

# Freeway Impact on Municipal Land Planning Effort

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● A NOTEWORTHY concomitant of the current Interstate Highway Program has been the emergence of interest in urban planning and highway planning relationships. The literature has been replete with articles on this theme, (1 - 17) and the central statements of needs in this respect have now been presented. It remains to be seen whether or not these needs can be fulfilled.

The conceptualization of the state highway function is now actually in its fourth stage. The first stage, in the 1920's, was essentially the interconnection of urban places, without regard to continuity at the city line. The second stage, in the 1930's led to state highway continuity through urban areas, and more often than not became involved in a plethora of routes in the process. Thirdly, in the decade following World War II, the concept of limited access was evolved and perfected. And now the state highway role is being viewed in terms of an urban-area system, with its impact on land values, land use, and the dynamics of urbanization and city growth itself.

A completely new and rapidly changing arena of thought has come about. Highway and planning agencies are now facing the same degree of difficulty being experienced by the air-frame industry in meeting the demands of the space age.

This paper re-examines some of the factors which impose serious limitations upon the integration of the city planning and highway development processes, and is based on recent research undertaken by the highway research group at the University of Washington (18, 19), as well as visits to many urban areas by the author. It also presents some case studies taken from current research being undertaken at the same institution for the Bureau of Public Roads, a part of which work is oriented to a study of public policy as it has a bearing on highway development.

## GENERAL EXPRESSIONS

Both professional and elected officialdoms concerned with highway and urban development are asserting themselves in favor of comprehensive outlooks, integrated points of view, and cooperative approaches among the various political elements of the urban order.

Typical of these assertions is the first formal finding of the much-publicized Sagamore Conference in October, 1958, which states:

It is essential that all units of government cooperate fully in meeting the urgent needs for highway improvement involving the planning, designing, and operation of facilities, so as to provide optimum transportation service and accomplish the orderly and proper development of our urban communities (20).

Commissioner Ellis L. Armstrong, of the Bureau of Public Roads said, "The Conference stressed that all levels of government should strengthen their support of city and regional planning; that continuing consultation and cooperation are vital. It properly placed responsibility upon local government to prepare a comprehensive plan for the physical development of the community, embracing a land use plan, a transportation plan including public transit, and a program of land use controls. Similarly, it recommended that state highway departments, in cooperation with local governments, should develop a tentative program of urban highway improvement, at least five years in advance, as a basis for planning at the local level; and that this program should be in accordance with a jointly agreed-upon long range plan." (21)

These terms are probably as representative as any to set the stage for discussion. Everyone believes in these general expressions, but a real problem exists in translating them into meaning on the operational level. The first step in this process is to develop a framework for thought and for testing and interpreting real situations.

### NEED FOR PROGRAM REVIEW AND ANALYSIS

The central thesis of this paper is that a large segment of top management of agency personnel in both the urban planning and highway development fields do not have, and are in need of, information by which to evaluate the success or failure of public policy relative to the solution of problems with which they are concerned. There is very little scientifically organized "feed-back" on the success or failure of programs and procedures for advancing the art of coordinated, urban area-wide planning (22). Although the study of economic determinants and economic impact, and the art of traffic projection in terms of land use have progressed rapidly, there has been virtually no advance in the administrative and management fields, and also in respect to coordinating highway and land-use policies.

This paper does not claim to present any solutions that have not yet been posed. It does, however, present some rudimentary suggestions as to ways and means of collecting information for feed-back purposes to aid both in the evaluation of policy and in the conceptualization of the problem. It is an important planning function for the staff or executive level of any planning or highway agency to undertake program review and analysis on a far greater scale than has been done in the past, so that evolving policy will be influenced positively and so that there can be a greater national exchange of information, which can be expected to raise the level of planning service to policy boards and legislative authorities. Without such organized review, only a few subjective viewpoints are exchanged at the national conferences.

