

Information Needs of Interstate Highway Motorists in Iowa

WILLIAM E. GRISWOLD, Systems Analysis and Research Corporation,
Cambridge, Mass.

Iowa's "Infosites" bridged an information gap that did not exist, according to this report on the information needs of travelers on Iowa's Interstate Highways. It is reported that motorists can get the information they need to travel across Iowa by Interstate without relying on Infosites, and advertisers can get their message to motorists without Infosites. The Infosites were built by the Iowa State Highway Commission and leased for operation to Stoner System, Inc., an outdoor advertising agency. The Infosites are octagonal buildings erected adjacent to rest areas to house permanent advertising displays for firms catering to Interstate motorists. Two Infosites were placed on opposite sides of Interstate 80 near Iowa City. They were built in the belief that an "information gap" would result from federal and state laws controlling billboards along the Interstates. In fact, this information gap did not appear to exist. In more than 3,000 interviews with travelers on I-80, over 90 percent stated that they had no difficulty in obtaining information.

Advertisers also showed little interest in Infosites. Only 20 percent of the available advertising space was sold. Direct and indirect operating costs of the Infosites were almost three times advertising revenues. Instead of the expense of an Infosite building, the report recommends that simple bulletin boards protected by a small roof be erected at each rest area. The bulletin boards could fill motorists' need for information about gas, food, lodging, and tourist attractions and would be much cheaper for businesses than Infosites, where advertising rates ranged from \$95 to \$720 per month. Infosite-type centers should be used at gateway points into Iowa, such as Davenport and Council Bluffs, but they should be operated by the Iowa Development Commission as a part of state tourist promotion activities, with only limited participation by advertisers.

•IN JULY 1967, the Bureau of Public Roads, the Iowa State Highway Commission, and Stoner System, Inc., an outdoor advertising company, in a cooperative effort inaugurated a new concept in highway information services. Two information centers were opened at rest areas along Interstate 80 near Iowa City in an experimental program designed to provide travel information of interest to the motoring public.

The Infosite (a registered trademark of Stoner System, Inc.), as the information center is called, is housed in an octagonal building about 30 feet in diameter and provides essentially an indoor form of outdoor advertising. Inside, five of the walls are divided into panels of varying sizes to accommodate the advertising messages of establishments offering lodging or other services to the Interstate Highway motorist. The remaining

three walls are glass and, by offering an inviting view of the interior, serve to attract the visitor into the Infosite. Attractively designed, well-lighted, and air conditioned, the information center is in sharp contrast to the traditional billboard as an advertising medium. Infosites were erected adjacent to existing rest area buildings that house rest room facilities, a telephone, bulletin board, drinking fountain, and other conveniences.

To evaluate the concept, the Iowa State Highway Commission sought answers to the following questions:

1. What types of information are needed or desired by travelers using the Interstate Highway System in Iowa?
2. What alternative media, either existing or new, are available for use in providing the Interstate motorist with the information he desires?
3. How does the motorist presently obtain information, and how effective are media currently used in supplying the desired information?
4. Does the motoring public accept Infosite as a convenient and effective means of obtaining information?
5. Have business enterprises found Infosite effective in communicating with the traveling public?
6. What guidelines should be used with regard to the future development of the Infosite concept?

"Information" was defined for this study as that needed or desired by the visiting motorist, as opposed to the well-informed local motorist. (As a practical means of separating local drivers from visitors, the interview phase of this study was limited to drivers of cars bearing out-of-state license plates. It was assumed that the information needs of Iowa drivers from a distant corner of the state are the same as the needs of drivers from a neighboring state.)

FINDINGS

Motorists' Information Needs

To identify motorists' information needs, we had to ascertain some characteristics of these people. More than 3,000 drivers of cars bearing out-of-state license plates were interviewed at rest areas and off-ramps on I-80 in Iowa. The majority of the respondents were found to be traveling in family groups on extended summer vacation trips. These travelers came either from states contiguous to Iowa or from states with major urbanized areas, such as New York, Ohio, Pennsylvania, and California. They were passing through Iowa on their way to a destination outside of the state and were planning to spend little, if any, time in Iowa. Many respondents were using I-80 in Iowa for the first time; most of the others had made only one previous trip on I-80 in Iowa in an earlier year. Thus, most of the out-of-state motorists interviewed were persons unfamiliar with Iowa, who intended to rely completely on the information system provided on the highway to meet their need for information. Even though 10 percent of those interviewed were businessmen and others familiar with services available along the Interstate, an information system designed to meet the needs of family groups visiting the area for the first time will also successfully inform drivers who are more familiar with the area.

On the basis of our interviews with these out-of-state motorists, we found that their information needs fall into three principal categories: routine, specialized, and emergency.

