Scenic Byways: Their Selection and Designation

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A successful scenic byways program in a state or region should address the following issues, a study of which in the states of Iowa, Kansas, Missouri, and Nebraska is described. (a) *Scenic quality* is measured by the quality of the type of view (panorama, scene, or focal point) and adjusted for ease of viewing. A system on board a vehicle consisting of a laptop computer and a video camera connected to a distance measuring-device is used to collect information about a potential byway. Computer programs provide scenic quality ratings for the route. (b) *Road safety*. Potential byways should be evaluated for driver expectancy violations (potentially hazardous locations) and predicted accidents per mile per year (AOMY). The safety information is collected while driving on the road with an on-board video camera, laptop computer, and distance measuring device. Computer programs produce roadway AOMY from the collected information. (c) *Scenic byway designation*. Summaries of four papers developed for the Federal Highway Administration's 1990 National Scenic Byways Study are included. The topics range from how four states established new scenic byway programs to suggested scenic resource protection techniques. (d) *Scenic byways signing and information*. For those wishing to drive scenic byways, there should be maps and other information listing the location of the byways, their scenic and historic attributes, and amenities such as food, fuel, and lodging. It is essential that the byway be signed so that the user does not inadvertently leave it. The design of a specific scenic byway guide sign is suggested.

A scenic road or byway has roadsides or corridors of aesthetic, cultural, or historic value (*1*). There is a great deal of interest in establishing or designating scenic byways in Iowa, Kansas, Missouri, and Nebraska. The transportation departments of each of the four states and the Midwest Transportation Center, the U.S. Department of Transportation-funded research center for the four-state region operated by Iowa State University and the University of Iowa, sponsored a scenic byways research project at Kansas State University. The research project, "Scenic Byways: Their Economic Benefits/Selection/Designation/Projection and Safety" (Byways Project), was started in August 1989 and the engineering segment (i.e., the selection/designation/protection and safety portion of the project) was completed in October 1990 (*2*).

If there is to be a successful scenic byways program in a state or region, the following issues should be addressed:

- Scenic quality: criteria and methods for assuring some minimum level of scenic quality and doing so in a uniform, consistent way.
- Road safety: criteria and methods for evaluating critical road safety matters.
- Scenic byways definition: nomination of potential byways, appropriate conditions for byway designation, and scenic corridor protection and enhancement.
- Scenic byways signing and information: signing, maps, interpretation of items of interest, marketing a byway, and information needs of the byway driver.

These issues, as well as the research methodology and results, are discussed in the following sections.

SCENIC QUALITY

Background

In order to achieve consistency in the selection of future designated scenic byways, some minimum level of scenic or historic quality must be promised. It is generally believed that many groups will want their road to be one of the designated scenic byways, primarily because of the perceived economic benefits of byway designation. All groups should therefore be treated consistently relative to designating their road a scenic byway. Some organizations such as a state or local road agency or state byway committee must be able to accept or reject the request for scenic byway designation for a given road. The organizations responsible for designating scenic or historic byways need quantitative criteria to ensure minimum acceptable levels of scenic or historic quality. Quantitative criteria for byway designation (*2,3*) were developed in the byways project, as were methods of data collection and analysis. They are the bases for the following recommended study procedure.

Recommended Study Procedure

The quantitative approach used in the byways project and subsequently recommended for use in selecting and designating scenic byways is summarized in the following paragraph from Smith (*2*) and Smith and Smith (*3*).

> A system consisting of a lap-top computer and a video camera connected to a distance measuring device (DMD) is used on-board a vehicle to collect information about a potential byway. A commentator (usually the driver) describes the following: the type of view (panorama, scene or focal point); the quality of view with a numerical rating from "1" (excellent) to "5" (poor or highly detracting); the quality of presentation based on the relative ease of "seeing" the various views as the road is driven. The views are given a quality of presentation rating from "1"

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straight ahead to "5" out the side window; how long (distance) one sees a particular view or element; the types of activities along the road and a 1 to 5 rating of the visual character of the roadway itself. The information from the commentator is stored in the computer using a specially coded and colored keyboard. Certain keystrokes poll the DMD to collect distance, speed, and time. The video camera is panned to record the view being described by the commentator and it captures the verbal comments as well as the instantaneous distance, speed and time.

