Implications of Recreational Needs for Highway Improvements

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●THIS PAPER attempts to establish two major conclusions: (1) the demands of the public for outdoor recreation will create a demand for highway services that will be determinative, as against other demands, for many highways in the future; and (2) most highways are better suited to moving cattle to market than to moving people for recreation.

The use of every major kind of outdoor recreation area has increased regularly and steeply since the war, and often for a far longer period as well. National parks, national forests, Federal wildlife areas, Federal reservoir areas of all kinds, state park systems, and other types of public recreation areas for which reasonably accurate statistics are available show increases in total use approximating 10 percent from year to year—some a higher rate, others a little lower but still in excess of 5 percent. During the war, when travel means were restricted, travel to many areas declined to one-third or so of postwar peaks; but by 1946 the postwar levels had in most cases been regained. Since then, the annual increase has been remarkably steady. For the national park system, for which reasonably good data are available since 1910, the typical increase over this 50-yr period, except for the war, has been nearly 10 percent annually. These rates of increase show no signs of slackening; on the contrary, the rate of gain remains remarkably constant, year by year. And the more recent percentage gains are from a higher and higher base, of course.

BASIC FACTORS UNDERLYING OUTDOOR RECREATION DEMAND

The prolonged and rapid growth in ourdoor recreation stems from four basic factors: population changes, per capita income changes, increases in leisure, and improvement in the means of travel. Each may be examined briefly.

The total population of the United States has risen steadily from 4 million at the first Census in 1790 to 180 million in 1960. The spread across the nation, the tide of immigrants from Europe, the decline in death rates, and the fluctuations in birth rate have all been part of the fascinating demographic story, but cannot be explored here. The rate of increase declined irregularly from about 3 percent annually in the early decades to well under 1 percent in the decade of the 1930's; but has since risen to about 1.7 percent annually, where it seems to have stabilized for the present. The prospect is for substantial further increases in total population, the major differences of opinion turning only on the size of the increase. A total population of 300 or more million by the year 2000 is probable. The dominant, and largely unpredictable variable, is birth rate.

With the great increase in total population has come an equally impressive and significant redistribution of the population over the land. Whereas the United States was once a rural nation, now it is an urban one. About two-thirds of the total population now live in urban areas; the trend toward urbanization continues, and by 2000 82 percent or more of the population will be urban. This urbanization has many implications, economic and social, which cannot be pursued here; but urban people seem to want more outdoor recreation than do rural people, and surely must travel further for it.

A major long-term trend toward higher real incomes per capita is also evident, although over much of the past it has been obscured by price fluctuations and by economic cycles. Nevertheless, the increase has been real and great, as a reading of any contemporary account of life 100 or 50 yr ago will testify. The average rate of increase in real income per capita has been about 1.9 percent annually. Economists are fairly

well agreed that further increases will occur, a doubling of real income, from roughly $2,000 per capita now to roughly $4,000 in 2000, seems probable. As total income rises, that portion available for discretionary spending rises even more. It is highly probable that higher percentage of the larger income of the year 2000 will be spent on recreation than now, and that outdoor recreation will get its share.

Part of increased productivity has taken the form of increased leisure, or at least of reduced work week. One hundred years ago the average work week was 70 hr; today, it is less than 40. The work day has been shortened from 10 or 12 hr to 8 or less, the average work week has been shortened from 6 or 7 days to 5 or less, and paid vacations have become standard for a substantial portion of the total working population. Moreover, many people—both the older and the younger ones—that once would have been in the working force are not there today, but are retired or in school. Further reductions in average work week appear probable, although their timing is uncertain. A major factor, as far as outdoor recreation demand is concerned, is the form of the reduced work week—shorter days, shorter weeks, or longer vacations.