Routine Needs—The routine needs of the Interstate Highway motorist are those that he can anticipate and that are of interest to a majority of motorists, making it practical for businessmen to locate facilities to serve these needs at intervals along the highway. There are six such needs:

1. Fuel—Where can I buy my brand of gasoline?
2. Food—Where can we eat?
3. Lodging—Where can we stay overnight?
4. Rest—How far to the next rest area, and the next after that?

5. Highway—What is the best way to get there?
6. Tourist—What can we do, and what is there to see?

The first three of these needs are generally served through private enterprise at service stations, restaurants, and motels that locate at points adjacent to Interstate Highway interchanges, generally to be visible to the approaching motorist. In Iowa, attractively designed rest areas are provided at 25- to 30-mile intervals as a part of the Interstate Highway design. Facilities include parking, rest rooms, drinking water, picnic tables, telephone, and an official bulletin board. Highway information is available to a limited extent from the state highway map and official detour map that is posted on the bulletin board. A limited amount of tourist information is obtainable from a display rack on the rest area building that contains brochures furnished by the Iowa Development Commission.

In our interviews with out-of-state motorists on I-80 in Iowa, we obtained a fairly detailed description of what the motorist is seeking in each of the six routine information areas. The standard "Food, Fuel, Lodging—Next Exit" sign leaves many questions unanswered. In the case of fuel, 60 percent of the motorists interviewed indicated that they preferred a particular brand; 71 percent carry an oil company credit card. Information on the availability of a brand is obtained largely from on-premises pylon signs and from jumbo billboards that are set back the required 660 feet from the Interstate right-of-way. On perceiving that he should begin to look for gas, the typical motorist generally begins by passing up competitive brand stations as he looks for a station offering his preferred brand. As the fuel supply dwindles, if he is unsuccessful in locating the brand he is looking for, loyalty bows to necessity, and the motorist turns off at the next station that comes into view. Chief reasons cited as the advantages of using a credit card are the convenience of receiving one monthly billing and the deferment of the requirement for payment to a future month, which leaves more cash available to the motorist for other current expenses.

For most Interstate Highway motorists, meal requirements are less exacting. In the case of family groups on extended vacation trips, which comprised a significant proportion of the total travelers on I-80, the noon meal was generally a very informal affair. About 30 percent of those interviewed planned to eat a picnic lunch, often at the rest area where they were being interviewed. The remainder intended to look for a facility such as a snack bar or cafeteria where a light lunch could be obtained. For supper, a more formal meal was desired, but information requests generally focused on moderately priced restaurants such as those operated in connection with a motel.

For the 10 percent of motorists who were on camping trips, information on the location of campgrounds near I-80 proved especially difficult to obtain unless they happened to have the official Iowa state highway map. For families not camping, information about motels located at points convenient to the Interstate Highway was most often in demand. From a given point, morning requests for motel information centered on cities several hundred miles away. The focus of requests moved gradually closer until mid-afternoon, when information on motels in nearby communities was requested. Drivers generally planned to reach a specific destination each evening, and proved receptive to an offer to set up a confirmed motel reservation in their destination city.

The rest areas located along I-80 in Iowa are extremely well designed and offer many amenities not generally available at rest areas in other states. Although expressing enthusiasm for these thoughtful details, many motorists were not aware that the rest areas are spaced at 25- to 30-mile intervals along I-80. A commonly voiced complaint was that the standard sign "Rest Area—1 Mile" only partially fulfills the motorist's information need; he also wants to know how far it is to the next rest area so that he can decide whether to stop at the area just ahead.

In the case of highway information, most motorists would like to be able to obtain a road map of Iowa. In most cases, however, they are unwilling to detour very far off the Interstate Highway to obtain one, because of their uncertainty about how much time will be required and whether a map can be obtained at a given exit. Once a map is in hand, motorists are most often interested in confirmation of the fastest and most direct route to their destination, together with suggestions on alternate routes that may be somewhat slower but much more scenic.

When a tourist information service is available, inquiries center on what there is to see and do along the way. Even though some motorists are traveling on itineraries planned in advance, others have only a general destination in mind and are especially interested to know of points of historical significance, educational interest, or natural beauty that they could visit along their route.

Specialized Needs—The specialized needs of the Interstate Highway motorist are those that he can anticipate, but that are of interest only to a minority of motorists. It is thus less practical to provide for them as frequently as for routine needs. Examples include specialized information about pets (Where can we walk our dog?); camping (Where can we find a campsite?); supplies (Where can we purchase groceries?); mail (Where can we post a letter?); and hobbies (Where can we hunt for minerals?).

The motorist desiring specialized information may or may not be motivated to make a special stop in an effort to obtain it. Although specialized information requests are of genuine importance to the persons making them, their variety is such that it is almost impossible to anticipate them, making it especially difficult to provide for these requests in advance.

