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An Exploratory View of Tourist Information Systems

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INTRODUCTION

Ross D. Netherton
Commission on Highway Beautification

In this series of comments, collectively entitled "An Exploratory View of Tourist Information Systems," the panel of speakers discusses the application of communication technology to the problem of providing information to motorists during highway travel or at intermediate stops along the way. Patterns of modern highway use, especially on the Interstate System, have increased the complexity of this problem for all concerned with the operation of highway systems. Urgency has been added to the need for improving tourist information services by implementation of the Highway Beautification Act of 1965, which requires States to remove from rural roadsides many outdoor advertising signs heretofore relied for directional information and notice of the availability of local services. Highway beautification thus provides the context for upgrading motorist information as alternatives to roadside billboards.

The opening comments by Paul Arthur review current technology in the field of communications, and note some possible applications to the problem of providing information to motorists on the highway. His conclusions that there are feasible alternatives to reliance on unwanted and unsightly commercial advertising signs for travel information are the basis for suggesting various audio and visual methods of communication which can be or are now being used to provide this information.

Commenting on Mr. Arthur's conclusions and suggestions, Messrs Justis (Vermont), Christenson (Nebraska) and Hampson (Oregon) offer a perspective of their experience in State government agencies which currently have new information programs underway.

AN EXPLORATORY VIEW OF TOURIST INFORMATION SYSTEMS

Paul Arthur
Paul Arthur & Associates

I believe that the problem of providing adequate travel information for tourists is as important a one as is likely to be discussed at any of the sessions of this 52nd annual meeting of the Highway Research Board. I would go on to say that I believe it to be about twenty years overdue. This problem is very real and getting more so -- if only because, as the technology of highway construction becomes more complex, so do the highways themselves. Unfortunately, there is a communications gap between this technology and the road itself. And plunk in the middle of this gap is the driver -- on whose behalf, we ought never to forget, the roads are built in the first place.

Let me be more specific about this gap in communications, if only because there are doubtless some who might be disposed to dispute that there is any such thing. After all, it may well be argued, do we not spend millions on signs to guide the driver to his destination, to warn the driver of potential hazards, to regulate and, in fact, to inform

the driver?

I would, of course, have to agree with all of this. Unfortunately, however, this type of information is almost exclusively oriented towards telling the driver what he is supposed to do, or not to do. It has little or nothing to do with what he may want to know.

The questions that need asking, then, must be these: What is it that he wants to know? And once we think we have the answer to that question, what do we know about the conditions under which he could assimilate and utilize the information he is given? And then there is the matter of his own attitude. Is he willing to stop his car long enough to get this information or is he not? Must the information be free, or is he willing to pay for it?

These are all, it seems to me, vitally important questions. But until we have answers to some of them, until we know as much about the driver and his needs as we do about such matters as field compaction of granular bases and subbases or skid-resistant requirements for highway pavement surfaces, we are getting nowhere in this matter.

Once we do find out the answers to some of these questions, we shall doubtless also find out that we have got to take some radically different approaches to providing information than the relatively simplistic, and essentially visual, sign-oriented approach that has been uniformly accepted up until recently.

My own experience -- which of necessity has been limited to my own practice and the fact that the vast amounts of highway research literature is virtually silent on the subject -- is that the average motorist wants to have the following:

1. tourist information (gas, food, lodging, recreational and other facilities, and other services),
2. credit card information (particularly for gas -- as long as the oil companies persist in their insane resistance to a standard or single credit card, a principle that has long been acceptable in so many other retail areas),
3. a reliable route guidance system (that would facilitate getting him to his destination -- whether this is a question of a thousand mile journey or whether it concerns which intersection to take, in an unfamiliar area, to get him downtown), and
4. a driver aid system (that would provide him with help when he is in distress anywhere on the nation's highways).

The more notable examples of information systems that attempt to cope with at least some of these desiderata make use of the following communications modes:

1. purely visual (signs, maps, guidebooks, etc.),
2. audio (car radio, tape recorders), and
3. combinations of the two under the following conditions:
 1. when the car is in motion (signs, maps, radio), and
 2. when the car is stopped (sign plazas, info centers).

