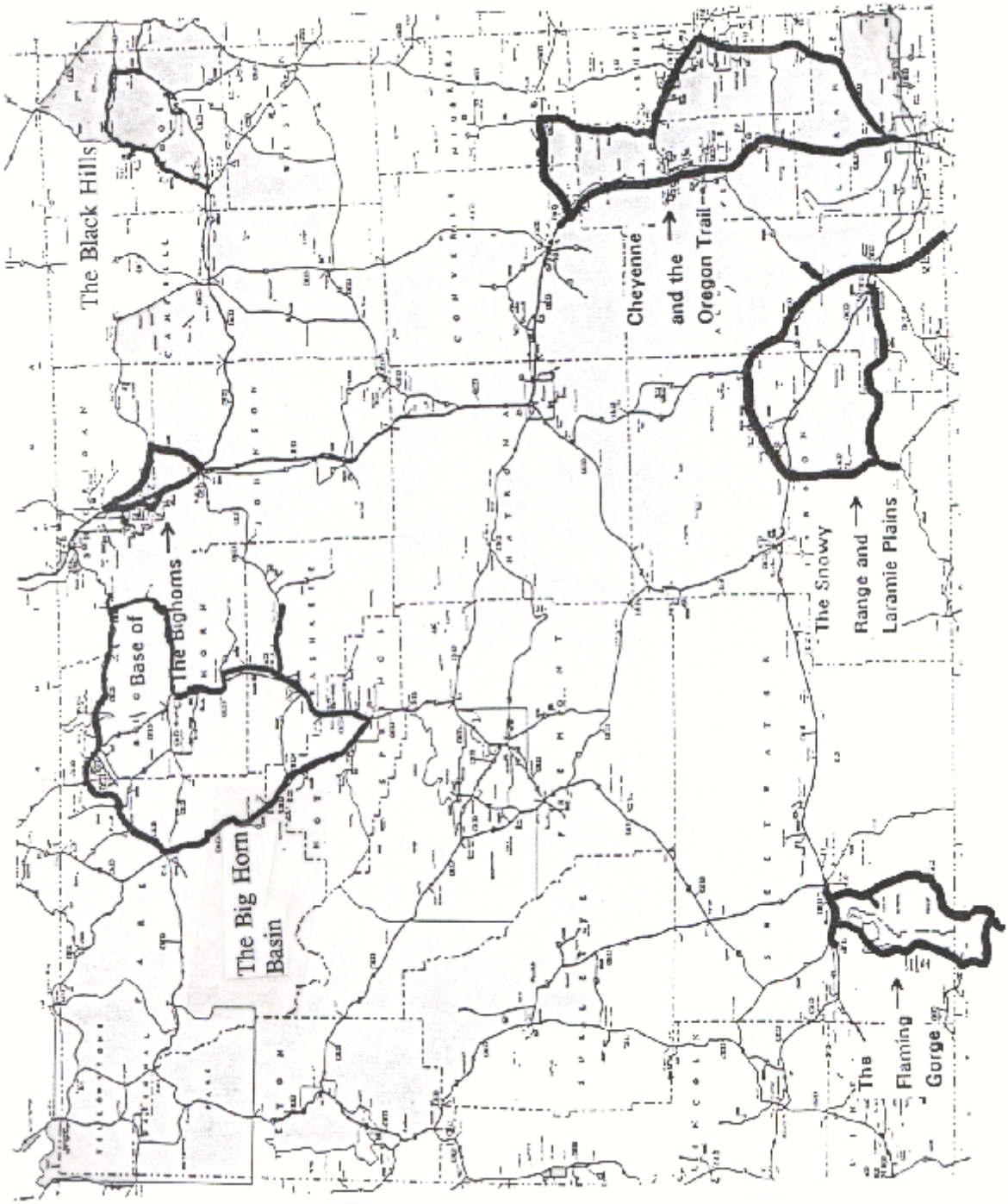


Figure 2.1Geographic Locations of the Loop Tours.

Cheyenne and Oregon Trail

As shown in Figure 2.2, this loop tour originates from the state capital, Cheyenne, and passes through Douglas, Glendo State Park, Guernsey, Guernsey State Park, Fort Laramie and Torrington. Much of the exciting period in the old west lives on at several museums in Cheyenne. These museums give glimpses of historical objects, indian artifacts, gems, and other materials of interest which help in understanding the lives of the people of the past. Wildlife is also an attractive feature of this loop tour. In addition, this tour follows the historic Oregon Trail as it makes its way along the North Platte River. Register Cliff is located south of Guernsey where pioneers inscribed their names, places of origin, intended destination and the dates. The total length of this loop tour is approximately 180 miles [10].

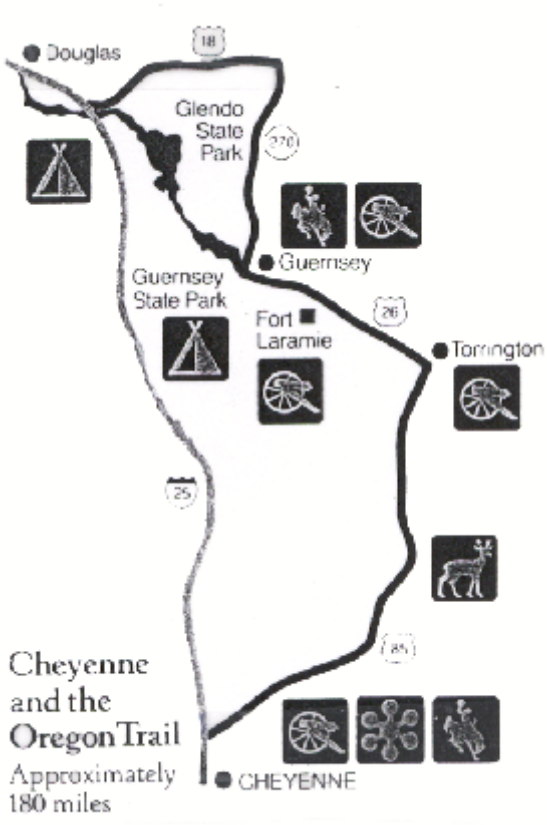


Figure 2.2 Cheyenne and Oregon Trail Loop Tour

The Flaming Gorge

Figure 2.3 shows the path followed by this loop tour. Flaming Gorge is a land of living color with many rock formations, sculptured through the centuries by wind and water. Vast flatlands, benches, buttes, canyons, cliffs and mountain slopes all support an abundance of plant and animal life. The total length of this loop tour is approximately 140 miles [10].

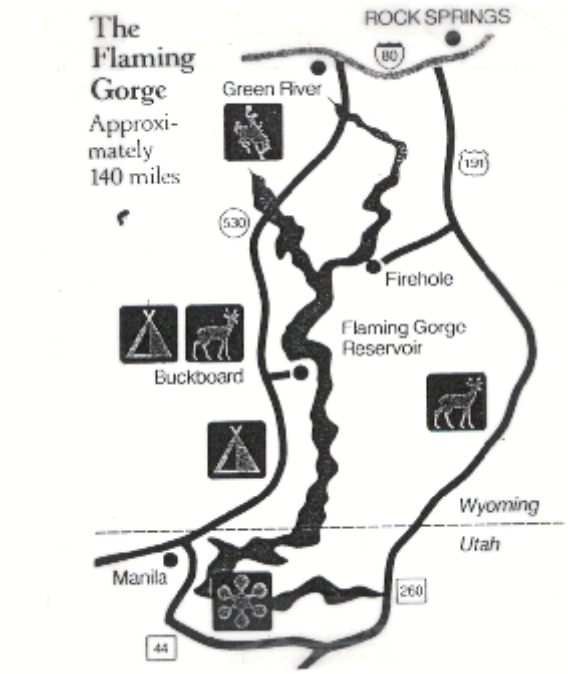


Figure 2.3 The Flaming Gorge Loop Tour

The Snowy Range and Laramie Plains

As shown in Figure 2.4, this loop tour begins in Laramie and follows Wyoming 130 West to Centennial and over the Snowy Range Mountains to Saratoga. From there the loop continues to Medicine Bow before leading back to Laramie. The Wyoming Territorial Park, west of Laramie, highlights the history of the area from pre-settlement to statehood. The Snowy Range Scenic Byway starts from Laramie which is at an elevation of 7,200 feet. Hot springs at Saratoga are clear and odorless and their medicinal value is comparable with the famous springs of Germany. The approximate length of this loop tour is 189 miles [10].

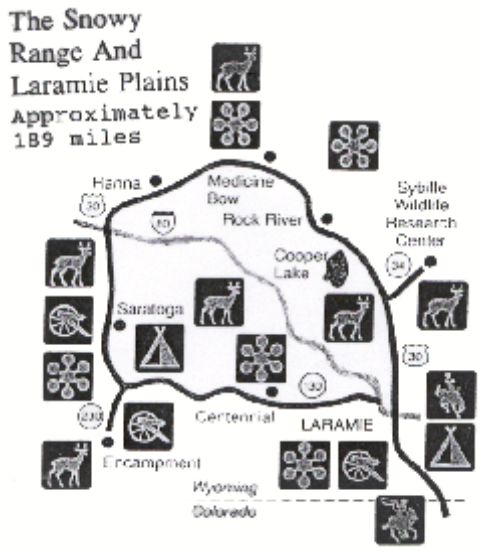


Figure 2.4 The Snowy Range and Laramie Plains Loop Tour

Base of Big Horns

This loop tour is located in the northern part of Wyoming. As shown in Figure 2.5, the major attractions in this loop tour are Sheridan, Ucross, Buffalo, Lake De Smet, Fort Phil Kearney, Story and Big Horn. The visitors center and museum at Fort Phil Kearney provide an overall view of what has been termed by historians as the scene of some of the most dramatic incidents in the history of Indian wars in the West. The presence of the majestic Big Horn Mountains provide tourists with spectacular mountain scenery and a variety of wildlife. Many songbirds like Western Meadowlarks, Common Flickers, Lark Bunting, Mountain Bluebirds and several species of Warblers can be found. The total length of this loop tour is approximately 85 miles [10].

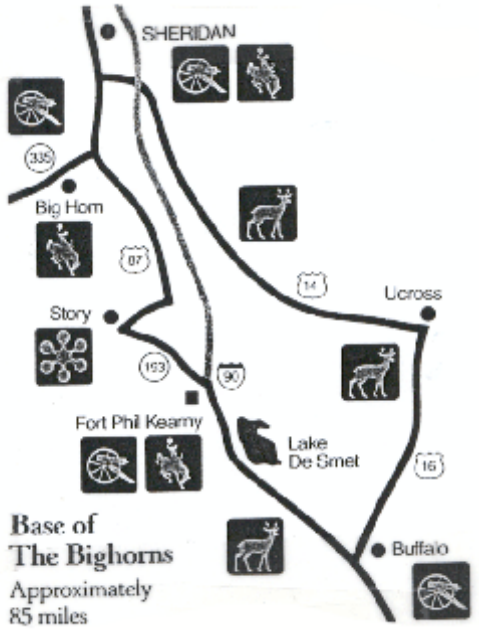


Figure 2.5 Base of the Big Horns Loop Tour

The Big Horn Basin

This loop is located in the northern part of Wyoming. As shown in Figure 2.6, some of the attractions of this loop are Hot Springs State Park, Medicine Lodge Archeological Site, Red Gulch/Alkali Byway, Big Horn Canyon National Recreation Area and Cody. Geological formations along this loop tour are of special interest. The hot spring in Thermopolis is the world's largest single mineral hot spring. Big Spring pours forth millions of gallons of mineral water every 24 hours at a constant temperature of 135 degrees F. The total length of this loop tour is approximately 221 miles [10].

