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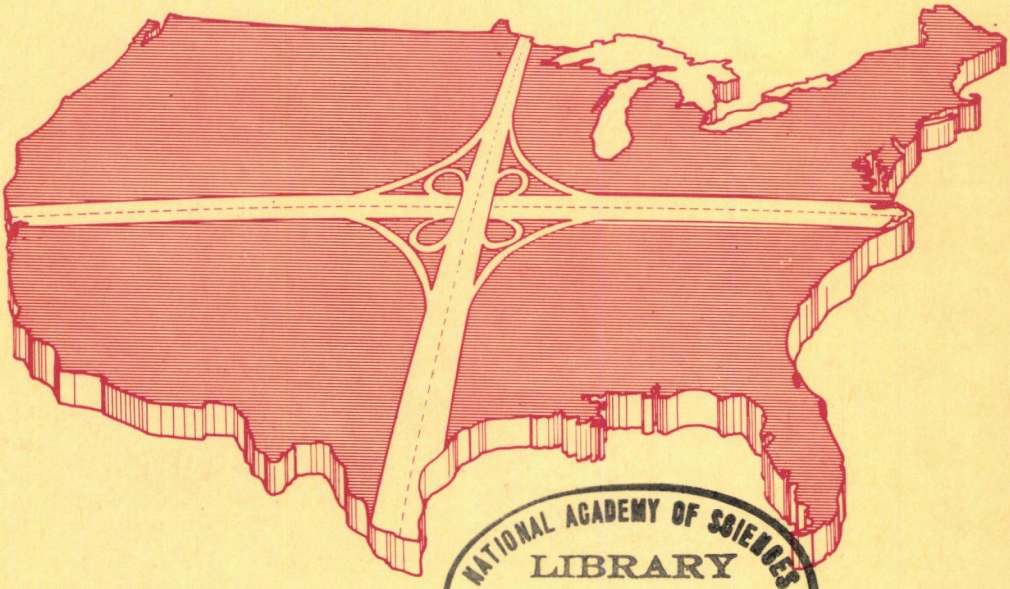
Bulletin 189



LAND ACQUISITION AND ECONOMIC IMPACT STUDIES 1958

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1958

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Bulletin 189

Land Acquisition and Economic Impact Studies 1958

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1958
Washington, D. C.

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Report of Committee on Land Acquisition and Control of Highway Access and Adjacent Areas

DAVID R. LEVIN, Chairman
Chief, Highway and Land Administration Division, Bureau of Public Roads

● THE COMMITTEE on Land Acquisition and Control of Highway Access and Adjacent Areas continued to render assistance to state highway departments during the year, and to other governmental and non-governmental agencies in their efforts to improve the legal and administrative procedures under which right-of-way for highways is acquired. Passage of the Federal-Aid Highway Acts of 1956 and 1958, providing for an accelerated highway program, made improvement mandatory in many cases, since existing methods were not geared to take care of the increased work load.

Emphasis placed on the 41,000-mile interstate system by the 1956 Federal-Aid Highway Act resulted in increased activity by the committee, due to requests for assistance in formulating new legal machinery in states where enabling legislation did not exist, and improving existing legal and procedural mechanisms in others. In this connection, it is interesting to note that with the exception of Arizona, all of the states now have controlled-access laws or constitutional provisions relating to this subject.

Regulation of the roadside continued to be a lively concern of the committee, since the utility of many of the highway improvements contemplated by the 1956 act could be impaired by lack of such regulation. There was increased activity in the U. S. Congress for legislation to provide some sort of control of outdoor advertising in areas adjacent to the interstate system. Although such legislation failed of passage in 1957, the 1958 Federal-Aid Highway Act included a provision whereby state highway departments may receive additional federal funds if billboards are prohibited, with certain exceptions, within 660 ft of the interstate system.

The right-of-way salary survey, sponsored by the committee in cooperation with the Right-of-Way Committee of the American Association of State Highway Officials and the American Right of Way Association, was completed and published as Highway Research Board Special Report 34. The study reveals a wide range of salary schedules for right-of-way personnel throughout the United States. It is hoped that this report will provide the factual basis for seeking appropriate betterment in this important field of highway activity.