Quality of View

As noted by Smith (*2*) and Smith and Smith (*3*), and repeated here for clarity, the following quality of view ratings (1 to 5) for each type of view were used:

1. Excellent;
2. Good;
3. Average, or So-So (typically a 3 rating is not identified in driver commentary);
4. Less than desirable—detracts, distracts; and
5. Poor—highly detracting.

Quantitatively, if ratings were to be compared, the following numerical ratings could be used:

Excellent	+2
Good	+1
So-So	0
Less than desirable	−1
Poor—highly detracting	−2

Using this scheme, the quality associated with what is seen as the road is driven could easily be plotted.

As a practical matter, the 1 to 5 ratings were used because the existing basic computer program for handling the data was programmed for ratings 1 to 5, not +2, +1, 0, −1, or −2. Note that as the quality ratings are "normalized" by subtracting them from 3, the previously noted numerical ratings are obtained:

Recorded Quality of View	*Normalized Quality*
Excellent = 1	3 − 1 = +2
Good = 2	3 − 2 = +1
So-So = 3	3 − 3 = 0
Less than desirable = 4	3 − 4 = −1
Poor—highly detracting = 5	3 − 5 = −2

Quality of Presentation

A quality of presentation or display of view rating (1 to 5) for each type of view was used (*2,3*). The quality of presentation is based on the relative ease of seeing the various views as the road is driven. As shown in Figure 1, those views that are straight ahead are easiest to see and are therefore given a score of 1. Curving roads offer the most opportunities for presentation ratings of 1. As the road curves, the views straight ahead coincide with the tangents to the curve as the driver moves along the curve. These tangent or straight-ahead views, as shown in Figure 2, are given presentation ratings of 1. Those views that can be seen only by looking out of the side window, the most difficult to see, are given a 5.

Advantages of the Data-Collection System

The collection and recording of information gathered during the evaluation of a potential scenic byway can be very complex and time consuming (*2,3*). The laptop computer/DMD/video camera system makes the complex task of collecting and recording the field information a fairly easy one.

In addition to the relative ease of collecting the field data, a further advantage of the computerized system lies in the use of the computer-recorded data for developing a rating number for any road being considered for scenic byway designation. The development of the rating number will be discussed later in this paper.

MEASURING VISUAL QUALITY

A measure of the visual quality of a route can be observed by plotting for each viewed item or event, the normalized quality of the view (3 minus quality of view), adjusted for the presentation quality (the ordinate) versus the distance (the abscissa), over which the item is viewed. A measure of the quality at any point is the total height of the cumulative plot for all viewed items or events, and a measure of the quality of any section of the route is average height of the cumulative plot for the length of section being considered. The quality of view (range 1 to 5) and the quality of presentation (range 1 to 5) for any event (i.e., various items viewed for panoramas, scenes, and focal points) are shown in Table 1. Note that the distance over which the item was in view was also recorded automatically.

In Table 1 the events are listed in order by time of entry into the computer (i.e., the time the view is first seen). Consider the 12th event: the code for the event is 176, the quality of view is 2 (good) (1 is best, 5 is poor, highly detracting) and the quality of presentation is 3 (about 40 degrees left or right of straight ahead) (Figure 1). The view was first seen at a distance of 15,605 ft from the beginning of the route and disappeared from view at 17,406 ft. It was in sight for 1,801 ft. (17,406 − 15,605 = 1,801). The speed at the time of first view was 33 mph and the time was 10 min. 39.6 sec. after the start of the run. The event activity description column shows that the type of view was a scene (*S*) and the item was a vegetation edge. Note that the first letters *P*, *S*, or *F* stand for panorama, scene, or focal point, respectively.

As noted earlier, in order to plot the quality of a view against the distance over which it was seen or observed, the quality of view must be normalized (i.e., subtracted from 3). The normalized quality of view must then be adjusted for its quality of presentation. Recall from Figure 1 that the quality of presentation ratings (1 to 5) (straight ahead to out of the side window) are a measure of the ease of seeing a particular view.