Emergency Needs—The emergency needs of the Interstate Highway motorist are those that he cannot anticipate, but that may result in great inconvenience if information on how to obtain help is not readily available. Examples of emergency needs include car service (Where can we obtain a qualified mechanic?); accident assistance (How do we call the police?); fire protection (Where can I report a fire?); and medical treatment (How can I send for a doctor?).

Emergency needs usually must be met under circumstances different from those applicable to routine or specialized needs. First, the motorist in an emergency is often faced with the loss of the use of his car and is thus unable to travel very far for help. Second, he nearly always is unable to wait very long. Emergency services, if they are to aid the Interstate motorist, ideally must be available anywhere along the highway and with a minimum of delay. Finally, because emergency service facilities are almost never located directly on the Interstate Highway, the motorist requiring such service—unless a state police car stops to investigate—must almost invariably walk to a telephone, or send someone else to a telephone to summon help.

Available Channels of Communication

Four basic channels are available for use in communicating with the Interstate Highway motorist depending on (a) whether he is moving or standing still, and (b) whether the communication is visual or aural. Each of these channels is commonly used to convey certain types of information, as Table 1 illustrates. Table 2 supplies definitions of sign terms used in Table 1.

One of the subsidiary questions investigated was whether or not it would be necessary or desirable to develop new methods or systems of communication to better meet the information needs of the Interstate Highway motorist. Mention was made of electronic

systems that would make it possible to communicate highway information directly to the drivers of cars appropriately equipped. From a technical standpoint, direct radio communication could easily be developed with existing communications equipment. That such means have not been adopted for more general use is due both to their cost and to the relatively effective coverage possible with the communication channels listed previously. Rather than developing new

TABLE 1
AVAILABLE CHANNELS OF COMMUNICATION

Type of Channel	Motorist	Devices Used	Information Conveyed
Visible	In motion	Official highway sign	Highway
		Standard billboard Jumbo billboard On-premises pylon	Food, fuel, lodging
Visible	Standing still	Highway map	Highway
		Poster Bulletin board	Tourist
Audible	In motion	Advertising panels	Food, fuel, lodging
		Car radio	News, weather, time
Audible	Standing still	Telephone	Emergency
		Information agent	All information needs

TABLE 2
GLOSSARY OF SIGN TERMS

Type of Sign	Description
Official highway sign	Standard information sign erected in conformity with AASHO standards. Highway direction signs have white reflectorized letters on green background. Supplementary information (e. g., "Food, Fuel, Lodging") is presented in white letters on blue field and reflectorized only if available at night.
Standard billboard	Commercial advertising sign measuring 10 by 20 ft and located adjacent to right-of-way.
Trailer sign	Commercial advertising message lettered on standard 40-ft highway trailer parked along right-of-way. (Since trailer is not a "billboard," some advertisers feel it does not violate ban on advertising signs.)
On-premises pylon	Outdoor advertising sign mounted on tall tower visible for a mile or more in each direction. (Advertising signs are permitted less than 660 ft from Interstate right-of-way when they are on premises of business establishments doing the advertising.)
Jumbo billboard	Oversized 20 by 40-ft billboard designed to be legible from distances greater than 660 ft.

communication devices, we believe that efforts should be directed toward making more effective use of the basic devices already employed.

To date, it has been the practice to place greatest reliance on signs as a means of communicating with motorists. Car radios, rest area bulletin boards, and wayside telephones have not been widely relied upon as means of communication. Each of the communication devices discussed is simple and effective. Signs, however, have the advantage of providing nearly complete "coverage" of the motoring public. In addition to being easily created and installed, a message on a well-placed sign will be read by nearly all motorists driving past that

point. Radio is a potentially effective means of communicating with the motorist and should be further explored, but it cannot be used to reach the occupants of the one car in ten that has no receiver. Posters, bulletin boards, and advertising panels located at rest areas provide an excellent means of communicating with all motorists who stop there, but not all motorists do. Because most specialized information requests call for an individual response, the telephone is a potentially effective means of answering requests from a number of rest areas at a central facility. That this has not been done is due not only to the problem of cost but also to the fact that existing signs answer most of the motorists' questions. Signs are simple, comparatively inexpensive, and very effective.

Means Presently Used for Communication

One of the premises that led to the development of the Infosite concept was the belief that, because outdoor advertising signs within 660 feet of the right-of-way are banned on I-80 in Iowa, an "information gap" would result. Federal and state laws, it was asserted, have virtually eliminated advertising signs from the Interstate System. Infosite was designed to fill this "information gap" by providing an aesthetically acceptable channel for communication of commercial messages at convenient points along the highway.

In fact, we found that this "information gap" does not exist. One of the principal problems of I-80 in Iowa is not the lack of information signs suited to the motorists' needs, but rather the trend toward an ever-increasing proliferation of legal and illegal billboards.