Figure 2.6 Big Horn Basin Loop Tour

The Black Hills

This loop tour was recently designated in 1992 along with the Snowy Range and the Big Horn Basin Loop Tours. As shown in Figure 2.7, this loop tour is through Moorcroft, Sundance, Aladdin, Devils Tower National Monument and Keyhole State Park. The loop travels through the "Land of the Sioux" along the same route taken by the Custer Expedition more than a century ago. The nation's first national monument `Devils Tower' is located on this loop tour. It is the tallest volcanic core rock formation in the United States. The total length of this loop tour is approximately 118 miles [10].

Figure 2.7 Black Hills Loop Tour

SCENIC LOOP TOUR PROGRAMS ACROSS THE U.S.A.

A literature review resulted in no mention of scenic loop tour programs in the United States. Therefore, the University of Wyoming conducted a nationwide survey to determine which states have loop tour programs similar to the one in Wyoming. Contained in Table 2.1 is the nine question survey. These questions were designed to determine the size and effectiveness of loop tour programs, criteria used by different states to establish new loop tours, traffic signs used on loop tours, and advertising techniques for loop tours. Copies of this survey were sent to all 50 departments of transportation in February, 1992. Of the 50 questionnaires mailed, 37 responses were received. Out of the 37 states responding to the questionnaire, only 11 states indicated they currently have loop tour programs (see Table 2.2). Oregon reported the highest number of loop tours (20) while Wisconsin reported only two loop tours. New Mexico indicated that a loop tour program is currently under consideration.

Table 2.1 The Loop Tour Nationwide Questionnaire

SCENIC LOOP TOURS SURVEY
UNIVERSITY OF WYOMING
TRANSPORTATION ENGINEERING DEPARTMENT

Please attach supplemental information where possible

1) Does your state have a scenic loop tours program?

a) Yes

b) Being developed or considered

c) Considered but not implemented

d) Not considered to date

If 'c' please provide any information concerning this decision

_____

_____

If 'd', there is no need to continue please return questionnaire and thanks.

2) How many designated loop tours exist in your state?

_____

3) Which organization is responsible for managing these loop tours?

a) Department of Transportation

b) Tourism Department

c) Other: _____

4) Has your organization conducted any studies to determine the effectiveness of loop tours? (Examples:Increase in traffic volumes, Accident studies, Economic benefit studies, etc..)

a) Yes b) No

If yes, would you please supply us with the major findings of these studies? or mail copies of reports developed.

Table 2.1 Continued

5) What criteria are used in selecting sites on a loop tour?

_____

_____

_____

6) What criteria are used in selecting the routes of a loop tour?

_____

_____

_____

7) Has your department designed signs specifically for use on scenic loop tours? If so, please provide information concerning these signs.

_____

_____

_____

8) How are loop tours advertised in your state? (circle all that apply)

a) Brochures b) Pamphlets c) Newspapers

d) Television e) Other:_____

9) Would you like a copy of the completed report?

Yes ( ) No ( )

If yes, please provide your address

_____

_____

_____

Thank you for your assistance. We appreciate your cooperation in this survey.

Table 2.2 States having loop tour programs

STATE	NUMBER OF LOOP TOURS
Connecticut	7
Hawaii	Not available
Oregon	20+
Pennsylvania	4
South Dakota	12
Maryland	Not available
Michigan	4
Minnesota	2
Texas	10
Wisconsin	2
Wyoming	6

As shown in Table 2.3, most states indicated that their loop tour programs are managed by their departments of transportation in conjunction with their tourism departments. Only Hawaii indicated that its loop tour program is managed by private tour organizations. On the other hand, Maryland has a scenic highway committee which manages the four loop tours. Only Texas had conducted studies to determine the effectiveness of its loop tour programs. In Wyoming, the Wyoming Department of Transportation and the Wyoming Division of Tourism are responsible for the designation of the scenic loop tours.

Table 2.3 Agencies Responsible For Managing Loop Tour Programs

STATE	ORGANIZATIONS RESPONSIBLE
Connecticut	Dept. of Economic Development
Hawaii	Private tour companies
Oregon	Applicable road authorities scenic highway committee in future
Texas	Dept. of Transportation & Tourism Dept.
Pennsylvania	Tourism Dept. & State tourism work in cooperation with local organization
South Dakota	Dept. of Tourism
Maryland	Dept. of Transportation & Tourism Dept. & Historic trust
Michigan	Dept. of Transportation & Tourism Dept.
Minnesota	Dept. of Transportation
Wisconsin	Dept. of Transportation & Tourism Dept.
Wyoming	Dept. of Transportation & Tourism Dept.

Tables 2.4 and 2.5 summarize the criteria used by different states to select sites and routes for loop tours. It is clear from these tables that there are no specific procedures or criteria for establishing loop tours. Most states consider historic points, and scenic quality, among the factors for selecting the routes and locations of loop tours. A few states such as Connecticut and South Dakota require paved routes in their loop tours.

Table 2.4 Criteria for Selecting Sites On Loop Tours

STATE	CRITERIA
Connecticut	Roadway or portion thereof is to have been designated as a "Scenic Road" by the Commissioner of Transportation
Hawaii	Tourist/scenic attractions
Oregon	Do not have, but quality and quantity of sites are used in determining tour route designation
Pennsylvania	Information not provided
South Dakota	Must be public or private/nonprofit
Maryland	Committee reviews scenic highways
Michigan	Joint venture with Canada, Ohio, Minnesota, Wisconsin & Indiana to promote tourism around the lakes
Minnesota	Nothing special, scenic overlooks, state parks
Texas	Each trail is loop route on existing highways
Wisconsin	Tourist oriented attractions & amenities, also rest stops, scenic pullouts, and other complementary services
Wyoming	Historical or scenic beauty

Table 2.5 Criteria for Selecting Routes

STATE	CRITERIA
Connecticut	Paved, numbered roads that can be followed on a state map
Hawaii	Access, road condition and parking
Oregon	The number of specific points of interest and the relative value of them is weighed against the total length of the route
Pennsylvania	Not applicable
South Dakota	Tried to developed loop tours in four states tourism regions. Followed paved roads
Maryland	Committee decides scenic highways
Michigan	Circle tours follow non-freeway state trunklines except where none exist near shoreline
Minnesota	The state highway closest to Lake Superior
Texas	Not provided
Wisconsin	Promote tourism with the benefit of offering panoramic views of the great lakes and surrounding countrysides
Wyoming	Paved roads closest to points of attraction

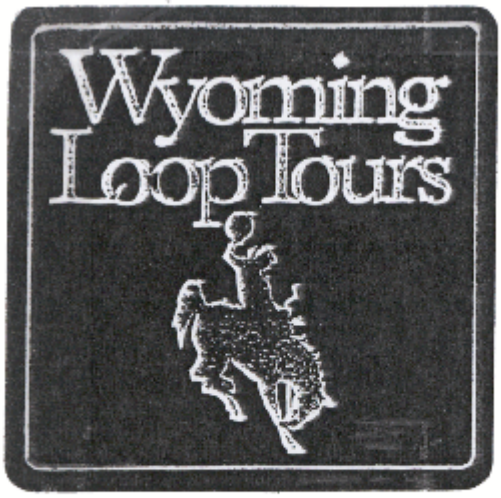
As mentioned in the above tables, the Wyoming Division of Tourism uses paved roads close to the historical sites and the scenic beauty of the routes for the designation of scenic loop tours.

Contained in Table 2.6 are loop tours signing information provided from the survey respondents. The sign size used generally varies from state to state. It ranged from known sizes of 24" x 24" in Wyoming, to 36" x 36" in Michigan.

Table 2.6 Size of Loop Tour Signs Used By Different States

STATE	DESIGNED SIGNS
Connecticut	Not signed, 30" x 42" sign board for scenic road
Hawaii	No signs used
Oregon	30" x 30", minimum 30" signs are recommended on state highway, 24" x 24" size was found very small
Pennsylvania	No signs used
South Dakota	No signs used
Maryland	Yes, size not provided
Michigan	24" x 24" on non freeway routes, 36" x 36" along freeway
Minnesota	Yes, size not provided
Texas	Yes, size not provided
Wisconsin	Yes, size not provided
Wyoming	Yes, 24" x 24" sign

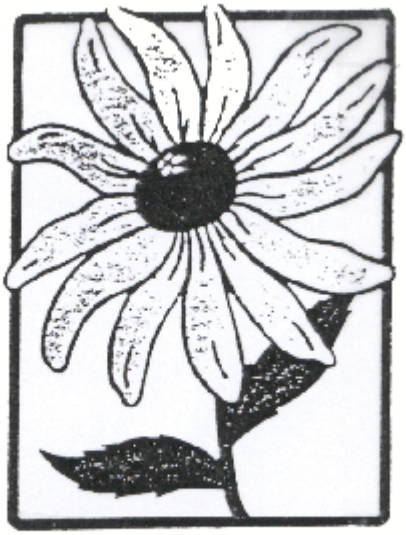
The Wyoming loop tour sign has a golden bucking horse and rider symbol with black background. Michigan and Wisconsin signs consist of the Great Lakes map with a green background. Maryland signs have a picture of a yellow "Black Eyed Susan" flower with a green stem. In Texas, each loop tour has its own sign. Some examples of the loop tour signs used are shown in Figure 2.8.



Wyoming

Michigan and Wisconsin

Texas



Maryland

Figure 2.8 Loop Tour Signing.

There are no national standards governing the design of loop tour signs. Table 2.7 contains the different forms of media used to advertise loop tours. The survey indicated that the most common form of advertising was brochures.

Table 2.7 Advertising Media For Loop Tour Programs

STATE	MEDIA
Connecticut	Connecticut vacation guide
Hawaii	Brochures, pamphlets, newspapers, telephone directory
Oregon	Brochures, pamphlets
Pennsylvania	Brochures, newspapers, radio
South Dakota	Brochures
Maryland	Maps
Michigan	Brochures, pamphlets, television
Minnesota	Pamphlets
Texas	Brochures
Wisconsin	Brochures, pamphlets, newspapers
Wyoming	Brochures, maps

CHAPTER SUMMARY

In this chapter, a discussion of the definitions of scenic byways and scenic loop tours was presented. Scenic byways located in various states were also highlighted. The major factor in designating scenic byways was the presence of a paved surface. In most cases, the importance of scenic byways occurred after the President's Commission on American Outdoors. The Intermodal Surface Transportation Efficiency Act of 1991 allocated $50 million for the development of the scenic byways program. No standard criteria were identified in designating scenic loop tours.

