

An Evaluation of Land-Use Control Procedures at Freeway Approaches

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THE PURPOSE of this paper is to enumerate the range of possibilities for the control of land use at freeway approaches, to discuss and analyze the more feasible ones, and to present data on current practices which shed some light on the utility of each method.

Much has been written on what can or cannot be done within the legal and constitutional framework which surrounds this activity. Most of this information cites law and judicial interpretation, or reports on what this or that State is contemplating. Very little of the existing material, however, gives a clue as to what is working out well and what is not working out well, nor does it dwell on the radically different tools which may be necessary to accomplish goals which are somewhat casually stated, such as "the integration of land use and highway planning." The effort here, therefore, is to provide philosophical, interpretive, and research oriented in the sense of developing feedback data on what is now happening under existing methods of land use control. This paper does not deal with congestion per se. Rather, it assumes that there is a problem of highway congestion and safety near freeway approaches. It was found necessary for this presentation to bypass the problem of proving that congestion exists in order to get on with the business of studying how to deal with it. (This paper stems from a larger study on the problem of controlling land development at freeway approaches sponsored by the Bureau of Public Roads. The analysis of congestion is a part of the larger study.)

RANGE OF METHODS FOR CONTROL AND ANALYTICAL FRAMEWORK

Range of Methods for Control

A wide range of techniques may be utilized to control land use around freeway interchanges and approaches so that both highway and broader land planning objectives can be realized. These techniques, discussed also by Stanhagen (6), include:

1. The eminent domain group: (a) the acquisition in fee simple of land surrounding interchanges and its retention or long-term lease; (b) acquisition of development rights easements; (c) temporary acquisition of land and its resale according to a development plan (urban renewal approach); and (d) acquisition of access rights.
2. Licensing of enterprises under specific conditions in the areas adjacent to interchanges.
3. The Police power regulations group: (a) zoning; (b) setback requirements; (c) subdivision controls; and (d) the official map.

Although all of these techniques are not discussed in this paper they are defined. In addition to the coercive controls outlined, certain non-coercive tools are available to implement land use policy, such as tax incentives, educational programs and public relations. These implementing techniques are not considered in this short paper. It is theoretically possible for each of the above-mentioned control mechanisms to be exercised at the special district, local, regional, State or Federal level. Nine methods of control, which can be exercised at five governmental levels, present a considerable number of alternative methods of land use control which might be studied and evaluated. Some of the alternatives shown in Table 1, such as zoning at the Federal level or outright acquisition at the local level, are obviously ridiculous to consider as being practically possible. A few are most promising, and these methods will be studied and evaluated in this paper.

TABLE 1
ALTERNATIVE METHODS FOR CONTROL OF LAND USE NEAR HIGHWAY INTERCHANGES

Jurisdiction	Eminent Domain			Licensing		Regulation		
	Acquisition in Fee	Development Simple Rights	Urban Renewal	Access Rights	Zoning	Setbacks	Subdivision Control	Official Map
Federal	-	-	X	-	-	-	-	-
Regional	-	-	-	-	-	-	-	-
State	-	X	X	X	-	X	-	-
Local	-	-	X	-	-	X	-	-

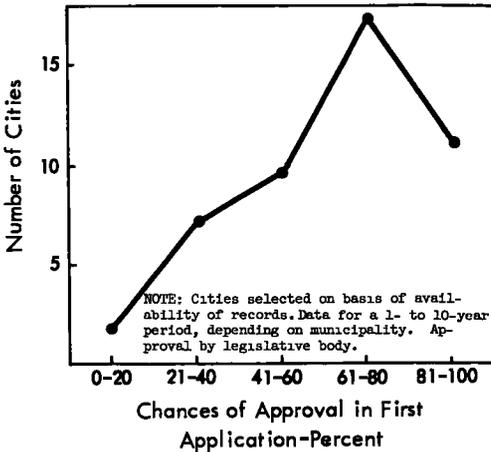


Figure 1. Frequency distribution of rezoning chances in 41 municipalities.

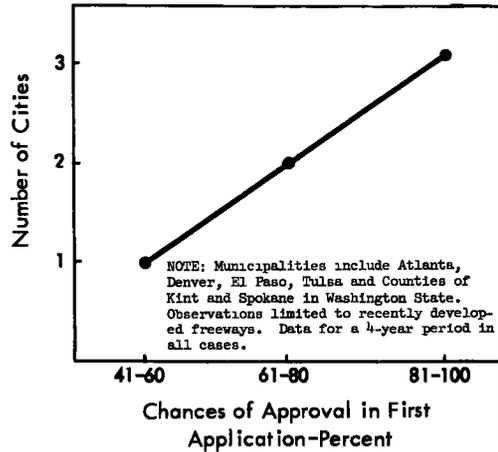


Figure 2. Frequency distribution of rezoning chances for interchange oriented rezoning in 6 municipalities.

The methods considered are:

1. Acquisition of development rights by States.
2. Acquisition of access right by States.
3. The urban renewal approach (temporary acquisition).
4. Zoning at the State level.
5. Zoning at the local level.

Analytical Framework

The major considerations used in this study in the analysis of land-use controls are presented. Others not discussed in this table could include social costs and benefits in terms of an economic framework related to both private and public investments, the degree to which control obstructs the traditional system of land allocation by market processes in the United States, and finally the whole picture of the division of governmental responsibilities between State, Federal and local levels with all of the constitutional and political limitations involved.

