

# Design Concepts for the Future

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## NEW CONCEPTS FOR RESPONSIVE DESIGN

•THREE panelists sharing this platform today are responsible for creating multi-disciplinary design teams—a concept for the future that may determine the future well-being of our country's largest cities. Norman Klein leads the urban highway design team for Baltimore, Joseph Passoneau for Chicago, and Archibald Rogers for Brooklyn.

These men are charged with the responsibility of developing a responsive design process that may make urban highways responsive to the needs of people and vehicles alike. Before describing new concepts common to their separate roles in the emerging processes of multidiscipline urban design, let us look back to the conditions out of which these concepts grew.

## THE NEED FOR RESPONSIVE DESIGN

The need for responsive urban design is due basically to the great catalytic impact that large-scale public works like highways have in creating opportunities and destroying existing values as they cut into the urban fabric. Although it is too late for many of our cities, we are now beginning to see urban highways as unacceptable if they are to become "Chinese walls" or mere ditches.

Senator Jennings Randolph (1), Chairman of the Senate Public Works Committee, remarked, when he announced his historic series of urban transportation policy hearings now under way in Washington, that "In many of the cities of our country, great controversy has developed over the route locations and design of segments of urban highways. Experience in New Orleans, San Francisco, New York, Chicago, Seattle, San Antonio, Memphis, Minneapolis, and elsewhere shows either that the laws are inadequate to encourage the full utilization of the opportunities presented by the highways or that the legislative intent to do so is not fully being realized in the highway planning process."

## FAILURE AT RESPONSIVE DECISION-MAKING

Failure in basic decision-making lies at the beginning of nearly all the highway controversies. These failures neglect to take into full account the economic and social values to be created or destroyed. Nashville, Tennessee—just one of several hundred American cities to make front page news of their highway disputes—is a city that illustrates the need for a responsive urban highway decision-making process.

The "Washington Post" (2) reported that "A group of Nashville Negroes won a temporary delay in the Supreme Court yesterday blocking construction of an interstate highway which they claim would wipe out Negro commerce in the city. Justice Potter Stewart issued a brief order that froze construction of a three-mile stretch of Interstate 40 within the city. Highway officials conceded that no economic study was made in the area (although) detailed economic studies were made in other, non-Negro, sections of greater Nashville."

What is at issue in Nashville may be in part a deliberate case of race discrimination. What is certainly at issue, however, is the need to require a combined and comprehensive design and decision-making process that reconciles for all our cities the broadest

possible spectrum of economic and social needs—only one of which in the process of urban highway design is that of automotive transport.

### FAILURE AT RESPONSIVE DESIGN

Design at every scale has become a national political issue. For example, we all now realize that the automobile in its present form stands to be the world's greatest single source of accidental violent death. According to Robert Brenner (3), for every three lives lost in auto accidents due to other causes, one additional life is lost due simply to the backward art of steering wheel design. Similarly, today's automobile engines contribute most to our air pollution, yet, effective remedies have not been designed.

In this age of moon shots and the SST, Americans are certainly not held back by technology in solving such small-scale design problems. The failure must be in deliberate evasion and neglect on the part of us all—from decision-maker to designer to consumer. Evidently no one assumed these types of design responsibilities.

As a rule, in America our large-scale public construction projects have also been designed unresponsively. Until recently human needs rarely have been considered. Thus, in the design of urban highways, "user needs" was merely one of those euphemistic semantic tools that clouded an issue. "Auto needs" were what was meant.

The concept of "user needs" has meant very simply the needs of the automobile system—a system in which the human being is significant either as machinery (termed the "operator") or as cargo (termed the "passenger") or occasionally as an obstruction (termed the "pedestrian"). Meanwhile, the auto did not feel. It did not enjoy, suffer, need, misjudge, overindulge nor did it become attached to neighborhoods, parks, quiet, fresh air—though here the auto does require oxygen—nor for that matter did it design anything.

We cannot blame the auto for becoming the greatest single source of violent death and air pollution; it did not design itself. Yet, the new concepts required in automotive design are ones that involve the focus of our whole system of government, industry, mass media and public awareness.

Given design failure at this colossal scale, it may prove impossible to create new concepts that make design responsive to human needs, but the evidence of some more humane concepts in the development of urban highways may be reason to hope that the entire system of automotive transport may become both responsive to and responsible toward basic human needs. Let us look then at these new concepts.

