

Development of Evaluation Criteria for Loop Tours

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In the past some historical and cultural heritage areas, wildlife areas, lakes, and areas of scenic beauty were not exposed to tourists in the United States. Realizing this fact, the FHWA, state departments of transportation, and tourism departments introduced scenic byways to expose these features to the public. In Wyoming, a loop tour program was developed in 1989 in conjunction with the already-existing scenic byways to enhance tourism and divert traffic from interstate to state routes. The University of Wyoming and the Wyoming Division of Tourism conducted a research project to determine the effectiveness of the Wyoming loop tours. As a part of this study, a nationwide survey was conducted to determine the national trends in loop programs. In this paper are summarized the findings from the Wyoming study and the nationwide survey.

The United States is a country with a very diverse culture and heritage. It also has a vast variety of wildlife, lakes, and scenic beauty. Tourism is important to the American economy; it creates jobs, promotes retail sales, and even encourages the creation of new businesses. There is an increasing recognition of the need to establish programs that encourage growth of tourism travel. The following facts reflect the importance of tourism (1, p. 48):

- Travel and tourism is a \$350 billion a year industry and the nation's third largest retail industry (after automobile dealers and food stores).
- Travel and tourism ranks as one of the largest employers in 37 of the 50 states. Travel and tourism comprises 6.7 percent of the gross national product and 13 percent of the service 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.

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 scenic byways. These scenic and historic roads 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. In addition to designating scenic byways, the Wyoming Department of Transportation and the Wyoming Tourism Department introduced loop tours to promote tourism in the state of Wyoming. The Wyoming loop tour program was developed in the late 1980s to introduce wildlife and historic landmarks to tourists

visiting Wyoming. Loop tours are short-duration pleasure trips that are usually traveled in a day's time. Tourists begin their loop tour at one point and return to the same point. Loop tours are also called circle trips in certain states.

The University of Wyoming recently conducted a research study on the Wyoming loop tour program. The main objective of this research was to develop criteria for designating loop tours and to use these criteria in evaluating the existing loop tours. The major findings from this research are discussed in this paper.

WYOMING LOOP TOURS

In the late 1980s, the Wyoming Division of Tourism initiated the loop tour program. Initially, this program consisted of three loop tours located in different parts of Wyoming. In 1992 this program was expanded and an additional three loop tours were added. The Wyoming Division of Tourism developed a brochure containing descriptions of each loop tour (2). These brochures are normally distributed to tourists at tourist information centers located throughout the state of Wyoming. Information about loop tours is also printed in newspapers and on Wyoming state maps, which are available at information centers.

LOOP TOUR PROGRAMS ACROSS THE UNITED STATES

A literature review failed to find any mention of 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. Copies of the survey were sent to all 50 state departments of transportation. Of the 50 questionnaires mailed, 37 responses were received. Out of the 37 states responding to the questionnaire, only 11 states indicated that they currently had loop tour programs (Table 1). Oregon reported the highest number of loop tours (20), whereas Wisconsin, with the fewest, reported having only 2 loop tours. New Mexico indicated that a loop tour program was currently under consideration. Only Texas had conducted studies to determine the effectiveness of its loop tour program. Most states considered 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 required paved routes in their loop tours.

LOOP TOUR SELECTION CRITERIA

The purpose of loop tours is to stimulate the economies of local communities by diverting the through traffic from its original route for a short distance. Due to the long distances between attractions

TABLE 1 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

in Wyoming, a maximum length of 320 km (200 mi) was used in designing a loop tour. The intent was for through traffic to be diverted if the attractions were of significant interest to the traveler. In this study, all the anchor attractions were classified as to their potential importance, either 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, help to make loop tours popular. Local attractions include state parks, museums, historic sites, lakes, and other attractions that are primarily known locally or in neighboring states. Glendo State Park, Guernsey State Park, and the Wyoming Territorial Prison are a few examples of this category of attraction.

Any loop tour should contain at least one nationally or internationally known attraction or several local attractions. If a route has only great scenic value and no anchor attractions, making it a scenic byway should be considered.

