

Highways and Outdoor Recreation

HAROLD BRODSKY, The Washington Center for Metropolitan Studies

•THE Sunday drive through the countryside has long been part of the American tradition and is one of the recreational experiences that almost all families can enjoy. Approximately two thirds of American adults are known to have taken at least one drive for pleasure in 1960. Regardless of income, education, age or occupation, "driving for pleasure" is the most popular of all outdoor activities (10, p. 50-52).

On the average, American adults "drive for pleasure" on 21 days during the year. This figure can be compared with "playing outdoor games," or "swimming," which only average 13 and 6 days, respectively. Still fewer activity days are spent in "attending outdoor sport events," or "fishing," or "boating"—all considered to be popular outdoor recreations (12, p. 2). These statistics may, if anything, underestimate the relative significance of the automobile as a source of outdoor recreation since they refer only to the major ways in which recreation time is spent. People who drive to work or travel with a car on business may receive from their trip without reporting the event as a "drive for pleasure." A study cited by the Outdoor Recreation Resources Review Commission (ORRRC) reported that 72 percent of the men and 81 percent of the women surveyed "enjoy driving" (15, p. 19).

To be sure, the term "driving for pleasure" is somewhat ambiguous. In view of the commonly heard complaint that driving is no longer a pleasure because of prevailing highway and traffic conditions, it is possible that some of the respondents to the ORRRC questionnaire may more accurately be expressing a desire and hopeful expectation rather than a realized experience.

The total number of occasions that Americans drove for pleasure during the summer months of 1960 was 872 million. Assuming that highway improvement will continue to make motoring as desirable an experience in the future as it now is, it is expected that this activity will increase two-fold by 1980 (12, p. 220).

"Driving for pleasure" is common to city, suburban, and rural area dwellers almost equally, and there is no evidence that the spaciousness of suburban living in any way diminishes the desire of people for this form of outdoor recreation.

Why is "driving for pleasure" the number one outdoor activity for Americans? In part this is due to the availability of good highways and the high incidence of car ownership (77% of American families owned cars in 1960), and in part because driving can be engaged in with a minimum of fuss, bother, and preparation. It requires no particular recreational skill and can be participated in by the entire family. For the urban dweller it can be an exhilarating experience to drive through pleasant scenery quite different from the normal daily sights. Sight-seeing, with a few stops for picnic lunches or a bit of hiking, is as inexpensive as the cost of gas, oil, and depreciation on the use of the car.

REASSESSING HIGHWAYS AS A RECREATIONAL RESOURCE

Despite the contribution made by highways toward outdoor recreation, highway planners have not always given explicit recognition to the unique problem of developing highways as a recreational resource. The several methods in use by highway engineers for road design and priority programming tend to gloss over the significance of recrea-

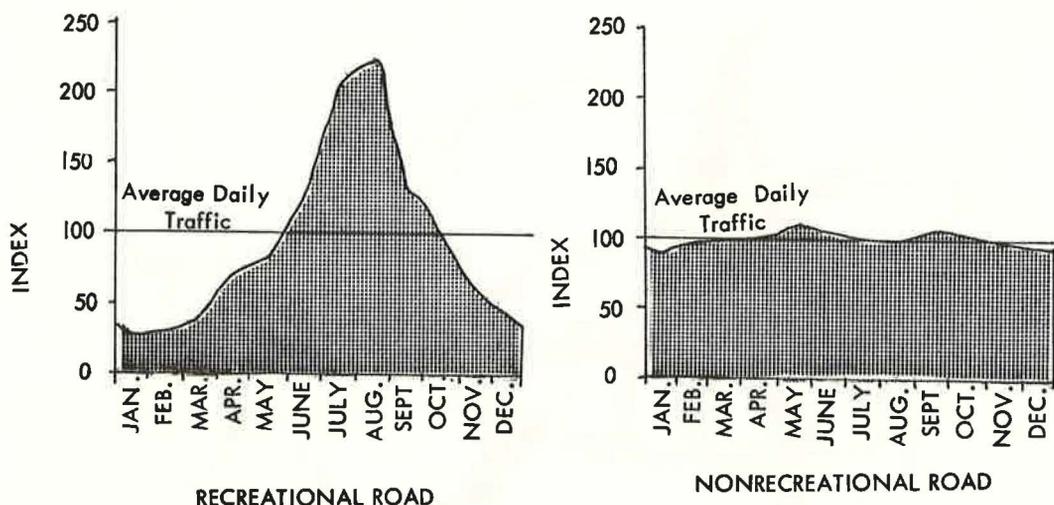


Figure 1. Monthly traffic patterns on a recreational and a nonrecreational road (adapted from 21, Fig. 3).