Nearly everything that is being done in this area is the responsibility, and the achievement, of a few groups called Travel Information Councils. These are generally comprised of a mix of private (by which I mean unpaid, unthanked, and unsung) individuals, and dedicated state officials who together valiantly do the best they can to act as a buffer between various unreconciled, and probably unreconcilable, interests: conservatists on the one hand, and oil companies, restaurant - and hotel-keepers, operators of tourist and recreational facilities, on the other.

And again, between the two groups is the motorist who is probably no more anxious than the Council members to see the desecration of the landscape by signs -- but who, nonetheless, in all innocence demands to know where he can buy gas for his car, food for

his family, or where he can stay for the night.

Vermont, Nebraska, and Oregon have Travel Information Councils and have in their different ways achieved a degree of success in meeting the problem of the motorists' need to know.

Vermont and Oregon have established and are trying to implement essentially visually-oriented programs in the face of considerable interference from the FHWA which, rightly or wrongly depending upon your viewpoint, would seem to be unalterably opposed to the establishment of more signs, emblems or anything else than they now have on public highways.

These programs are of two sorts. They rely upon:

1. travel information in the form of signs along the highway right-of-way, to provide the tourist with the bare minimum of information about gas, food, lodging, recreation, cultural, and historic facilities, and other services, and
2. rest areas, with or without enclosed structures, for the dissemination of in-depth information about the same matters.

I have always felt that the FHWA is right, at least in principle, in its strenuous attempts to prevent the further accretion of more man-made visual distractions on the highway -- no matter in how good a cause. As our experience in designing the Vermont sign system demonstrated, 1. There is something inherently inefficient about the sole use of signs for tourist information. If the road network were simple, they would probably work reasonably well. But it is far from being simple and, as a result, a great number of signs may be required to effectively guide a motorist off a primary to a secondary highway and off it to a township road a few miles down which is located the ski lodge he is looking for. In the face of this complexity, a very real problem arises from the fact that the Vermont TIC is (or was) strict in its limitations on the numbers of signs that any given establishment may have. In my time it was, I think, limited to four (two in each direction) each, and this is nowhere near enough to guide a tourist seeking an establishment off the main road.

2. Whether they are well designed or just plain lousy signs are not what people go to see in the country. At the very best, they are a necessary evil. In the cities, however, it is quite different. There we have now come to accept them as an integral manifestation of all the excitement we associate with urban areas. But in the country, the best designed sign can only be an eyesore. A poorly designed one is worse.

3. People being what they are, signs are expensive to maintain. Hunters love shooting at them almost as much as at the animals; vandals steal or deface them, and vehicles are constantly hitting them.

Far more efficient, esthetic and, in the end, less expensive, it seems to me, is the sign plaza or rest area facility. In saying this I am not unaware of the argument that the driver who won't even stop for gas when his gauge registers "E" won't stop for anything so intangible as just plain information. My own strongly held feelings are that if they had no other choice, indeed they would stop.

Accordingly, I felt at the time and I still feel that our only lasting contribution to the on-going nature of travel information in Vermont was the creation of the map - or sign-plazas. This concept, whatever form it ultimately takes, will be with us long after we have abandoned the attempt to use signs only.

If we could but bring him safely to a stop, we could provide the traveler less expensively and with far less damage to the landscape with everything that he needs to know.

We could even provide him, as I attempted without success to do in Vermont, with an information system that he could interrogate (either free or by inserting a dime in the machine). This was essentially a simple telephone installation that incorporated an apartment house-type speaker/receiver and a series of push buttons by which a tourist could be connected directly by voice with the hotel, motel, restaurant or gas station of his choice.

And let us not forget either that if we could get him to stop, we could also give (or sell) the tourist a map and a guidebook which, if they were properly done, could provide him with a first-rate on-board route guidance system -- an electronic version of

of which may come along some day, but at a cost of untold millions of dollars.

Several private enterprise attempts have proven effective and financially successful in providing travel information in the context of rest area facilities. Of these, the best known is Tra-Vel Inc. which is building a network of its facilities across the nation to provide, on a paid-advertising basis general and specific tourist information, particularly on highways located close to urban areas.