On the 165-mile segment of I-80 between Des Moines and Davenport, we counted a total of 509 highway signs (363 official, 146 commercial). In either direction there is one sign every $\frac{2}{3}$ mile on the average (254 signs in 165 miles). The motorist driving at the posted Iowa Interstate speed limit is faced with a new sign on an average of about every 30 seconds.

The channel of communication that the majority of motorists stated was their sole source of information while traveling on I-80 was the highway sign, both official and commercial. A minority of motorists stated that they made use of service station maps and/or guidebooks for supplementary information; this practice will presumably continue regardless of any changes made in the information provided through official channels. Thus, there is no shortage of information available to motorists traveling on I-80.

In fact, over 90 percent of some 4,000 motorists interviewed stated that they had no difficulty obtaining the information they felt they required.

The problem we find with the information system on I-80 is not a lack of information, but a lack of controlled information. Specifically, current information controls hinge on whether a sign is commercial or noncommercial. The ban on commercial signs within 660 feet of the right-of-way has not resulted in a reduction of the number of commercial billboards. Convinced that signs are an effective means of communicating with their customers, businessmen have simply placed their billboards beyond the 660-foot limit and, of necessity, made these jumbo billboards several times larger than the former roadside billboards.

Instead of judging signs by whether or not they are commercial in content, we conclude that a more effective kind of control would be to permit, for a fee, advertising that meets rigid aesthetic standards and to enforce removal of uncontrolled advertising. The alternative is acceptance of the continued proliferation of jumbo billboards. Only by offering legitimate channels for communication of commercial messages can the use of less desirable communication techniques be controlled or reduced.

In this context, the Infosite, rather than offering a means of providing information where none was thought to be available, should be considered as one acceptable means of offering an alternative and controlled means of communication for advertisers who will otherwise present their message on a jumbo billboard. Evaluated in this light, a somewhat restructured information center is a potentially effective means of communicating needed information to the motoring public.

Motorists' Acceptance of Infosite

From the point of view of aesthetics and safety, the Infosite represents a dramatic improvement over conventional forms of outdoor advertising. The center is well designed and offers an attractive addition to the rest area complex. Whereas the billboard message must be read in a brief glance away from driving duties, and therefore may contain only a brief message, the Infosite advertising panels permit the motorist to read a much more complete message in safety and comfort and at his own pace. To ensure that Infosite would be a complete success from the motorist's point of view, Stoner System, Inc., has gone out of its way to provide, at its own expense, additional information services that it felt would be of interest to Infosite visitors. Advertising space that is currently unsold, rather than being left blank, has been filled with special information panels depicting tourist attractions throughout Iowa. Since tourist information is one of the needs currently not well fulfilled by the present information system, the limited amount of tourist information provided received especially favorable comments. Rarely, in our opinion, has an outdoor advertiser carried out a project with more taste or professionalism.

Interviews with Infosite visitors reveal that the concept has gained a high degree of initial acceptance as a convenient and effective means of obtaining the limited spectrum of information that is currently available there. Of those interviewed, 99 percent indicated that they had found the information they originally sought, and 96 percent indicated that this information was helpful. But 6 percent indicated that they were disappointed by some aspects of Infosite, and 5 percent said there was information they wanted but could not find. The Infosite was classed as a "good idea" by 99 percent of the persons interviewed.

The chief problem cited by Infosite visitors was the lack of breadth and scope in the information available. The motorists' reaction might be summarized as, "It's nice, as far as it goes." Thus far, Infosite has attracted advertisements only from firms within a limited geographic area. Of the six routine information needs of Interstate Highway motorists, only lodging is covered effectively by Infosite. For each of the information needs covered, too few business enterprises are participating, with the result that the motorists' choices are severely limited.

When the concept was being developed, it was thought of in terms of its attractiveness to persons seeking accommodations in neighboring communities along the Interstate.

Experience has shown that because the Interstate Highway System makes extended

automobile trips practical, most morning inquiries concern out-of-state communities 300 or 400 miles away, where the traveler plans to be that evening. Only in the afternoon do visitors begin to request information about nearby accommodations and restaurants. Thus, as presently conceived, one limitation on the effectiveness of the Infosite is the restriction of its scope to a local rather than a statewide area.

Current Infosite clients number less than 20. Advertising space has been purchased by 12 hotels or motels, 2 service stations, 2 chambers of commerce, and 1 tourist attraction. Of the 6 information needs, only lodging is adequately represented, and then only if the motorist is seeking accommodations in the Des Moines-Iowa City area.

From the motorist's point of view, the Infosite is of limited usefulness in providing fuel, food, lodging, highway, and tourist information. The Infosite experiment does, however, provide four important insights that suggest ways of restructuring the present information system.