### THE FOUR CURRENT FACTORS

Four contemporary factors are presented here to assist in an understanding of highway and urban planning activity. These factors are not presented to criticize any particular set of officials or professional groups. They are presented, rather in an effort to make thinking precise on four categories of the problem in order to understand the facts of the present situation. These factors are phrased as research problems, but they need far more refinement than either the length of this paper or the knowledge of the author permits.

#### Municipal Provincialism

The first factor deals with a new mode of local government which lies beyond rational integration into the regional land-use planning process. Specific reference is made to the "bedroom" or "dormitory" suburban city which has a unified land-use goal structure, consisting of no commerce, no highways and no industry except research and development corporations.

These cities are quick to assume the responsibility of preparing a comprehensive plan for their land-use development. In fact, many have incorporated for the primary purpose of local planning, which usually means having development standards of a more restrictive nature than those enjoyed by either residents of the county or central city. Others have more status in the time and place scale, being centered at older townsites in the suburban fringe. These, however, are in the process of rapid annexation to stop the spread of neighbors or preclude incorporations of adjacent areas.

Although the problems involved in a determination of the "area of appropriate inclusion" (23) for a unit of local government are apparent, nevertheless, there has been a rise of municipal provincialism which often makes for an impossible situation regarding acceptance of the planning efforts of agencies concerned with the solution of regional problems, such as developing a freeway network or mass rapid transit scheme.

There are both logical and absurd circumstances surrounding the formation of and changes in municipal boundaries. There is a need for an hierarchical ordering of the rights to be accorded to various units of local government by state agencies in the ful-

fillment of their area-wide responsibilities, and this can be done only by state legislatures. For example, there are the degrees of sovereignty held by a few hundred people who incorporate in the suburban fringe, with all the rights and privileges of municipal law, as contrasted with a residential neighborhood or precinct in which an equal population must have its goals tempered by city-wide needs.

There is every reason to believe that there has developed a double standard of municipal rights which must now be exposed, examined, and revised, if metropolitan planning problems are to be solved successfully. There is little question that the resident of these modern suburban pocket boroughs is not called upon to exercise full responsibilities of government. He surrounds himself in his state-franchised municipal isolationism and will not even admit of a remote concern with the nearby towns to which he sends his children to school, his wife to shop, or himself to work. It remains to be seen whether state government will confront this problem directly, or if it will continue its fifty-year trend.

### State Limitations

The second restraint which conditions judgment of the qualities of highway planning in relation to urban planning deals with the ambiguous relationship which the state highway agency generally has with the cities within its jurisdiction regarding the development of a coordinated urban transportation network (24).

The first feature of the ambiguity is that on the operational level the state highway agency must accord a different status to different types of cities within the regional complex if it is to be even minimally successful in locating urban routes. However, there is generally no legal and administrative basis for exercising this kind of differentiation.

In most states there is also no legislative or other mandate that the state highway agency develop a coordinated system of limited-access highways and appurtenant traffic distributors within an urban area. Elements of state highway systems still tend to be added on a piecemeal basis by legislative action. With the exception of a few states, the status of urban highway planning as a state agency function is little further advanced than bringing a few specific state routes up to a fair degree of limited-access standard. The state highway agency is thus in the position of usually being only minimally responsible for a coordinated urban freeway system. On the other hand, under the typical system and extent of gas tax subventions by the state to the cities, most central metropolitan cities could build only a mile or so of a freeway-type facility each year, if that much.

### Federal Indirectness

The third factor which has an important bearing on the evaluation of highway development in respect to urban planning relates to the tangential and non-uniform way in which federal interest is brought to bear on the solution of the urban transportation problem. Some major anomalies exist in respect to current federal highway policy in the metropolitan areas.

The urban segments of the Interstate System must actually be planned and designed with a view toward integration into an urban area-wide system of highways. Furthermore, highway officials on the federal level have frequently pointed out that the Interstate System is not designed to solve all urban transportation problems. Nevertheless, the degree of federal interest is so well developed in the major metropolitan areas that it is difficult to determine the opportunity areas left to local units of government in terms of broad transportation planning responsibilities.