In general this is not a simple problem of mechanics as to which legal or governmental implementary tools can be brought to bear on a problem that is defined in some specific way. For one thing the problem of land policy in the vicinity of highway approaches, involving the evaluation of congestion and its causative factors, is not clearly defined. The solution for one level of government may not be the solution for another. It is not merely the choice of one control as against another, but the problem of bringing to bear a group of controls that constitute a package. Certainly some degree of arbitrariness has already been exercised by the authors in the elimination of certain tools from consideration. Nevertheless, a wider range of tools has been studied to show the wide range of possibilities. Suffice it to say that the problem of providing a framework for the analysis of the whole field of controls at freeway interchanges

rather difficult one, which competent individuals will disagree upon and which involves problems of the anticipated changes in the public mores for accepting either new tools or control or changing old ones. The objective of this paper has been essentially to present a table of considerations which are possible and which the authors believe are the primary ones for the analysis of the ideas presented.

DEFINITION OF METHODS OF LAND-USE CONTROL

eminent Domain Group

Purchase and Leaseback.—This method contemplates public purchase or condemnation of all of the property interest in land surrounding freeway interchanges, and its permanent retention and management or long-term lease. Included in this concept is excess condemnation which involves acquisition of land not directly needed for highway right-of-way for the purpose of the removal and replatting of odd-shaped remnants of land and for the protection of the highway facility.

Acquisition of Development Rights or Easements.—In this method the public body exercises only the right to restrict the development of property, leaving all other rights, such as the right to rent or sell the property, with the landowner. For example, the public body could acquire only the right of the owner to develop his property for some group of commercial uses, or the right to develop certain kinds of intensive traffic-generating commercial uses.

Temporary Acquisition and Resale Pursuant to a Development Plan.—This method would involve public acquisition of land for a temporary period and its resale with contract provisions requiring private development according to a plan which would rationalize highway and land planning objectives. This approach is similar to the urban renewal program in which government acquires property for resale subject to development in accordance with a comprehensive redevelopment plan.

Acquisition of Access Rights.—This technique involves public acquisition of all or part of an abutting landowner's right to highway access. Access rights for specific purposes can be acquired, leaving the landowner with access rights for other purposes such as residential or agricultural use.

Licensing Control

This method of land use control would require enterprises in the vicinity of an interchange to be licensed subject to reasonable conditions intended to insure development consistent with public objectives.

Police Power Regulations

Zoning.—Zoning is the division of the community into zones or districts according to present and potential use of properties for the purpose of controlling and directing use and development of the properties. Land use, height and bulk, and density standards are the traditional subject matter of zoning ordinances, but the trend is toward inclusion of a wide variety of locational, parking, detailed land use standards, and provision for special problem areas such as freeway interchange districts.

Setback Requirements.—Setbacks prevent the building of structures within strips and running parallel to road rights-of-way. The purpose of setback requirements among others, the facilitation of future street or highway widening.

Subdivision Control.—Subdivision control concerns the division of raw land into parcels for resale. The land proposed to be subdivided is surveyed, and a map showing precise boundaries is recorded. Various conditions can be attached to subdivision approval concerning access, streets, setbacks, and many other subjects.

Official Map.—An official map prevents the erection of buildings in the bed of a proposed highway or street until such time as the municipality or State is in a position to condemn the land. A map is prepared and adopted showing the location of the proposed street, and from that time on, no building permit is given except in unusual situations for construction within the area mapped.

MAJOR CONSIDERATIONS IN ANALYSIS OF LAND-USE CONTROLS

Complexity and Difficulty of Administration

Complexity of administration can differ according to the kind of land use control and according to governmental level. For example, State supervision of zoning would require superimposing a large and expert staff on top of local staffs. Implementation methods which involve acquisition of property would require expert land management administration by whatever governmental unit involved.

Relative Cost to Government

Police power regulations and licensing do not require expenditures beyond costs of administration, while the exercise of eminent domain always involves compensation to the property owner. The cost of the several methods of eminent domain varies according to the degree to which the entire fee is acquired. For example, acquisition in fee costs more than acquisition of development rights or access rights. The cost of these methods depends, in part, upon the extent to which rights acquired by government are resold.

Traditional Cultural Acceptance

The American tradition of *laissez-faire* and a general unwillingness to increase governmental interference with property makes infeasible some possible methods of land use control, such as extensive ownership of land. Acceptance of the same control can vary at different governmental levels. For example, zoning is generally accepted at the local level but not at the State level. The analysis of land use control which follows attempts to recognize variation in cultural acceptance and political feasibility.

Legal Acceptance

Sometimes legal acceptance lags behind or differs from general cultural acceptance of a specific method of land use regulation. Generally the basis for court rejection of the use of a particular method is that the individual is deprived of property unreasonably or without due process. The test of unreasonableness involves the balancing of hurt to the property owner against benefit to the public in general.

EMINENT DOMAIN GROUP

Acquisition of development rights, acquisition of access rights, and the "urban renewal" approach belong in the eminent domain group. The distinguishing characteristic of these controls, not found in licensing or police power regulations, is the constitutionally required payment of just compensation for the taking of property rights. The use of eminent domain shares with other groups of land-use controls the requirement that a public purpose must be served by the exercise of the control.

Except for the acquisition of access rights, little use of the power of eminent domain has been made in the past for the protection of the highway facilities. Development rights have seldom been acquired by the States or by the Federal government to control land use and land has not been temporarily acquired (the urban renewal approach) primarily for the purpose of adjusting land use to the requirements of highways.

Acquisition of Development Rights or Easements

Acquisition of development rights is a form of eminent domain which has rarely been used in this country for any public purpose. However, this method of land-use control shows promise as a tool to regulate land use for the protection of freeway interchanges from congestion. Levin (2) has dealt with this technique.