Studies of the economic impact of highway improvements on urban and rural communities gained new impetus as a result of a Special Conference on Economic Impact conducted under the auspices of the committee in March 1957. There are at the present time at least 41 economic impact studies underway in 26 states, as indicated in a later section of this report.

A number of interesting papers were presented at the open meeting sponsored by the committee during the Annual Meeting of the Highway Research Board in January 1958. Three of these papers, "Industrial Development Survey on Massachusetts Route 128," "Economic and Social Impact of the Connecticut Turnpike," and "Tenant Relocation for Public Improvements," are included in this report, and discussed under the appropriate headings herein. Because two of these papers pertained to economic impact studies, it was thought desirable to include another paper on the same subject, presented at a meeting of the Committee on Economic Analysis—"Methods Used to Study Effects of the Lexington, Virginia, Bypass on Business Volumes and Composition." A fourth paper presented at the committee's open session, "Visual Approach to Highway Planning and Design," by Louis B. Wetmore, will be included in the HRB Bulletin 190, entitled "Urban Research."

LAND ACQUISITION

The significance of land acquisition in connection with the over-all federal-aid highway program cannot be over emphasized. The new highway program will necessitate

the acquisition of fantastic amounts of real estate. Land is needed for 41,000 miles of modern highways having rights-of-way as wide as 300 ft. Complex interchanges, ramps and frontage roads will, of themselves, require great quantities of additional land. Some of these highways will be built so that they boldly traverse lands that former highway builders circumvented and avoided due to the expense and engineering difficulties. This in turn creates land acquisition problems that cannot be bypassed; they must be faced and solved.

When the system is ultimately established, the traveler will be able to ride in an automobile from coast to coast and border to border without passing an intersection at grade or a stop sign. Consequently, safety, economy and utility will be enhanced, driving will be a pleasure once more, and beauty of the landscape will be protected. Furthermore, these new highways are to be a vital and integral part of national defense plans.

New Legislation

More and more legislatures of the various states have been enacting into law proven practices which facilitate the tremendous land acquisition task. The following summary will illustrate what the states have done during 1957 legislative sessions:

Authority to Condemn. Texas has given its state highway commission the authority to condemn land for highway purposes. Formerly this function was vested in the counties.

Future Use. Florida and Indiana have enacted provisions permitting the acquisition of land for future highway use. The Florida act authorizes the Florida Development Commission to purchase land for the future improvement of existing highways. The Indiana act permits such land purchases, providing a highway is to be constructed within a reasonable length of time.

Immediate Possession. Last year Illinois also provided for a system (patterned after federal law) whereby the state could take immediate possession of certain lands needed for highway construction, after instituting condemnation proceedings and depositing 125 percent of the amount of compensation estimated by appraisers appointed by the court and work out later in the courts the compensation problems. A lower court decision declared this law unconstitutional, but the state supreme court subsequently reversed the holding. Georgia and Tennessee also passed legislation facilitating the taking of possession.

Nature of Interest Taken. Indiana, under its new highway law, permits the state to acquire a fee simple to land needed for highway purposes. New laws in Texas and Illinois give the state authority to condemn a fee simple or a lesser estate for highway purposes.

Relocation of Tenants. Connecticut passed an act designed to ease the inconvenience of tenant relocation. Sometimes the problems created when tenants are forced to move from their established residences can be extremely serious. This problem of tenant relocation has been of special import, naturally, in New York City. Robert S. Curtiss, President of the Real Estate Board of New York, Inc., has recorded how the New York Port Authority has handled the problem. A verbatim account is given in "Tenant Relocation for Public Improvements" which Curtiss presented at the Annual Meeting of the Highway Research Board, January 8, 1958, in Washington, D.C.

Reservation of Right-of-Way. Indiana can now reserve highway rights-of-way for a limited amount of time in order to prevent development within the proposed right-of-way.

Revolving Fund. For the purpose of overcoming some of the delay in right-of-way acquisition, several states passed laws which established revolving funds to be drawn on when highway right-of-way is desired to be purchased but construction is not to begin until later. The system thus permits the head of state highway departments to have a limited amount of funds constantly available when right-of-way is needed. The system also permits more rapid acquisition which, in turn keeps costs down. Specifically, three states—Indiana, Maryland, West Virginia—provided for establishment of revolving funds during legislative sessions during the year. Five states—Florida,

Kansas, Michigan, New Jersey, Ohio—had bills attempting to establish revolving funds presented to their legislatures, but they were defeated. It is expected that new attempts to enact such legislation will be made during the next legislative sessions.