TABLE 1

FACTORS RELATED TO OUTDOOR RECREATION IN THE FUTURE

Item	Unit	1956		1980		2000	
		Amount	Index	Amount	Index	Amount	Index
Total population	Million	170	100	240	141	310	182
Personal income:							
Per capita	1955$	1,630[1]	100	2,525	155	3,660	224
Total	Bil. $	269[1]	100	605	225	1,135	422
Expenditures on all recreation[2]							
Percent of income	%	5.2	100	6.6	127	7.8	150
Total	Bil. $	14.0	100	39.9	285	88.5	632
Time.							
Average work week	Hours	40	100	32	80	28	70
Discretionary leisure per week[3]	Hours	30	100	38	127	45	150
Paid vacation, per worker[4]	Weeks	1.0	100	2.5	250	4.0	400
Total	Million Weeks	70	100	240	343	496	709
Travel:							
Per capita, total	Miles	5,000	100	7,000	140	9,000	180
Per capita, for recreation[5]	Miles	2,000	100	3,500	175	5,000	250
Total for recreation	Billion Miles	340	100	840	247	1,550	456
Recreation visits[6]							
User-oriented:							
Total[7]	Million	1,000	100	2,000	200	3,750	375
Per capita	Visits	5.8	100	8.3	143	12.1	209
Intermediate·							
Total	Million	312	100	1,200	384	5,000	1,604
Per capita	Visits	1.8	100	5.0	278	16.1	894
Resource-based:							
Total	Million	116	100	750	647	5,000	4,310
Per capita	Visits	0.7	100	3.1	443	16.1	2,300

[1] 1955

[2] Using Dewhurst definition of recreation.

[3] Assuming 8 hours for sleep and 6 hours for eating, miscellaneous personal activities, and travel to and from work in 1956. Similar assumptions in 1980 and 2000, but some reduction in travel time as work days per week are reduced.

[4] Dividing total paid vacations by total labor force.

[5] In 1957 approximately 40 percent of all trips were for vacation and pleasure (other than visiting relatives). Travel Survey, 1957, U.S. Bureau of the Census, September 1958.

[6] To public areas only.

[7] Incomplete estimate all years, chiefly an index of actual use.

One need not be reminded of the great improvements that have occurred in travel means over the past several decades. Good highways now criss-cross the land, although more and better ones are undoubtedly needed. The automobile has largely replaced the railroad as a means of human travel. Average per capita travel for all purposes today is more than ten times what it was before World War I. Not all of the increase has been for outdoor recreation, of course, but a substantial portion of the increase has been for this purpose. Further increases in total travel, and in travel primarily for recreation, seem probably in the years and decades ahead.

With each of these four basic factors trending upward in the past, it is difficult if not impossible to estimate the effect of each separately. Each will continue to trend upward in the future, as far as can now be seen. Their combined effect will be large and sustained; but it will vary according to the type of outdoor recreation area.

MAJOR KINDS OF OUTDOOR RECREATION AREAS

There are literally dozens of different kinds of outdoor recreation activities carried on in many different kinds of areas. However, it is possible to group the many kinds of areas into three broad classes, as follows:

1. User-oriented areas, whose dominant characteristic is their close availability to various user groups. Such areas are typically used after school or after work, or by mothers and small children during the day; and typical of such areas are city parks and playgrounds. The individual areas are small. Land characteristics of such areas are not too demanding, if the location factor is met.
2. Resource-based areas, notable for the superb character of their resources. National parks, some national forests, seashores, and similar natural areas fall in this category. Such areas are where you find them. Man can improve them, protect them, use them, but not make them. As a matter of fact, in this country, most such areas lie at a considerable distance from the homes of most people, thus requiring time and money to visit them. As a result, such areas are primarily vacation areas.
3. Intermediate areas, located closer to most users—preferably within one hour's travel time or less—and within this range on the best natural sites available. Such areas also require travel to reach them, but mostly are used on a one-day outing basis. Most state parks fall in this category.

The dominant, almost the exclusive, means of reaching the resource-based and intermediate-type areas is by private auto. Some travel is required to reach the user-oriented areas, but much of this is on foot or by bicycle, because such areas are mostly within ½ mi of most users. The length of the trip and the importance of the travel increase as the type of area shifts to the more distant ones. The effect of improvements in travel facilities will be particularly striking for the resource-based areas, many of which are several hundred miles distant from the homes of many users.

In the past and at present, time and cost of travel are surely deterrents to greater use of some outdoor recreation areas. As one result, some recreation areas are adequate in acreage and capacity to meet their effective demand. Improvements in transportation facilities will lower both time required for and monetary costs of travel. As a result, effective demand will rise for recreation areas along the improved travel routes or at their end. One consequence may be to render inadequate the recreation areas that previously were sufficient. Highway congestion could easily be replaced by park congestion.