This is not saying that federal interest is either too extensive or that general route selection in urban areas is basically faulty. But the limited responsibility of local governments to prepare the transportation elements of comprehensive plans must be acknowledged. In most metropolitan areas the federal interstate routes, either by themselves or in conjunction with state limited-access routes, have fairly well determined the basic framework of the entire urban road network well in advance of the burgeoning comprehensive plans or plan revisions (19). The federal government has entered the urban planning scene indirectly and sooner or later this reality must be recognized.

### Privileged Position of Independent Authorities

Finally in this framework for judging the disposition of the highway and urban planning processes, there is the privileged position of the independent authority. Although the accomplishments of the authorities are impressive, (25) these agencies are usually beyond the limits of local, state or federal supervision once they are organized.

Although the increase of federal activity in the highway field since 1956 has undoubtedly cut down the growth of these quasi-public corporations, the next decade or so may see the emergence of the metropolitan transit authority, the metropolitan planning authority, and the metropolitan transportation authority.

In the operation of existing authorities, there are two primary problem areas to contend with. One is the strong partiality they have for administrative secrecy. Of course, all governmental agencies are faced with the need to get things done, but, when agencies are a part of the operating line or staff structure of general government itself, certain disciplines are imposed which require integration of plans and programs. Also, not being answerable to state government, authorities are usually politically insulated and economically self sufficient. The current public controversy between the Metropolitan Boston Planning Board and the Massachusetts Turnpike Authority exemplifies the problem.

The second problem area relates to the fragmentation of government which the independent authorities further, which in its own way is another form of the current movement curtailing the responsibility of central urban governments.

### LACK OF UNIFORM CONCEPTS

A great deal of thinking is going on in planning and highway circles regarding both the types of land-use control devices which are being applied to freeway approaches and service roads and the determinants underlying these controls. A major portion of current highway economic research currently under way at the University of Washington is addressed to these questions, and several other such projects are being conducted in other portions of the country.

In correspondence and visits to local agencies it became apparent to those on the University of Washington project that government officials did not have any degree of unity of opinion on what the problem is. This observation prompted a somewhat random canvassing of planning and engineering officials throughout the country, with locations chosen to represent varying conditions of urbanization and land development problems.

Nearly 1,000 letters were sent out, including all state highway agencies, all regional and metropolitan area planning agencies, and selected city planning directors and county engineers. The letters were not all the same, but arranged broadly in three classes so that some degree of scientific content analysis could be made. All letters were designed to solicit expressions of opinion along certain lines and test the interest of the respondents.

The details of this survey are too lengthy to present here, but it is apparent that there is a distinct lack of uniformity of conceptualization of the problem even among the respondents from any particular group of professionals or according to the degree of urbanism.

Unlike some of the work done on aspects of the same research problem at Wisconsin recently (26), the University of Washington project was not as specifically interested in what the statutory police power controls were. Interest was in the operational approach to problems of land-use controls by local government. This survey is thought to have been helpful in detailing the dimensions of the problem, and it should be extended to the members of state and local legislative bodies, planning commissioners, highway commissioners, and a few other groups. The framework of police power controls is, after all, related to what legislators and their advisors feel is important, and the controls are only as strong as legislative opinion will support.

Two preliminary conclusions arising from this survey are mentioned here. First, practically everyone is waiting for more information to serve as a basis for land use

control policy. Aside from a handful of replies which treated the problem quite summarily and showed rather inflexible opinions there is a general feeling of concern by respondents from planning agencies that there is not enough data in general, or that local agencies are too harrassed with day-to-day problems to develop adequate criteria on which to build meaningful land-use policy.