CHAPTER III

METHODOLOGY

In this research project, a methodology was developed for evaluating existing and proposed scenic loop toors. This chapter describes that methodology in details.

SCENIC LOOP TOUR SELECTION CRITERIA

The purpose of scenic loop tours is to stimulate the economies of local communities by diverting the through traffic from their original route for a short period of time. A maximum time period of four hours or a length of 200 miles or less is considered in designing a scenic loop tour. By taking loop tours, tourists extend their stay in Wyoming and thus local communities may benefit. Through traffic may be diverted if the attractions are of significant interest. In this study, all the anchor attractions were classified as to their potential importance. Anchor attractions were considered either of local or national and international importance. Examples of attractions in the latter category include Yellowstone National Park, Grand Teton National Park, Fort Laramie and Devils Tower. These national attractions, if present on the loop tours, may help to make scenic loop tours popular. Local attractions include state parks, museums, historical sites, lakes and other attractions which are primarily known locally and in neighboring states. Glendo State Park, Guernsey State Park and the Wyoming Territorial Prison are a few examples of this attraction category.

The assumption made in this research was that a loop tour should contain at least one nationally or internationally known attraction and/or several local attractions. If the route has only great scenic value and no other anchor attractions, a scenic byway should be considered.

The criteria proposed to evaluate scenic loop tours and route links or segments were divided into two levels. Level I determines the attractions and if the attractions can be accessed from an interstate highway and a round trip made in less than 200 miles or approximately 4 hours driving time. Level II evaluates the specific routing or route segments to be included in the loop tour. Considered in Level II are the roadway conditions, scenic beauty, and tourist services of potential route segments.

Level I Evaluation

The following tasks should be performed in level I evaluation:

1) Identify national, international and local significant attractions.

2) Identify potential points of diversion (origin) from the interstate routes which are the major through facilities.

3) Identify route segments and routing alternatives from an origin to the proposed sites that are within a total travel time of four hours or a maximum distance of about 200 miles.

4) The routes considered should be safe for driving and accommodate recreational vehicles (motorhomes). Any paved, secondary, or primary route will satisfy this criterion. If the route is not a paved, primary or secondary highway, then turning radii, superelevation, sight distance, slope, alignment and grades should be examined to determine if the safety criteria are met. All these specifications should meet the requirements specified under the 'Local Rural Roads' section in AASHTO's "A Policy on Geometric Design" [8].

Level II Evaluation

After identifying these routes, evaluations are conducted in Level II for selecting the best route segments. Level II criteria include rating loop tour attractions on the basis of roadway conditions, anchor attractions, communities by population, and scenic beauty. These evaluations are rated on a scale of one to five, where five is excellent and one is poor. The Level II criteria are discussed:

1) The American Automobile Association's criteria (AAA) is proposed for evaluating roadway conditions. The AAA's criteria were used to evaluate the roadway conditions for designating scenic byways. The AAA's criteria evaluate the road for surface, shoulder, alignment and grade factors [2]. For the purposes of this loop tour study, AAA's ranks of one to five were changed so that one reflected poor road conditions and five reflected excellent road conditions. An average route segment value of three is proposed as the cut-off value in a scenic loop tour. See Appendix B for the specifications associated with AAA's criteria.

2) All the route segments which satisfied the roadway condition criterion are rated on the availability of attractions. Ratings are assigned based on the significant potential of each attraction.

International and national attractions are assigned two points, while local attractions are assigned a value of one. The points assigned are summed to obtain the final rating on a scale of one to five for the route segment. Any value greater than five will be assigned a rating of five.

3) Access to community services is the primary goal of a loop tour. In this access criterion, the assumption made was that population is directly related to tourist services such as service stations, lodging, restaurants, motels, and information centers. Of primary interest is the exposure of smaller population cities and therefore any community with a population of 10,000 or above was assigned a rating of five. This emphasis towards smaller population groups reflects the desire to use loop tours to stimulate the economy of smaller local communities. The population sizes and their respective ratings are listed:

Population	Numerical Value
Less than 500	1
500 - 1,500	2
1,500 - 5,000	3
5,000 - 10,000	4
10,000 above	5

4) The total number of communities present on a particular route is taken as one of the deciding factors in determining the rating of the route in consideration. This criterion reflects the number of different service opportunities where expenditures may occur. The final rating is assigned by considering the total number of communities present on the route segment. The rating criteria is as follows:

a) If the number of communities is less than five on a specified route segment, then the rating assigned will be equivalent to the number of communities present on the route segment itself.

b) If the number of communities exceed five then a rating of five will be assigned to the route.

5) Each route segment is then evaluated for scenic beauty along the route. The research study conducted by Lynne M. Boyd on 'Visual Preferences of Natural Landscapes in Southern Wyoming' is proposed for evaluating natural beauty. Appendix C and Appendix D contain these evaluation

criteria and photographs which display the criteria. According to Lynne Boyd's study, the main features present in Wyoming are mountains, lakes, streams and prairies. Again these features are rated on a scale of one to five, where five is excellent.

6) Finally, provisions are made to include roadways necessary to complete loop tours without penalizing the evaluation. Route segments which complete loop tours are evaluated using consistent criteria, but tradeoffs are made only on parallel competing facilities.

All the calculated values of Level II criteria are then tabulated in a matrix and multiplied by appropriate weighting factors. Roadway conditions and scenic beauty were assigned a weighting factor of 1. Since attractions and tourist services are the main components of scenic loop tours, a weighting factor of 1.5 was used. For the number of communities, a weighting factor of 1.3 was used. The best loop tour routing is then selected based on the highest scenic loop tour value.

EVALUATION OF SCENIC LOOP TOUR EFFECTIVENESS

A before and after study is recommended to evaluate the effectiveness of designating scenic loop tours. The proposed evaluation criteria are briefly described below:

1) Conduct studies to determine the economic impact on the local communities.

2) Monitor the traffic patterns before and after designation of scenic loop tours.

3) Conduct accident analysis on the loop tour route segments.

4) Conduct a users' survey to evaluate the adequacy of the tourist facilities, recreational facilities, signing, roadway conditions, and brochures.

5) Conduct studies on the marketing of loop tours.

Specific data obtained in the above five areas will provide assistance in determining the success of the scenic loop tour. These criteria are applied in Chapter IV.

CHAPTER IV

EVALUATION OF WYOMING SCENIC LOOP TOURS

The criteria developed in Chapter III were divided into two levels. In Level I, potentially significant national/ international and local attractions were identified and were linked by route segments from an origin located near interstate routes. A maximum total travel time of four hours or a maximum distance of about 200 miles was considered while linking the points of interest by route segments. The Level II criteria included rating links selected in Level I on the basis of roadway conditions, anchor attractions, communities, and scenic beauty. This chapter shows the application of the developed scenic loop tour criteria on the Cheyenne and Oregon Trail Loop Tour and the Base of the Bighorns Loop Tour.

APPLICATION OF SCENIC LOOP TOUR CRITERIA - THE CHEYENNE AND OREGON TRAIL LOOP TOUR

Level I Evaluation

Fort Laramie, located on US 26, is a national historic site and thus falls under the national/international attraction category. The capital city of Cheyenne, located near I-80, is the origin for this loop tour. Fort Laramie, which is at a distance of 100 miles from Cheyenne, is linked by US 87 and US 26 via Torrington. The origin, Cheyenne, has several local attractions such as the Wyoming State Capitol, Wyoming State Museum and Art Gallery, National First Day Cover Museum, Cheyenne Frontier Days Old West Museum, F.E. Warren Air Force Base, and the Wildlife Visitor Center. There are two local attractions in Torrington; the Goshen County Museum and the Torrington Depot. The existing loop tour then passes from Torrington to Guernsey where other local attractions, Register Cliff and Oregon Trail Ruts National Historic Landmark, are located. The loop then proceeds from Guernsey to Hartville and merges with I-25 at Orin junction. The route segment from Guernsey to Orin Junction has no anchor attractions.

Three alternate route segments which also merge into I-25 were identified. These alternate route segments and the original loop tour routing are illustrated in Figure 4.1. Of the three alternate route link segments identified, two route segments pass through Wheatland, which has significant potential tourist services. The existing loop tour routes and the proposed alternate route segments are paved secondary routes

and can accommodate recreational vehicles. Information regarding travel time and distances are presented in Table 4.1. The total travel time for the existing loop tour route is five hours and fifty minutes, covering a distance of 300 miles. These figures exceed the maximum limits specified for a scenic loop tour in Level I Evaluation.

Table 4.1 Travel Time and Length for the Cheyenne Loop Tour Routes

ROUTE	TRAVEL TIME (Minutes)	DISTANCE (Miles)
Cheyenne to Torrington (US 85)	84	77
Torrington to Ft. Laramie (US 26)	22	20
Ft. Laramie to Guernsey (US 26)	15	13
Guernsey to Orin Jct. (WYO 270 & US 18)	78	71
Orin Jct. to Wheatland Exit (I-25)	47	51
Wheatland Exit to Cheyenne (I-25)	55	50
TOTAL	301	282

