



Transportation Studies: Social Science Approaches and Contributions

Historically, the study of transportation has been the domain of engineers, who are primarily concerned with the physical design and construction of transportation systems. They have been joined by the legal and economic professions, which address such issues as the pricing and regulation of transportation services. More recently social scientists - sociologists, geographers, psychologists and marketing specialists - have begun to examine transportation topics. Transportation issues span many aspects of contemporary life, including land use, employment, pollution, economic vitality and overall quality of life. As transportation issues become more complex, social scientists help us to understand which options and strategies are compatible with individuals, neighborhoods and entire communities.



Problem-Solving Research

Many state and local highway systems are being used at full capacity. New, innovative approaches are needed to solve traffic congestion problems. Social science studies have contributed to transportation planning in the past, and can suggest useful strategies for the future.

ATTITUDES AND BEHAVIOR – Surveys or observations of drivers attitudes and behavior reveal drivers' travel practices, travel demand and willingness to accept alternatives. Behavior-change principles have been used to encourage more use of public transit to relieve traffic congestion and reduce energy use.

HUMAN FACTORS – Design of physical systems includes human factors analysis, which concentrates on person-machine interaction, and relationships of body to space, including vehicle layout and accessibility. Psychologists explore how signage, lane striping and auto interior layout can ease driver decision-making, reducing risks

while driving. This, in turn, can relieve traffic congestion as drivers are less likely to be involved in accidents.

INFORMATION PROCESSING – Emerging geographic location and information technologies are being built into vehicles. Such information tools will make route and destination decisions subject to road and traffic conditions. Cognitive psychologists are interested in how well drivers are able to acknowledge, process and respond to rapidly changing navigation information.

SOCIAL IMPACT ASSESSMENT – Siting of new transportation systems, such as roads or rail lines, can have adverse effects on homes, neighborhoods, and businesses. Displacement and relocation of land uses for new transportation routes can cause psychological and sociological consequences. Social science analyses can suggest routes and procedures to minimize impacts.

Visual Quality and the Roadside - One focus area of transportation social science is roadside visual quality. Federal transportation agencies have developed methods for evaluating roadside scenery, though most applications are in rural or wildland areas. Meanwhile, there are more than



836 thousand miles of urban roads in America's cities (1997, FHA). Given the ever-increasing amount of time that drivers spend on urban roads, more social science research can help to determine the links between roadside visual quality and driving behavior. Several studies are able to tell us what drivers prefer and perceive in the roadside environment.

ROADSIDE IMPRESSIONS – Public opinion about a scenic corridor in California is an example of how social science can be used in highway planning. People judged simulations of proposed roadside residential development for scenic quality. Not surprisingly, people notice increases in built structures in their judgments of roadsides. Values were expressed for the changes. “Cluttered” and “ugly” were terms drivers used to describe roadside development. In contrast, the terms “pleasant” and “beautiful” were descriptions of highway corridors having mostly vegetation.

VISUAL QUALITY AND ROUTE CHOICE –

Another study tested route choices made by people for shopping trips to a nearby shopping center. Two parallel roads provided access to the shopping destination - one was a scenic Parkway route, another a faster and nonscenic Expressway route. Despite the Parkway route taking more time and having more stops, study participants chose the scenic route over the faster route more

than half the time. Drivers reported feelings of relaxation and enjoyed views of nature on the Parkway route. This study suggests positive affects of naturalistic roadways on drivers. The research indicates one strategy for traffic routing in transportation planning.

ROADSIDE COMPLEXITY – A number of studies suggest that complexity in a scene, often expressed as visual clutter, degrades visual quality. Complexity in scenes - created by roadside objects, building density, utility poles, overhead wires and signage - is associated with greater negative response to scenes. Billboards, in particular, are detrimental to visual quality. Research shows that as the density of billboards increases within a section of road there is a corresponding decrease in public opinion of visual quality.



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