The following are factors that were usually used to adjust the presentation quality:

Presentation Quality	*Presentation Adjustment Factor*
1	1.00
2	0.90
3	0.80
4	0.70
5	0.60

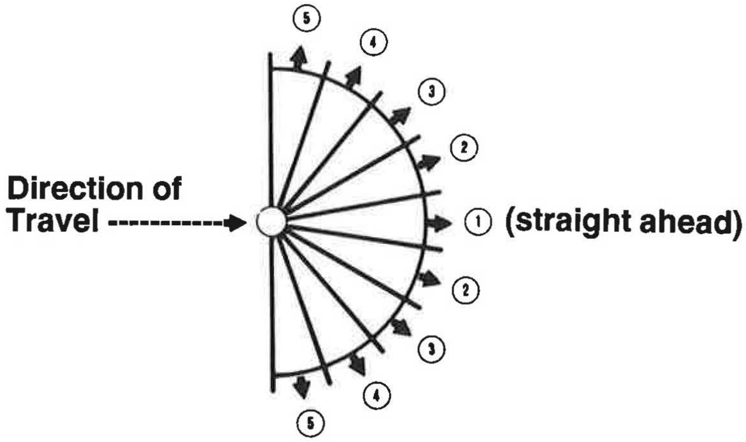

FIGURE 1 Quality of presentation rating scheme.

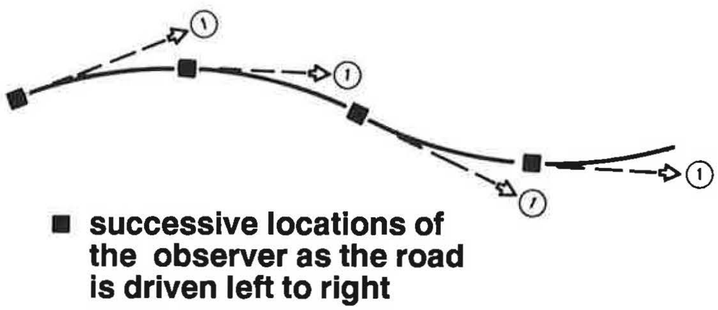

FIGURE 2 Plan view of a curving road showing opportunities for presentation ratings of 1.

TABLE 1 Printout of Data

Event Seq	Note	Event Code	Quality of View	Quality of Presentation	Distance (ft) Begin	Distance (ft) End	Speed (mph)	Time	Event Activity Description
001	*	211	2		000000	031281	00	00:01:06:44	Road ribbon = [Shift] 0
002	*	176	2	3	000000	009956	00	00:00:47:56	S:Vegetation edge = t
003	*	152	2	3	001153	001390	2*	00:02:05:03	P:Water = 3
004	*	170	2	3	002827	003224	19	00:03:12:26	S:Cliff/Bluff/Draw/Depression = 4
005	*	170	2	3	003700	004024	3*	00:03:59:36	S:Cliff/Bluff/Draw/Depression = 4
006	*	216			005870	005870	19	00:05:36:93	Parks/Recreation areas = [Shift] 7
007	*	176	2	3	010256	015102	32	00:07:13:05	S:Vegetation edge = t
008	*	172	2	1	011290	012963	7*	00:08:02:69	S:Unique land form = 6
009	*	190	2	1	011415	012890	9*	00:08:12:61	F:Rock, rock pattern = 0
010	*	172	1	1	012976	015906	4*	00:09:08:44	S:Unique land form = 6
011	*	190	2	2	013399	014085	21	00:09:56:14	F:Rock, rock pattern = 0
012	*	176	2	3	015605	017406	33	00:10:39:62	S:Vegetation edge = t
013	*	204	5	5	016856	031281	32	00:11:04:10	F:Man made color/pattern/symbol = .
014	*	182	4	3	017539	019218	18	00:11:19:21	S:Agricultural structures = g
015	*	172	2	1	020607	022105	25	00:12:46:75	S:Unique land form = 6
016	*	170	2	3	021195	021945	8*	00:13:03:17	S:Cliff/Bluff/Draw/Depression = 4
017	*	170	2	3	022161	022356	1*	00:13:51:03	S:Cliff/Bluff/Draw/Depression = 4
018	*	170	2	3	022383	022954	9*	00:14:15:28	S:Cliff/Bluff/Draw/Depression = 4
019	*	172	2	1	024657	027839	25	00:15:23:66	S:Unique land form = 6
020	*	176	2	3	026511	031281	34	00:16:00:66	S:Vegetation edge = t
021	*	172	1	2	027900	029391	28	00:16:28:18	S:Unique land form = 6
022	*	179	2	3	028134	030989	27	00:16:33:53	S:Crops and crop patterns = i

The computations ranging from normalizing the view quality to determining the value of the ordinate and the area for the event (i.e., ordinate *x* distance) are illustrated in Table 2.