### THE JOB TO BE DONE

There is a job to be done in urban highway design, yet a problem confronts hundreds of American cities. How does local government deal with a malignant physical environment—an unresponsive environment that has already alienated large segments of society?

We must realize that the point of departure for any comprehensive remedy must be the circulation systems. The life of each city depends on these publically owned transport arteries. A city's physical investments of public and private building are anchored to these systems.

Nationally, a major change is overdue in the process used for selecting transportation corridors, in delineating their specific location, and in executing their design. When freeways are constructed many values (both social and economic) are destroyed and many others are created. Monetary and social consequences can be accurately predicted if a few simple steps are undertaken. However, these opportunities have gone unexplored in a fragmented freeway program. A new process is needed to overcome every city's endemic pattern of controversy between local agencies, business, and neighborhood civic groups over highways. We must succeed in breaking these deadlocks and getting on with the job of building a comprehensive urban transportation system.

Several cities, deadlocked for years and unable to adopt any development plans due to disagreement on almost all basic issues, have turned to a new method of planning in which city officials and citizens participate in a decision-making process that produces

the final design. As one city official put it (4), "It will be a waste of time to work on a new plan without a process for resolving differences, step-by-step, before the work has crystallized into proposals. Consequently, a process should be established in which all agencies concerned can work together, step-by-step, in creating a new mechanism which will lead up a ladder of planning decisions until a plan is developed which will be acceptable to all sides. The ladder of decisions would become an educational process as well as a decision-making process."

#### A NEW CONCEPT FOR DECISIONS AND DESIGN

A new concept has emerged that could apply to any urban planning problem, a three-part planning team which can be funded by 90 percent highway trust funds. It consists of a decision team (city and federal agency representatives), a citizen's or community team (business and neighborhood representatives) and a design team (consulting highway and traffic engineers, architects, landscape architects, economists, sociologists, acoustic engineers, illuminating engineers, graphic artists, etc.). Archibald Rogers has considerably expanded this concept in several recent documents (5).

This plan proved itself in Cincinnati, for example, which had been unable to accept a succession of proposed plans for its downtown for almost ten years. With the planning teams, Cincinnati achieved a downtown plan in less than a year's time that, because of the participation of city officials, was a legal document fully agreed upon in all its detail and ready to be implemented. Because citizen groups were informed and were permitted to advise on all decisions, the plan enjoyed almost total public acceptance (4).

Design decisions are made only after evaluating the full spectrum of costs and benefits. This spectrum includes social factors, real estate economics, potential industrial growth, preservation of historic and open space features, and neighborhood and downtown revitalization.

The evidence is clear that the confidence of our fellow citizens is gained by using design, decision, and community teams. The progress made in Cincinnati, in Rockville and in New Haven indicates the willingness of citizens to bear with a complex working review process in which they can be shown that they are genuinely represented. In varying degree, the governments of Baltimore, New York, Chicago, and Seattle, among others, have seized upon the virtues of this process specifically to deal with their own highway problems. Basically, it can be said to agree with a process recently adopted by the government of the District of Columbia for the National Training School site, a federal surplus property project. In addition, developmental highways for regions are being examined for the opportunities these teams present. A new highway for the Upper Great Lakes Region, for example, may be designed to do more than deliver lumber to market.

The significance of this new approach has been widely applauded in the major hearings currently under way before Senator Jennings Randolph's Subcommittee on Public Roads. Witnesses supporting the team approach before these hearings on urban transportation have already included spokesmen for Urban America, the American Institute of Architects and the professional engineering societies, the American Road Builders' Association and numerous individuals, such as Mayor Yorty of Los Angeles who looks to this process as a means for respecting the citizen's best interests while proceeding with the requirements for new urban highways.

#### A SUMMARY OF RECOMMENDATIONS

It is recommended then that responsive decision-making and design be provided by (a) a decision-making team established, empowered and staffed to implement these design and procedural goals, and that the local government affected determine the specific composition of this team and establish its mission and its procedures; (b) a representative community team established by the local government; and (c) a multidisciplinary design team accepted as the appropriate vehicle to appraise the comprehensive urban free-way system of the locality.

## TOWARDS SOCIALLY RESPONSIVE DESIGN METHODOLOGY

Urban transportation systems that neglect their profound social and economic impacts can no longer be accepted. New concepts for design methodology in these areas, however, have not been pursued, despite enormous investment by the government in highway and other transportation modes.