tional travel. Roads are usually designed to carry volumes somewhat less than maximum reported hourly traffic. Customarily the thirtieth hour from the highest volume of traffic is used as a design standard for the capacity of the road. Although the use of the thirtieth-hour criterion economizes on built-up highway capacity, it tends to be prejudicial to recreational travel since the highest volumes of traffic (particularly on rural roads) usually occur on summer weekends and holidays, periods of high recreational use of the roads.

To establish priority systems for highway improvement, sufficiency ratings are frequently used. These ratings are established to provide objective valuations of priority needs in highway improvement, and thus they keep personal judgment and political pressure to a minimum. However, as average annual daily traffic figures are used in these ratings, there is some tendency for the ratings to fail to reflect the needs of recreational roads. Figure 1, adapted from Wolfe (21), illustrates the fallacy of using average annual daily traffic figures indiscriminately in sufficiency ratings. Average annual daily traffic totals for recreational roads are not a reliable guide for measuring capacity needs.

Traffic flow in itself does not adequately measure the benefits derived from the use of the highway. Recreational travel, because of a higher than average automobile occupancy (about 2.5 persons per auto as compared with 1.7 for most other travel purposes), may be more important per traffic count than other types of highway travel (1, p. 252).

Although data are available to identify roads that have a high usage for recreational travel, few studies of this type have been undertaken. Roads used for recreation usually have characteristic traffic patterns, such as summer and weekend peaking, that may aid in their identification. Thus automatic recorder traffic reports issued by state highway commissions can be utilized to help classify recreational roads. Other types of data may also be useful. A study prepared by the Washington State Council for Highway Research (see Fig. 2) utilized visitor data obtained from National, State and Forest Service parks to delineate those roads that are most likely to serve these recreational areas (14).

Surveys should also be made of the scenic qualities of recreational roads and of the type of protection needed to insure that they remain attractive to travelers. A recent University of Washington dissertation, "The Yellowstone National Park Road System" (11), provides an informative example of the type of analysis needed for this kind of highway planning.

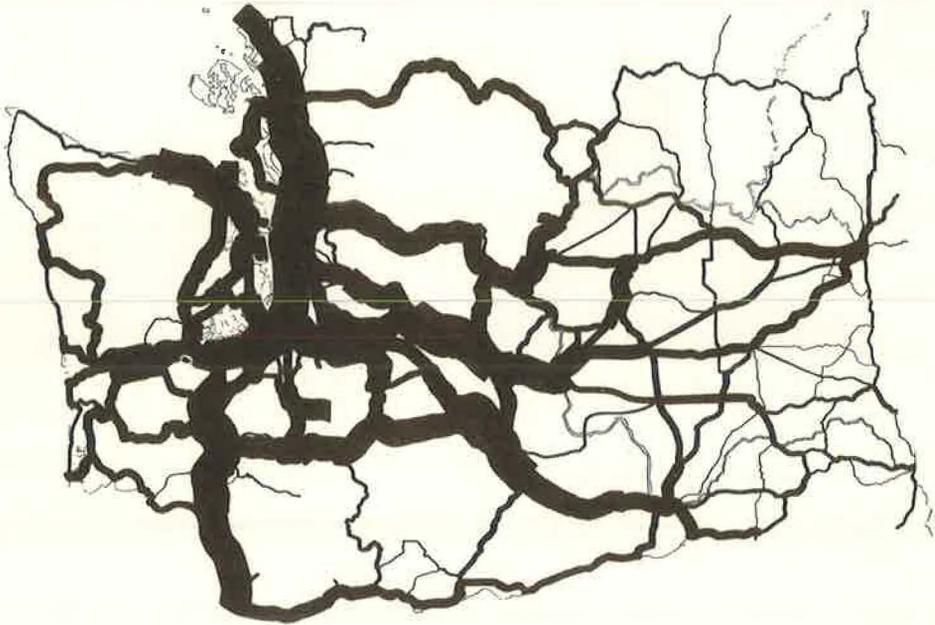


Figure 2. Flow of recreational travelers to state and national parks in Washington State (14, Fig. 19).