This technique involves public purchase or condemnation of property development rights, and results in a restriction of the individual property owner's right to develop his property. Public acquisition of development rights operates much like the acquisition of easements. Typically, the public would acquire the landowner's right to con-

vert the use of his land from agricultural or residential use to more intensive types of land use. The right to develop the land would become the property of the public body and this right could then be sold or leased back to the land owner or to a third person according to a development plan which is consistent with both land planning and highway objectives.

The technique of acquisition of development rights has occasionally been used for a number of public purposes other than the protection of highway facilities. Development rights or restrictive easements have been acquired for the purpose of protecting scenic views from parks, parkways, and highways; for the protection of air space adjacent to airports; and for the protection of water supplies. The use of development right acquisition for these purposes is discussed in some detail by Whyte (7). Although development rights have been acquired only in isolated parts of the country, the wide range of public purposes involved provides precedent for the use of this technique for the protection of highway facilities from congestion.

Advantages.

1. The public agency would have complete and, if necessary, detailed control of land use.
2. The acquisition of varying degrees of restriction on development would make the technique flexible and permits a detailed tailoring of land use to interchange requirements or other planning objectives.
3. The payment of compensation reduces real or imagined harm to property owners.

Disadvantages.

1. Acquisition of development rights would enjoy somewhat less political acceptance than the urban renewal approach.
2. It would be expensive, especially in built-up areas, and property damage might be assumed where it does not exist.
3. Novel constitutional and legal questions are raised.
4. A complex and expert administrative organization is required.
5. It may be difficult to adapt restrictions to changing needs, as in the case of zoning, after vested rights become associated with the initial policy.
6. Cooperation and recognition in tax policy is mandatory from county assessors. County assessors do not fully take into account the restriction on development, a hardship will be placed on property owners.

Summary.—The novelty of the development right approach to the solution of land-use problems around freeway interchanges, the desirability of other controls discussed subsequently, and the disadvantages indicate that this technique should not be applied generally to the problem of interchange congestion. It does show some promise for use by the State on the fringes of urban areas and in some rural locations where speculation and uncontrolled development is expected. This form of control has the advantage that development rights purchased by the State could be sold back to private owners in the future if changing conditions warranted some forms of development.

Acquisition of Access Rights

The acquisition of access rights is a form of eminent domain which has been widely used by the States in the past to protect highway facilities from congesting influences and make them safer. The technique involves public acquisition of all or part of an adjoining landowner's rights to access. However, this control is operationally similar to the acquisition of development rights if access rights were purchased in respect to restrictions on the use of the land. For example, in most States access is permitted to highways of secondary importance from abutting land provided the land is not used for commercial purposes other than agriculture. This type of a restriction can be easily policed by visual inspection of the land use. The practice of using this partial control of access stems from the necessity of compromising between a limited amount of highways with complete control of access and a larger mileage with much mileage

through the agricultural country-side brought under partial control. This stretches the dollar spent for access control, or permits a lower type of control either for an interim period or on secondary roads.

Difference Between Acquisition of Access and Development Rights.—Applied to land abutting highway right-of-way, there is little difference in these two methods of highway protection. For instance, it would make no practical difference to the owner of agricultural land abutting a freeway approach road whether his right to use the land for everything except agriculture was purchased, or whether his right to access for any other use than agriculture was bought.

On the other hand, if the total effects of these procedures are considered, as they relate to all of the land within reasonable influence of the interchange, there may be quite a difference in the results. The acquisition of access rights could only regulate traffic generated from that land which actually abutts approach roads, controlling a limited, although important, portion of the total land in the approach zone of influence. Whereas, the acquisition of development rights could affect an area many times larger regulating the total traffic generated from the zone of influence.

It may be concluded that a protection program involving the acquisition of access rights is something short of a program involving acquisition of development rights, and at the same time one which follows more traditional patterns. Furthermore, some intersections might lend themselves to the use of one of these procedures, and others to the alternate means. And, in fact, the two procedures could be used together at any one intersection to control both the adjacent and remote land.

The Concept of "Metered" Access.—Some suggestions were put forth in the development of this paper that if more specific relationships were known between traffic generation and land use for the great many types of uses which tend to aggregate to freeway approach zones a program of metered access could be developed. Under such a concept the total capacity of a freeway entrance or group of entrances could be allocated among the different competitors for space in the given approach zone. Thus some safe limit of total access generation would be attained through a system of access acquisition. For example, a motel might not have access acquisition applied to it because its traffic generation does not coincide with daily peaks, whereas if a land owner desired to erect a factory he might have access acquisition for that purpose acquired because of an already critical entrance situation at the peak hours. This concept was soon dismissed in recognition of both the lack of data needed to test it and the administrative problems which would be associated with it. Perhaps even of greater importance in the way of problems with this concept is the priority issue between remotely and adjacently generated traffic. If, for example, remotely generated traffic used up the full capacity of the interchange then what are the rights of adjacently generated traffic? Consequently, even if discreet facts were known about the traffic generating characteristics of many freeway oriented land uses, a system of access allocations could easily be thrown off by a substantial change in remotely generated traffic.

Advantages.

1. Access acquisition is now part of the package of procedures used by State highway agencies. Although used mostly in rural areas it would be a relatively simple matter to extend this concept to land abutting approach roads.
2. This form of control does virtually everything that the acquisition of development rights does, without at the same time involving new legal and constitutional issues.
3. Access acquisition at the State level would supplement but not directly interfere with local zoning and other land use regulations.
4. This type of control should work very well in rural and semi-rural areas where the typical demands for development do not go beyond a small ribbon of land abutting the approach roads for a short distance.

Disadvantages.

1. Larger land planning objectives might be sacrificed when State control is pre-

icated on technical considerations of interchange capacity and levels of access.