The criteria developed to evaluate loop tours and route links or segments were divided into two levels. In Level I the attractions are selected, and it is determined whether an interstate highway and a round trip of less than 320 km (200 mi, or approximately 4 hr driving time) provide access to the attractions. In Level II the specific route segments to be included in the loop tour are evaluated. Factors considered in Level II include the roadway conditions, scenic beauty, and tourist services of potential route segments.

Level I Evaluation

The following tasks should be performed in a Level I evaluation.

1. Identify nationally, internationally, and locally significant attractions.
2. Identify potential points of diversion (origin) from the interstate routes that 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 4 hr or a maximum distance of about 320 km (200 mi).
4. Routes considered should be safe for driving and should accommodate recreational vehicles (motor homes). Any paved, secondary, or primary route will satisfy this criterion. If the route is not a paved, primary, or secondary highway, then turning radii, super-elevation, sight distance, slope, alignment, and grades should be examined to determine whether 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* (3).

Level II Evaluation

After identifying the appropriate routes, evaluations are conducted in Level II to select the best route segments. Level II criteria include rating loop tours on the basis of roadway conditions, anchor attractions, communities by population, and scenic beauty. These evaluations are rated on a scale of 1 to 5, on which 5 is "excellent" and 1 is "poor." The Level II criteria are as follows.

1. Roadway conditions. The American Automobile Association's (AAA's) criteria for designating scenic byways are proposed for evaluating roadway conditions. AAA's criteria evaluate the road for surface, shoulder, alignment, and grade factors (4). In this loop tour study, AAA's ranking of 1 to 5 was reversed so that 1 reflected poor road conditions and 5 reflected excellent road conditions. An average route segment value of 3 was proposed as the cut-off value in a loop tour.

2. Anchor attractions. All of the route segments that satisfy the roadway condition criteria are rated on the availability of attractions. Ratings are assigned based on the significance of each attraction. International and national attractions are assigned 2 points, whereas local attractions are assigned 1 point. The points assigned are totaled to obtain the final rating for the route segment on a scale of 1 to 5. Any value greater than 5 is assigned a rating of 5.

3. Communities by populations. Population size is directly related to tourist services such as service stations, lodging, restaurants, motels, and information centers. Therefore, any community with a population of 10,000 or above is assigned a rating of 5. This emphasis on 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 below.

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

4. Number of communities. The total number of communities present on a particular route is one of the deciding factors rating the route under consideration. This criterion reflects the number of different service opportunities in which expenditures may occur. The rating criteria are as follows:

- a. If there are fewer than five communities on a route segment, then the rating assigned is equal to the number of communities on the route segment itself.
- b. If there are more than five communities, then a rating of 5 will be assigned to the route.

5. Scenic beauty. Each route segment is then evaluated for scenic beauty along the route. The research study conducted by B. Lynne Boyd, Visual Preferences of Natural Landscapes in Southern Wyoming, is proposed for evaluating natural beauty (5). In Boyd's study, the main features present in Wyoming are classified as mountains, lakes, streams, and prairies. These features are rated on a scale of 1 to 5 with 5 being excellent.

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

All of the calculated values of Level II criteria are then tabulated in a matrix and multiplied by appropriate weighting factors. These factors were obtained based on the recommendations of a panel of experts. This delphi procedure produced factor weights deemed appropriate for Wyoming's environment. Roadway conditions and scenic beauty were assigned a weighting factor of 1. Because attractions and tourist services are the main components of loop tours, a weighting factor of 1.5 was used for these components. A weighting factor of 1.3 was used for the number of communities. The best loop tour routing is then selected based on the highest loop tour value.

APPLICATION OF THE DEVELOPED CRITERIA TO THE CHEYENNE AND OREGON TRAIL LOOP TOUR

The loop tour evaluation criteria developed in this research project were validated by evaluating alternate routes on two loop tours in the state of Wyoming (6). This article includes the results from evaluating the Cheyenne and Oregon Trail loop tour only.

Level I Evaluation

As shown in Figure 1, this loop tour originates from the state capital, Cheyenne, and passes through Douglas, Glendo State Park, Guernsey, Guernsey State Park, Fort Laramie, and Torrington. Information about travel time and distances is presented in Table 2. The total travel time for the existing loop tour route is 5 hr; it covers a distance of 452 km (283 mi). These figures exceed the maximum limits specified for a loop tour in Level I evaluation.