HIGHWAY ACCESSIBILITY AND THE CRISIS IN OUTDOOR RECREATION

Much of the talk about the present "crisis" in outdoor recreation may seem paradoxical. Although many of our parks are far too overcrowded, there are also many that are under-utilized. Improving accessibility to the less frequented parks may be a key factor in solving the recreation problem in the years ahead.

Although Americans take to the highways for a large part of their outdoor recreation, this does not necessarily mean that they enjoy driving long distances. On weekends and all-day outings the majority of motorists will limit their driving time to about a four-hour road trip, an indication that farther driving may be too much of an effort, or that any additional time spent in this way may detract from time needed for other recreational activities. High-speed highways can, however, serve to offset distance and driving time and alter the "recreational hinterlands" of major cities. In 1962 it was estimated that New York had an effective weekend recreational hinterland of no more than 120 miles (15, p. 24), while Los Angeles, partly because of better, less congested roads, had a hinterland extending as far as 250 miles (15, p. 4).

To a considerable degree, existing imbalances in outdoor recreational opportunity in the large metropolitan regions are due to the form and location of highways rather than to a physical scarcity of land for recreational use. Often large tracts of nearby vacant land suitable for recreation are not developed because they are not accessible to the mass of people (15, p. 24).

Unfortunately the financial policies that govern the purchase of state parks do not always insure a sound program based on accessibility to population centers and integration with existing highway systems. In his study of the state park system in Illinois, John E. Trotter concluded that inadequate recreational opportunities were partly due to a policy of distributing parks on a sectional basis (16).

IMPROVING HIGHWAYS AS A RECREATIONAL RESOURCE

One of the major deficiencies evident in the use of highways as a recreational resource was revealed in a survey of the roads within 75 miles of the New York City-

Philadelphia axis; here it was found that 86 percent of the scenic roads are relatively unprotected because they are abutted by private land (15, p. 26).

Yet easement acquisition along recreational roads can be used to protect scenic beauty, and has been successfully used in a number of states. The Wisconsin Highway Commission has been acquiring easements along the Great River Road adjacent to the Mississippi River since 1952 (8). By 1961, easements had been acquired adjacent to 55 miles of the highway at an average cost of \$20.66 per acre (in contrast to a fee simple cost of land for roadway purposes of \$41.29). Scenic easements are highly flexible legal tools which may be used to prohibit some or all activities such as dumping of any refuse, erection of or alteration of buildings, and commercial and industrial uses of land and buildings. The control zone in Wisconsin usually extends from the highway center up to 350 feet on either side of the road. Of the first 234 parcels of land acquired in Wisconsin, only 43 had to be condemned; and the reason for the condemnations was dissatisfaction with the price offered, not disagreement over the necessity of acquiring rights to the land.

Wisconsin plans to spend \$2 million in the ten years between 1961-1971 to obtain additional scenic rights along highways. On the basis of previous costs it is estimated that more than 3,000 miles of roadway can be protected. There are several economic advantages to the acquisition of less-than-fee rights. The land is left in private ownership and usually continues in its present productive use. From the point of view of local government it still remains on local tax rolls, although perhaps at a reduced valuation.

Many of the recent proposals for outdoor recreation and open space have recommended "open space systems" in preference to the haphazard spotty development of parks characteristic of the past or to the static concepts of encircling and confining green belts surrounding urban areas. Open space systems emphasize the importance of linear, continuous stretches of scenery and park land especially adapted to scenic highway design along rivers and flood plains. Ribbon development of recreational areas along highways permits maximum diversity and most efficient use of outdoor resources.

Numerous suggestions have also been made on the incidental ways in which highways could better contribute to outdoor recreation (17). Abandoned highway gravel pits could be dug to groundwater level to provide attractive shallow lakes (19). Highway departments could do a great deal more to provide well written leaflets describing scenic routes in the state. Local roadside transmitters could be used to broadcast information of interest to travelers concerning the area they are passing through (2). Road cuts through rock could provide exceptional examples of geological structure. With the help of a geologist and perhaps a sculptor, rock areas could be carefully exposed so as to reveal their full aesthetic and scientific value. Marked by descriptive signs, several roadside stops of this sort could provide the elements of an outdoor museum.