Second, many respondents and interviewees from different functional agencies expressed concern over their ability to educate or convince policy-making boards of a course of action even if they did have answers themselves. Also, of particular concern to these officials is the timing of public policy development to meet or even reasonably approach the burgeoning developments imposed by the new urban highways.

To examine the matter more deeply a number of case studies are in preparation, some of which are reported here.

### The Spokane Valley

The Spokane Valley comprises most of the urbanizing area outside of the city limits of Spokane on the eastern border of Washington State. It is a long rectangular area, approximately 3 by 12 miles, running from the easterly limits of the city of Spokane toward the Idaho state line. The area now has a population of 45,000, and at the present rate of growth will double by 1980.

Before 1956 the major transportation route in the valley was US 10 (Sprague Avenue), running from Idaho westward through the city. Although Spokane County has had a planning commission since the late 1930's, and a staff since 1950, US 10 has become almost completely developed by commercial uses in a ribbon fashion. The east leg of the Spokane Freeway now supplants the Sprague Avenue route, in a parallel alignment approximately a mile northward. (Sprague Avenue still carries about the same volume of traffic as it did before the freeway was constructed, however.)

Through the cooperation of the Spokane County Planning Department all re-zoning applications which had relevancy to the new freeway were examined. All of these applications were found to involve one of the four access roads to the freeway, spaced at 2-mile intervals and intersecting the freeway at diamond intersections.

The results of this policy examination are shown in Table 1. Of the eighteen applications for various types of commercial use the planning commission denied only one, and this denial was based on other factors than the protection of transportation routes (Case 9, Table 2). The Board of County Commissioners also approved all actions of the County Planning Commission into the zoning law.

Significantly, in the absence of any frontage roads in the Spokane Valley freeway configuration all pressures for re-zoning were on the county arterials approaching the diamond intersections. These approaches are old local service roads remaining from the early development of the valley into tracts for irrigation farming. In some locations the right-of-way widths are as little as 30 ft.

Questions arose early in this fact finding as to why the official bodies (the county planning commission and board of county commissioners) were so completely permissive in their attitude. The Spokane County planning staff has had excellent direction since its commencement by Jonathan Cunningham, and there is a good spirit of cooperation between the county and state professionals concerned with the effects of land use. An interview with the planning director indicated that virtually all applications for land-use change had been either seriously questioned or advised against on the staff level. Furthermore, there is a substantial respect for the planning director by the board of county commissioners, as disclosed through interview of the board.

Subsequent analysis disclosed that several of the commercial uses approved were tied into general development as much as to orientation on the approach roads to the freeway, and in fact, the performance of the official bodies in approving applications for land-use change in the cases reported here did not significantly differ from their performance in general.

Although there is some slight evidence to the contrary, fragmentary data from many portions of the country clearly indicate the weakness of the county governmental structure in sustaining a long-range program of roadside protection through the use of the police powers, or any other means for that matter.



**TABLE 2**  
**SPOKANE VALLEY REZONING APPLICATIONS**

Case No.	Description
1	Zone change instituted by residents concerned with present classification. Zone upgraded to highest residential zone the county can give.
2	Expansion of existing zone. Decision of planning commission appealed to the board of county commissioners.
3	Across the street from the golf driving range.
4	Special permit was granted for a period of one year. No development has taken place by the applicant so the permit has expired.
5	Across the street from recently zoned shopping center.
6	None.
7	Proposed re-zoning took place March 13, 1958, the date the plat was recorded.
8	Convert several existing single family residences into apartment units.
9	The cabinet shop is a non-conforming use and under the zoning ordinance non-conforming use is permitted to expand under special permit. Planning commission did not feel the expansion of the non-conforming use should be permitted as the property in question is in a residential area.
10	Planning commission policy has been to require the multiple family suburban zone first, then have the applicant apply for a special permit so that the planning commission may control the type of development.
11	Trailer courts are allowed in the multiple family suburban zone by special permit.
12	Zone change essential expansion of existing commercial zone to the south.
13	The property in question is between two essentially commercial uses.
14	Essentially an expansion of existing restricted industrial zone to the east. Decision appealed.
15	Existing commercial use is non-conforming. Under zoning ordinance a non-conforming use is allowed to expand by special permit.
16	Grocery store and lunch room non-conforming uses. Permitted to expand by special permit.
17	None.
18	Property was presented as a preliminary subdivision. Policy is that all subdivisions which are not in a residential zone classification shall become zoned upon the filing of the final plat.