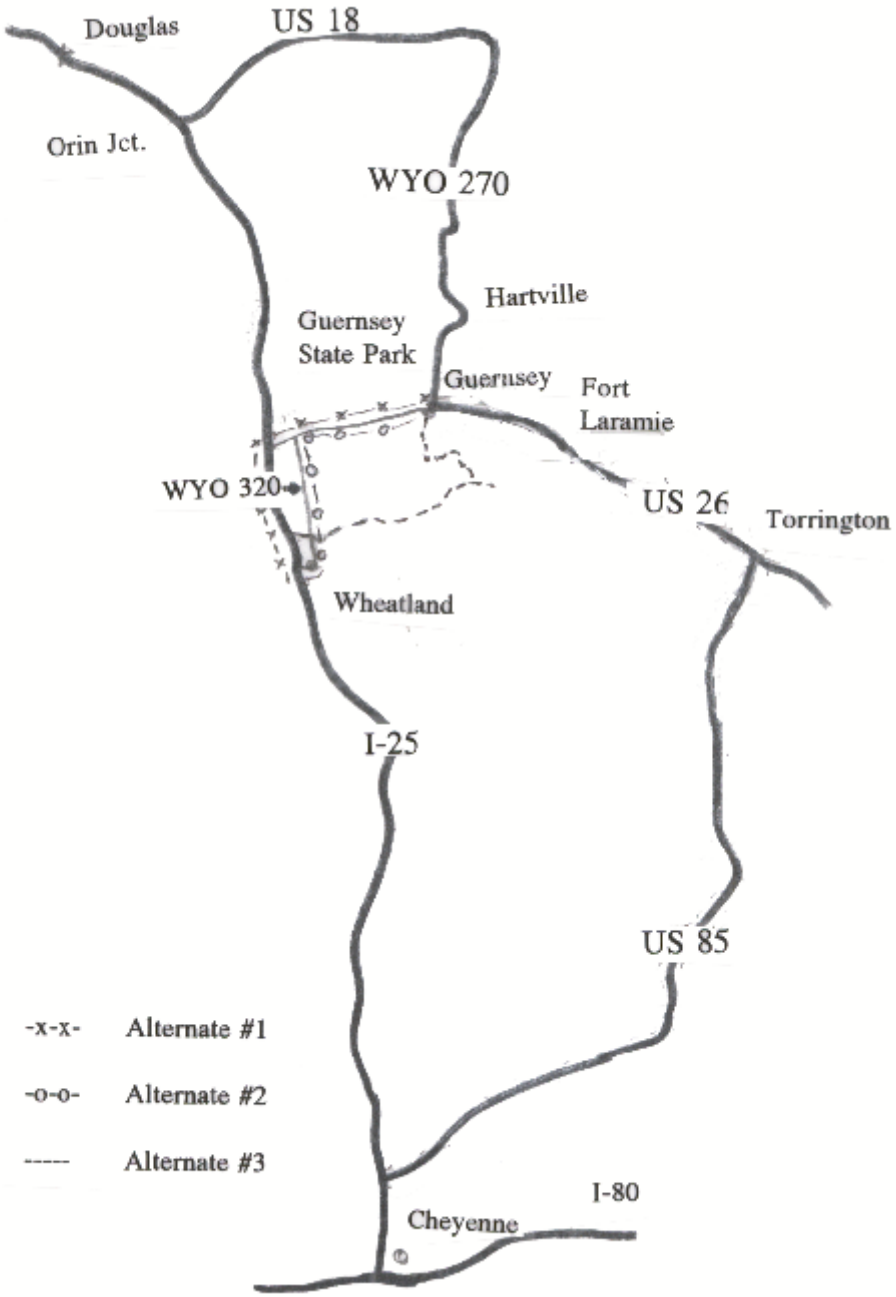


Figure 4.1 Location of the Existing Cheyenne and Oregon Trail Loop Tour Routes and the Alternate Route Segements

Level II Evaluation

The existing loop tour routes and the three proposed alternate routes were evaluated using Level II criteria. This evaluation included the combined weighting of roadway conditions, scenic beauty, the anchor attraction assessment, and community/population criteria.

Evaluation of Roadway Conditions

A field evaluation of the Cheyenne and Oregon Loop Tour was conducted during the summers of 1992 and 1993. Each route segment was evaluated in five mile sections, then the total roadway condition was determined. The roadway analysis for this loop tour is contained in Table 4.2. All four categories; surface, shoulder, alignment, and grade were evaluated to be in the 'Good' category, satisfying the roadway conditions requirement. The route connecting Guernsey to Orin Junction was evaluated in the 'Fair' category for the shoulder criteria, but the overall roadway average was in the 'Good' category.

Table 4.2 Results of the Roadway Evaluation for Cheyenne Loop Tour

ROUTE	ROADWAY				
	Surface	Shoulder	Align	Grade	Avg
Cheyenne to Torrington(US 85)	3.5	3.5	3.9	3.8	3.7
Torrington to Ft. Laramie (US 26)	3.6	3.3	4.0	4.0	3.5
Ft. Laramie to Guernsey (US 26)	3.3	3.3	4.0	3.6	3.5
Guernsey to Orin Jct. (WYO 270 & US 18)	2.6	2.3	3.4	3.4	2.9
Orin Jct. to Wheatland Exit (I-25)	4.0	5.0	4.0	4.0	4.2
Wheatland Exit to Cheyenne (I-25)	4.0	5.0	4.0	4.0	4.2

The alternate route segments were selected on the basis of their proximity to the existing loop tour route and also were evaluated and compared with the existing loop tour route using the same criteria (see Table 4.3). One alternate route (WYO 320) passes through Wheatland, which is not on the loop tour. Similarly, another alternate route segment evaluated was a low volume county road from Guernsey to Wheatland. Contained in Table 4.3 are the results of these roadway evaluations.

Table 4.3 Evaluations of alternate route segments present around Cheyenne Loop Tour

ROUTE	ROADWAY				
	Surface	Shoulder	Align	Grade	Avg
Guernsey to Wheatland Exit via Orin Jct. (WYO 270,US 18 &I-25)- Existing Route	3.3	3.6	3.7	3.7	3.6
Guernsey (US 26) to Wheatland Exit via I-25 Alternate #1	4.0	4.0	3.8	4.0	3.9
Guernsey to Wheatland (US 26 & WYO 320)- Alternate #2	4.0	3.0	3.3	4.0	3.5
Guernsey to Wheatland via Goshen County Rd- Alternate #3	2.1	2.0	2.3	2.8	2.3

All the alternate routes, except the route from Guernsey to Wheatland via the Goshen County road received a 'Good' rating. The route from Guernsey to Wheatland via the Goshen County road was evaluated in the 'Fair' category and did not satisfy the roadway condition criterion. Therefore, this route segment was not considered for further evaluation. The travel time and the length of the acceptable alternate route segments are presented in Table 4.4.

Table 4.4 Travel Time and Length for Alternate Route Segments

ROUTE	TRAVEL TIME (Minutes)	DISTANCE (Miles)
Guernsey to Wheatland Exit via Orin Jct. (WYO 270, US 18 &I-25) - Existing Route	129	132
Guernsey(US 26) to Wheatland Exit via I-25 - Alternate #1	31	28
Guernsey to Wheatland (WYO 320 & US 26) - Alternate #2	31	28

Evaluation of Anchor Attractions

All the attractions discussed in the Level I evaluation were tabulated according to route segments. Evaluations were carried out based on the criteria described in Chapter III. Contained in Tables 4.5 and 4.6 are the final ratings for the existing scenic loop tour route segments and alternate route segments, respectively. For each route segment, the attractions present along and at the destination were considered.

Table 4.5 Anchor Attractions Evaluations - Existing Loop Tour Route Segments

ROUTE	RATING
I-80 to Cheyenne	5
Cheyenne to Torrington (US 85)	2
Torrington to Ft. Laramie (US 26)	2
Ft. Laramie to Guernsey (US 26)	4
Guernsey to Orin (WYO 270 & US 18)	0
Orin Jct. to Wheatland Exit (I-25)	0
Wheatland Exit to Cheyenne (I-25)	0

The route segment from I-80 to Cheyenne had more than five local attractions and thus a rating of five was assigned. The route segment from Cheyenne to Torrington (US 85) had only two local attractions and was assigned a rating of two. The route segment from Torrington to Fort Laramie was assigned a rating of two because of the national/international attraction of Fort Laramie. Similarly the attractions were evaluated for all route segments.

Table 4.6 Anchor Attractions Evaluation - Alternate Route Segments

ROUTE	RATING
Guernsey to Wheatland Exit via Orin Jct. (WYO 270, US 18 &I-25) Existing Route	0
Guernsey (US 26) to Wheatland Exit via I-25 Alternate #1	0
Guernsey to Wheatland (US 26 & WYO 320) Alternate #2	1

Evaluation of Communities by Population

As discussed in Chapter III, the communities were rated according to their population. Tables 4.7 and 4.8 show the ratings assigned to the existing loop tour route segments and alternate route segments respectively for the evaluation criterion.

Table 4.7 Evaluations of Local Communities - Existing Loop Tour Route Segments

ROUTE	RATING
I-80 to Cheyenne	5
Cheyenne to Torrington (US 85)	4
Torrington to Ft. Laramie (US 26)	1
Ft. Laramie to Guernsey (US 26)	2
Guernsey to Orin Jct. (WYO 270 & US 18)	0
Orin Jct. to Wheatland Exit	0
Wheatland Exit to Cheyenne	0

Table 4.8 Evaluations of Local Communities- Alternate Route Segments

ROUTE	RATING
Guernsey to Wheatland Exit via Orin Jct. (WYO 270,US 18 &I-25) Existing Route	0
Guernsey (US 26) to Wheatland Exit via I-25 Alternate #1	0
Guernsey to Wheatland (US 26 & WYO 320) Alternate #2	3

Evaluation of Number of Communities

The number of communities located on individual route segments were totaled and the final rating for each route segment was assigned. Wyoming has many small towns which are sparsely populated, and these towns in general have only limited tourist services. Very small communities (less than 50 people) were not included in this analysis. Tables 4.9 and 4.10 contain the rating obtained using this criterion for existing scenic loop tour route segments and alternate route segments. The route segment from Cheyenne to Torrington (US 85) was assigned a rating of two (Hawk Springs and Torrington communities). The community of Hartville on the route segment from Guernsey to Orin Junction (WYO 270 & US 26) has a population of less than 50, and thus was not included.

Table 4.9 Number of Communities - Existing Loop Tour Route Segments

ROUTE	RATING
I-80 to Cheyenne	1
Cheyenne to Torrington (US 85)	2
Torrington to Ft. Laramie (US 26)	2
Ft. Laramie to Guernsey (US 26)	1
Guernsey to Orin (WYO 270 & US 18)	0
Orin Jct. to Wheatland Exit (I-25)	0

WheatLand Exit to Cheyenne (I-25)	0

Table 4.10 Number of Communities - Alternate Route Segments

ROUTE	RATING
Guernsey to Wheatland Exit via Orin Jct. (WYO 270,US 18 &I-25) - Existing Route	0
Guernsey (US 26) to Wheatland Exit Via I-25 - Alternate #1	0
Guernsey to Wheatland (US 26 & WYO 320) - Alternate #2	1

Evaluation of Scenic Beauty

The data used in this evaluation were collected using Lynne Boyd's methodology. For every five mile section, all the possible features were evaluated on a scale of one to five.

The results of the scenic beauty evaluations for existing loop tour route segments are tabulated in Table 4.11. Streams were located on US 26 stretching from Torrington to Guernsey, and were evaluated with an average rating of 3.5. Similarly, mountains and prairies were also evaluated on this loop tour. Alternate routes were also evaluated using the same criteria. These results are presented in Table 4.12.