Highway planners should be constantly on the alert for developments that may affect fish and wildlife. Coordination with fish and game departments may reveal the unfavorable effects of acquiring rights-of-way across wetland areas that are natural habitats for important wildlife. On the other hand, it may be possible to contribute to fish and wildlife resources by creating artificial lakes and ponds with excess highway fill.

The establishment of marked scenic routes can stimulate the use of less frequently traveled roads, and thereby relieve some traffic congestion problems. Many of the most interesting roads in America are little known to the public (7), but recreation and tourist travel have been shown to respond easily to promotion (13, p. 193).

It is evident that the Interstate System, which will carry a large portion of the long-distance recreation and vacation travel, will create a need for camping sites near the road. At present, however, there is no overall plan to cope with this problem although camping sites developed adjacent to the Interstate System would greatly diminish the need for expanded facilities in National and State Parks and National Forests, and would provide the type of services most needed by the recreational traveler. For this reason, additional Federal funds should be allocated for a system of parks and camping grounds to be built in coordination with the highway program.

TYPES OF OUTDOOR RECREATION AREAS AND HIGHWAY ACCESSIBILITY

Classification of various types of outdoor recreation facilities is necessary for establishing a better understanding of the problem. By providing a standard terminology

for communication, related topics can be isolated from a broad and diverse field for intensive study.

Clawson divides outdoor recreation areas into three main categories: (a) user oriented, (b) intermediate, and (c) resource-based (3).

User oriented areas are characterized by their close proximity to heavily populated areas and by their intensive use, daily and on weekends. Clawson estimates that the demand for such land will increase seven-fold by the year 2000 (6, p. 94). However, in many cities land is either no longer available for city parks or is so expensive as to be prohibitive.

Intermediate areas are state or county parks or other public areas set aside for weekend and all-day outings. These need only be within two hours travel distance or 100 miles, or less, of urban areas, and require only modest provisions for hiking, picnicking or swimming. The demand for such areas is expected to grow rapidly, while the possibilities for expansion are fortunately fairly good if adequate foresight and planning are given to the problem. Most urban areas still have considerable amounts of vacant land within one or two hours driving time.

Resource-based areas are natural or historic sites of unusual quality. Many of our national parks fall within this category. Location may be a relatively unimportant consideration in the acquisition and preservation of such areas because people are usually willing to travel long distances to unique sites such as the Grand Canyon or Yellowstone. It is unlikely that resource-based areas will show significant increases in acreage in the future since most of the unusually scenic and historic areas in the United States have already been acquired.

As the demand for outdoor recreation increases, recreational planners are expected to turn to intermediate type areas as a prime source for new land that can be acquired inexpensively and almost without limit. Clawson estimates that intermediate areas which presently provide only about one-sixth of the available acreage for outdoor recreation will have to provide more than half of the acreage necessary for adequate recreational facilities by the year 2000 (6, p. 94).

For highway planners the policy implications of the increasing importance of intermediate areas is evident. Accessibility to such areas is governed by the pattern and location of existing and future highways. Recreational planners will endeavor to locate parks near major highways or will try to encourage highway development in areas where desirable recreational land can be acquired cheaply.

The ORRRC divides recreational areas into six major categories:

1. High-density areas, e. g. , swimming beach;
2. General outdoor areas, e. g. , picnic grounds;
3. Natural environment areas, e. g. , forest;
4. Unique natural areas, e. g. , spectacular waterfall;
5. Primitive areas, e. g. , wilderness area; and
6. Historic and cultural sites, e. g. , old church.

High-density recreational areas and general outdoor areas are compatible with highway capacity freeways and throughways; indeed, the mass use of such recreational areas is dependent on their accessibility. An entirely different highway policy is required in primitive areas where limited access and deliberate avoidance of highways are necessary for preservation. Natural environment areas, unique natural areas, and historic and cultural sites can be hampered by being too close to major freeways, especially those that carry much traffic unrelated to the recreational area. Access to them, therefore, should ideally be found at interchanges and through-by roads.