The effect of increased per capita incomes will also be most striking for the more distant areas, which in any case cost more to visit than do nearby areas. As discretionary incomes rise, more and more will be spent to reach attractive but distant areas that could not be afforded previously. The effect of increased population will be felt for all types of outdoor recreation areas, perhaps more or less proportionately. The form of increased leisure will affect the different kinds of areas differently. Longer paid vacations will encourage visits to resource-based areas most, longer weekends will have their greatest effect on all-day outing or intermediate areas, and shorter work days will affect the use of user-oriented areas most.

Knowledge of the separate effects of these various forces and their interaction is too meager to enable forecasting of future recreation demand with much confidence. A mere extension of past trends, on a constant annual percentage rate, would lead to truly astronomical figures in another 50 yr. Some flattening of past growth trends, at some future date, seems inevitable; yet no such flattening has occurred to date. Considering trends in the basic factors, trends in past recreation use, and with some "judgment" modifications, the present author has estimated that outdoor recreation demand in the year 2000 would be 10 times what it was in 1956, for all types of areas; and that this would vary from a fourfold increase for the user-oriented areas, to a sixteenfold increase for the intermediate areas, to a fortyfold increase for the resource-based areas. Even if these estimates should prove too high—and there is just as good reason to expect them to be too low—a substantial increase in total demand is virtually certain.

TIME DISTRIBUTION OF OUTDOOR RECREATION

The use of outdoor recreation areas of all kinds is notoriously uneven, time-wise. Many if not most resource-based areas are used primarily or exclusively during the summer vacation season. Many mountain and seashore resorts are open only from late June to Labor Day, and are closed the rest of the year. Other areas get some visitors, but in much reduced volume, during the rest of the year. A few summer areas have developed winter skiing and other snow sports, sometimes attracting crowds as in the summer. Winter resort areas have had some success in attracting summer and other seasonal visitors. But, typically, the resource-based recreation area is developed, maintained, and staffed for the whole year to serve an active demand during less than one-fourth of the year; and even much of this time is used well below capacity in many instances.

By and large, the same situation exists for intermediate-type areas. State and metropolitan regional parks and Federal reservoir areas normally get twice or more the use on Sunday than they get on weekdays; sometimes Sunday use is more than one-fourth of the total weekly use. Sometimes Saturday use is heavy; sometimes no more so than weekday use. A long weekend, such as Memorial Day, July 4, or Labor Day may greatly increase the use of both resource-based and intermediate areas. This is particularly true for a resource-based area such as Yosemite National Park, which lies tolerably close to major metropolitan centers but too far to encourage most users to go for a normal weekend.

In intermediate and user-oriented areas, use varies greatly according to hours of the day. A local playground may be overrun between 3 and 6 in the afternoon, virtually or completely idle all the other hours in the day. A substantial proportion of the visitors to a metropolitan or state park will arrive during the same hours on Sunday afternoon, at that time crowding the area which was far from full earlier in the day.

The highly irregular use patterns, in a time-wise sense, of outdoor recreation areas create many problems. On the one hand, areas are acquired, developed, and managed to cope with peak demands, or else hopeless crowding arises at those periods; but the same facilities and investments lie idle for a major part of the time. Obviously, this extreme peaking in use results in much higher costs per unit of use than would be the case if total use were more evenly spread. On the other hand, it is true that extended periods of low use or idleness do permit the areas to recuperate from the effects of short periods of heavy use.

One consequence of these extremely uneven patterns of use of outdoor recreation areas is the peaking of demand on transportation systems. If one-fourth the weekly use of a park occurs on Sunday and if one-half the arrivals are between 3 and 6 o'clock, then a transportation system to serve them is under-used or unused much of the time. Likewise, highways into summer vacation areas may be largely idle during most of the year. Highway capacity must be determined in large part to meet peak traffic needs; and this in turn largely determines total cost of the highway. Use at other seasons and hours involves no added investment cost and little added maintenance cost; the whole overhead cost must be borne by the peak uses, with the marginal costs of off-peak use very low indeed.