With the county unit of government of great significance in terms of its being the jurisdiction in which much suburban expansion is occurring, it becomes extremely important for highway officials and state legislative committees concerned with roads to understand the performance level of county government in respect to exercising police power control over roadside development. It is certainly insufficient merely to know the statutory provisions of local police powers, and to guess the degree of control which may be obtained by these measures in the future.

Unfortunately, the county level of government has never been a policy-making and programming unit in the American political structure, and there is no reason to believe that it will change radically now. Its traditional role has been administering house-keeping functions on behalf of the state, and governing under the impetus of petition form interested parties. Furthermore, in regards to the road function there has been a clearcut historical precedent of programming roads by local petition, and this tradition seems to have pervaded the county zoning and re-zoning function. In fact, decision-making on zoning cases is customarily conditioned by the views of surrounding land owners or their lack of objections, rather than by factors affecting the public welfare.

## The Denver Valley

Observations in the Denver area will be described mainly in relation to shopping center development. The Denver Valley Freeway has been in operation for several years, being part of the major north-south trunk highway of Colorado just east of the Rockies. It connects to the Denver-Boulder Turnpike north of the city limits, and links with Colorado Springs and Pueblo to the south. Within the confines of Denver the highway constitutes two main radial elements of the urban area freeway system, with the southern leg serving the largest population center. Aside from an expressway-type facility linking the freeway with Golden to the west no other high-type urban highways have been constructed in the Denver urban area. The urban highway network is still in the planning stage in that region.

With water supply being a major problem in the Denver area the highway does not seem to have had a significant impact on either industrial or residential site location. It is fairly well confined to the industrial Platte River Valley over at least half of its length within the city limits.

Of major interest is the configuration of regional shopping center development in the Denver area. No centers have been developed adjacent to or near the freeway. This fact is contrary to the current belief that large, planned shopping centers must be either alongside a freeway or near a major interchange for best results. The two principal centers, Cherry Creek and University Heights, are discussed in this case study.

The Cherry Creek Center, the first outlying shopping center outside of the Denver central business district, is only three miles southeast of the CBD. About 1952 the Denver Drygoods Company established an outlying store of 40,000 sq ft sales area where an old strip commercial zone existed at the intersection of University Boulevard and E. First Street. Approximately 25 acres were developed at this time between E. First Street and Cherry Creek, featuring a mall design and the inclusion of specialty stores. A major zone change was required for this development.

Not long thereafter, Sears, Roebuck and Co. acquired possession of a tract of land immediately north of the Denver Dry Goods center and the city re-zoned land to the north of E. First Street, bringing the total area of the combined shopping center to 77 acres. Sears now has a large retail outlet on the site. (There is no grade separation for pedestrian traffic between the two shopping areas.)

The next stage of development of this dual shopping center has been the construction of nine moderate sized office buildings north and east of the Sears development, and there is further evidence from billboards that similar development will take place on vacant land just to the west of these buildings, across University Boulevard.

The University Heights Center evolved in a similar manner. Located approximately 6 miles from the CBD and at least a mile from the freeway, this center started as a community shopping center about 1950. The major store is an outlet of the D. F. May Co. The May Co. store covers about 60,000 sq ft of retail space on a site abutting Colorado Boulevard to the west, and about one mile from the nearest approach to the Denver Valley Freeway. It is part of a mall development surrounded by specialty retail outlets.