Acquisition of Highway Right-of-Way for Future Use

As previously noted, the nation is experiencing its greatest highway construction boom, and more and more state legislatures are authorizing future acquisition of highway right-of-way. Only one case was noted, however in which a state supreme court was asked to rule on the authority of a state highway department to acquire land in advance of construction last year.

In the case of State v. Florida Development Commission,[1] the Board of County Commissioners of Orange County requested the Florida Development Commission to assist in financing improvements to existing state primary roads in Orange County. The plan called for the issuance of $3,500,000 of so-called "Florida Development Commission, Orange County Road Revenue Bonds." The proceeds of the bonds were to be used to redeem certain outstanding State Road Department-Orange County Fuel Tax Anticipation Certificates. The balance of the bond proceeds, amounting to about $3,000,000 was to be used primarily to purchase additional rights-of-way for future state primary road improvements. The principal and interest of the bonds were to be liquidated out of Orange County's share of the Eighty Percent Surplus Gasoline Tax accruing to that county under Section 16, Article IX of the State Constitution.

The state contended that the Eighty Percent Surplus Gasoline Tax accruing to the county could be used only for the construction of a completed road project; that the funds in question could not be employed merely for the acquisition of right-of-way without a commitment to the effect that the road would actually be constructed.

The state supreme court called attention to prior decisions in which it had held that the state road department had unlimited discretion in the use of the surplus gasoline tax so long as the funds were used for the improvement of state highways within the limits of the particular county entitled to the surplus. (State v. State Board of Administration, 157 Fla. 360, 25 So. (2d) 880, 1946); (City of Hollywood v. Broward County, 54 So. (2d) 205, 1951).

The state attempted an answer to that argument with the contention that the instant case was distinguishable from the prior decisions because the proceeds of the bond sale were to be used for the acquisition of rights-of-way for highways to be constructed in the future rather than to finance the actual completed construction of the road. The court found no justification for this contention.

The court reasoned that under paragraph (c), Section 16, Article IX of the constitution, the state road department was authorized to use the Eighty Percent Gasoline Tax Surplus "for the construction or reconstruction of state roads and bridges within the county." The court added that the acquisition of adequate right-of-way was an essential component of highway construction. In fact, the court cited the Florida Highway Code of 1955 (Chapter 29965, Laws of Florida 1955) which defined the term "road" as including "the roadbed" and "right-of-way."

As was indicated in the bond resolution, the county was undertaking to plan for the improvement of the state highway system within the county by the acquisition of adequate rights-of-way at a time when land values would not be influenced by the immediate announcement of actual highway construction. This was particularly significant, the court said, in view of the statutory restriction against showing benefits from a proposed improvement as against the value of property taken by eminent domain. It would appear to be an efficient exercise of governmental power and business judgment in providing an essential public service in an area of the state which, in a measure, was outgrowing the capacity of the government to provide these important needs out of current resources.

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[1] 95 So. (2d) 13, May 1, 1957, (See memorandum 95, September 1957, Committee on Land Acquisition and Control of Highway Access and Adjacent Areas, Highway Research Correlation Service Circular 346).

The court again cited the Highway Code (Section 337.28, Florida Statutes, F.S.A.) to note that it specifically authorized counties to furnish rights-of-way for any road in the state primary system. The only condition attached to the expenditure was that the road was to be surveyed and located in the county by the state road department. According to the court it was self-evident that a right-of-way for a primary road could not be acquired until this preliminary survey, which would determine the width of the right-of-way, had been made by the proper authority.

The court observed that the state primary roads named in the resolution as those to be improved by the acquisition of additional rights-of-way were shown by the Report of the Select Committee on Roads of the Legislative Council of the Florida Legislature 1954, p. 160, to be roads in the state primary system which were badly in need of improvement as measured by sufficiency rating standards established by the state road department. The court, while admitting its lack of power to review the exercise of discretion by the board, said that the foregoing observation was made merely to demonstrate that in this instance, the road department as well as the county appeared to be exercising its discretion wisely in the expenditure of public funds.