2. In almost all States approach roads are under the jurisdiction of local units of government or counties, which are not financially capable of acquiring access rights. Consequently, the State must expand its functions at the cost of local jurisdiction.

3. If exercised on a large scale this type of acquisition could be quite costly compared with police power measures.

Summary.—The acquisition of access rights along portions of approach roads in the vicinity of freeways, either partial or complete, represents a logical extension of an existing practice. Most of the need for the exercise of this type of control is outside of city limits, in county areas, where zoning has proved most inadequate. The failure to move in terms of this type of control in most counties will simply result in the same ribbons of development along approach roads that now line the former route in urban areas.

The Urban Renewal Approach

A third suggested method of controlling land development around freeway interchanges involves the temporary acquisition of land and its resale according to a publicly-approved plan for development. This approach would be very similar to the treatment of land in urban renewal programs operating in most medium and large cities, usually through Federal participation. These programs involve the use of the power of eminent domain to temporarily acquire land for resale according to a redevelopment plan.

The application of this method for treating freeway interchanges and for providing facilities for the through highway traveler might include the following steps:

1. There would be Federal grants-in-aid to State or local governments for the preparation of plans designed to deal with the problems around interchanges.
2. Local units of government would develop a general comprehensive land-use and transportation plan for the whole jurisdiction.
3. Local units would then prepare a more detailed plan for the use of land in interchange areas, consistent with both general land-use planning principles and with highway needs.
4. These detailed plans for intersection areas could be approved at the State or Federal level, giving these superior levels of government the power to veto objectionable or inadequate local interchange plans. At the same time, the initiative for the making of plans for local land-use controls and land acquisition would remain at the local level.
5. A local agency, possibly the existing redevelopment body, would temporarily acquire land near interchanges with Federal and State funds.
6. Actual development according to the approved plan could be insured as in the case of urban renewal projects by the use of appropriate contract and deed restrictions.
7. Any profits realized by local units upon resale of the land could be returned to the revolving fund to facilitate land acquisition at other locations.

The use of the urban renewal approach to the solution of highway problems around freeway interchanges would require cooperation between Federal, State and local units of government. A large number of related actions would be required to implement a program of temporary acquisition of land around freeway interchanges and its resale according to a development plan.

Federal Action.—National highway legislation would have to be amended to include the urban renewal type of treatment of land around highway interchanges. This legislation would have to set forth the manner in which States could qualify for Federal grants-in-aid and requiring necessary State legislation as a condition, much as the conditions for urban renewal participation are outlined in the national housing law. Because State governments have the primary responsibility for the construction of freeways, the option must be reserved to the States to decide whether or not to participate in the program. Moreover, if States elect to participate in such a program

they must be given sufficient discretion to adapt a program to their own legal and administrative structure.

It almost goes without saying that a Federal condition for participation by the State must relate to the adequacy of local planning enabling statutes which set the stage for general comprehensive planning at the local level. This, however, is no real problem because such legislation is required for participation in urban renewal under the Federal assistance program. More specifically, however, Federal legislation in this regard would have to insure that State planning legislation required a transportation element as part of the comprehensive plan, setting forth in addition to mapped information factors underlying land use policy in the vicinity of freeway approaches.

State Action.—State legislation would have to be developed presenting to the various units of local government or new units formed for the purpose, alternatives for the organization and administration of what will be termed here "freeway development zones." The alternatives typically presented (6) include administration by:

1. A separate local agency designated by the municipality;
2. A new line department within the existing framework of local government;
3. An existing urban renewal agency; and
4. Local planning departments.

There is little agreement, as evidenced by urban renewal experience among students of government, about which of these alternatives is best. A solution with considerable merit would be for State enabling legislation to require that if an organization exists at the local level for the administration of urban renewal, then this administrative structure be designated to administer the program. Such a requirement would insure that agencies already experienced with the administration of a renewal program for housing would be given the responsibility for administering a similar type of program dealing with acquisition of land around the freeway interchanges. In addition, assurance would be had that renewal and highway programs are coordinated. This coordination is particularly desirable in urban situations where new freeway facilities can become an important part of renewal projects. Often new freeways are routed through blighted areas because of the relatively low cost of land acquisition. In these cases the freeway creates a market for non-residential re-use.

Local Action.—As in the case of the existing local urban renewal programs, local units of government must legislate an appropriate administrative structure, a budget and in other ways introduce the planned freeway approach district into local planning and programming. After such preliminary action takes place, which may easily require several years time judging by urban renewal experience, the local government would be in a position to study specific projects, coordinate with State highway planning objectives, and finally to activate a project.

The Role of Local Police Power Controls After Development.—After the character of the development around the interchange has become determined in such a way that the highway facility is protected, the application of local police regulations, such as zoning and subdivision controls, can be expected to effectively preserve the character of land use. While zoning is not very effective in establishing patterns of development or in resisting strong market pressures, it can be expected to be quite effective after development has become channeled by the more vigorous urban renewal method. Preservation of a desirable balance between land use and the highway facility is also aided by the enforcement, in the courts, of the contract provisions and of the deed restrictions. As conditions change which might make the deed restrictions and contract provisions obsolete, however carefully they might have been drafted, zoning could be expected to fill the gap and provide for needed flexibility.

Advantages.

1. Development consistent with highway policy objectives could be relatively well assured.
2. Political acceptance might well follow successful examples furnished by existing urban renewal programs in the housing field.

3. The initiative for the formulation of land-use policy could remain at the local level, subject to conditions imposed by State and Federal governments relative to highway needs.
4. The cost of land acquisition could be recouped when the land was resold due to anticipated increases in land values.
5. A workable State-Federal-local relationship could be evolved in a way not possible under zoning by itself.