1. Small advertising panels at rest areas are effective substitutes for roadside billboards and offer advantages of safety and completeness in addition to being aesthetically superior.

2. Motorists' acceptance of direct-line reservation telephones from a rest area to a lodging establishment is high, and sales generated by such a telephone will more than offset the cost of its installation.

3. Successful operation of a public building located in a rest area along an Interstate Highway requires that a full-time attendant be on duty to safeguard the property whenever the building is open.

4. The choice of location of an Information Center should take into account the fact that motorists' inquiries will cover all communities within a one-day drive beyond the center, not just the area in which the center is located.

Business Acceptance of Infosite

The effectiveness of the Infosite as an advertising medium from the point of view of business enterprises appears to be limited to those establishments whose location and product meet rather narrowly defined criteria. It is no surprise that two-thirds of the advertisers currently under contract at the Infosites are lodging establishments; lodging is the largest single purchase the motorist is likely to make each day and, therefore, the one to which he devotes the most advance planning.

In addition to being effective largely for motel advertising, the utility of the Infosite appears to be even further restricted in scope. Motels of well-known national chains that either have a large percentage of referral business from units in other cities or are clearly visible from I-80 have shown little interest in becoming Infosite advertisers. Their explanation is simply that they enjoy such a high rate of occupancy through advance reservations and from motorists who stop after seeing their motel from the highway that additional advertising is unnecessary. Similarly, hotels located in cities some distance from the Interstate find that Infosite advertising is of limited effectiveness, since most through travelers cannot be induced to detour very far from their intended line of travel for accommodations. However, for a motel located adjacent to an interchange but not visible to the approaching motorist, Infosite advertising can be very effective; the monthly cost of an advertising panel in the Infosite is offset by new business in a few days.

For establishments offering fuel or food, the benefits of Infosite advertising are much less apparent. Purchase of meals and fuel are largely made on an impulse basis when a service station or restaurant is seen ahead on the road. Two service stations have placed advertisements; their message, however, is directed primarily to the motorist requiring road service. The odds of a motorist breaking down within easy walking distance of an Infosite being fairly remote, only one or two calls to the service station have been recorded to date. For retail gasoline sales, service stations rely heavily on on-premises pylon signs that put their brand symbol in a position to be seen by the approaching motorist a mile or more down the road. In addition, the principal oil companies have long used the practice of indicating on their free highway maps the locations of their retail service stations at points convenient to Interstate Highway interchanges.

Except as an incidental part of hotel or motel advertising, restaurant advertising was not attracted by the Infosite format. Restaurants located along I-80 in Iowa are chiefly of the snack bar or luncheonette type, and are often operated as an adjunct to service stations to provide an added attraction to motorists. Visibility of the restaurant from the highway appears to be a prime factor in generating sales, and extensive use is therefore made of on-premises pylon signs by these establishments. Although the evening meal may represent something more of a planned purchase, it is often eaten at the hotel or motel selected, thus making lodging advertising the principal generator of evening meals sales.

One tourist attraction, Amana Colonies, has purchased space at Infosite and apparently has found the results to be quite effective. Founded in 1854 as one of the early experiments in communal living, the Amana Colonies today consist of six farm villages where visitors may observe handicrafts and trades being practiced in the traditional manner and can sample home-cooked recipes served family style in one of several restaurants. Because of the prominence of Iowa as a farming state and the growing interest of tourists in American history, the glimpse of 19th century rural America provided at the Amana Colonies has been popular with tourists. Prior to the opening of the Infosites, the state erected "historic markers" at rest areas on I-80 explaining the historical significance of the Amana Colonies. Official highway signs marked "Amana Colonies" also guide the prospective visitor to the correct exit. Thus, the advertising panel at the Infosite serves primarily to heighten interest already created by official signs. Visitors inquiring about the Amana Colonies at the Infosite were shown an advertising panel displaying a map of the best route from the Infosite to the Amana Colonies and were assured by the Infosite attendant that the Amana Colonies represented a worthwhile tourist stopover. Because there are few attractions worthy of tourists' attention along I-80, it is not surprising that the Infosite advertisement produced a measurable increase in the number of Amana Colonies visitors during the latter part of the summer. However, the success of the advertisement was based in part on the fortunate location of the Infosites a few miles on either side of the Amana Colonies exit, and on the semiofficial aura surrounding the Amana Colonies name, which serves to add legitimacy to the advertising message. In our judgment, Lake McBride State Park and the Herbert Hoover Memorial in West Branch are the only other Iowa tourist attractions along I-80 that could be expected to achieve similar results through Infosite advertising.