If all the ordinates versus the distance throughout the route are plotted and the areas under the curve are summed for, say, the first mile, the quality rating factor would be the summed area ÷ 5,280 ft.

Computer programs BYWAY PLOTS were developed to plot the view quality, adjusted for presentation, versus distance along the route. These programs allow the user to change the presentation adjustment factors. Other computer programs, BYWAYS, were developed to compute the visual quality rating for selected segment lengths (usually 1 mi) as well as the average rating for the entire route.

The program will plot (Figure 3) each item for which data were recorded. It also plots a summation graph. The plots are helpful in determining, almost at a glance, the elements contributing to very high or very low ratings.

FIELD STUDY DATA COLLECTION

Each of the four sponsoring states was asked to nominate 15 to 20 potential byways for use as study byways in the research project. To assure consistency in the field study, one four-person study team was designated to carry out all of the field work. One person from each state served on the team. The team was responsible for selecting, in each state, five study routes from the 15 to 20 potential byways.

The team also selected approximately 10 mi of each study route for detailed study. A 10-mi sequence of "nothing" route, generally nearby, was also selected for detailed study. This ensured that there would be a fairly wide range in visual quality (i.e., outstanding to boring). A range of visual quality was necessary if the quality ratings were to be meaningful.

The team spent about a week in each state collecting the scenic data on the selected 10-mi segments of the five study routes and the five "nothing" routes. The team also made a safety run on the entire length of each study route. The safety runs will be described later.

ANALYSIS OF FIELD STUDY DATA

The summation or cumulative quality curves (i.e., the quality ratings versus each item viewed) for the study routes and companion nothing routes were originally plotted by hand on highway cross-section sheets. Later the plotting was done using the computer program BYWAY PLOTS (Figure 3). The plots with large areas under the quality curves were of the good-quality routes and plots with small areas were the average and boring routes.

The study team had ranked each route, qualitatively, as outstanding, good, average, or boring. The ratings were recorded when the field survey of each route was completed. The data and plots were spot-checked by viewing the videotapes. The videotapes were helpful in confirming quality and presentation ratings. The videotapes closely simulated being there. The commentary recorded on the tape, coupled with the quality of views and presentation quality of views, enabled the data file to be changed as necessary. It is feasible—although not easy—to make a data file entirely from a video with commentary, distances, and panned views.

The data files were corrected for obvious discrepancies. The editing of the data files was greatly aided by an excellent commercial editing program.

The scenic quality ratings required only minutes for computer calculation and printing, whereas hand calculations required virtually hours and mistakes were quite frequent. For example, Missouri Route 4A was rated outstanding by the team but was a bit low (3.10) in computer-generated rating. An examination of the videotape indicated a substantial number of high-quality views that were missed or were commented on but not rated and entered into the computer.

The likely reason for the missed views is that this route was rated during the second day of the field study and the team was still feeling its way with the commentary-laptop computer system. In one instance a route was rated good by the team but the computer-generated rating was quite low. In viewing the videotape, it was apparent that the route was a good-quality one. The survey team had not given a rating to "road flows with terrain" when in fact the road quality was quite good. The rating change was made in the data file, reanalyzed in minutes, and the new quality ratings were well up into the good area.

The computer-generated quality ratings were calculated for each route and the ratings were compared with the qualitative survey team rating for the routes. Routes with average quality ratings of 4.0 or higher were recommended for scenic byway designation.

Recommendations on scenic quality were as follows:

- The described data collection and analysis techniques should be used for the scenic quality evaluation of a potential byway.

TABLE 2 Sample Computations Using Data from Table 1

Event Seq.	Quality of View	Quality of Presentation	Normalized View Quality	Presentation Adjustment Factor	Ordinate: Normalized View Quality x Presentation Factor	Distance: Begin Dist. Minus End Dist.	Area for Event: Ordinate x Distance
010	1	1	3 - 1 = +2	1.00	+2 x 1.00 = +2.00	2930	+5860.0
011	2	2	3 - 2 = +1	0.90	+1 x 0.90 = +0.90	686	+ 617.4
012	2	3	3 - 2 = +1	0.80	+1 x 0.80 = +0.80	1801	+1440.8
013	5	5	3 - 5 = -2	0.60	-2 x 0.60 = -1.20	14,425	-17,310.0
014	4	3	3 - 4 = -1	0.80	-1 x 0.80 = -0.80	1801	-1440.8