The court said, therefore, that there was no constitutional or statutory inhibition against the use of the proceeds of the bonds proposed to be issued by the bond resolution reflected by the record. On the contrary, the court held that the contemplated use of the bond proceeds was well within the prescriptions of the state constitution and applicable statutes. The fund was allowed to be pledged in the fashion proposed in order to meet the requirements of the bond issue.

Immediate Possession of Highway Right-of-Way

In order to speed up their highway programs, many legislatures have been sanctioning the taking of land needed for highway right-of-way at some point prior to the completion of condemnation proceedings. The purpose of such legislation is to prevent unconscionable delays in highway construction programs by permitting state highway officials to enter on the land and commence construction without waiting for final determination of compensation by the court, which may, and has been known to take years. Immediate possession statutes provide that, if necessary, just compensation can be worked out later in the courts. Two states—Louisiana and Washington—handed down decisions involving ramifications which arose when this principle was practiced.

Louisiana. According to the Court of Appeal of Louisiana, a statute is unconstitutional which provides that a landowner may not take legal action to prevent or retard construction of a highway once it has been laid out and construction has commenced without his objection. [2]

Along with 77 other landowners, Williams had executed a deed conveying to the department a right-of-way "of a width not to exceed 80 feet, measuring 40 feet in width on each side of the centerline of the existing roadway." Subsequently the department of highways revised its plans, locating the right-of-way approximately 80 ft further east into Williams' land, in order to straighten out the old highway. The change was made without Williams' knowledge. He objected as soon as he learned of the state's action, and filed suit within 7 days after the construction started. An injunction was issued by the district court and the state appealed.

In affirming the judgment of the district court, the court of appeal held that any citizen was entitled to have the public need for his property judicially determined, and to receive payment for it before it was taken. This, said the court, was one of the fundamental liberties guaranteed by Article 1, Section 2, and Section 6, and by Article 4, Section 15, of the Louisiana Constitution. These provisions authorized the legislature to provide for the taking of property for highway purposes by exparte court order prior to final judgment in expropriation suits, "provided that provision be made for deposit before such taking" of the estimated value and damages.

The court cited a recent Supreme Court of Louisiana decision which affirmed the constitutional right of a landowner to receive compensation for private property before

[2] Williams v. Department of Highways, 92 So. (2d) 98, January 2, 1957.

the public taking, and held void for this reason a police jury taking of private property for road purposes when payment was not tendered until 16 days after the taking; and held further that "notice and an opportunity to be heard and to defend in an orderly proceeding" are constitutional requisites to afford due process before such taking. (Charles Tolmas, Inc. v. Police Jury, La., 90 So. (2d) 65 June 29, rehearing denied September 28, 1956).

The statute on which the department based its appeal provides:

> After the department has laid out a highway over a certain tract of land and the work thereon has commenced without objection on the part of the landowner, the landowner may not prevent or retard the construction thereof by any legal process, but is limited to an action for damages. (LSA-R. S. 48:219)

The court acknowledged that counsel for the highway department ably argued that the necessities of efficient highway construction and of avoiding undue expense by interruptions or relocations demanded the sustaining of the constitutionality of the department's interpretation of the statute to the effect that a landowner's claim is relegated to damages and he is barred from enjoining construction, once a contract has been let and work has been started upon a given highway project. However, the court decided that the sincerely claimed power of the state, through the highway department, to preclude a citizen's fundamental right to have the necessity for the public taking judicially determined and the court-ordered compensation paid or deposited before the taking, was repugnant to the cited provisions of the state constitution.

Washington. In State v. Laws[3] the Supreme Court of Washington was asked to determine whether or not the state by paying into court the amount of an award for condemnation, and by taking possession of the property, waived its right to appeal. The court decided that it had.

On November 1, 1956, the jury had returned a verdict of $19,500 and judgment in that amount was entered. Notice of appeal was filed on November 7, 1956. On February 6, 1957, the state paid into the Superior Court of Spokane County the sum of $19,556.90 (judgment plus costs). The letter of transmittal indicated that it was reserving the right of appeal. Thereafter the state took possession of the property involved. At the time of the appeal to the supreme court, the money still remained in the depository of the court.

Under the Washington State Constitution no private property may be taken for public use without just compensation having been first made, or paid into court for the owner. In this case the specific question, therefore, was whether just compensation was paid into court for the owner before the property was taken. The supreme court found that the state had paid the money into court, but not as just compensation for the owner. The court reasoned that this was so because the state had already appealed on the ground that the amount awarded was excessive compensation.