Disadvantages.

1. Some local elements would oppose the extension of Federal participation into a new area.
2. There is a question as to whether existing urban renewal agencies and staffs can easily extend their activities into highway oriented problems. These agencies have been traditionally oriented to housing problems. They are frequently understaffed, and rather complicated chains of command exist involving citizen advisory bodies not specifically oriented to highway problems.
3. Perhaps new agencies would be needed at the local and State levels.

Summary. —Within the confines of present knowledge of the requirements for land-use regulation in the vicinity of freeway approaches, the concept of an "approach area development plan," utilizing machinery similar to that of urban renewal, appears to offer the greatest opportunity for the amelioration of land-use and transportation planning problems by uncontrolled land development in the approach areas. This type program, particularly within the large central cities, could accomplish the following:

1. Fill the vacuum for planning activity between street traffic controls on one hand, and the high level coordination of regional and highway planning on the other. (As such, this kind of development would be an intermediate or tactical operation within the entire urban planning program.)
2. Fit into city planning and urban renewal objectives.
3. Utilize the administrative machinery of urban renewal agencies or develop machinery similar in nature.
4. Result in specific design improvements to move and manipulate traffic at the freeway approach.
5. Provide offstreet parking at strategic locations where people conduct business or assemble in car pools.
6. Ease the movement of freight by providing central sites for service and supply establishments serving the urban region.
7. Enhance the flow of interstate commerce by providing opportunities for linking truck-oriented industries in close proximity to the freeway with good design standards to facilitate traffic flow.

After desirable patterns of development had become established by use of the urban renewal technique, zoning could be expected to help conserve those patterns.

This approach would require a large revolving fund, but over the long run most of the cost should be recouped.

Because affected property owners are compensated, the invasion of property rights is less than that caused by regulatory methods such as zoning or licensing.

However, the renewal approach may not be feasible because it requires adoption and cooperation of Federal, State and local governments, and its administration is complex. It can be questioned whether some States and many local governments will want to enter into more complex intergovernmental arrangements so that land use patterns and freeway needs can be made compatible.

POLICE POWER CONTROLS

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An unjustified confidence exists regarding the ability of traditional police power controls over land to produce fundamental changes in the character of land use different

from that arising out of market demands. This is verified through feedback information on the effectiveness of zoning collected by survey from many areas of the country

Efficiency of Zoning at the Local Level.—Information concerning the disposition of rezone applications was collected from 41 cities and counties where records were found to exist. In most municipalities an applicant for a zoning amendment (rezone) has a 61 to 80 percent chance of getting what he wants in the first application (Fig. 1). The picture is the same for rezoning activity near interchanges in 6 cities and counties studied in detail (Fig. 2). These data indicate that local administrators look upon rezoning applications near interchanges with no special awareness of the problem of interchange congestion.

Considerable conflict exists in these 6 cities and counties studied between staff recommendations and disposition by planning commissions and legislative bodies. As shown

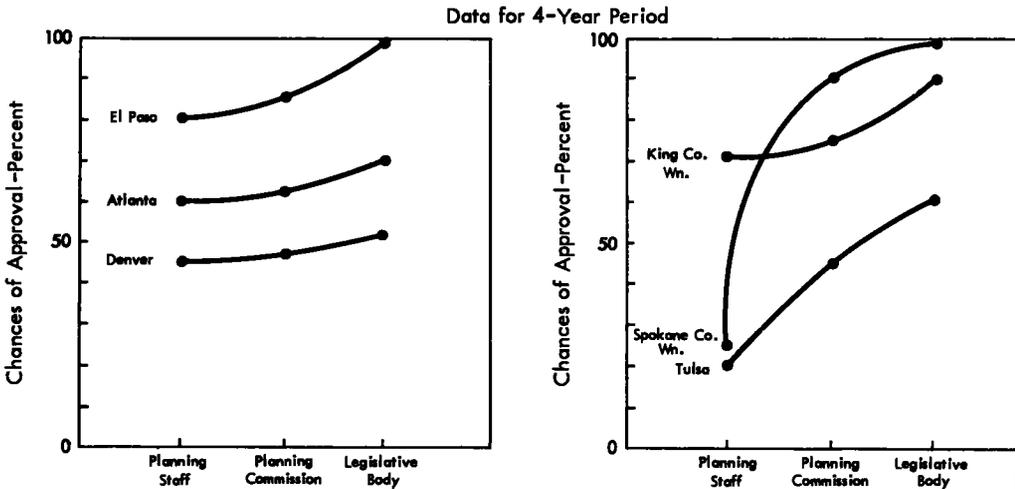


Figure 3. Chances of approvals for interchange oriented rezoning applications.

in Figures 3 and 4, as an application for a rezoning near an interchange moves from staff to commission to legislative body, its chance for approval increases, indicating that staff reasoning for recommending disapproval of rezoning applications is not accepted by city councils. Commissions are not concerned with the congestion implication of granting rezoning near interchanges. Commissions reverse planning staff recommendations for all applications in their jurisdictions in about the same ratio that interchange-oriented applications are reversed, as shown in Figure 4. Lack of staff awareness of an interchange problem is indicated by the absence of treatment of this problem in comprehensive plans, and also from a mail survey sent to staffs and others concerned with transportation planning, as reported by Horwood (1).