Fort Laramie, located on US-26, is a national historic site and thus falls under the national/international attraction category. Cheyenne, located near I-80, is the origin for this loop tour. Cheyenne has several local attractions such as the Wyoming state capital, 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 two 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 that also merge with I-25 were identified. These

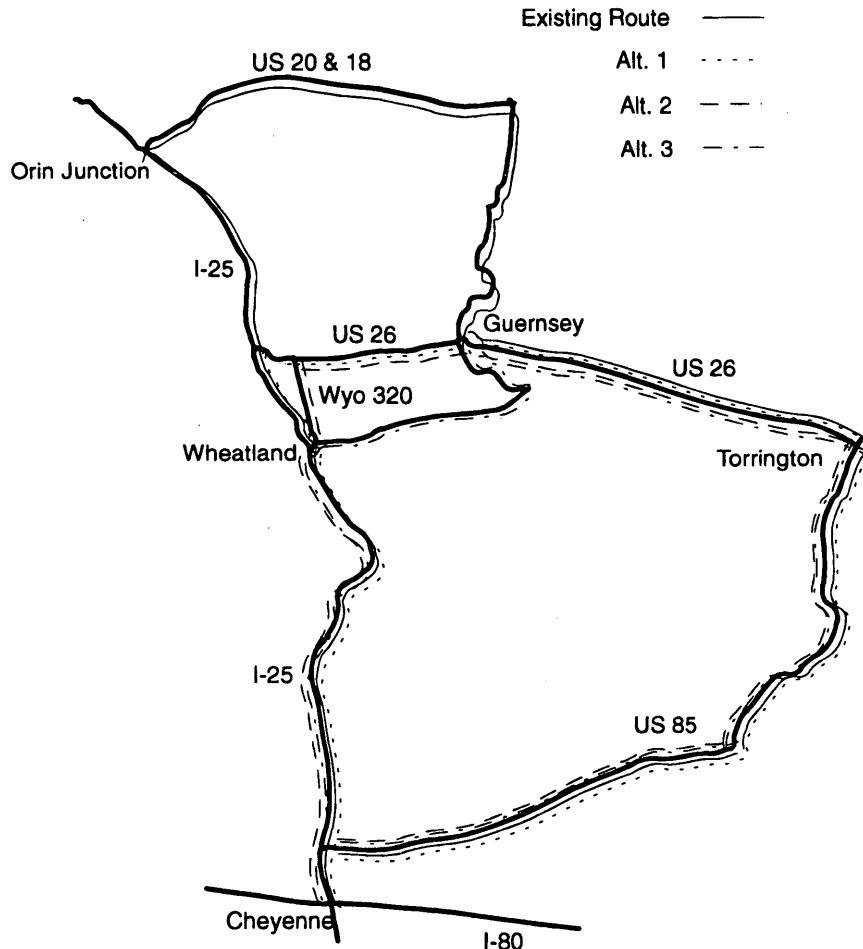


FIGURE 1 Location of existing Cheyenne and Oregon Trail loop tour routes and alternative route segments.

TABLE 2 Travel Times and Lengths for Cheyenne Loop Tour Routes

ROUTE	TIME TRAVEL (Minutes)	DISTANCE (km)
Cheyenne to Torrington (US 85)	84	124
Torrington to Ft. Laramie (US 26)	22	32
Ft. Laramie to Guernsey (US 26)	15	21
Guernsey to Wheatland Exit via Orin Jct. (WYO 270, US 18, & I-25)	125	195
Wheatland Exit to Cheyenne (I-25)	55	80
TOTAL	301	452

alternate route segments and the original loop tour routing are shown in Figure 1. Of the three alternate route link segments identified, two route segments pass through Wheatland, which has significant tourist services. The existing loop tour routes and the proposed alternate route segments are paved secondary routes and can accommodate recreational vehicles.

Level II Evaluation

As shown in Figure 1, the three alternate and existing routes have two common segments on the loop tours, Cheyenne to Guernsey, and Wheatland exit to Cheyenne. Only the sections that are not held in common were included in Level II evaluation because the common sections had identical ratings. This evaluation included the combined weighting of roadway conditions, scenic beauty, anchor attraction assessment, and community population criteria.