Table 4.11 Results of the Scenic Beauty Evaluation for Cheyenne Loop Tour

ROUTE	SCENIC BEAUTY				
	Stream	Lake	Mountain	Prairies	Avg
Cheyenne to Torrington (US 85)	0	0	3.0	3.4	1.6
Torrington to Ft. Laramie (US 26)	4.0	0	3.0	3.0	2.5
Ft. Laramie to Guernsey (US 26)	3.0	0	0	3.6	1.7
Guernsey to Orin Jct. (WYO 270 US 18)	0	0	0	3.0	0.7
Orin Jct. to Wheatland Exit (I-25)	0	0	0	3.2	0.8
Wheatland Exit to Cheyenne (I-25)	0	0	0	3.2	0.8

Table 4.12 Evaluation of Scenic Beauty for Alternate Route Segments

ROUTE	SCENIC BEAUTY				
	Stream	Lake	Mountain	Prairies	Avg
Guernsey to Wheatland Exit via Orin Jct. (WYO 270, US 18, I-25)-Existing Route	0	0	0	3.1	0.8
Guernsey (US 26) to Wheatland exit via I-25 Alternate #1	0	0	0	3.6	0.9
Guernsey to Wheatland (US 26 & WYO 320) - Alternate #3	0	0	0	3.6	0.9

Selection of the Best Loop Tour Route

Based on the previous analysis and travel time data, the existing loop tour route segment, from Guernsey to Wheatland junction on I-25 via Orin junction and the two alternate route segments, Guernsey to I-25 (US 26, alternate #1) and Guernsey to Wheatland via WYO 320 (alternate #2), were considered (refer to Figure 4.1). The ratings for anchor attractions, communities, roadway conditions, and scenic beauty for each route segment were averaged and entered in a matrix. These were then multiplied by appropriate weighting factors to determine the best route segment. Contained in Table 4.13 are these route segments data. The travel time and distance data were entered in a separate matrix for comparing different route segments (see Table 4.14). The alternate route segment from Guernsey to Wheatland via WYO 320 has the highest loop tour value

Table 4.13 Selection of the Best Loop Tour - Analysis for Cheyenne Loop Tour

	R.C.	S.B.	A.AT.	POP.	#L.C		WT.FAC.		L.T.V.
Existing Route	3.4	0.8	0	0	0	×	1	=	4.2
Alternate #1	3.9	0.9	0	0	0		1 1.5 1.5		4.8
Alternate #2	3.5	0.9	1	3.0	1		1.3		11.7

R.C. Roadway Conditions
S.B. Scenic Beauty
A.AT. Anchor Attraction
POP. Population
#L.C. Number of Local Communities
LTV Loop Tour Value

Table 4.14 Comparison of Different Loop Tour Routes - Cheyenne Loop Tour

	L.T.V.	Travel Time (min)	Distance (miles)
Existing Route	4.2	129	132
Alternate #1	4.8	31	28
Alternate #2	11.7	31	28

(LTV) using the proposed criteria. Thus, this route segment is recommended to replace the existing route segment, from Guernsey to Wheatland Junction on I-25 via Orin junction. The existing route has a total distance of 132 miles with fewer opportunities for direct population access or increase in the number of communities. Although there is potential for diversion from the existing loop tour to Douglas there is little benefit other than increased distance or travel time.

APPLICATION OF SCENIC LOOP TOUR CRITERIA

THE BASE OF THE BIGHORNS LOOP TOUR

Level I Evaluation

In this loop tour, Fort Phil Kearney and the Fetterman Battlefield, located on WYO 193, were identified as the major attractions. These are classified under the local attraction category. The existing loop tour originates from Buffalo, located near I-90 (see Figure 4.2). Local attractions are the Jim Gatchell Museum and the Buffalo National Historic District. Other local attractions such as the Bradford Brinton Memorial Ranch and the Big Horn mountains are present along this route segment. The Historic Sheridan Inn, Sheridan Main Street National Historic District, Wildlife Visitors Center, and the Trail End Historic Center are some of the local attractions in Sheridan. The loop then returns to Buffalo on US 14 via Ucross. This route segment does not have any local attractions but offers opportunity for viewing wildlife. The population of Ucross is around 25 people.

Two alternatives were considered for this loop tour. The first alternative was a loop connecting Buffalo, Fort Phil Kearney, Story, Sheridan on US 87 and back to Buffalo on I-90. The second alternative was a spur type routing connecting Buffalo, Fort Phil Kearney, Story, and Sheridan on US 87 (See Figure 4.2). All the route segments present on this loop tour are paved interstate or secondary roads and can easily accommodate recreational vehicles.

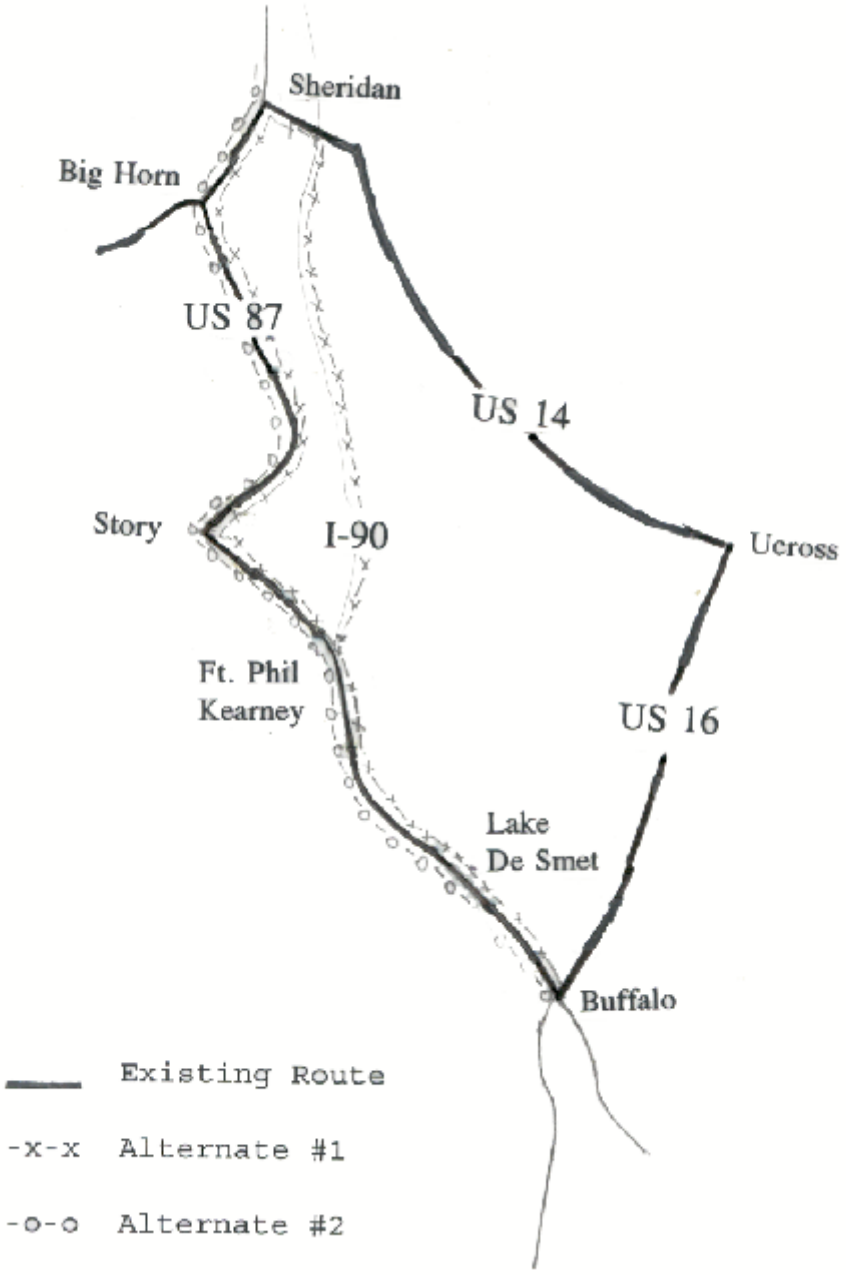


Figure 4.2 Location of the Existing Base of the Big Horns Loop Tour Routes and the Alternative Route Segments

Level II Evaluation

Evaluation of Roadway Conditions

The roadway evaluations for the existing loop tour route segments and for the two alternatives are presented in Table 4.15.

Table 4.15 Roadway Condition Evaluations of the Big Horns Loop Tour.

ROUTE	ROADWAY				
	Surface	Shoulder	Align	Grade	Avg
Existing Loop Tour	3.6	3.6	3.7	3.7	3.6
Alternative #1 (Loop with I-90)	3.7	4.0	3.8	3.9	3.8
Alternative #2 (Spur routing)	3.6	3.8	3.9	4.0	3.8

Based on the roadway evaluation, the existing loop tour and the two alternatives fell under the "Good" category and satisfy the roadway criterion. However, it should be noted that for alternative #1, the proposed route segment, I-90 connecting from Sheridan to Buffalo, does not pass through any significant sites or local communities. Travel times and distances are presented in Table 4.16.

Table 4.16 Travel Time and Length for the Big Horns Loop Tour

ROUTE	TRAVEL TIME	MILES
Existing Loop Tour	91	84
Alternative #1 (Loop with I-90)	57	56
Alternative #2 (Spur routing)	39	37

Evaluation of Anchor Attractions

Based on Level I criteria all the attractions present on the existing loop tour route segments and the two alternative route segments were evaluated for anchor attractions. The evaluations were conducted in a similar manner as the Cheyenne Loop Tour. As an example, for existing loop tour, the evaluation started from Buffalo. There are two local attractions in Buffalo and thus a rating of two was assigned. The route from Fort Phil Kearney to Sheridan via US 87 has more than five attractions so a rating of five was assigned to it. The original route segment from Sheridan to Buffalo via Ucross received a rating of two because of the attractions located in Buffalo. These attractions were then summed for overall rating for the existing loop tour. Similarly anchor attraction evaluation was conducted for the two alternatives and are presented in Table 4.17.

Table 4.17 Results for the Anchor Attraction Evaluations

ROUTE	RATING
Existing Loop Tour	5
Alternative #1 (Loop with I-90)	5
Alternative #2 (Spur routing)	5

Evaluation of Communities by Population

The communities located on the Base of the Bighorn Loop Tour were rated according to their populations. For the existing loop tour, Ucross located on US 14 has a population of approximately 25 people. This community was not considered in the evaluation because it does not have any tourist services to offer. The rating for the communities present on the existing loop tour and the two alternatives were then averaged

by the number of communities present to get the final ratings respectively. Table 4.18 shows the ratings assigned to the existing loop tour and to the two alternatives.

Table 4.18 Results for the Population Evaluation

ROUTE	RATING
Existing Loop Tour	1.8
Alternative #1 (Loop with I-90)	1.8
Alternative #2 (Spur routing)	1.8

Evaluation of Number of Communities

The number of communities located on the existing loop tour route and the two alternative routes were totaled and the final rating for each alternative was determined. Table 4.19 shows the ratings obtained using this criterion for the existing scenic loop tour route and the two alternative routes. As shown in Figure 4.2, the two alternatives considered do not add any additional communities to the loop tour.

Table 4.19 Number of Communities

ROUTE	RATING
Existing Loop Tour	3
Alternative #1 (Loop with I-90)	3
Alternative #2 (Spur routing)	3

Evaluation of Scenic Beauty

The existing Sheridan loop tour and the two alternatives were evaluated for scenic beauty. Contained in Table 4.20 are the results of the evaluations for the existing loop tour and the proposed two alternatives. All these routes have an excellent view of mountains and prairies.

Table 4.20 Results of the Scenic Beauty Evaluation for The Big Horns Loop Tour.