Infosite's installations in Iowa were a valiant attempt by an outdoor advertising company to demonstrate that this industry could turn its talents and considerable technological brilliance to other areas than merely vulgarizing our common heritage. Unfortunately, I understand that they have given up the attempt.

On the other hand, Nebraska has attempted to provide its tourists with information combining radio with very few signs and this, it seems to me, is a true sign post pointing to the future.

Working with the Nebraska Broadcasters Association, the Tourist Division has established a network of broadcasting stations along I-80. These stations call numbers are featured on standard-looking FHWA blue information signs in the highway right-of-way. The signs invite a tourist, if he wishes to do so, to tune in to the station when he comes within the range of its signal. The station broadcasts information of a tourist-oriented nature on a run-of-schedule basis. Special three-minute program spots are also scheduled, twice daily, to provide information on road conditions, coming events, attractions nearby, etc. In addition, and this is very exciting, Nebraska has also experimented with tape-recorded guides (to be played over inexpensive portable cassette tape recorders in the vehicles), related to good informative maps and guidebooks.

It seems obvious to me that tourist information should be readily available to whomever wants it. Conversely, it should not be permitted to obtrude (as signs invariably do) on those who don't need or want it. The intelligent use of radio and tape recorders, coupled with an equally intelligent use of maps, guidebooks and a minimum of signage is probably as far as we can go at the moment in terms of total efficiency and effectiveness.

Conrad L. Dudek¹, in his excellent report on a study sponsored by the Texas Transportation Institute states that audio messages are just as effective as visual messages and, when given together, the performance of test drivers was generally even better. He goes on to note how the use of audio messages can avoid extensive signing.

The U.S. Department of the Interior is experimenting with similar devices at Yellowstone Park. Signs at the five entrances read "Entrance Info/Tune radio to 650."

The motorist who wants to, hears a message, generally about a minute in length conveying information of immediate use -- the entrance fee, where to go for accommodation, more information, etc. For example, he is told if the park is full and is advised to stay outside the park for the night. How much better that is for all concerned than having him disgruntledly wandering about in the dark looking for a place to park his camper.

In all of this, and despite continuing apathy and the small inroads made on the overall problem, let us not be unduly pessimistic on account of the frequently revolting driving habits of American motorists. Attitudes are changing at a rapidly accelerating rate and things that a motorist didn't care a rap for a few years ago (pollution, over-crowding, authoritarianism, etc), he very obviously does care about now.

He is not, for one thing, to be counted on to remain as docile as he has been in the past on the subject of his information needs. History has demonstrated to us over and over again that once we discover, and publicly acknowledge, a need -- such as going to the moon -- we quickly develop the hardware to enable us to do so.

Fortunately, much of the hardware for a great leap forward in highway communications is already developed. All it needs to become widely operational is public demand -- and money.

Motorist communications in the future will make multiple use of various technologies (holography, radio, sophisticated visual systems, and computers).

They can be categorized as falling into three main types of system:

1. External visual systems
2. On-board visual systems
3. Audio systems

1. External visual systems will continue to provide many of the motorists' information needs. There will be an increasing reliance upon "third generation" signs incorporating variable messages which can be used to optimize the use of the road, provide advance warnings about traffic problems, atmospheric or road conditions ahead, and so on. Some of them will be equipped with motorist aid phones that will enable drivers to signal for assistance if they are in distress.

The National Advertising Company (a subsidiary of the 3M Company) has already developed its Varicom system which shows tremendous promise for the future -- particularly in the area of traffic control management. Initially, and for obvious reasons (because every new product tends initially to be marketed and used merely as an extension of, instead of a departure from, the medium it replaces), Varicom will be used to close the communications gap that exists between traffic authorities and the motorist. Eventually, it will also be used to provide other aspects of motorist information. Something which it does provide is a motorist-aid phone built into the base of each installation.

Holography is, in popular terms "laser photography" and its application to communications to the motorist has already been established by Mr. Harry Forster Jr. with his Holosigns, a trade mark of the Holograph Corporation. Essentially Holosigns enable the projection of simple or multiple messages in space with no need for a projection surface of any kind. Messages can be variable (from lane to lane) or they may be changeable (from moment to moment, by day or night) at the discretion of the control stations. Such a system has the following advantages:

- ability to locate the apparent message carrier in the most effective way from the driver's point of view, without reference to where second generation signs would be located
- ability to select different messages to any required length of individual lane
- ability to switch directional (or mandatory) messages in phase with changes in lane use
- ability to provide apparent vertical or horizontal movement of the message, according to need
- ability to project messages both behind as well as in front of a single projection source.