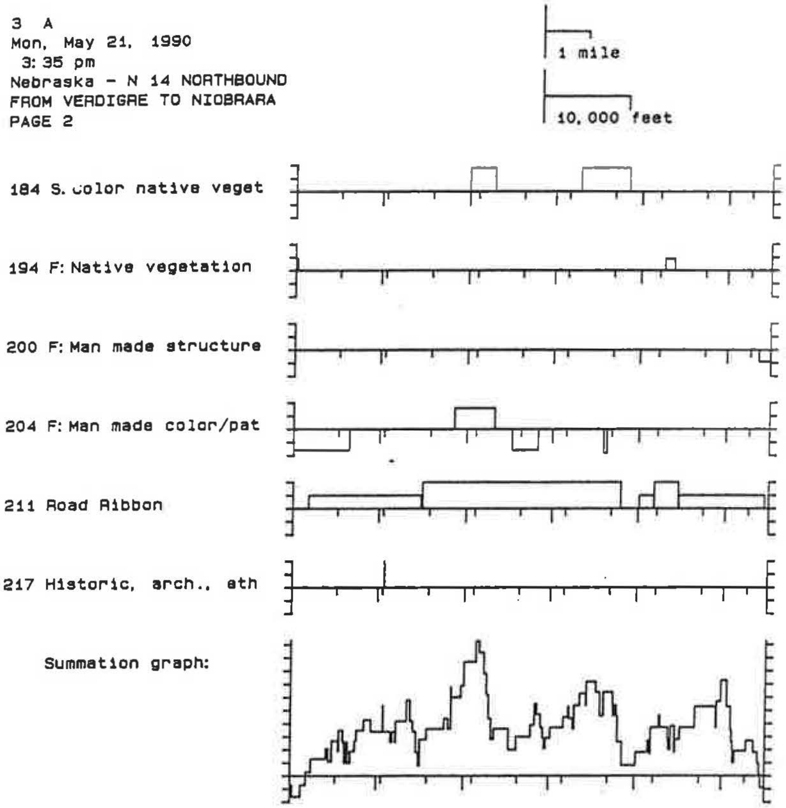

FIGURE 3 Plots for various scenic items (partial listing).

- The route and corridor should be studied before formal scenic evaluation to determine the location of scenic or historic sites or districts and the need for scenic overlooks, turnouts, or selective clearing.

Many of these items will probably be specified in documentation submitted by groups that have nominated a given route for scenic byway designation. This will allow the rating team to anticipate locations in which to use suggested special techniques (*2*) for evaluating historic or ethnic sites or districts and special techniques for turnouts, overlooks, and selective clearing.

- It is recommended that routes with average quality ratings of 4.0 or higher be considered for scenic byway designation. As each state gains experience in byway designation, they may want to adjust the threshold quality rating. Each state should build a data bank of data collected on rated byways and use it for retaining or changing the 4.0 quality rating. The qualitative rating of a route by a good, experienced rating team is an important adjunct to the quantitative rating.

SAFETY EVALUATION

Safety Evaluation Requirements

Before giving any route a scenic byway designation, there should be a safety evaluation of the route. Potentially hazardous locations should be identified and improved as necessary. It will also be helpful if numbers of future accidents are predicted and especially helpful if the effects of changes in traffic volume, shoulder type and width, and other items on estimated numbers of future accidents are determined.

Potentially hazardous locations can be identified using the Expectancy Commentary Driving Technique (*4,5*), commonly called Commentary Driving. During Commentary Driving, drivers state their expectancy for the road and comment on locations that violate this expectancy. Any location that violates drivers' expectancy is a potentially hazardous one (*4,5*).

The prediction of future numbers of accidents can be made using the procedure described by Smith (*2*) and Zegeer et al. (*6*).

Safety Evaluation Procedure

The safety evaluation procedure (*2,6*) was used on five selected potential byway routes in each of the four states. The survey team, driver, keyboard operator, and equipment operator conducted a safety evaluation on the entire length of each route in both directions. The team used the Commentary Driving Technique (*4*) and gathered field data for use in the accident-prediction equation cited by Zegeer et al. (*6*).

The scenic byway equipment (video camera/DMD/VCR/laptop computer) (*2,3*) was used but with different software and computer-key designations.