It is impossible within a short paper to present such estimates as can be made, and in any case the available data are too scant to support refined calculations of the peak traffic demands for recreation purposes under different urban and other situations. However, the judgment may be hazarded that in several cities the weekend traffic peaks, primarily for recreation, do now or shortly will exceed the workday traffic peaks primarily going to and from work. Much highway planning in and around our larger cities must soon, if it does not already, take greater account of recreation than of business travel. Highway planning to predominantly vacation areas, such as mountains or seashore, is even more dominated by recreation.

HIGHWAYS AND PARKS

Highways bring people to parks; unfortunately, all too often they take land away from parks. To park and recreation specialists, in fact, the modern highway is the monster which devours their children. All too often parks and playgrounds lie astride the most logical routes, if only physical conditions are considered. And all too often highway planners regard an unbuilt-upon park or playground as though it were in fact unused, and hence logically available for highway use.

The fact is that parks and playgrounds produce large direct values. The fact that most of them are available free or for charges much less then their full value masks their full economic significance. Such measurements as have been made suggest that the larger suburban and closer state parks may well produce direct net incomes attributable to the land and other resources of $1,000 or more per acre annually. In-city parks and playgrounds, usually used more intensively, probably produce much greater values. But these direct values are only a small part of the economic worth of parks and playgrounds. One indispensable hallmark of a desirable residential area or urban community is its parks and playgrounds; without them, the value of all property declines or fails to reach its potential. It is hard to measure the amount of this effect, especially as it applies to a single dwelling or neighborhood. But it seems clear there is a high correlation between adequacy of parks and playgrounds on the one hand and the values of property in the community on the other. It is noteworthy that most slum clearance projects establish, or re-establish, at least some park and playground area, even on the high-priced land with which they are concerned.

Highway planners would do well to consider in the future the values of park and playground areas more seriously than they seem to have done in the past. Highway planners and engineers cannot afford to neglect or be indifferent to recreational values; to do so would alienate large segments of the professional and general publics. A little advance consultation and a little more willingness to listen to the viewpoints of park and recreation specialists and enthusiasts would go far toward reducing the almost universal resentment found today among such groups, directed toward highway specialists generally.

PHASES OF RECREATION EXPERIENCE

Thus far, this paper has been concerned almost entirely with the quantity or volume of outdoor recreation, and its relationship to highways. But, as every economist realizes, quantity is only one dimension of economic value; quality is the other, and equally important, dimension. Quality of recreation experience is harder to measure than quantity; the latter is at least approximated by entrance statistics. But what do recreationists get out of their park or playground visit or activity? What relationship, if any, does the kind of highway transportation have to the quality of the recreation experience?

Most discussion of recreation seems to assume implicitly that the whole recreation experience takes place on the physical site of the playground or park. This is definitely not true. Recreation experience, like any other human experience, is largely a subjective matter—part in the mind of the participant, part conditioned by the events around him. The whole recreation experience (for a day's outing in a state park, for instance) consists of five rather clearly distinguishable parts, as follows:

1. Anticipation—The individual or the family plans its outing, more or less formally and thoroughly. In talking about where to go, what to do, what to take, etc., the group may get many psychic satisfactions. In fact, in some instances the anticipation may far outrun the later reality. More trout are caught in imagination during the winter, while tieing dry flies, than are likely to be caught the next summer, for instance.

2. Travel to the recreation spot.—For the all-day and vacation recreation, one important aspect is travel. A recent California study indicates the average one-way distance for all-day outings is about 25 mi, and for vacation trips is 75 mi or more. For some national parks, the average visitor traveled 1,000 mi or more, one-way. Travel time, travel costs, and travel satisfactions or dissatisfactions are major parts of the whole recreation experience.

3. On site experiences.—These include the manifold activities which different members of the family indulge in at the park or playground. There is no need here to enumerate the long and diversified list of activities which may be pursued at various kinds of outdoor recreation areas. It should be noted, however, that typically outdoor recreation is a group undertaking, often a family one, and only rarely that of a single individual. When the group is made up of individuals of diverse ages and both sexes, the experiences must be satisfying to each member of the group, or at least tolerated by him or her, or else serious intra-group tensions may well result. On-site experiences are primarily the responsibility of the park and playground managers; unfortunately, they too have often assumed that this was the totality of the recreation experience.