In addition, what is called "virtual holography" can be used as extensions of the apparent world to provide three-dimensional information.

The great problem with Holosigns, however, is that teleoptics are so new (and the only practical application so far has been implemented in Germany where they have been used for travel information in a railway station) that we still have not even begun to explore the potential of this brand-new medium. Holosigns are not just a new way of making a familiar product -- with a difference, admittedly. It is a new medium entirely. Charles Babbage's invention of the computer (although he did not call it this) in the mid-nineteenth century had to wait a hundred years before anyone knew what to do with it!

2. On-board visual systems differ from those we have just been describing chiefly in that they require equipment to be installed in the vehicle. This is a considerable drawback to their universal acceptability. Or, perhaps in terms of our subject, in the willingness of the authorities who decide these things, to spend the kind of money necessary to further research, develop and implement these systems.

I say "in terms of our subject" because it doesn't really matter whether all vehicles can receive the signal or not. Some motorists may just not wish to do so. (Unfortunately with conventional signs, however, all motorists must "receive" them whether they want to do so or not.) It is however important that the systems be available to those who do want them and this is where the matter of the motorist's attitude that I referred to earlier comes up. Will he be willing to pay for this installation, or will he not? As of now, we just don't know.

Experimental Route Guidance System (ERGS) proves that I was in error when I alleged earlier that the FHWA was not interested in our problems as motorists. The

Administration has, in fact, sponsored ERGS as "a method of automatically providing drivers with routing instructions at decision points in the roadway network. In theory, these instructions successfully guide a driver along the "best route" to his destination ... The ERGS concept ... would overcome the inherent limitations of highway signs and would communicate information to the individual driver."

The way it does this is spectacular. Easily recognizable symbols and/or words are projected in brilliant orange on the windshield of the car, in line of vision with the driving scene. Actually this method of providing information on the windscreen has been in use for some time now in the aircraft industry, so perhaps the day is not far off when the motorist may benefit too from this system.

A study has been done on its user acceptance and the results showed that 84% indicated they preferred this type of equipment over conventional signs, 15% did not know, and only 1% indicated ERGS was not better. Which must indicate something about the way we are doing things now.

Driver Aid Information and Routing System (DAIR) has been developed by General Motors (also involved ERGS) to assist the motorist with his driving tasks. Not as well known as ERGS, it has an apparently even greater potential so far as travel information is concerned. It utilizes a "combination of visual and audio modes and has a variety of interesting features." Among the most interesting for our purposes are its ability "to communicate with the motorist and provide information on emergency traffic conditions on the roadway ahead, motel accommodations, and service facilities. All this is transmitted from roadside transmitters that contain pre-recorded messages and can also be activated to transmit current emergency messages from the service center."²

There are other on-board systems but these are indicative of the experimental work that has already been done.

3. Audio systems are perhaps the easiest to achieve inasmuch as most vehicles contain AM radios anyway. A very interesting study was presented to the Highway Research Board and published in 1970³ in which it was discovered that of all the ways in which this medium could be used by the motorist, they had a marked preference for information items.

I have already referred to other uses of radio for tourist information in parks and recreation areas and I must stress that these systems are very much less expensive to implement than the on-board visual system I was describing earlier. But like them; they will obviate the need for much of the signing that we are now constantly being exposed to.

I should like to end by making a plea: let us double and redouble our efforts to ensure that of all the millions apparently so willingly spent on highway research, a reasonable percentage should be directed to satisfying the motorist's own needs.

FOOTNOTES

1. Dudek, C.L., State of the art related to real time traffic information on urban freeways, Texas Transportation Institute Research Report 139-2, (College Station, Texas: Texas A&M University, 1970)
2. Ibid.
3. Heathington, K.W., Worrall, R.D. and Hoff, G.D., An evaluation of priorities associated with provision of traffic information in real time, in Highway Research Record No. 336, pp. 107-114, (Washington: Highway Research Board, 1970)