From the point of view of the businessman, one of the difficulties with Infosite is a lack of differentiation in the product price range. This occurs in part because Infosite was conceived as an advertising medium that would substitute for the outdoor billboard. Infosite display panels are priced from a minimum of \$95 a month for a 2- by 2-foot panel to \$720 per month for a 4- by 12-foot panel. To date, the largest single purchase has been the 4- by 4-foot panel at \$324 per month. By way of comparison, the monthly rental costs for a jumbo billboard range from \$230 to \$350 per month. Thus, while the basic Infosite panel costs about one-third as much as a jumbo billboard, it reaches only that segment of the total audience that stops at the rest area, or about 10 percent of the total traffic. While the Infosite panels appear to be priced competitively with billboards, there is a gap in the product price range between \$5 and \$95 per month. For \$5 per month, an advertiser may obtain a simple listing of his name and telephone number in a directory positioned next to the telephone. However, unless a visitor's attention is called to the directory by the Infosite attendant, most visitors would overlook it in favor of the attractive back-lighted advertising panels. Lack of a panel priced at, say, \$25 per month has prevented Infosite from attracting advertising by family-run or single-unit business that cannot afford either a billboard or one of the present Infosite panels.

No discussion of the business acceptance of Infosite would be complete without considering its success from the point of view of the advertising agency that has undertaken to operate the center. In the planning stages of Infosite, a chief question was whether or not its advertising concept would prove acceptable to potential advertisers. The experience to date has shown that acceptance is high for businesses falling within the criteria discussed previously. Little initial consideration was given to the question of whether or not Infosite would prove successful from the point of view of Stoner System, which is responsible for its day-to-day operation under contract with the Iowa State

Highway Commission. Because Infosite does not return a profit to the advertising agency, further implementation of the concept is out of the question, and even the continuation of the two experimental units is in doubt.

Because the "information gap" on which Infosite was based was found in fact not to exist, sale of advertising space at the Infosites has fallen far below initial expectations. Furthermore, costs have been substantially higher than anticipated because the original plans failed to consider that an attendant would be needed whenever the building was open.

Each Infosite would provide a gross annual income to Stoner System of \$83,500 if all of its panels were rented. Direct operating costs, including the cost of the lease, wages, utilities, maintenance, taxes, etc., amount to \$24,500 or 30 percent of the gross income. Indirect operating costs (central office personnel, field sales representatives, travel expenses, supplies, etc.) about equal direct operating costs, as in comparable industries.

Current sales of advertising at each Infosite total about 20 percent of the space available. Thus, despite the fact that sales calls have been made on nearly all of the businesses located adjacent to I-80 in Iowa and offering services to motorists, a 50 percent improvement in sales is required to raise income from 20 to 30 percent of potential gross sales, at which point direct operating costs would just be covered. To cover both the direct and indirect operating costs, current sales would have to be tripled, since fully allocated costs amount to 60 percent of the potential gross income. Only if more than 60 percent of the space were sold would any net income accrue to Stoner System, Inc.

The lack of interest on the part of major fuel companies and certain chain motels (already committed to pylon signs and jumbo billboards) suggests that while the current level of sales may be improved upon somewhat, there is no reasonable prospect of tripling the level of sales, as would be required to meet costs. Based on present trends it is unlikely that Stoner System would be interested in continuing to support the Infosite project beyond expiration of its current contract.

CONCLUSIONS

Initially, when the goals of this study were defined by the Iowa State Highway Commission, one of the six steps to be accomplished was the development of a set of guidelines governing the future development and expansion of the Infosite concept. Based on the results obtained to date at the two experimental Infosites, it has become apparent that, although they have made a worthwhile contribution to understanding how the information needs of the Interstate Highway motorist may best be served, they are not self-supporting, and therefore expansion or even continuation of the Infosite concept appears unlikely.

Among the many reasons that made the Infosite approach appear attractive was the fact that it was set up in such a way as to offer the potential of furnishing information to the Interstate Highway motorist at virtually no cost to the Iowa State Highway Commission. The building was constructed by the Highway Commission and leased to Stoner System, Inc., on a basis that recovers the entire cost of the building over the life of the lease. In addition, Stoner System, Inc., pays the cost of maintenance services and utilities, so the only costs to the Highway Commission are administrative costs. If the demand for a medium of communication with the Interstate Highway motorist had been such that two-thirds or more of the advertising space offered for sale at the Infosite was subscribed, the Highway Commission would have succeeded in providing a cost-free information service, and Stoner System would have developed a communications medium uniquely suited to meeting the information needs of the Interstate Highway motorist. This objective is not currently being met, primarily because, despite "antibillboard" regulations, ample opportunity exists for businessmen to reach Interstate motorists by means of outdoor advertising.