Analysis of Safety Data

For expectancy violation locations, the analyst will first identify the potentially hazardous locations from the printout of safety evaluation data. The videotape will be examined at these locations for recorded comments on the nature of the expectancy violation. The video camera should have been panned across the site so that the problem area would be clearly shown on the tape. Following the study of the videotape, it is likely that a trip to the site will be necessary to make a detailed study of the expectancy problem. Contained in Hostetter et al. (*4*) and *Commentary Driving Procedure—A Supplement to the LVR Handbook* (*5*) are sets of helpful worksheets for use in ameliorating expectancy problem locations.

A computer program (BWSAFETY) was developed to calculate the related accidents (i.e., single-vehicle, plus head-on, opposite-direction sideswipe, and same-direction sideswipe AOMY). The program, using the field data recorded via the laptop computer and the section-by-section average daily traffic (ADT) edited via the keyboard will calculate the average AOMY using the accident predictive equation given by Zegeer et al. (*6*). The program, using the field data recorded via the laptop computer and the section-by-section ADTs entered via the keyboard, will calculate the average AOMY as well as the AOMY for each mile of the route. It is expected that a highway agency wishing to use the technique would develop relationships between the predicted AOMYs and that agency's current accident file on similar types of roads. The program allows a number of "what if" games to be played easily and quickly. For example, what if the ADT were to double because of increased traffic caused by byway designation? The ADT could be doubled on each section, thus generating new mile-by-mile AOMYs as well as the average AOMY; the route average ADT could be doubled, giving a new average AOMY for the route. This might be helpful in allaying the fears of a county engineer that designating a county road a scenic byway would rapidly increase the accident rate because of added traffic.

Other "what if" games could be played, such as (a) paving the unpaved shoulders, or (b) widening the roadway by encroaching on the unpaved shoulders (increase lane width while decreasing unpaved shoulder width).

The primary purpose of Zegeer et al.'s accident-predictive equation is to assist in making economic benefit analyses of various road improvements. This allows benefits (i.e., cost savings caused by reduced numbers of accidents) to be compared with the estimated improvement costs.

It should be noted that the accident predictive equation (*6*) was developed for paved roads. It is suggested that the equation be used in the safety evaluations of gravel roads because it is the best accident predictor available. It would be expected that the predicting equation probably underestimates the AOMY on gravel roads.

Safety Recommendations

The following safety recommendations are made:

- The safety evaluation procedure, data collection, and analysis techniques should be used for the safety evaluation of a potential byway.
- Routes that have qualified for byway designation under the scenic quality criteria should have a commentary driving and safety evaluation to identify potentially hazardous locations and related AOMY. A route should be driven in both directions in the safety evaluation because expectancy violations in particular can be considerably different depending on the direction of travel. The commentary driving should be done at typical roadway operating speeds.
- The highway agency, probably the state, should develop relationships between the predicted AOMYs and that agency's current accident file on roads of similar type and volume. Thus a good indication could be obtained from the predicted AOMYs on whether the road is (a) low in number of accidents, (b) about average, or (c) high in number of accidents.

This comparison could work well with the accident-predictive equation in making decisions about whether safety improvements should be made on a route.

DESIGNATION

Nomination of Potential Byways

If there is to be a scenic byway program, then nominations of roads for scenic byway designation can be expected from many groups.

1. Groups or individuals who want their road to be one of the designated scenic byways primarily because of the perceived, and often real, economic benefits of byway designation.
2. The state or a scenic byways task force (private or government entity) could decide it is in the best interest of the citizens to search out, nominate, and designate scenic or historic byways and mark such routes on state maps, as a minimum.
3. There might even be some citizens who have found a lovely scenic road on leisurely sightseeing trip and would like others to know of the route. They would hope that others with similar interests would share their discovered roads so all could easily find the scenic roads in the region.

A well-defined mechanism for receiving and reacting to such nominations should be available.

Byway Designation: Suggested Procedures and Conditions

The Federal Highway Administration (FHWA) under a mandate from Congress conducted a 1990 National Scenic Byways Study. FHWA will use the results of the study in the presentations to Congress on including a scenic byway program in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). A number of case study reports were submitted to FHWA as a part of the 1990 National Scenic Byways Study (*7–12*). Twenty-seven case studies were undertaken and the results are available from FHWA. A summary of *Common Elements of State and National Scenic Byways Programs* (*7*) follows.