4. Travel back home.—This is unlikely to duplicate the experience of travel to the area, even if the route is unchanged; the people are different, as a result of their experience at the site. In the case of an all-day outing, for instance, they are almost certainly more tired than when traveling to the site. Subjects of minor frustration when traveling to, may become matters of major irritation when traveling back.

5. Recollection.—Many a picnic or vacation has provided conversation material for months after the event. The rainstorm or the mosquitoes which were so annoying at the time may come to have major recollection value. Everyone can recall many outdoor recreation experiences, stretching over months and years in the past. Unless such recollections are pleasant, further outdoor recreation will be undertaken hesitantly. But for many people, recollection provides the richest and greatest rewards from outdoor recreation.

Highway specialists are obviously mostly concerned with the second and fourth parts of the total experience—the travel parts. Travel, per se, may range from highly enjoyable to neutral to an unpleasant necessity. As far as the author knows, there has been almost no direct evidence on how people regard travel—whether as a satisfaction or as a bore. Some users of outdoor recreation areas report they came primarily for the trip, including the kind of sightseeing which they can do from a car, so presumably this fraction of the population finds travel itself satisfying. In the author's youth, there was an evening or a Sunday drive whenever possible, for the sheer satisfaction of the automobile ride; but his younger children would laugh if a ride for pleasure were suggested. They will travel to get somewhere they want to go, but not ride merely for the sake of riding. There is almost surely a spectrum or a frequency distribution of attitudes toward travel as such; but the author cannot prove that the center of the spectrum or the mode of the frequency lies at a point of mild dissatisfaction but tolerance toward the travel parts of the total outdoor recreation experience.

TRAVEL SATISFACTIONS AND HIGHWAY PLANNING

The second main conclusion stated at the beginning of this paper is that modern highways are better suited to moving cattle to market than to moving people for recreation. The modern highway, especially the modern superhighway, is an elegant means of moving goods and people physically; the curves are smooth, the road surface is supersmooth, stoppages are at a minimum, and maximum distances can be traversed in minimum time. But they are also completely devoid of intellectual stimulation or emotional content. The astronauts who must some day travel for days on end through

space, with nothing to do and with only the most limited physical movements, would do well to train by long superhighway trips, where the conditions are remarkably similar. The view is monotonously bland; the driver can do nothing but drive, and the passengers can do little more. The radio offers weak escape. But the travel is often a major part, time-wise, of the whole recreation experience.

Any stretch of America has unique natural resources, unique history, significant present culture and economy. Why cannot some of this be brought to travelers? Some, of course, enjoy the nothingness of highway travel, but others would genuinely appreciate an opportunity for intellectual refreshment, if not solid meat.

The average urban dweller of today knows remarkably little about the rural landscape he sees. He may not know one farm crop from another; he will almost surely fail to distinguish a highly improved farm pasture from nondescript weeds and grass. He may not know one kind or breed of farm livestock from another. Land forms and features, such as moraines, escarpments, rivers, lakes, and the like, may have little meaning for him. He may be able to distinguish a steel mill from an oil refinery, but he is most unlikely to know why gas may be flared from either. Unless he is extraordinarily well informed, he will get no hint of educational or governmental characteristics of the districts and regions through which he passes.

But the author suggests that a significant proportion of all highway travelers would be interested in some of these matters, or in others that could be listed. Given the chance, many would be genuinely interested to learn something significant about the country they were passing through.

Highways are designed not merely to move goods and people at lowest cost, but also with an eye to their comfort and their satisfactions. Matters which are standard practice in highway design and construction today would have been considered unacceptably elegant and extravagant 25 yr ago; and standards of that day in turn were far beyond those of 25 yr earlier. Times change, and so do the ideas of what is good transportation. The author suggests that more thought be given to what the trip does to the user's mind.

REFERENCES

1. Clawson, M., Held, R.B., and Stoddard, C.H., "Land for the Future." Ch. III, The John Hopkins Press (1960).
2. Clawson, M., "Statistics on Outdoor Recreation." Resources for the Future (1958).
3. Clawson, M., "The Crisis in Outdoor Recreation." American Forests, reprinted by Resources for the Future (1959).
4. Clawson, M., "Dynamics of Park Demand." New York Regional Plan Assn. (1960).