It was the intent of the antibillboard legislation to eliminate, or at least severely restrict, the use of outdoor advertising signs along the Interstate Highway system. When the present law against erecting outdoor advertising within 660 feet of the right-of-way was put into effect, it was presumed that no advertiser would be interested in erecting a sign located over 200 yards from its intended readership. The ban has not been

effective, because it ignores the fact that certain businesses, principally motels and service stations, depend for their survival on patronage from travelers using the Interstate Highway; to attract this patronage, they must make their presence known to the potential customer. Because the law provides for no alternative means of communication, they must either violate it or erect a jumbo billboard beyond the 660-foot limit.

Three factors make possible the continuing reliance on outdoor advertising:

1. Loopholes in the present law permit some signs to be erected legally within 660 feet of the right-of-way. The principal exceptions permit signs within 10 miles of a commercial zone and signs on the premises of a business offering services to the Interstate motorist.
2. Enforcement of the ban on signs less than 660 feet from the right-of-way has been haphazard. Effective procedures for determining which signs are illegal and bringing about their removal are only now being developed.
3. The development of the jumbo billboard permits the outdoor advertising industry to continue to offer space to advertisers while conforming with the 660-foot limit.

Even supposing that enforcement procedures bring about eventual removal of most signs less than 660 feet from the right-of-way, under the present information structure the long-term trend is clear: Rather than eliminating billboards, the ban will encourage the use of jumbo billboards, which, from an aesthetic point of view, are even more objectionable than the conventional kind. If this trend is to be counteracted, the total information system should be restructured so as to utilize the best aspects of each of the four available communication channels to communicate to motorists each of their six principal information needs.

Currently, only official highway signs are permitted along the roadside. However, the Infosite experiment has demonstrated not only that commercial signs provide information a motorist wants to obtain, but also that such signs can be aesthetically attractive.

A restructured information system should not attempt to ban all commercial messages; rather, it should establish standards for approved commercial messages and insure the removal of all signs that violate these standards. Probably, the only really effective way of halting the trend toward jumbo billboards would be to amend the current legislation to prohibit all outdoor advertising legible from the right-of-way on the Interstate Highway. Short of this, the jumbo billboard can be expected to remain a permanent part of the landscape. However, its rate of growth can be slowed down if the information system on the Interstate Highway provides the businessman with an effective alternative at reasonable cost.

RECOMMENDATIONS

The following steps are recommended as a means of providing a more effective and aesthetically pleasing information system for Interstate Highway motorists in Iowa:

1. As a first step, whatever action is necessary should be taken to eliminate all illegal outdoor advertising within 660 feet of the right-of-way of the Interstate Highway. On the segment between Des Moines and Davenport, two advertisers account for a majority of all such signs.
2. Standards governing official Interstate Highway signs should be reviewed to identify opportunities where either more complete information can be provided without increasing the present number of signs, or the information presently provided can be displayed with a reduced number of signs. For example, the current practice is to list the distance to an exit on one sign: "Newton—1 Mile," and "Food, Fuel, Lodging—Next Exit" on a second sign. By placing symbols of a knife and fork, a gas pump, and a bed along the bottom of the first sign, the information that now requires two signs could be displayed on one. Moreover, because symbols can be recognized much more rapidly than words, the length of time when each driver's attention is distracted would be reduced.

Similarly, altering the rest area signs to show the distance not only to the next rest area but also to the subsequent one would meet an often-voiced request for more definite information about the choice being presented. The sign "Rest Area—1 Mile" gives the driver no clue of how far he may have to go before reaching another rest area, unless he happens to know that they are spaced 25 to 30 miles apart along I-80 in Iowa. By abbreviating the word "mile," the same sign area could be modified to read, for example, "Rest Areas—1 mi. & 28 mi.," thus providing better information at very little added cost.

3. Pressure on businessmen to use the visible-in-motion channel of communication for food, fuel, and lodging information cannot be expected to lessen unless use of the remaining channels of communication for advertising is permitted. The Infosite experiment has demonstrated that effective use can be made of the visible-standing-still channel for commercial messages, which are not only accepted by the motorist but prove effective for certain types of businesses.

The chief obstacle to continued use of the Infosite approach is that costs exceed revenues, largely because the efforts of Stoner System, Inc., to provide a full-service information center had to be carried out before the market support for such a center could be determined. We recommend that the Iowa State Highway Commission experiment further with the use of the visible-standing-still channel for displaying commercial messages at rest areas, by erecting a display of advertising panels on an outdoor bulletin board. The latter could be either an expansion of the existing foyer bulletin board at the rest area building or a separate board mounted on posts and protected by a simple pitched roof. Signs of this latter type are now in use in Colorado.

One approach to such a display would be to mount an official state highway map in the center of the bulletin board and to sell small panels around the edge to motels and other businesses. Because the outdoor bulletin board could be operated on a much more modest budget than the Infosite, the cost of individual panels would be lower; greater representation from service stations and restaurants would then be more likely than is presently the case. Advertisers' panels could be tied into the state highway map to show the location of each business on the map.