ROUTE	SCENIC BEAUTY				
	Stream	Lake	Mountain	Prairies	Avg
Existing Loop Tour	0.7	0	4.5	4.7	2.4
Alternative #1 (Loop with I-90)	0	0	4.8	4.6	2.3
Alternative #2 (Spur routing)	0	0	4.8	5.0	2.4

Selection of Best Loop Tour Route

The original loop tour route and the two alternatives routes were considered in this evaluation. The average rating of roadway conditions, scenic beauty, communities, and attraction for each route segment were entered into the evaluation matrix. These were then multiplied by appropriate weighting factors for the final selection (see Table 4.21). The travel time and distance data were also entered in separate matrix for comparing these three routings (see Table 4.22).

As shown in the Table 4.21, there is little significant difference in the loop tour values. The existing route segments associated with Ucross result in extra miles with no significant benefit. Ucross does not have services to support tourism activities. Due to these reasons, a Spur type routing may be a more appropriate designation for the Base of the Bighorns Loop Tour. The concept here would be to divert traffic from the interstate and not to complete the loop. Having to complete the loop may also produce negative responses. This concept is similar to the business routing design associated with an interstate entering a city.

Table 4.21 Selection of the Best Loop Tour - Analysis for the Base of the Big Horns Loop Tour

	R.C.	S.B.	A.AT.	POP.	#L.C		WT.FAC.		L.T.V.
Existing Loop Tour	3.6	2.4	5	1.8	3	×	1	=	20.1
Alternate #1	3.8	2.3	5	1.8	3		1		20.2
Alternate #2	3.8	2.4	5	1.8	3		1.5 1.5 1.3		20.3

R.C. Roadway Conditions
S.B. Scenic Beauty
A.AT. Anchor Attraction
POP. Population
#L.C. Number of Local Communities
LTV Loop Tour Value

Table 4.22 Comparison of Different Loop Tour Routes - Base of the Big Horns Loop Tour

	L.T.V.	Travel Time (min)	Distance (miles)
Existing Loop Tour	20.1	91	84
Alternate #1	20.2	57	56
Alternate #2	20.3	39	37

CHAPTER SUMMARY

Alternate loop tour routes were recommended for both loop tours analyzed. The main objective of a loop tour is to provide maximum benefit to the local communities and at the same time make the maximum number of attractions available to the tourists. It should be noted that increased distance does not necessarily achieve this objective. Traffic volume may also be a factor when selecting the loop tour. No traffic volume consideration was made in the evaluation process. However, I-80 traffic is almost two times that of I-90. This difference in diversion potential is recognized, but not viewed as an appropriate individual loop tour selection criterion. In a statewide program traffic diversion potential may be a more important factor. Other factors which may be important in a statewide program include geographic distribution throughout the state and the potential to develop new tourist related services. Similarly, there are other factors which will be beneficial in evaluating the effectiveness of a scenic loop tour and the resulting economic impact. Additional factors such as change in accident rates, change in tourist services and the effectiveness of individual marketing components such as signing and loop tour brochures are important. Appendix E provides insight into these factors as applied to the two loop tours evaluated.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATION

SUMMARY

The scenic loop tour program was introduced in Wyoming in 1988 to stimulate the economies of local communities by diverting the through traffic from their original route for a short period of time. A time period of 2-4 hours or a length of 100-200 miles is generally recommended for a scenic loop tour. The purpose of this research was to evaluate the effectiveness of Wyoming's scenic loop tour program and to establish criteria, which may be used to determine additional scenic loop tours.

A nationwide survey was conducted to determine the existence of programs similar to scenic loop tour program in other states. The survey indicated that 11 states have programs similar to scenic loop tours. In these states, the loop tour programs are mainly managed by the state departments of transportation and state tourism departments. This survey also indicated that most states consider historic points and paved roads with adjacent scenic beauty was one of the criterion used for designating scenic loop tours.

In this research project, criteria were developed for designating scenic loop tours based on roadway conditions, scenic beauty, local communities, tourist services, and national and local anchor attractions. A rating system was developed to evaluate the above mentioned features. These features were rated on a scale of one to five where one was poor and five was excellent. Two existing scenic loop tours, the Cheyenne and Oregon Trail Loop Tour, and the Base of the Bighorns Loop Tour were evaluated based on the developed criteria. Various components of a methodology to evaluate the effectiveness of a scenic loop tour were discussed. Specific tools, such as a user's survey and analysis of accident data were used for the latter evaluation.

CONCLUSIONS

This research lead to the following conclusions:

1) There are no standard criteria for selecting sites and routes for loop tour programs. The judgement factor of the person/ committee in-charge plays a major role in designating loop tours.

2) The criteria developed in this study have two levels. Level I determines the attractions and accessibility to these attractions from interstate highway. A round trip of less than 200 miles or a driving time of approximately four hours was considered for designing loop tours. Level II criteria evaluate the specific route segment and overall routing on the basis of roadway conditions, anchor attractions, communities by population, number of communities, and scenic beauty. The results from these weighted Level II evaluations can be used to find the best loop tour route segments.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made:

1) It is recommended that the issue of scenic loop tours be addressed at a national level. A special National Scenic Loop Tour committee should be formed to address issues like route selection criteria, economic development of the local communities, marketing strategies, signing criteria etc. The results of a national study would benefit all states.

2) An alternate loop tour routing was recommended for the Cheyenne and Oregon Loop Tour. The alternate route segment, from Guernsey to Wheatland via WYO 320, was found to be more effective in achieving the scenic loop tour objectives compared to the original loop tour segment, from Guernsey to Orin Junction via Hartville. The alternate loop tour routing focuses directly on Wheatland and will also shorten the Cheyenne and Oregon Loop Tour route by 100 miles.

3) The existing route segment, from Sheridan to Buffalo via Ucross, for the Base of the Bighorns Loop Tour has no significant tourist services. For this loop tour, a spur type routing was recommended by diverting the interstate traffic to the parallel route segment, US 87, from Fort Phil Kearney to Sheridan. This route segment offers the maximum number of attractions without increasing the travel time.

4) The criteria developed in this study have not considered traffic potential, geographic distribution through out the state, and the potential to develop new tourist related services. These factors should be considered when developing the statewide program.

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APPENDIX A

STATE SCENIC BYWAYS CRITERIA

UTAH'S CRITERIA FOR SCENIC BYWAYS [3]

1. No actual or inferred restrictions on commerce or future highway rehabilitation or development shall be assumed by such designation.
2. Responsibility for byway designation shall be that of the interagency steering committee consisting of the Utah Travel Council, Utah Department of Transportation, Association of Governments, Utah Travel Regions, National Park Service, Bureau of Land Management, U.S. Forest Service, and the Federal Highway Administration. A representative from the Utah Travel Council will chair the committee.
3. Designated routes are to be shown on the official highway map as published by the Utah Department of Transportation. Other promotion will be the responsibility of the Utah Travel Council and other interested parties.
4. Highway signing to designate preferred travel routes will be developed by the Utah Department of Transportation over time and maintained as part of the department's regular signing program. Interpretive signing will be coordinated through the Utah Department of Transportation.
5. Selected byways should conform to AASHTO standards for primary or secondary roads.
6. Byways should be paved.
7. Roadside attractions should possess outstanding scenic, recreational, historical, educational, scientific or cultural values or features.
8. Byways should be wide enough for recreational vehicles or provisions should be made for travel by recreational vehicles.
9. Byways should be off the interstate program.
10. Regional travel boards will coordinate with relevant regional public agencies and will review, prioritize and submit all proposals for scenic byway nominations.
11. Byways may not necessarily lead to or join other road networks.

12. As long as the byway is deemed scenic it need not be open during the winter months.

13. To maintain the quality and integrity of the scenic byway system, it is the intent of the criteria to be restrictive in nature so as to limit the number of designated byways. The committee (designated in #2) will meet at least biannually to consider deletions and additions, and will give prime consideration to this concern.

COLORADO'S SCENIC BYWAYS CRITERIA [3]

The Scenic and Historic Byways Commission developed the following five criteria for designation [3]:

1. The proposed Scenic and Historic Byway must posses unusual, exceptional, and/or distinctive scenic, recreational, historical, educational, scientific, geological, natural, wildlife, cultural, or ethnic features.
2. The proposed Scenic and Historical Byway must be suitable for the prescribed type(s) of vehicular use.
3. The proposed Scenic and Historic Byway must be an existing route and have public access.
4. The proposed Scenic and Historic Byway must have strong local support and proponents must demonstrate coordination within relevant agencies.
5. The proposed Scenic and Historic Byway must be accompanied by a conceptual plan, as specified in the nomination process.

NORTH CAROLINA'S SCENIC BYWAY CRITERIA [3]

The North Carolina Scenic Byway Task Force identified the following five criteria/guidelines for the roads in their program [3]:

1. A minimum length of one mile;
2. "Development" along the byway "should not detract from the scenic character and visual quality;"
3. "Significant visible natural or cultural features along its borders. These include agricultural lands, historic sites, vistas of marshes, shorelines, forests with mature trees or other areas of significant vegetation, or notable geologic or other natural features;"
4. Preference for roads that are protected by land use controls; and
5. A provision for de-designation should the character of the road change.

NOMINATION CRITERIA FOR WYOMING BYWAYS AND BACKWAYS [9]

1. The nominated roadway must posses exceptional and/or distinctive scenic, historic, or cultural features or characteristics.
2. The nominated roadway must be functionally classified as an arterial or collector and meet specified design and safety standards in order to be considered as a Wyoming Scenic Byway; or be functionally classified as a minor rural collector or local road in order to be considered as a Wyoming Scenic Backway.
3. The nominated roadway must be a public road as defined by Wyoming Statutes.
4. The nominated route must have strong local support and proponents must demonstrate coordination with relevant agencies.
5. The nominated route must be accompanied by a conceptual management plan.
6. Roads that form a loop or are part of a network of scenic roads are preferred. Dead end roads may be included in the system if they have strong attractions at their terminus.

APPENDIX B

AMERICAN AUTOMOBILE ASSOCIATION'S CRITERIA FOR ROADWAY CONDITIONS

SELECTION CRITERIA FOR SCENIC LOOP TOURS [2]

American Automobile Association's criteria for Roadway Conditions

NOTE: For the purposes of this loop tour study, AAA's ranks of one to five were reversed so that one reflected poor road conditions and five reflected excellent road conditions. AAA criteria are presented in this appendix.

SURFACE OF ROAD:

Poor (5)	A surface which makes it almost impossible to write legibly due to "washboard" effect or pothole dodging. The surface will have: numerous potholes, weather heaves, uneven joints, patches, extremely worn or rutted pavement with breaks, etc. Reduced speed is necessary.
Fair (4)	Surface with several rough areas which may consist of potholes, weather heaves, worn or rutted areas, all of which may be interspersed with smooth pavement. The surface may also consist of smooth pavement in some areas but will have abrupt rough spots on a regular basis.
Good (3)	Mostly smooth pavement with an occasional rough spot or worn slick area. It is usually easy to write legibly and it usually will provide an easy, comfortable driving surface. The surface may also consist of very smooth pavement but will have a few spots which will keep one on their toes when writing because of rare rough spot.
Very Good (2)	Very smooth surface, with a rare bump or vibration, providing effortless driving. Writing is never really affected and surface may also consist of almost perfect surface with only the slightest in surface distortion.
Excellent (1)	This classification is reserved for only those surfaces which are visibly newer and evenly spread, usually a new highway or newly resurfaced highway. Logging information can be done as neatly as if you were sitting at an office desk.