These findings indicate that the administration of zoning reflects essentially the private objectives of the many individual applicants for rezoning. That is, zoning

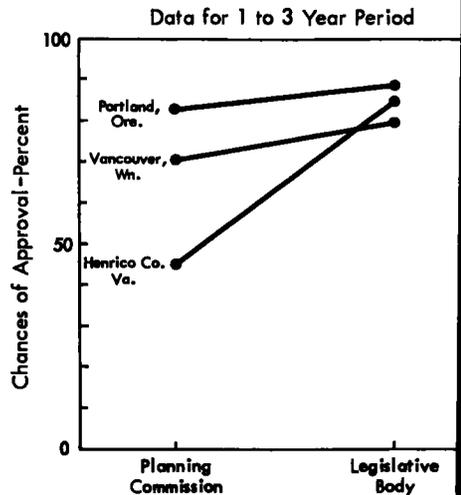


Figure 4. Chances of rezoning approvals official body for three municipalities.

Administration reflects private market pressure rather than public objectives.

Reasons Why Zoning Has Been Ineffective. --Zoning is only minimally effective in initially establishing the character of land development because it has the prohibitory characteristic, common to police power controls, rather than a programing characteristic necessary to implement public goals. The majority of these controls, whether they be traffic laws, fire codes or zoning ordinances, share the following attributes:

1. They are essentially public sanctions against the deviant activity of an individual or corporation in relation to group mores incorporated into the law.
2. They do not establish normative behavior itself, but only recognize the limits of such behavior.
3. They are only operationally enforceable when the deviant act is clearly discernible by both the public enforcement or administrative agency concerned.
4. They fail when confronted with new circumstances because they arise out of past experiences.
5. They are reactive rather than active, and thus tend to lag rather than lead development.

Specific characteristics of land use zoning in relation to these attributes are:

1. Historically, zoning has been an expansion into the public domain of the concept of nuisance and private deed restrictions.
2. Zoning has tended to institutionalize patterns of land development by the recognition and description of apparent classifications of land use.
3. Its success depends on an alerted citizenry to direct and report obvious infractions, and on a public agency (usually a planning commission) to uphold popular concepts of propriety.
4. It has failed most noticeably when new circumstances are presented, such as the demands for land development near freeways and in the case of regional shopping centers, because in these cases the new or deviant act cannot be passed off per se as being undesirable.
5. It has tended to follow raw land development rather than precede it. In short, it has succeeded with setbacks and fences, but failed with greenblocks and freeways.

In addition, comprehensive plans rarely attempt to provide for land use patterns which are compatible with highway objectives. An implementing technique obviously cannot operate without goals or objectives. Even where plans exist, there is often a tenuous relationship between the plan and zoning.

Furthermore, zoning is plagued by both policy and administrative deficiencies. Planning staffs often do not exist or they are too harried by day-to-day problems to be able to execute planning studies. Part-time lay planning commissions do not have the time or the ability to understand the complex relationship between an application to rezone and the maintenance of some long-term policy goal.

Public and administrative support for zoning control is generally predicated on the reasonable evidence of the social costs of a deviant act. For example, the man who converts a single-family residence into apartments obviously may lower the property values of the surrounding houses for single-family occupancy and cause a parking problem as well. There is great difficulty, however, in perceiving the social costs of land development in the vicinity of freeway approaches in terms of the many factors that contribute to freeway congestion.

Methods of Upgrading Zoning. --In spite of all the deficiencies in zoning as it has been practiced in the past it is important to upgrade this technique because it is about the only widely-used method of land-use control. It would be expected that any general upgrading of zoning would have an impact on transportation planning. In addition, there is an opportunity area for direct State supervision of zoning as it relates to freeway problems. These will be discussed separately. Table 2 gives some of the forms which are used for participation in zoning might take.

General Upgrading of Zoning. --The two greatest "killers" of the effectiveness of

zoning are (a) the lack of comprehensive policy on land use at the local level, and (b) the use of special permits, variances, conditional use permits, and a host of other devices which emasculate zoning control. While the State cannot figuratively hold the hand of local units of government in regard to the formulation of intelligent land-use policy, it can nevertheless write more detailed instructions into its enablingment to local units of government in regard to the meaning of the comprehensive plan. To cite only one example, in most States the comprehensive plan may simply be a colored map, with no statements of either general or specific land-use policy or of how to get from the given status of land use to the one shown in the picture.

The erosion of special permits, etc., can easily be reduced by more stringent instructions on adjustment procedures. There is now a considerable body of case law which clearly demonstrates the points of weakness in adjustment administration. We written adjustment ordinances take a note from this case law by requiring adjustment boards to both limit their jurisdiction to adjustments in the true sense of the word, and in addition, predicate adjustment upon certain positive findings of fact. On the other hand, the enabling acts of many States merely treat the problem of adjustment in one sentence.

Finally, the State can, without taking any of the initiative for planning from the local government, require by its enabling act more feedback information on what has actually happened in the process of zoning administration, as exemplified by the data collected in this study.

Upgrading of Zoning in Relationship to Highway Problems.—In addition to the requirement that local units of government prepare a comprehensive plan for the development of the whole community (which is now found in many zoning and planning enabling statutes), it would be good policy to require also local governments to make special studies of the problems of land use in freeway approach areas including the effectiveness of existing zoning. The plan itself might well be required to contain elements such as specific consideration of ingress and egress problems, highway safety, traffic-generating characteristics of land use, freeway capacity, aesthetic considerations, minimization of the cost of highway acquisition, and provision of special facilities for the needs of through highway travelers. In addition, patterns of inter-agency consultation at both the local and State level might be incorporated. Local governments could then be required to translate specific interchange land use plans into a special zone for freeway interchanges.

Effective administration of such a special interchange zone would be aided by a requirement that each proposed rezone be supported, in writing, by (a) a finding showing how each element in the special plans for interchanges would be affected, and (b) by a finding that the granting of the rezone will not unnecessarily contravene the transportation element of the comprehensive plan.