The initial development of this shopping center necessitated a change in zoning, as practically all integrally planned shopping centers do. In 1953, however, a second developer presented a plan for a second center immediately to the north of the first, on Colorado Boulevard and had some 20 additional acres zoned for this development. At the present time, in observing this joint entity one finds typical frame uses developing around the retail areas, enlarging the original concept of a planned retail center into a community shopping facility with appurtenant uses, such as auto row and clinics, more typical of those community shopping areas which just grow by accretion.

Several observations may be made about these two developments:

1. Regional shopping centers do not require locations adjacent to freeways or freeway interchanges for successful operation.
2. Regional shopping centers either cannot be handled effectively by the comprehensive plan, or require changes in public land-use policy for their inception.



3. Economic determinants seem to have outweighed conceptual viewpoints by either the planning professionals or advisory and action agencies of what the center should have been.

4. Highway planning and traffic agencies would have been led far astray in planning road facilities or improvements on existing arterials on the basis of either the scope of city planning before the centers were conceived, or the scope of planning early in the development of the centers.

### Atlanta

Atlanta entered the freeway field before the evolution of standards of design characteristic of the freeways constructed since 1956. It has a well-defined system of radials and a circumferential on the Interstate System, although the industrial and railroad development to the immediate west of the CBD core has inhibited the development of an inner distributor. The elements of the system which are at present in use form a large Y, with CBD approximately 3 miles south of the junction of the oblique arms, and the stem extending southward through the city. The segment between the CBD and the intersection is called the North Trunk, and from there the system becomes the Northeast and Northwest Expressways (although they are full access control).

The system to the north of the CBD was consultant designed and financed by a municipal bond issue in the early 1950's. The major drawbacks of the elements in use to date are inadequate design standards on ramps (for example, no acceleration and deceleration lanes on the older segments), underdesigned lane capacity, and diamond connections with city streets of inadequate width and overdeveloped commercial use. This is perhaps one of the few major urban freeways where traffic is usually halted by police officers on the moving lanes of the facility to permit dissipation of off-moving traffic at diamond intersections (North Avenue, in particular).

It is worthy of note in regard to planning and land use developments in the Atlanta area that in practically every location, where topography and lack of housing developments permits, "window industries" are developing on the Northwest and Northeast Expressways.

Current work is now going on in Atlanta to shed some light on land planning problems, as part of the type of review or feed-back study which was mentioned earlier. It does not seem that the quality of planning is significantly different in Atlanta from that in other moderately large cities, and in fact there is a large and active body of planning professionals in the area as well as a leading center of planning study and research. The preliminary conclusions to be drawn so far, however, are that highway development efforts cannot place a great deal of faith on the quality, status, or outcome of public land-use policy.

### Houston

The Houston area differs from most other cities of similar size in several respects.

1. It is the only major American city without a zoning ordinance.
2. Like most of the Texas cities but unlike most other cities there is a distinct lack of fringe municipal development as conditioned by the Texas annexation laws.
3. There has been an early development of rationale underlying a complete urban highway network in the Houston area resulting primarily from the requirement that Texas cities provide the rights-of-ways for state highways.
4. The highway classification philosophy in Texas has clearly given the state the responsibility of designing a complete system.

The lack of the authority to zone in Houston has not meant a lack of city planning. On the contrary, city planning effort in Houston has been able to concentrate on the phases of planning activated by eminent domain procedures rather than on those dependent on the police powers. City planning has had a long tenure in local government in Houston and seems to occupy a respected position in the hierarchy of local government. It has done an excellent job of establishing the basic framework of public facilities in a rational plan, which have in turn proved to be the determinants

for most of the private land development. These include the location of the major urban roads, schools, parks, etc., which provide the framework of the plan.

The freeway configuration for Houston, like that of Cleveland and a few other cities, was conceptualized by the municipal government through planning department assistance considerably before the completion of the O-D survey for the metropolitan area. Also, this configuration is very similar to those developed after the advent of the O-D surveys in many other cities.