SHOULDER OF THE ROAD:

Poor (5)	Poor shoulders consist of the following: Shoulder is nonexistent. Guardrail or grass abuts with the pavement of the road surface with a large drop-off. No chance or opportunity to pull off the road and be safely out of oncoming traffic's way.
Fair (4)	Provides 18 inches or less of pavement for shoulder or has a severe drop off from pavement in which damage to the vehicle may occur. Cars attempting to use shoulder would still be partially hanging onto the highway or be unable to return to highway safely. Includes some "soft" shoulders, such as sand.
Good (3)	A shoulder where you can usually pull off with relative ease. The shoulder can consist of either well maintained grass, gravel, or a paved shoulder which has become deteriorated, but for the most part is in usable shape. Space is barely adequate to move around the car freely without interference from oncoming traffic.
Very Good (2)	A well maintained paved shoulder at least on the right side of the highway. Wide, smooth surface free of debris. The shoulder is of such quality that it could be used for a travel lane if necessary. Provides extra amount of room for safe vehicle maintenance.
Excellent (1)	A shoulder which is of excellent surface, and width, and provided on both sides of the highway when possible. The shoulder is of like quality to the highway surface which would have to be in the very good to excellent range. Provides room for RV or truck to safely pull off the road.

ALIGNMENT

Poor (5)	"Switchback" roads which are extremely winding, narrow and create a white knuckle grip on the steering wheel. Usually going through mountain terrain. Safe driving speed is usually 25 mph or less. Views of oncoming traffic are under 50 feet. No passing is possible on two-lane roads. Hard to stay in correct lane.
Fair (4)	Winding alignment with numerous turns and curves. Requires a good deal of concentration because the road is always changing direction. Some straight areas, but will be mostly winding. Visibility of on-coming traffic is increased from poor designation, but still hindered by hills, cliffs, forests or other obstructions. Passing on two-lane roads is extremely difficult and dangerous and can be accomplished only rarely.
Good (3)	Relatively straight road with a few winding sections that require minimal driving effort. Views will usually be uninterrupted for some distance and logging will be accomplished with ease. Passing on two-lane roads can be accomplished if timed properly.
Very Good (2)	Mostly straight with a few sweeping curves. Long uninterrupted views down the highway and little movement in the steering wheel. Passing on two-lane roads is almost constantly possible.
Excellent (1)	Straight as a ruler with no curves of any kind for long distances (several miles). Will almost cause boredom when driving. No difficulty at all logging. Passing on two-lane roads is as easy as passing on divided roads - assuming that on-coming traffic cooperates.

GRADE

Poor (5)	Down-grade will really test brakes. Usually provides runaway truck ramps. Requires special attention when driving. If allowed to coast, the car will increase speed to a dangerous level very quickly. Upgrades will cause strain on engine and speed will not be able to be maintained. Truck or "creeper" lanes for slow moving vehicles are frequently provided.
Fair (4)	The use of brakes is frequent on down-grades. May provide runaway truck ramps. If allowed to coast, car speed would continue to increase to a dangerous level. Upgrades will be steep enough to cause some engine strain and cruise control will be unable to maintain speed. Several short up and down hills over a short distance. Creeper lanes are sometimes provided.
Good (3)	Some rising and falling grades, usually in hilly to rolling terrain. Mostly uninterrupted views down the highway. The engine is minimally strained on upgrades. Cruise control will be able to maintain speed for both rising and falling grades on most occasions. Can allow car to coast with little or no speed increase. Grades may be very slight in some areas but the overall grade still has areas of up and down.
Very Good (2)	Very slight grades both rising and falling. Mostly gently rolling to flat terrain. Almost no noticeable change in the performance of the engine when going up a grade and cruise control can effectively maintain vehicle's speed at a constant pace. If allowed to coast on a down-grade the speed will usually decrease.
Excellent (1)	Flat as a table top. Totally uninterrupted views. You can see to the horizon. No rise and fall of any kind or at least almost not noticeable.

APPENDIX C

LYNNE BOYD'S SURVEY FOR EVALUATION OF NATURAL BEAUTY

LYNNE BOYD'S SURVEY FOR

EVALUATION OF NATURAL BEAUTY

The research study conducted by Lynne M. Boyd on 'Visual Preferences of Natural Landscapes in Southern Wyoming' was the main basis considered for developing a criterion for natural beauty [1]. Boyd used photographs depicting four natural features; namely streams, lakes, mountains, and prairies and ranked them according to the preferences from a survey. The results and photographs from that survey were used to develop the criterion for evaluating natural beauty. A scale of 1-5 was adopted, where 1 is poor and 5 is excellent. A rating 5 would be allotted to the scenic feature if it was similar to the most preferred photo (from the survey) in that natural beauty feature. The following is the description of the scenes and their respective ratings.

STREAMS

Ratings assigned based on Lynne Boyd's survey results

Poor (1)	Mountain stream meandering through a meadow. Individual flowers are visible in foreground. Mountain in distant background. Small amount of very light blue haze sky.
Fair (2)	River in foreground with very dry plains and mountains in middle and background. Small amount of blue sky with threatening clouds.
Good (3)	Large river with trees lining the shores. Large amount of medium blue sky.
Very Good (4)	Quiet mountain stream with grassy shoreline. Small hills in the background which are partially tree covered. Small amount of light blue sky.
Excellent (5)	Rushing white water mountain stream. Tree covered shoreline and mountains in background. Several large rocks along the shoreline and in the stream. Small amount of light blue sky with a white cloud.

PRAIRIES

Poor (1)	Sage brush plains in the fall with a small amount of relief in the background. The sky is bright blue.
Fair (2)	Flat open grassland with scattered green and brown grass. The bright blue sky and numerous white clouds occupy one half the scene.
Good (3)	Sagebrush flats, in the spring, with bright blue sky and prominent cloud formation.
Very Good (4)	Close-up view of an alpine meadow. Individual alpine flowers are visible. Prominent features include rocks and partially visible pine trees on a small rise. A mountain peak is visible in the background.
Excellent (5)	Alpine meadow with small rolling hills. Two prominent pine tree stands with greenery all around. Brilliant shades of blue sky with a few white clouds.

MOUNTAINS

Poor (1)	Sparsely vegetated hills with very dry sagebrush flats in the foreground. Small amount of bright blue sky.
Fair (2)	Barren rocky mountain with sparsely vegetated plains in the foreground. Bright blue sky with a few clouds.
Good (3)	Low pine and aspen covered mountain with green sagebrush and grass in foreground. Bright sky with a few clouds.
Very Good (4)	High rugged mountains viewed from a distance. There are several prominent snow fields. The sky is bright blue and partially cloudy.
Excellent (5)	Focus is on a single rocky peak with permanent snow fields. There is a pine tree and shrub covered foreground ridge. Brilliant blue sky with a single prominent cloud.

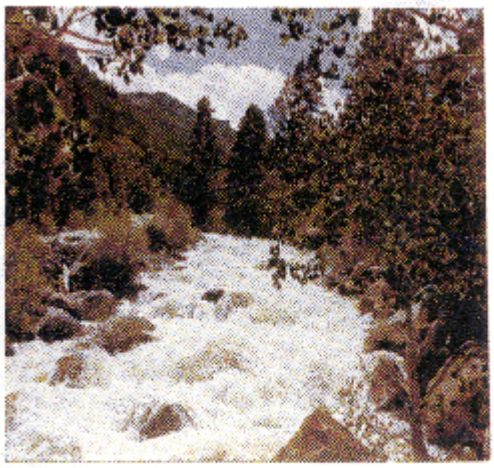
LAKES

Poor (1)	Large lake (reservoir) with very barren shoreline. Shoreline in the background has a moderate amount of relief. Scene contains thirty percent medium to light blue sky with several white clouds.
Fair (2)	Deep reservoir with rocky barren shoreline having moderate relief. Prominent rock formation and sagebrush in foreground. Medium blue sky.
Good (3)	Quiet lake with reflections of sky dominates the scene. Shoreline consists of grass shrubs and trees. Light blue sky with smeared clouds.
Very Good (4)	Calm blue lake dominates foreground with trees. Well-vegetated, very green, moderately sized mountains form the visible shoreline. Bright blue sky with about forty percent clouds.
Excellent (5)	Large calm mountain lake with reflection of sky. Foreground shoreline consists of rocks and barren soil. Opposite shore is a rolling pine covered hill. Dominating white clouds with spots of blue sky.