Ralph Morrill (6) of the University of Alabama compared this neglect of design methodology with the acceptance in our country of the need for progress in the field of health. In a letter to John Eberhard, Director of the Institute for Applied Technology of the National Bureau of Standards, he wrote, "In medicine, doctors have talked the public into paying for their workshops and research centers in the form of hospitals and clinics, in the name of mankind and charity. Have not the urban riots shown people yet that this is a form of 'cancer' that must be treated in physical architectural form with all the implications of social and economic study that proper . . . design is based on?"

In a reply to this issue, Eberhard (7) recently wrote me, "I am fully conscious of our lack of sufficient knowledge and/or analytical techniques for factoring into cost-benefit analyses the impacts which are sociological in nature. There is a huge void which exists between the tools of analyses of engineering economics and the satisfaction of human values. Because this void exists, I do not believe this gives us the prerogative of ignoring value systems that are not presently capable of being measured in an analytic sense."

### URBAN DESIGN METHODOLOGY

The point here is that responsive urban design methodology can be applied today. A specific example is the report of the Potomac Task Force, which the President set up in connection with the Secretary of the Interior and the American Institute of Architects a few years ago (8). I will discuss the job they did very briefly. They attempted to set forth a contextual basis for planning around a river. They identified the river in a different way from any of the previous river studies, such as the Hudson Valley Report (9), by defining the river visually. This they did by dividing it into three sections—the river, the riverside, and the setting—rather than simply saying that the river is the watershed. Then in doing that, they began finding characteristics of these three sections, and they outlined ecological principles. They suggested, for example, some places which should not be developed.

The report on the Potomac is a conceptual framework that would lend itself to a good deal of other technical studies that are coming up or have already been delivered. An example would be Philip Lewis' ecological systems for Wisconsin, which includes his report on the Wisconsin recreation plan. A study being done for HUD on open space land-use controls by Anna Louise Strong (10) would similarly apply. Some of the studies by Tito Patrie (11) in California, or research at the University of Southern California (12) regarding land contours and the way the wind blows, ecology and livability, and the erosion of a site would be applicable. Also the very important Delmarva study of the Conservation Foundation should be mentioned. This is an ecological inventory, one of the first being done (13).

What is being called for, generally, by all the ecologically oriented environmental designers is a wholesale ecological inventory of the country, so that we can know what we are talking about.

This brings me to the transportation corridor study of I-95 in New Jersey by Ian McHarg (14). Graphics were set up that showed on the same map overlays shaded to indicate social values. This was a cost-benefit analysis. One of the values would be topography. Others covered land values, urbanization, residential quality, historic value, and susceptibility to erosion. Thus, they had a composite of all social values in the area. It was an attempt to try to find a rational basis for route selection in a region or state.

McHarg's study happened to be based on an earlier study done in 1962, which was funded by BPR and the State of Massachusetts. This was done by Christopher Alexander and Marvin L. Mannheim (15), and it made extensive use of computer programming.

An MIT report (16) in 1962 was one of the early precursors of the use of the computer, which so largely now is a question of status quo trip generation, and not really based upon potential. For example, what would be the implications of resettlement in new towns on trip generation?

A further example would be the report that Ralph Morrill of the University of Alabama did for the Northeast Corridor Transportation Study (17). He calls this "ROUTE." It, too, is a computer-oriented analysis. It has sections on aesthetics, definition of criteria, and data collection. It tries to integrate the design questions and the aesthetic values that are inherent in any highway route selection process. In addition, there is the TALUS study, which employed the computer; it is for the Detroit region. TALUS stands for Transportation and Land Use Study (18).

A major document, which is going to be published soon (19), was developed by Oscar Newman and Roger Montgomery of Washington University in St. Louis for the city of Chicago. It is an analysis of about a dozen community renewal programs critiquing the methodologies that were used. This report is one of the first to analyze the methodology of what is meant by urban design.

I am sure these inquiries are going to become more important in the decision-making process for the environment, but this methodology is late in coming, and it could have been encouraged considerably more than it was (20). It is very difficult to come by this material. Perhaps a lot could be done to make innovation, such as Ian McHarg's study of two years ago, something that is available to anybody who wants it.