Houston makes another interesting place of observation because there are exceptionally adequate standards of right-of-way widths for all categories of city streets and arterials. Most of the approach roads to the diamond interchanges of the Houston freeways are 80 ft in width, and many are wider.

In spite of the fact that only two of the seven radial routes are in use, resulting perhaps in a heavier concentration of traffic on these roads as compared to when the system is completed, there is virtually no congestion at intersections. No doubt the use of continuous collector-distributor (C-D) roads facilitates traffic movement in the urban areas of Texas, creating in effect a set of dual roadways, one set for express purposes and the other for local and access use.

Although under the Texas system of access control one finds much commercial development on the C-D roads near the intersecting arterials at the diamond intersections, there appears to be no evidence of problems associated with these uses from the standpoint of moving traffic. Furthermore, the Gulf Freeway, although having its C-D roads almost solidly developed in industrial uses, is exceptionally free flowing. One could almost come to the conclusion that the Houston freeway system, along with its unique philosophy of central distribution, represents the end point on the scale which tests transportation problems induced by land use.

Admittedly these observations on Houston are on the subjective side, but are presented as preliminary observations, and with a view toward designing more factual research along these lines.

### SUMMARY

Much of this report has been aimed at trying to bring out the facts of highway development and urban planning relationships. It has been prompted by the feeling that those involved in economic impact research frequently lose sight of the level of acceptance of their work as related to policy development on either the state or local level.

There is no doubt that the market process will continue to be the strongest of the socio-political processes which will allocate uses to land in the vicinity of freeways and their approach roads, just as it continues to be the strongest determinant in almost all aspects of urban planning.

The only other approaches for action are hierarchy, polyarchy, and bargaining. In the hierarchal solution to the problem both appointed and elected officials must be convinced of the value of a proper course of action. The polyarchal solution would place a premium on an educated electorate to take leadership, both in the selection of the officials who will guide the course of action, and at the public hearing and public reaction levels. Finally, the bargaining solution will require the subjugation of one set of leaders by another, possibly involving different levels of government.

Probably all of these socio-political processes will be operative, just as they are in all other phases of public activity. The general conclusions following evolve not only from the specific investigations in present research, but from a synthesis of opinion and thinking about the problem over the past few years.

### CONCLUSIONS

1. There has been insufficient feed-back review to analyze through careful research the consequences of either police power controls by local government or the process by which urban planning and highway development are integrated in a meaningful way.
2. There has been significantly more interest in what can be done under statutory planning provisions than what will be done in terms of public policy development.

3. The recognition of urban planning by state highway agencies is still in the lip-service stage because of complex framework of the urban municipal order, the area-wide and statewide responsibilities of these agencies, and the pressures of traffic.

4. There is not yet any evidence of local land-use control in respect to balancing the trip-generating characteristics of the use with the traffic capacity of nearby road facilities or interchanges.

5. Many state highway agency officials expect a far greater resolution of goals for city development and a more rational planning product in central metropolitan cities than is possible in a democratic governmental framework and in view of the complicated nature of city problems.

6. A small but vocal segment of the city planning profession tends to look upon highway programming as a means of altering the basic structure of land use in urban areas through limitation of access points, but fails to recognize the user sovereignty dictating state highway programs and the broader national policy implications required to reorganize the order of urban development.

7. Advocates of a local "workable program" as a prerequisite to federal financing of highways in the local jurisdiction (as is required for urban renewal under Section 101 C of the U.S. Housing Act) fail to recognize the multi-jurisdictional aspects of an urban areawide transportation and land-use plan.

8. In the absence of a unified urban government, the first step in working toward the integration of urban and highway planning is a workable program on the state level to initiate and support a permanent transportation planning effort to develop state policy in a framework which precludes veto by provincial municipal interests.