Discussion

FLOYD I. THIEL, Economist, Highway and Land Administration Division, Bureau of Public Roads—Pointing out the need for highways which lend themselves to recreational activities seems a worthwhile endeavor and one which has resulted in an interesting and thought-provoking paper. Along with all other groups whose activities are related in any way to recreation, highway planners are indebted to the author for what he as accomplished in his studies of recreation. His consideration of the supply and demand for recreation, his recognition of the increasing demand for recreational facilities and the implications this demand has for highways, including estimates of the magnitude of highway use for recreation, are obviously useful for highway planning. The comments which are listed below for the author's consideration involve opinion regarding highway travel effects and pertain only to a few of the nonquantitative implications of his paper.

One of the "two major conclusions (of this paper, that) most highways are better suited to moving cattle to market than to moving people for recreation" seems likely to be subject to considerable misunderstanding. It is entirely possible, for example, that the statement would cause a reader to wonder whether the author appreciates the need for highways which facilitate movement of both people and goods—highways able

to serve a variety of purposes. The wording of this "major conclusion" may very well tend to suggest that the author believes too much concern has been given to "moving cattle to market" (an impression which he surely did not intend to convey), or that he underrates the tremendous and increasing importance of this use of highways.

In establishing his conclusion regarding the movement of cattle and people via highways, the author complains that "the view is monotonously bland" and that modern highways are "completely devoid of intellectual stimulation or emotional content." The "monotonously bland view" referred to is apparently the countryside through which the highway passed. A highway adorned with billboard advertising or roadside stands would be far from "monotonously bland", but it is doubtful if the author desires this. It does seem somewhat ironic, however, that highways, which have often become unpleasant and unsafe because of excessive roadside commercialization, should now be found wanting by a recreationist for the apparent reason that they are not embellished with anything beyond the wonders of nature itself.

Stating that modern highways are "completely devoid of intellectual stimulation or emotional content" seems somewhat extreme. Well-designed bridges, tunnels, and other engineering features of modern highways are surely a source of both "intellectual stimulation and emotional content", to at least some travelers. The author should also remember that one of the primary purposes of modern highways is to permit the traveler to arrive safely with a minimum of emotional stress. It is of course along conventional highways, with their uneven stop and go movement, that high "emotional content" is encountered in highway traveling, though this is surely not what the author is pleading for.

The inference that too much may be expected from highway travel could be drawn from the author's presentation. After all, something is accomplished other than intertainment; namely, movement from one place to another. Perhaps a fair comparison would be between highway travel and other modes of travel. Some people no doubt find any form of travel boring, particularly air travel. And there are of course some activities (for example, talking, singing, story telling, radio playing) which can ordinarily be done better using highways than when traveling by air or rail.

In response to questions, the author presented the interesting suggestions that highway travel could be made more stimulating by (1) literature describing points of interest and by (2) limited radius broadcasting similar to recorded descriptions in modern museums and art galleries. Both of these are no doubt worthwhile. As he says, "Any stretch of America has unique natural resources, unique history, significant present culture and economy." However, the amount of literature available describing points of interest (from auto clubs, local, State, and Federal agencies, private associations and organizations, oil companies, etc.) is now almost overwhelming, as anyone knows who has taken the trouble to request this. It is of course possible that the type or quality of this literature could be improved.

Presenting travelogues on specified wave lengths would perhaps be a worthwhile addition to highway travel in certain areas, but putting such a scheme into operation would appear to be as much the responsibility of recreation and broadcasting people as it does a matter with which highway builders should be concerned. It seems entirely possible, however, that limited radius broadcasting may be useful for highway purposes in the future (for example, for providing motorists with up-to-date information about traffic and road conditions) and perhaps such a system could then also serve recreational needs.

These comments relate to the nonquantitative portion of this paper. There can surely be no disagreement with the author's main thesis: that serious consideration needs to be given to providing highways which can serve the present and future recreational needs. The attention the author's studies have focused on recreational needs and his forward-looking approach in showing the need for analyzing this facet of national life in terms of its implications for travel constitute a real service to highway planning and highway research.