In this connection it should be mentioned that a visual information system is being attempted now at MIT. It is attuned to the idea that design processes themselves are, at base, processes concerned with the handling of information. Called by some "communication theory," this concept has applications in design (how do you represent words, numbers, costs, social values, behavioral needs?) or in transportation or even in stock market evaluations (how do you represent graphically the significances and trends of the day's activity?). It would appear from this that a significant field may be emerging which may enable the creation of design methodologies we now lack.

## CONCLUSION

Viewed as a whole, urban highway planning decisions will determine the form and substance of the entire urban fabric. A constructive approach consistent with a city's real needs for transportation is to employ urban design techniques for comprehensive social and economic analysis. The underlying questions here are not those of traffic volume statistics. They go beyond these to the urban design of cities themselves.

These questions of urban design have been excluded by circumstance from the fragmented process of urban highway planning. Comprehensive urban design analysis is now possible and therefore imperative.

## REFERENCES

1. Randolph, Jennings, Chairman, Senate Committee on Public Works. The Highway as Catalyst, remarks before the U.S. Senate on Nov. 8, 1967.
2. MacKenzie, John P. Nashville Negroes' Plea Halts Interstate 40 Link. Washington Post, Jan. 1968.
3. Brenner, Robert, Deputy Director of the National Highway Safety Bureau. Remarks before the American Association for the Advancement of Science in New York City, Dec. 30, 1967.
4. Barnett, Jonathan, AIA. A New Planning Process With Built-in Political Support. Architectural Record, May 1966.
5. Rogers, Archibald C., FAIA. Organization for Design of Urban Freeway System in Baltimore City—Draft Proposal, June 10, July 20 and Sept. 6, 1966. Also, Exhibit C: Urban Design Policy. Prepared for the AIA for presentation before the Senate Subcommittee on Executive Reorganization of the Government, April 19, 1967. Also, Linear City and Cross Brooklyn Expressway—Plan for Planning Report. For the New York City Planning Commission, Sept. 1967.

6. Morrill, Ralph K., AIA. Environmental Research Associates, Inc., Auburn, Ala. Letter to John P. Eberhard, Director, Institute for Applied Technology, National Bureau of Standards, Dec. 14, 1967.
7. Eberhard, John P. (See Ref. 6.) Letter to Andrew F. Euston, Jr., AIA, Director of Urban Programs, the American Institute of Architects, Dec. 28, 1967.
8. The Potomac. Potomac Planning Task Force report to the President and the Department of the Interior. Washington, 1967.
9. The Hudson. Hudson River Valley Commission report to Governor Nelson A. Rockefeller and the Legislature of the State of New York, 1966.
10. Strong, Anna Louise. Metropolitan Open Space from Natural Process Report. Prepared for the office of the Assistant Secretary for Metropolitan Redevelopment, HUD.
11. Patrie, Tito. Landscape Architecture, 1966-1967.
12. Hurst, Sam T., FAIA. Land Development Control in Hillside and Mountain Areas. Southern California Chapter, AIA, 1963-1964. Also, other researches at the University of Southern California, School of Architecture and Fine Arts.
13. Belknap, Raymond K., and Furtado, John G. Three Approaches to Environmental Resource Analysis. Sponsored and published by The Conservation Foundation, Washington, Nov. 1967.
14. McHarg, Ian L. A Comprehensive Highway Route Selection Method Applied to I-95 Between the Delaware and Raritan Rivers, New Jersey, 1966.
15. Alexander, Christopher, and Manheim, Marvin L., MIT. The Use of Diagrams in Highway Route Location, an Experiment. Prepared for the State of Massachusetts, 1962.
16. Roberts, Paul O., and Suhrbier, John H. Highway Location Analysis—An Example Problem. MIT Rept. No. 5, MIT Press, 1962.
17. Morrill, Ralph K., AIA. Final report on "ROUTE." Prepared for U. S. Department of Commerce, National Bureau of Standards, Institute for Applied Technology, May 1967.
18. Rubin, Irving J. Director, Detroit Regional Transportation and Land Use Study. Major report of 1967.
19. Newman, Oscar, and Montgomery, Roger, AIA. Design in Community Renewal Programs. A critical survey prepared for the Chicago City Planning Commission in 1966 (publication expected in 1968).
20. Euston, Andrew F., Jr., AIA. Exhibit B: Socio-Physical Design Policy. Prepared for the AIA for presentation before the Senate Subcommittee on Executive Reorganization of the Government, April 19, 1967.