When a recreational area is set aside for nonintensive uses, high-speed paved roads should not be built leading to it. A few entrance miles left as a dirt road may effectively exclude the vast majority of sightseers and casual users of recreational areas while permitting hikers, fishermen, and naturalists the type of solitude they desire.

As the demand for more recreational areas increases, highway officials may find themselves caught in a tug-of-war within the ranks of outdoor recreational groups, especially in regard to wilderness areas (20). The advocates of wilderness preservation will try to discourage highway development into many areas at present inaccessible

by auto, but other recreationists may prefer to see such areas opened to motoring. The problem of preserving wilderness areas is more widespread areally than is generally appreciated. Although only 18 of the 48 contiguous states have land areas large enough (over 156 square miles) to qualify as "wilderness tracts" by the ORRRC, most states do have smaller areas, either in private or public ownership, that are sufficiently isolated from existing roads to provide many of the recreational values inherent in a wilderness. The preservation of these smaller quasi-wilderness areas (sometimes called "wildlands," "natural areas," "primitive areas," or "reserves") are likely to be a source of difficult decision-making and compromise planning on the part of highway officials in the years to come.

ECONOMICS OF OUTDOOR RECREATION

An economic accounting of a recreational resource will not necessarily be the only criterion for the resource's development, but it will provide useful information to be considered in the final decision-making process. Unfortunately recreation is often written off as an intangible asset incapable of economic analysis.

Funds allocated for recreation are most often based on a planner's individual value judgment or on political pressure. Many organizations devoted to the preservation of outdoor recreation themselves base their appeal on vague notions of "conservation," "esthetics," "higher values," or other highly emotionally charged considerations. A careful reading of "Recreation Planning as an Economic Problem" by Robert K. Davis should do much to dispel the notion that a dollar value cannot be put on public recreation (5).

It should be realized by all that providing recreational facilities creates substantial social costs, and if funds allotted for their development are to be efficiently used they should yield benefits that are in some objectively determined way commensurate with costs (9). In the private sectors of a market economy a price system is the method used to allocate scarce economic resources. The public sector should as closely as possible approximate the degree of efficiency in allocation achieved by private means. Some measure of "willingness to pay" for recreational improvements on a highway should be established as a rough indication of the desirability of undertaking these types of improvements.

In some cases, as in the use of camping grounds adjacent to highways, it may be possible to establish direct user charges in the form of an entrance fee or a license. (Such a "license" could provide a key to be used to open a barrier to the grounds). Revenue derived in these ways may capture part or all of the cost of establishing such facilities or at least remove part of the subsidy included in government funds for such a project.

The use of the automobile for outdoor recreation is so inexpensive that alternative means of recreation are not likely to compete even if user charges are imposed on recreational roads in the form of a toll on summer weekends and holidays. (In more precise economic terms, rent is not at present being charged for the use of a highway as a recreational facility.) With modest fees, recreational movement would probably continue at normal volumes despite the added charges. Revenue collected could be earmarked for additional recreational improvements and could be publicized as such (for example, "This toll is being charged so that the state may have sufficient funds to acquire such and such additional facilities").

The willingness of the public to pay a toll for highways leading to recreational areas has some support from studies made on the New Jersey turnpike. It was found that greater use is made of the toll road for vacation travel (tourist and recreational) than for purposes such as social or work trips (13, p. 166).

In the absence of user charges, it becomes more difficult to evaluate the benefits derived from recreation. The current methods used for imputing values are somewhat less than satisfactory. One method uses surveys and interviews in which the public is asked to select among several suggested values for the use of a recreational facility. Another method attempts to evaluate facilities on the basis of some comparable service offered by a privately owned concern. Some social scientists maintain that market

conditions would be simulated in controlled laboratory experiments in which the subjective value to consumers of a resource presently priced at zero could be isolated and evaluated (6, p. 68).

Economists are reasonably sure that no given value to recreation can be assigned across the board. No single value of recreation derived from any study done elsewhere will be of assistance to the highway planner in assigning a value to his particular roadside park (4).