Case Studies

How Four States Established New Scenic Byways Programs

State scenic byway programs developed since 1987 in Colorado, Maryland, North Carolina, and Utah are analyzed in this study and the forces that led to their development and shaped their key features are identified. The most successful aspects of each program are highlighted for the future guidance of other states.

In other reports (*8–11*), a number of corridor protection techniques currently in use across the United States are described. A summary of each one follows.

Scenic Resource Protection Techniques and Tools (8)

This study is a primer on scenic resource protection tools for scenic roads. Representative scenic resource protection programs are identified and a range of protection approaches reflecting a broad range of scenic environments are analyzed, developed, and evaluated. The result is an identification of the most effective tools based on broad experience and application.

Protection Techniques for Scenic Byways: Four Case Studies (9)

Devices presently available to protect and enhance historic resources and vistas along scenic byways are identified, described, and evaluated in this study. These techniques involve a wide spectrum of tools ranging from fee simple acquisition to land-use controls. For each of these tools, examples of their application and a determination of their effectiveness are provided. Four scenic roads were selected, based on established criteria. These included the Blue Ridge Parkway in Virginia and North Carolina; Route 75, Sawtooth National Recreation Area in the Sawtooth National Forest, Idaho; Route 5 connecting Richmond and Williamsburg, Virginia; and Route J40, in Van Buren County, Iowa.

Roles of Local Planning Agencies in Programs (10)

Identified in this study are key relationships between local planning authorities and statewide or regional scenic byway programs and informal guidance and information for local planning authorities in support of these programs are provided. Representative scenic byway programs are reviewed as they affect local planning authorities, and key elements are highlighted. Based on these elements, the study indicates effective local planning authority participation in a scenic byway program. Included are an inventory of significant features, scenic corridor preservation and protection management, and related elements.

Creative Landscape Design Solutions in Scenic Byways (11)

Identified in this study are examples of landscape design that accommodate development while enhancing scenic highway environments. Described in the study are design and planning considerations that can help scenic road planners incorporate creative landscape design solutions in scenic byways. Effective landscape design approaches for scenic byways are those that enhance positive and mitigate negative scenic values. Case examples reviewed include Arkansas SH 7 (Harrison to Hot Springs); U.S. 285 (Morrison, Colorado, to Taos, New Mexico); the Colorado Peak-to-Peak Highway (Estes Park to Central City); Oklahoma/Kansas Prairie Route (Pawkuska to Manhattan, Kansas); Texas Seawall Boulevard in Galveston; Texas Hill Country (U.S. 281–290); and Vail Pass (I-70, Dillon to Vail) in Colorado.

Signing and Information

Those who purposely drive scenic byways do so for the pleasure of recreational driving as opposed to trying to get from one point to another.

There are two general categories of scenic byways users, sometimes called byway recreationists:

1. Those who want to find scenic roads in their region for weekday or weekend pleasure driving; and
2. Those who would like to plan a cross-country trip with all or portions of the trip on scenic byways.

These drivers need the following information:

- Road map or guide showing the location of scenic byways;
- Information about the route's scenic, historic, cultural, geologic, vegetative, and other attributes and their level of excellence;
- Whether the road has a paved or gravel surface and how smooth the surface is;
- Whether the route is operational all year or closed in the winter;
- Whether it is suitable for all vehicles or whether larger recreation vehicles or tour buses are excluded;
- Whether it requires a 4-wheel-drive vehicle (there are probably not many such roads in the four-state region for which the study was made).
- What amenities are available along or near the route (e.g., food, fuel, lodging—especially bed and breakfast inns—and historic sites or districts).
- The user will assume that the road is safe enough for reasonably prudent drivers and will expect adequate signing with no expectancy violations, even for a stranger to the road.

Additional Comments

It may not be sufficient to simply mark the byway on a map or brochure. The user must be able to find the route on the map or in the brochure and must be able to locate it while driving in unfamiliar country. Trailblazers could indicate the way to the byway and the beginning of the byway should be marked. The route itself should be clearly marked so that once drivers are on it they do not inadvertently leave it. The end of the route should also be marked and trailblazers placed to help strangers return to major roads. One Byway Project

FIGURE 4 Proposed scenic byway sign.

Advisory Committee member suggested that the mile marker symbols could be little replicas of the scenic byways signs.