Because the outdoor bulletin board requires no attendant and consumes no utilities, it offers both the highway commission and the advertising agency operating it a more economical alternative to the Infosite. The Infosite experiment showed that businessmen would buy advertising space at an Interstate Highway rest area; the Highway Commission should capitalize on this knowledge to provide for a more balanced information format.

4. An official state highway map offers a potentially effective means of communicating a great variety of supplemental information to the Interstate Highway motorist. We recommend that the policy of the Highway Commission regarding the official map be altered to permit its use for display of a wider variety of information which, although not strictly highway information, is of demonstrated interest to the Interstate Highway motorist. In its 1967 version, the Iowa highway map fulfills most adequately its principal mission of showing the current state of highway facilities, but it largely overlooks the opportunity for communicating supplementary information.

We recommend that the map be redesigned and enlarged to fulfill a broader role. Color should be used more imaginatively to emphasize important features, as is done by South Dakota. Iowa's map unaccountably shows the state in yellow and surrounding states in white, which is opposite of the customary practice on nearly all state highway maps.

In addition to the map's central function as a guide to the location of roads and communities, it can also answer most tourists' questions regarding historic sites and recreation areas in the space available on the reverse side of the map. An example of effective utilization for this purpose is Vermont's official highway map. The reverse side of this map provides a comprehensive listing of state parks and forests, historic places, museums, fish and game information, public golf courses, privately owned camp grounds, community swimming areas, and radio and television stations in Vermont. The advantage of this approach is that it answers most tourists' questions by means of a

single information device. The listing of Iowa radio stations and their frequencies, both on the highway map and on rest area bulletin boards, would be a desirable step toward greater utilization of the audible-in-motion channel for communication to motorists.

For the map to serve as a basic guide to motorists desiring information, a means must be provided for getting it into their hands. Because only a small proportion of motorists will plan sufficiently well in advance to send for a copy by mail, it seems essential that additional outlets be provided. One approach would be to offer the map for sale in vending machines at rest areas for a nominal fee. Although the state highway map has traditionally been issued free of charge, experience has shown that leaving them in a rack unattended leads to abuses in their use. Because the maps are costly to produce, it would seem reasonable to regulate their distribution through vending machines, while still making the state highway map available free of charge at Highway Commission offices.

5. While the foregoing steps are being carried out, we recommend that a continuing evaluation be made of the demand for approved commercial advertising space and the trend in the development of additional jumbo billboards. Should the policy of eliminating illegal billboards produce sufficient demand, we recommend that serious consideration be given to the establishment of state-sponsored information centers at gateway points in Iowa (initially Council Bluffs and Davenport). These should be staffed by competent travel advisers from the appropriate state agencies. All that would be needed to attract large numbers of visitors to such centers would be an official sign reading "Iowa Information Center—State Highway Map." Information centers would most likely serve primarily in the promotion of tourism in Iowa, a function currently the responsibility of the Iowa Development Commission.

At the center, Interstate motorists could obtain assistance in planning their trip across Iowa and suggestions on points of interest where they might want to stop. Because most tourists want information about overnight accommodations, it would be appropriate for the information center to operate a referral service by which motorists could be directed to specific lodging establishments. Because hotels and motels would be the greatest beneficiaries of such a service, they should be allowed to defray the cost of the service through purchase of controlled advertising panels of the Infosite type.

Whereas an information service of this kind is probably best regarded as the responsibility of the Iowa Development Commission, it can only be placed into effect as a part of an overall information system conceived and directed by the Iowa State Highway Commission.

6. Meeting the demand for information on emergency services requires separate consideration, since the motorist does not know that he will need such information until the emergency occurs. At present, motorists in need of emergency services cannot rely on police patrols for prompt assistance, and the cost of increasing the frequency of patrols to cover every point along the highway several times an hour would be prohibitive.

The emergency information problem is, in essence, one of reaching a telephone from which the motorist can communicate his difficulty to the competent agency. The solution lies in making telephones more readily available along the Interstate Highway. The Highway Commission's policy has been not to list "telephone" as a service alongside food, fuel, and lodging, since it is assumed that wherever the latter is available, a telephone can be found; however, because in many emergencies the motorist is deprived of the use of his car, the availability of a telephone at a service station or motel does not meet his particular need. An interim solution would be to include a telephone symbol on the current rest area signs to call motorists' attention to the fact that a pay telephone is available in the foyer of rest area buildings.

In the long run, a more effective solution would be the installation of emergency telephones at half-mile intervals along the right-of-way, as has been done on the Northway between Albany, New York, and the Canadian border. If a telephone system permits less frequent police patrols, the cost of the installation might be more than offset by the reduced cost of highway patrolling.