Evaluation of Roadway Conditions

The alternate route segments were selected on the basis of their proximity to the existing loop tour route. They were evaluated and compared with the existing loop tour route using the same criteria (Table 3). All of 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 as "fair" 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.

Evaluation of Anchor Attractions

All of the attractions discussed in the Level I evaluation were tabulated according to route segment. Evaluations were carried out based on the criteria developed in this study. The anchor attraction ratings were 0, 0, and 1 for the existing segment, Alternate 1, and Alternate 2, respectively.

Evaluation of Communities by Population

The communities were rated according to their population. These ratings were 0, 0, and 3 for the existing segment, Alternate 1, and Alternate 2, respectively.

TABLE 3 Evaluations of Alternative 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 302) 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

Evaluation of Number of Communities

The number of communities located on individual route segments was totaled and the final rating for each route segment was assigned. These ratings were 0, 0, and 1 for the existing segment, Alternate 1, and Alternate 2, respectively.

Evaluation of Scenic Beauty

The results of the scenic beauty evaluations for existing and alternate loop tour route segments are shown in Table 5.

Selection of Best Loop Tour Route

Based on the previous analysis and travel distance 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. The ratings for

TABLE 4 Travel Times and Lengths for Alternative Route Segments

ROUTE	TRAVEL TIME (Minutes)	DISTANCE (km)
Guernsey to Wheatland Exit via Orin Jct. (WYO 270, US 18 & I-25) Existing Route	129	212
Guernsey (US 26) to Wheatland Exit via I-25 Alternate #1	31	45
Guernsey to Wheatland (WYO 320 & US 26) Alternate #2	31	45

TABLE 5 Evaluation of Scenic Beauty for Alternative Route Segments

ROUTE	SCENIC BEAUTY				
	Stream	Lake	Mountain	Praries	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 302) Alternate #2	0	0	0	3.6	0.9

anchor attractions, communities, roadway conditions, and scenic beauty for each route segment, in addition to travel distances, were entered in a matrix (Table 6). It is clear that the alternate route segment from Guernsey to Wheatland via WYO-320 has the highest loop tour value according to the proposed criteria. This alternate route adds a new attraction to the loop tour, and it goes through the city of Wheatland, which has numerous tourist facilities. Thus, this route segment is recommended to replace the existing route segment from Guernsey to Wheatland on I-25 via Orin Junction. [The existing route has a distance of 195 km (122 mi) with a few opportunities for direct access to the population. The proposed changes shorten the length of the loop tour by 150 km (195 km - 45 km = 150 km). In other words, the total length of the loop tour will become 302 km (452 km - 150 km = 302 km), which is less than the maximum length specified in this research study.]

CONCLUSIONS

In this research project, criteria were developed for designating 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 these features. These fea-

tures were rated on a scale of 1 to 5, on which 1 was "poor" and 5 was "excellent." Alternate routes on the Cheyenne and Oregon Trail loop tour were then evaluated based on the criteria developed. This research lead to the following conclusions.

1. Currently, there are no national standard criteria for selecting sites and routes for loop tour programs. The judgment of the person or 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 all Interstate highways. A round trip of less than 320 km (200 mi) or a driving time of approximately 4 hr was considered accessible in 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.

3. 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 loop tour objectives than the original loop tour segment from Guernsey to Orin Junction via Hartville. The alternate loop tour routing focuses directly on Wheatland and shortens the Cheyenne and Oregon loop tour route by 150 km (94 mi).

Finally, all factors developed in this study reflect the conditions encountered in Wyoming (small and scattered populations, long distances between attractions, etc.). If this evaluation technique is to be used by other states, the weighting factors should be reexamined to reflect local conditions.

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TABLE 6 Loop Tour Values Calculations

	R.C.	S.B.	A.	POP.	#	WT.	L.T.	Distance
			AT.		L.	Fac	V	(km)
					C			
Existing Route	3.6	0.8	0	0	0	1 1	4.4	195
Alternate #1	3.9	0.9	0	0	0	1.5 1.5	4.8	45
Alternate #2	3.5	0.9	1	3	1	1.3	11.7	45

R.C. Roadway Conditions
S.B. Scenic Beauty
A.A.T. Anchor Attractions
POP. Population
#L.C. Number of Local Communities
L.T.V. Loop Tour Value

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