Stated on the brochure or map should be the length of the route, surface type, restrictions to travel, and so on, but it should be borne in mind that not everyone gets on the route by preplanning and those who do may not have the brochure or map handy. These may have been left at the last gas stop or in a suitcase in the trunk. In any case, information about the route, any restrictions, its attributes, and so on, should be provided at the beginning of the route by sign at a pullout or by radio. One group promoting the San Juan Scenic Byway in Colorado has prepared an audiotape as a part of their byway marketing program.

If the route restricts the use of larger vehicles, be certain that there is a properly designed and marked turnaround area for such vehicles.

For an excellent brochure on these subjects, see *Utah Scenic Byways and Backways* (*12*).

In a July 1990 conference a consensus was reached, as follows: a nationwide byway sign should have a common background, shape, and other characteristics. Such a sign should meet generally accepted criteria for target value and conspicuity. Each state should be able to contribute its own design to some portion of or supplement to the nationwide byway sign. It is important that a scenic byway sign be immediately recognizable as such. It would be highly desirable if scenic routes and historic routes could be distinguished by a variation in the logo. The authors urge the four states, Iowa, Kansas, Missouri, and Nebraska, to develop one basic logo that is acceptable to all of them (*2*).

Thanks to Joe Mickes, Missouri Highway and Transportation Department, there is a prime candidate: a print of a sign proposed for Missouri's adoption (see Figure 4). Note that Missouri's state bird and flower are depicted. A similar procedure—to use the state bird and flower but leave the rest as it is—could be followed in each state.

Summary

During the byways study, it was tacitly agreed that scenic byway designation of a road would probably be made only after its nomination by some group with a special interest in the road. A primary impetus for developing the quantitative techniques for evaluating byway scenic or historic quality was to ensure that all requests for byway designation be evaluated in a uniform, consistent way to ensure a minimum level of scenic quality. The following recommendations are based on the assumption that a state agency such as the highway department, or perhaps a scenic byways task force, would make the final decision on whether any route receives scenic byway designation.

Suggested Process

The following procedures are suggested:

1. The designating agency should develop criteria and a process for scenic or historic byway designation and also for de-designation if the resources of the corridor are compromised or destroyed. The agency would make the information available to local groups and would provide guidance in preparation for scenic byway designation requests. The criteria should include scenic or historic quality requirements as well as the requirement of a management plan for protecting the resources of the byway after designation.
2. On the basis of the designated criteria, the local group nominating a byway (nominators) would prepare preliminary documentation in support of the route. This should include the description of scenic or historic elements and a proposed resource-protection management plan.
3. The designating agency should review the preliminary request in a timely way. At this time a formal scenic quality study using the procedures described earlier should be made to determine whether the scenic quality rating meets a threshold quality level of, say, 4.0.

If the quality rating does not meet the requirements and there is apparently little that can be done to raise the quality rating or level—for example by cleaning up or screening eyesores, clearing trees for vistas, or providing scenic overlooks—then the designation process would stop. The road would not be designated a scenic byway. The process to this point would be relatively inexpensive to both the nominators and the designating agency. If the quality rating did not meet the requirements but the potential was there for improving the quality to meet them, the designating agency should inform the nominators of the likely effort needed. At this point the designating agency should assist the nominators by suggesting improvement or enhancement techniques, funding sources, or other ways to accomplish the needed improvement. At this point the nominators could decide to continue to pursue designation or withdraw the application.

If the quality was acceptable, or could be made acceptable as noted in the preceding paragraph, then the process would move to the next stage.

4. At this stage the nominators must decide if they can or still wish to implement the required local management plan to protect the scenic and historic resources of the nominated byway.
5. At about this stage in the sequence, a safety study of the proposed route should be made. If the road is local, a safety study should probably have been made just after determining that the scenic quality requirements were met. The costs and methods of financing any necessary safety upgrading could

determine whether the nominators choose to continue to work for byway designation.

6. Assuming that the project continues, a guide signing system should be developed clearly showing that the road is a scenic byway. The costs, who will bear them, and who will design the sign system are important considerations.

7. A byway marketing plan is now necessary. As a minimum, the potential byway user

- Must be informed of the existence of the route,
- Must know enough about the route and its quality and amenities to decide to drive or not drive it, and
- Must be able to find the route and stay on it until deciding intentionally to leave it.

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