9. A municipal mapped streets act appears to be the most reasonable way of providing for uncluttered approaches to freeways by providing the machinery for the design of intersections which may not connect with existing arterials, but will no doubt require the earmarking of a portion of state gas tax returns to the municipalities for right of way acquisition.

10. Considerably more data on the demands for various types of traffic-intensive land use are needed before a strong, positive policy approach may be expected to evolve at the local level.

#### REFERENCES

1. Berman, J., "The Highway Engineer and the National Committee on Urban Transportation." *Traffic Engineering* (March 1959).
2. Beuscher, J.H., et. al., "A Program of Highway Research at the University of Wisconsin." *HRB Bull.* 205 (1958).
3. Feifarek, A., "Administration of Highway Protection Laws." *HRB Bull.* 140 (1958).
4. Lapin, H.S., "Systems Analysis in Transportation Planning and Traffic Engineering." *Traffic Engineering* (April 1958).
5. Levin, D.R., "Highway Development Rights." *HRB Bull.* 25 (1950).
6. Marsh, B.L., "The New Highways: Challenge to the Metropolitan Region." *Traffic Engineering* (Nov. 1957).
7. Marzitelli, F.D., "City Planning and Highways." *Highway Highlights* (Oct. - Nov. 1958).
8. Mickle, D.G., "Traffic Engineering in Tomorrow's Transportation." *Traffic Engineering* (Jan. 1958).
9. Moses, R., "Building for Traffic in the New York Area." *Traffic Engineering* (Aug. 1959).
10. Muir, A.W., "Highway Encroachments in New Jersey." *HRB Bull.* 140 (1956).
11. Powers, L., "Regulation of Access vs Control of Access in Oklahoma." *HRB Bull.* 140 (1956).
12. "Report of Committee on Land Acquisition and Control of Highway Access and Adjacent Areas." *HRB Bull.* 169 (1957).
13. "Report of Committee on Land Acquisition and Control of Highway Access and Adjacent Areas." *HRB Bull.* 189 (1958).

14. Royster, P. F., "Traffic Operations on Freeways." *Traffic Engineering* (Nov. 1958).
15. Sauer, V.W., "A Plan for a County Motor Vehicle Transportation System." Highway Division of ASCE (Sept. 1959).
16. Waterbury, L.S., "Location of Traffic Interchanges." *HRB Bull.* 25 (1950).
17. Wiley, T.T., "Metropolitan Area Traffic Problems." *Traffic Engineering* (July 1959).
18. Horwood, Edgar M., Goldberg, L.D., and Rieg, D.F., "Urban Freeway Systems, Their Development and Financing in Washington State." Univ. of Washington Printing Plant, Seattle (1959).
19. Horwood, Edgar M., and Boyce, R.R., "Studies of the Central Business District and Urban Freeway Development." Univ. of Washington Press, Seattle (1959).
20. "Highways and Urban Development." Report of the Sagamore Conference, Syracuse University (October 5-9, 1958).
21. Armstrong, Ellis L., Paper presented at 14th Annual Convention, Assoc. of State Planning and Development Agencies, Philadelphia (Sept. 30, 1959).
22. Meyerson, M., and Banfield, F.C., "Politics, Planning, and the Public Interest, The Case of Public Housing in Chicago." The Free Press, Glencoe, Ill. (1955).
23. Dahl, R.A., and Lindblom, C.E., "Politics, Economics and Welfare, A Study of Planning and Politico-Economic Systems Resolved into Basic Social Processes." Harper Bros., New York (1953).
24. Hebden, N., and Smith, W.S., "State-City Relationships in Highway Affairs." Chapter V, Yale Univ. Press, New Haven (1950).
25. Cameron J., "Whose Authority?" *Atlantic Monthly*, p. 38 (August 1959).
26. Covey, F.M., Jr., "Impact of Police Power Controls Along The Wisconsin Trunk Highway System." *HRB Bull.* 232, pp. 84-104 (1959).