Perhaps the most promising approach to the highway planner's problem is offered in some recent studies undertaken by Ullman and Volk (18). They have demonstrated that a value can be assigned to a recreational facility when that facility results in a net savings of travel cost. Thus, if a highway park offers a sufficient attraction to intercept recreational travelers who would otherwise have to travel much farther, a savings in time and automobile costs can be imputed to the facility. Because highway oriented recreational facilities tend to minimize travel costs, this type of analysis may be widely applicable.

Although the importance of highways in relation to public recreational facilities has been emphasized in this paper, the highway planner should not neglect the value of highways in promoting private recreational areas.

In a study by Moore, it was found that the most frequent complaint among resort owners against local governments was the need for more and better roads. These owners cited poor roads as a major handicap in the competition for the patronage of vacationers (6, p. 151-2).

Recreational areas, both public and private, are a vital part of the economic health of a region. Management consultants usually include nearness to recreational opportunities high on the list of the assets of a region for the location of a new plant, because it has become increasingly apparent that skilled workers and professional people, alike, place a premium on the availability of outdoor recreation. Road builders can do much to develop the recreational potential of a region and the nation, provided highways are recognized as more than a means to an end, and provided full recognition is given to the recreational value associated directly or indirectly with highway development.

REFERENCE

1. Bostick, T. A. The Automobile in American Daily Life. Public Roads, Vol. 32, No. 11, pp. 241-55, Dec. 1963.
2. Clawson, Marion. Implications of Recreational Needs for Highway Improvement. HRB Bull. 311, pp. 31-38, 1962.
3. Clawson, Marion. Land and Water for Recreation. Rand McNally and Co., Chicago, 1963.
4. Crutchfield, James A. Valuation of Fishery Resources. Land Economics, Vol. 38, No. 2, pp. 145-154, 1962.
5. Davis, Robert K. Recreation Planning as an Economic Problem. Natural Resources Journal, Vol. 3, No. 2, p. 239-249, 1963.
6. Economic Studies of Outdoor Recreation. Report No. 24, Outdoor Recreation Resources Review Commission (ORRRC), 1962.
7. Humphreys, J. R. The Lost Towns and Roads of America. Doubleday, 1961.
8. Jordahl, H. C. Conservation and Scenic Easements: An Experiment Resume. Land Economics, Vol. 39, No. 4, pp. 343-365, 1963.
9. Khetsch, Jack L. Outdoor Recreation Demands and Benefits. Land Economics, Vol. 39, No. 41, pp. 387-396, 1963.
10. National Recreation Survey. Report No. 19, Outdoor Recreation Resources Review Commission (ORRRC), 1962.
11. O'Brien, Bob Randolph. The Yellowstone National Park Road System: Past, Present and Future. Unpublished Ph D dissertation, Univ. of Washington, 1965.
12. Outdoor Recreation for America. Outdoor Recreation Resources Review Committee (ORRRC), 1962.
13. Schmidt, Robert E., and Campbell, Earl M. Highway Traffic Estimation. The Eno Foundation, 1956.

14. State Interest in Highways. Washington State Council for Highway Research (2 volumes), 1952.
15. The Future of Outdoor Recreation in Metropolitan Regions of the United States. Report No. 21, Outdoor Recreation Resources Review Commission (ORRRC) (3 volumes), 1962.
16. Trotter, John E. State System in Illinois. Department of Geography Research Paper No. 74, Univ. of Chicago, March 1962.
17. Tunnard, Christopher and Pushkarev, Boris. The Paved Ribbon: The Esthetic Freeway Design. Man-Made America—Chaos or Control? Yale Univ. Press, pp. 157-276, 1963.
18. Ullman, Edward L. and Volk, Donald J. An Operational Model for Predicting Reservoir Attendance and Benefits: Implications of a Location Approach to Water Recreation. Papers on the Mich. Acad. of Science and Letters, Vol. 47, pp. 473-484, 1962.
19. Wiedmann, Gik. Borrow Pits Can Be Assets. Landscape Architecture, Vol. 52, No. 2, pp. 92-93, Jan. 1962.
20. Wilderness and Recreation—A Report on Resources, Values and Problems. Report No. 3, Outdoor Recreation Resources Review Commission (ORRRC), 1962.
21. Wolfe, R. I. Perspective on Outdoor Recreation—A Bibliographic Survey. Geographical Review, Vol. 54, No. 2, pp. 203-238, April 1964.