These standards might include restrictions on ingress and egress, provision for installation of traffic control devices and lighting within the public right-of-way, provision for drainage and offstreet parking and loading, as well as standards concerning permitted land uses. Permitted land use standards could involve, for example, the rating, in a general way, of land use in terms of its traffic-generating characteristics. Some of the highest traffic-generating uses might be prohibited altogether; or retail uses which market comparison items rather than convenience goods might be required to locate in one or two of the quadrants in order to minimize the use of the interchange for movement between quadrants.

Procedural Requirements.—To allow time for interested agencies at the State, regional and local levels to review and comment upon rezone applications, it would be a good policy for the State to require of local governments that all applications for rezones of property in the vicinity of freeway interchanges be delayed for a reasonable period of time, perhaps a few months, to permit review by the appropriate agencies concerned. It is not sufficient that interested agencies simply be given the right to attend hearings or be informed of what is going on. It is necessary that a mandatory review be made by these agencies to assure that their directors will have the legal backing to make clear and concise statements as to the implication of the land-use

TABLE 2

FORMS OF STATE ENCOURAGEMENT AND CONTROL OF ZONING¹

Form	Extent
Permissive enablement	Present in some states with respect to counties.
Permissive enablement without strings	Widely used.
Permissive enablement with strings	<p data-bbox="517 365 852 389">Examples of conditions are:</p> <ol data-bbox="552 407 1007 820" style="list-style-type: none"> <li data-bbox="552 407 991 462">1. Existence of comprehensive plan with elements specified. <li data-bbox="552 462 962 516">2. Existence of special study and plan for interchange zones. <li data-bbox="552 516 973 626">3. Substantive standards concerning drainage, access parking, setbacks and certain land uses. <li data-bbox="552 626 942 680">4. Rezone application delay and referral procedures. <li data-bbox="552 680 976 735">5. Requirement of written findings of fact. <li data-bbox="552 735 1007 820">6. Streamlined administrative structure including abolition of lay planning commission.
Mandatory zoning	Cities could be commanded to plan and zone and carry out the conditions set out above.
State veto	<p data-bbox="517 930 967 1008">Local units could decline to zone, but if zoning were desired, it would be subject to state veto.</p> <p data-bbox="529 1008 904 1039">Used in Michigan and Missouri</p>
State pre-emption	Used in Florida in an isolated area.

¹Partially from "Talks on Rural Zoning," by Erling D. Solberg, U.S. Department of Agriculture, Washington, D.C., 1960, pp. 14-26.

change anticipated in regard to the highway plan. This would eliminate the ever-present problem of a district highway engineer or the director of some renewal agency from making remarks at a public hearing with the feeling that he is overstepping his bounds.

Special Interchange Zoning Districts. No discussion has been made of the special district as a means of solving a problem of land use development around freeway interchanges. Stanhagen (5) has mentioned the special interchange planning and zoning districts as a possibility for administration by State or local governments, or jointly. It was considered by the Kentucky legislature in 1960 sought to promote such an interchange district, but was not enacted into law. The problem of such a district, of course, is that it adds another layer to the already disorganized fabric of urban government. Furthermore, it would be very difficult for an interchange zoning district to encompass the administrative problems that plague even relatively highly-organized local governments with sophisticated staffs. This is dismissed from consideration in this paper as a serious proposal.

Mandatory Zoning. State legislation could require that local units of government zone along roadsides and in the vicinity of highway interchanges and approach roads. In the past, State legislation has permitted, but not required, local units to zone. If zoning were mandatory, all of the requirements outlined in the previous discussion

concerning plan making and zoning procedure could be incorporated. These would include: requirements of a special interchange zoning district; provision for drainage; access control; the requirement of findings of fact on rezone applications; and inter-agency consultation. Mandatory roadside zoning is practiced in at least one State. Solberg (4) reports that Florida legislation requires the Duval County Planning Commission to zone along certain State highways.

Direct State Participation in the Zoning Process.—At least two degrees of direct State participation in the zoning process are possible:

1. The State can exercise a veto function over local zoning.
2. The State can completely pre-empt the zoning function along trunk highways and freeway interchanges.

The Veto Function. If a State agency were given the power to review and to veto local zoning ordinances, the initiative for zoning would remain at the local level, since the local unit of government could decline to zone. However, if pressures were very strong for zoning, the State agency could, by the use of the veto (or threat of its use) implement a very wide range of policies affecting land use around freeway interchange and approach roads. If this form of State supervision were to be really effective, the veto power would also have to be extended to the administration of zoning, giving the State government the power to review and set aside rezones granted at the local level. This power of review could seriously impair the local control of zoning.

State Pre-Emption of Zoning. Suggestions have been made by some observers (4) that, because of past inefficiency of the zoning method for implementing highway policy objectives, State governments should directly zone and administer zoning in certain critical areas, such as in the vicinity of freeway interchanges. This "solution" to problems of inefficient local zoning has been tried in one isolated area in Florida—the Virginia Park Subdivision near Tampa, where the State directly imposed zoning regulations. In 1949, an attempt was made in Wisconsin to enact legislation which would have allowed the State Highway Commission to enact and administer zoning along roadsides, but this bill failed to win support in the legislature (Bill 438, Wisconsin, 1949).

Proponents of State pre-emption of zoning along highways argue that the State has the legal and constitutional power to withdraw the authority to zone now delegated to local units, and that the very large State investment in the highway system justifies a much closer supervision at the State level. They further argue that poor control of land use around freeway interchanges produces problems that are regional or statewide in scope; that local units of government have in the past zoned ineffectively or not at all; and that improvement in zoning procedures at the local level is unlikely. They also contend that in some rural jurisdictions, all parts of the jurisdiction are not yet ready for zoning, but that a need exists for zoning along interchange approach roads. It is asserted that the State cannot afford to wait until local citizens feel a need to zone before some protection is afforded the highway system.