APPENDIX D

LYNNE BOYD'S PHOTOGRAPHS FOR EVALUATION OF NATURAL BEAUTY

Set 1: Streams, Photo 1
Rank: 2



Set 1 : Streams, Photo 2
Rank : 1

Set 1: Streams. Photo 3
Rank : 5

Set 1 : Streams, Photo 4
Rank : 3

Set 1: Streams, Photo 5
Rank : 4

Set 4 : Lakes, Photo 1
Rank : 4

Set 4 : Lakes, Photo 2
Rank : 2

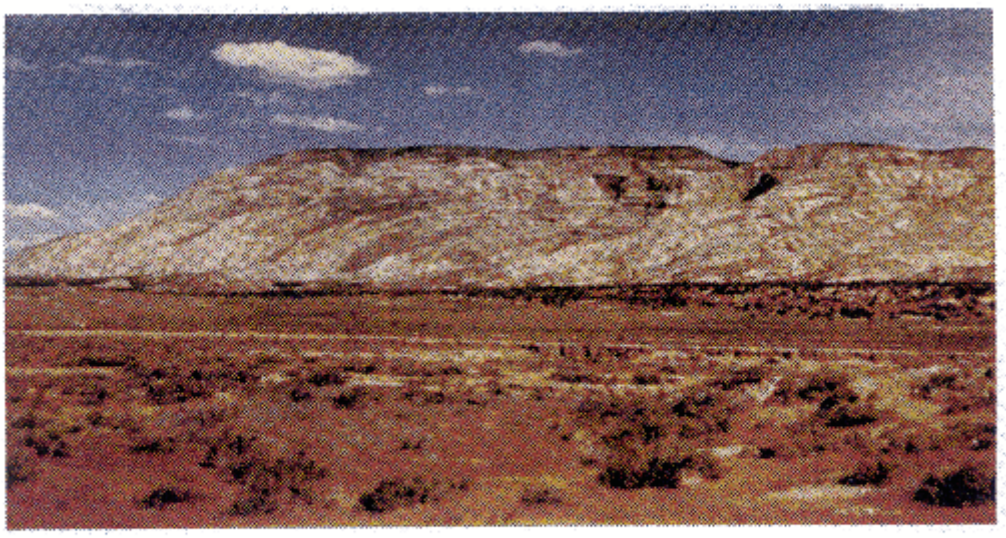
Set 4 : Lakes, Photo 3
Rank : 5

Set 4 : Lakes, Photo 4
Rank : 3

Set 4 : Lakes, Photo 5
Rank : 1

Set 3: Mountains, Photo 1
Rank : 2

Set 3 : Mountains, Photo 2
Rank : 1



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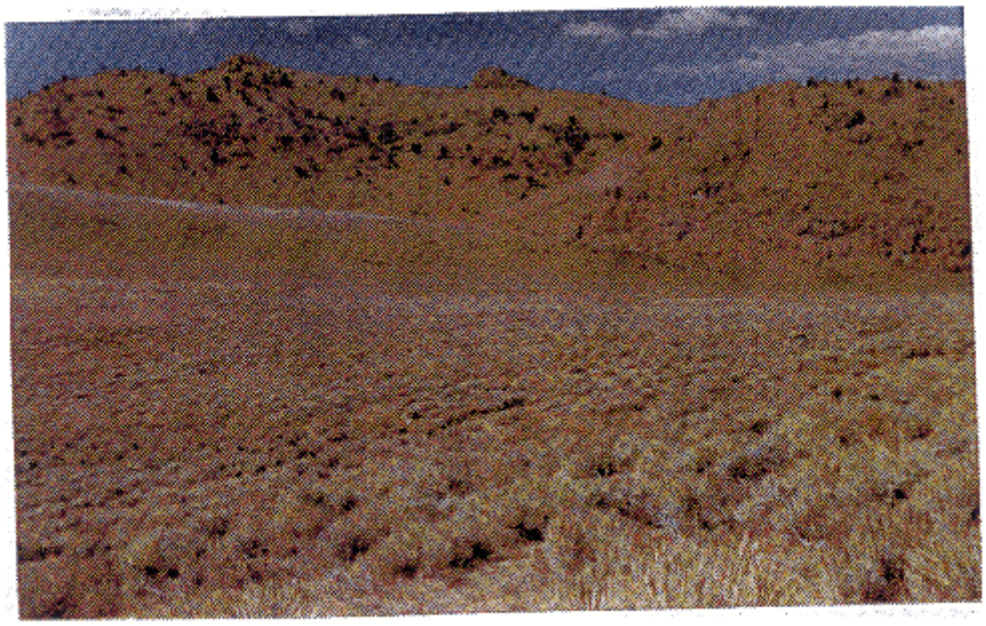
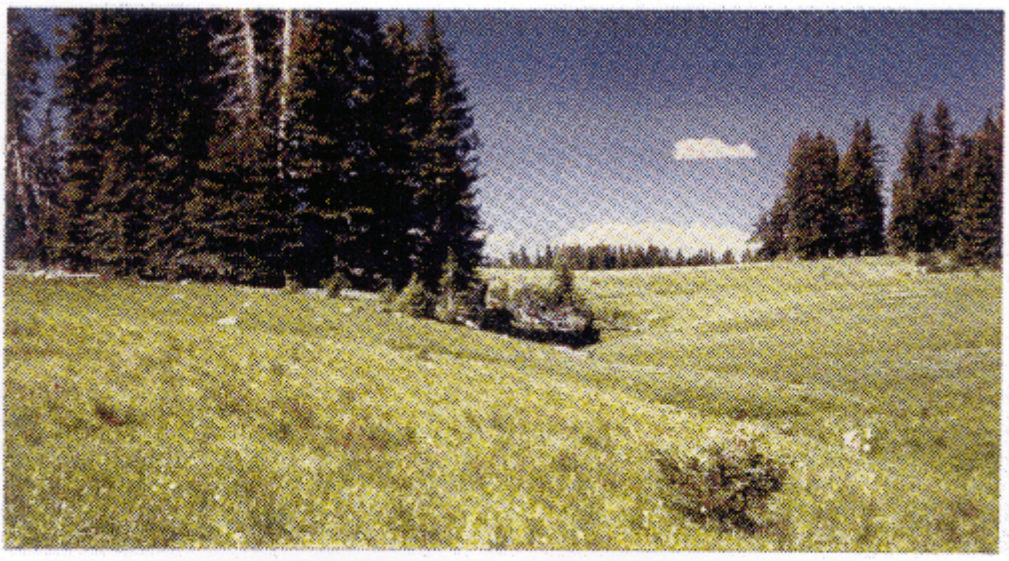
Rank : 4



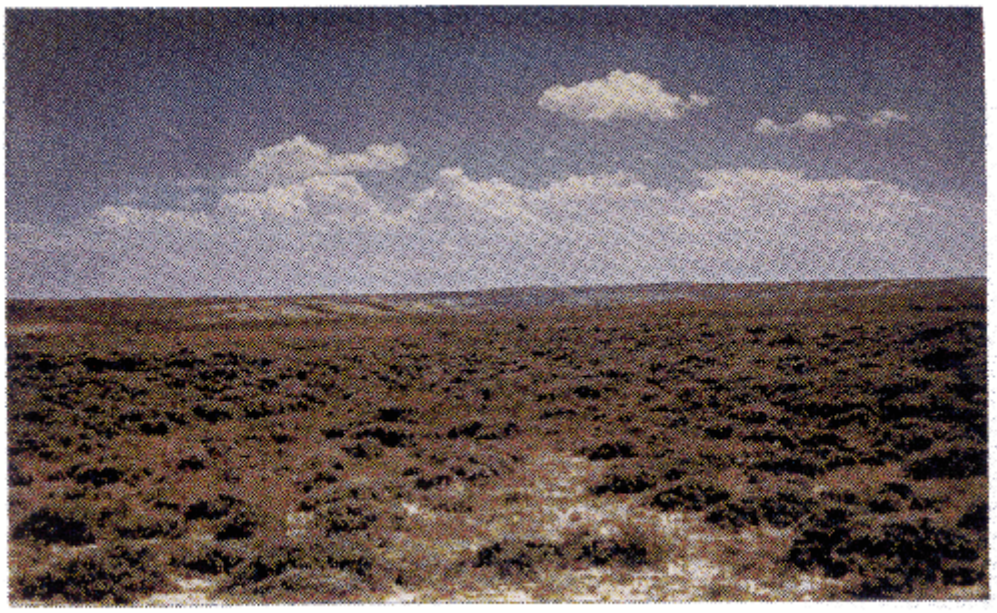
Set 3 : Mountains. Photo 4
Rank : 5

Set 3 : Mountains, Photo 5
Rank : 3



Set 2 : Prairies, Photo 1
Rank : 1

Set 2: Prairies, Photo 2
Rank : 4



Set 2: Prairies. Photo 3
Rank : 3

Set 2: Prairies. Photo 4
Rank : 5

Set 2: Prairies, Photo 5
Rank : 2

APPENDIX E

EVALUATION OF SCENIC LOOP TOUR EFFECTIVENESS

OTHER FACTORS IN THE EVALUATION OF SCENIC LOOP TOUR EFFECTIVENESS

Accident Analysis

The main objective of collecting these data was to determine if the designation of loop tours resulted in any significant increase in the number of accidents occurring on the loop tour routes. Accident data were obtained from the Wyoming Department of Transportation data bases for the years 1987 through 1990. These four points of data were used to examine the "before and after" trend.

A statistical Z-test was utilized for conducting the "before and after" accident analysis. A 95 percent confidence interval was chosen to be within practical limits. When conducting the Z-test, a two-year period was considered before and after the designation of loop tours. The test statistic Z_o was determined with the following equation [McShane]:

$$Z_o = \frac{f_A - f_B}{\sqrt{f_A + f_B}}$$

Where:

f_A = number of accidents after the introduction of loop tour i.e. from 1989 to 1990.

f_B = number of accidents before the introduction of loop tour i.e. from 1987 to 1988.

The calculated Z_o values are shown in Table E.1 and the values were compared with Z_α = 1.645 (at α= 0.95). The results from this test are summarized in Table E.1. The statistical analysis indicated that there was no significant change in accident occurrence for either the Cheyenne or Big Horn Loop Tours after the routes were designated as loop tours.

Table E.1 Results from "before and after" accident analysis

LOOP TOUR	ACCIDENTS		TEST STATISTIC Z_o	RESULT
	Before 1987-88	After 1989-90		
Cheyenne	391	367	-0.872	Not significant
Bighorns	152	155	0.171	Not significant

Evaluation of Existing Signs

One of the factors necessary for the success of loop tour programs may be proper signage. Poorly or inadequately signed loop tours may not attract the attention of tourists, which may result in a poor response. Surveys were conducted during the summers of 1991 and 1992 to determine the users' opinions of loop tour signs. The users' survey also contained several questions to examine the economic impact of loop tours on local communities. Contained in Table E.2 is the survey question related to loop tour signage.

Tables E.3 and E.4 summarize the users' responses on the Cheyenne and the Bighorn Loop Tours, respectively.

Table E.2 Users' Survey Question on Signing.

How would you characterize the following attributes of the Loop Tour signs along the highway in regard to being able to see them from your vehicle?

a) Number of signs:

Too few[] Too many[] Adequate[] Did not notice[]

b) Size of signs:

Too small[] Too large[] Adequate[] Did not notice[]

c) Size of lettering on signs:

Too small[] Too large[] Adequate[] Did not notice[]

d) Color of signs:

Too dark[] Too light[] Adequate[] Did not notice[]

Table E.3 Results From Users' Survey Conducted On Cheyenne Loop Tour Signs

QUESTION	RESPONSES			
Number of signs	Too few	Too many	Adequate	Did not notice
	11%	0%	56%	33%
Size of the signs	Too small	Too large	Adequate	Did not notice
	22%	0%	56%	22%
Size of the lettering on signs	Too small	Too large	Adequate	Did not notice
	22%	0%	56%	22%
Color of signs	Too dark	Too light	Adequate	Did not notice
	0%	0%	67%	33%

Table E.4 Results From Users' Survey Conducted On Bighorns Loop Tour Signs

QUESTION	RESPONSES			
Number of signs	Too few	Too many	Adequate	Did not notice
	38%	8%	18%	38%
Size of the signs	Too small	Too large	Adequate	Did not notice
	8%	8%	46%	38%
Size of the lettering on signs	Too small	Too large	Adequate	Did not notice
	8%	8%	54%	30%
Color of signs	Too dark	Too light	Adequate	Did not notice
	8%	0%	54%	38%

In Table E.4, 38 percent of user responses indicated that the number of signs on the Base of the Bighorns loop tour was not adequate. But for the Cheyenne and Oregon Loop Tour, 56 percent of the responses indicated adequate loop tour signs. Thirty-five percent of the respondents indicated that they did not notice the signs. Fifty percent indicated that the 24" x 24" loop tour sign was found to be adequate in locating the sites with the help of loop tour brochures and maps. Most respondents (55%) indicated that the size of lettering on the signs and the color of the signs used were adequate.