Significant objections to State pre-emption of zoning functions can be raised. In the first place, the volume of rezone applications would necessitate a large administrative staff at the State level, and State agencies do not exist which have the personnel or experience necessary to administer zoning. Intense pressures for development and zones along freeways and approach roads generate many rezone applications, each of which requires that investigation be carried on, staff recommendations be made, hearings held and decisions made. Moreover, the removal of local zoning authority over important areas around freeway interchanges and along approach roads would create a grave danger that the State agency would administer zoning around these interchanges in a way that would achieve rather narrow highway objectives at the expense of a host of other important land planning objectives typically embodied in the comprehensive plan.

The objections that State pre-emption of zoning would necessitate a large administrative staff in State highway departments, which are ill-equipped at present to administer zoning, and the objection that highway goals would be achieved at the expense of other important land planning goals, do not apply to either of the two non pre-empti-

methods of State zoning supervision—permissive legislation with strings or the mandatory requirement to zone around interchanges. Both of these types of State supervision have the primary responsibility to zone at the local level, giving some assurance that road land planning objectives will be considered along with highway objectives, and that the burden of administration would remain at the local level where administrative machinery already exists.

Summary.—Feedback information collected from a survey of many areas shows that unjustified confidence exists regarding the effectiveness of zoning to produce fundamental changes in the character of land use different from that arising out of market demands. A large number of factors were found to account for the ineffectiveness of zoning. Deficiencies included attributes associated with the prohibitory nature of zoning, defects in administrative procedures and structure, absence of objectives to guide zoning and many other factors.

Local jurisdictions were unwilling to use the police powers to control access before the advent of the limited access highway, and there is no indication they will use them to limit access to freeway approaches.

Despite the deficiencies, it is important to devise ways of upgrading this technique because it is about the only method traditionally used to control land use. Methods of upgrading zoning were suggested which could be imposed by State law. Legislation requiring municipalities to undertake zoning near interchanges, coupled with planning and zoning administration standards, could upgrade local zoning without substantial interference with local control. Judicial review would provide some assurance that local governments actually would plan, zone and administer zoning in a way consistent with freeway planning. Indirect State participation in the zoning process through imposition of reforms probably is to be preferred over State pre-emption of local zoning power.

It takes time for legislatures to adopt reforms of administrative procedures and administrative change to be really effective. Concurrent advance must be made in the quality (education and salary) of administrators. Also, time is needed for planning commissions, lawyers and others who participate in zoning administration to understand and accept reform. Construction of the Interstate System may be completed before zoning administration can be made effective.

CONCLUSIONS

Eminent domain methods of control over land development at freeway approaches hold significantly better promise than police power methods for the following reasons:

1. Police power methods have no demonstrated history of success in this respect.
2. The rationale underlying control of land development at these locations is not strongly enough defined and accepted at this time to support the abrogation of property rights without payment of compensation.
3. Land values are of such an order in the vicinity of most urban freeway approaches that local governmental units find it difficult to maintain non-commercial uses under pressure, persistence, and other forces which developers can muster when the stakes are high. In other words, the effectiveness of zoning is inversely proportional to land values.

If a significantly different order of land development around freeway approaches is to emerge then a substantial sum of money must be expended to purchase development access rights, or to bring land under public ownership for an interim period. This sum would probably be at least equal the costs of land acquisition for highway purposes if.

In addition to the direct extension of the control of access to approach roads, two means of eminent domain action appear to warrant use: (a) the acquisition of land development rights in outlying and rural areas, and (b) the acquisition and either lease-back or sellback according to a development plan of land adjacent to freeway approaches built-up or urban areas.

Although the acquisition of development rights involves legal questions and problems

relating to local assessment policy and added cost for road development, it shows real promise for use by the State on the fringes of urban areas and in some rural locations where land speculation and uncontrolled development is expected. This form of control has the advantage that development rights purchased by the State could be sold back to private owners in the future if changing conditions warranted some forms of development.

Within the confines of present knowledge of the requirements for land-use regulation in the vicinity of freeway approaches the concept of an "approach area development plan" utilizing machinery similar to that of urban renewal appears to offer the greatest opportunity for the ameliorization of that part of freeway congestion that might be induced by non-controlled land development in the approach areas. This type of a program particularly within the large central cities, could accomplish the following:

1. Fill the vacuum for planning activity between street traffic controls on one hand and the high level coordination of regional and highway planning on the other (as such this kind of development would be an intermediate or tactical operation within the entire urban planning program).
2. Fit into urban renewal objectives and city planning objectives.
3. Utilize the administrative machinery of urban renewal agencies.
4. Result in specific design improvements to store, move and manipulate traffic at the freeway approach.
5. Provide offstreet parking at strategic locations where people conduct business or assemble in car pools.
6. Ease the movement of freight by providing central sites for service and supply establishments serving the urban region.
7. Enhance the flow of interstate commerce by providing opportunities for linking truck-oriented industries in close proximity with the freeway with good design standards for traffic flow.
8. Reimburse most, if not all of the planning, acquisition and development costs.

Very little feedback information is available on the results of local planning policy and administration. Systematic studies must be made by agencies concerned with the outcome of local planning in all States to give an accurate picture of the status of land use controls in this area. Until this kind of information is available no clear-cut idea of the limitations of the police powers can be formed, except as deduced from the relatively small probing made in this report. States must require within their planning enabling acts such auditing as to make these data readily available to highway or regional planning and transportation agencies which must take into account the effectiveness of local planning policy in their own plan making.

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