The statute gives either party the right to appeal. An appeal by the property owner does not operate to prevent the state from taking possession of the property pending such appeal, if the amount of the award has been paid into court. The state, on the other hand, according to the court, cannot take possession of the property and also wage an appeal from the judgment on the verdict. In order to take possession of the property, it must first accept the award of the jury and pay it into court for the benefit of the owner; as soon as it does so, it waives its right of appeal. According to the court, the state "cannot have its cake and eat it too."

The court held that by paying into court the amount of the award, plus costs, and taking possession of the property, the state had accepted the award of the jury. The issue of "the propriety and justness of the amount of damage" was no longer an issue. The question was moot, the court said in dismissing the appeal.

Necessity for Taking

The law protects owners of land in the sense that it will not permit indiscriminate

[3] 318 P. (2d) 321, 1957.

or arbitrary condemnation of their land by public authorities. There must be a necessity present before any land can be taken. Nevertheless, the law grants to public authorities broad powers of discretion in performing their functions. Vermont's highest court was called upon last year to give a workable definition of the statutory term "necessity."

In this case,[4] the state highway board sought to condemn 24.62 acres out of a 135 acre farm in Brattleboro, Vermont. The land was situated westerly of U.S. Route 5 (Canal Street) and southerly of Fairview Avenue. Of this total acreage only about 8 acres were flat land. The rest was hilly and wooded terrain which had been partially cleared for skiing purposes, although it had not been used in that connection for the past two years. The board had not included any portion of the flat land in its condemnation proceedings.

The landowner asserted that the order for the taking was unsupported by the evidence, both as to the necessity for the taking and as to compensation awarded therefor. The court restricted itself to consideration of only the question of necessity. The report showed that the proposed taking was for the purpose of a limited-access, divided, four-lane highway which would ultimately run from Hartford, Connecticut, to White River Junction, Vermont, from which point it would proceed in two forks, to the Canadian border, one by way of Burlington, and the other by way of northeastern Vermont.

The supreme court ruled that the "necessity" specified by statute for condemnation of land for highways did not mean an imperative or indispensable or absolute necessity, but only that the taking provided for be reasonably necessary for accomplishment of the end in view under the particular circumstances.[5] The court said that to require "imperative necessity" as a general test for necessity would be to adopt a test that had never been applied in condemnation for highways, and "there would be no practical way in which the crooked road could be made straight." To do so would be to adopt a strict and rigid necessity never intended by the statute.

The end in view was determined by the legislature itself by Act No. 270 of the Acts of 1955. This act stated that necessity was to be based upon grounds of health, safety and welfare. The court was strongly aware that this was a declaration of policy under the very act that highways like the one in question might be constructed. This court was not, therefore, confronted with the situation where the legislature's purpose was ambiguous.

Where the volume and nature of traffic is such that public safety requires under the circumstances that the road be constructed or reconstructed at a given location, a reasonable necessity exists, and a taking of land is justified, if reasonable in the light of all the concurring circumstances. The court declared that under the statutes the state highway board had been vested with a broad discretion for determining what land it deemed necessary for the particular location and route to be followed, and as a safeguard, appeal to the county court with a provision for a hearing before an independent board of commissioners was provided. A determination, said the court, made agreeably to the statute will not be interfered with by the courts if it is made in good faith and is not capricious or wantonly injurious.

The court overcame the landowner's arguments concerning an alternative route, and agreed with the findings of the commissioners that the proposed route through appellant's property was the most satisfactory from the standpoint of safety, grade, land acquisition and engineering costs.

The supreme court held that the evidence sustained a finding as to necessity for condemnation and as to the amount of compensation to be awarded therefor. The judgment of the lower court was affirmed.

The case in question was handled under Vermont's old land condemnation law. A new law was passed by the 1957 legislature and is now in effect.[6] The new law attempts to overcome any definition difficulty with term "necessity." The new statute on necessity reads as follows on the next page.

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[4] Latchis v. State Highway Board, 134 A. (2d) 191, July 7, 1957.
[5] V.S. Secs. 4971-4975.
[6] H. 245.

> "Necessity" shall mean a reasonable need which considers the greatest public good and the least inconvenience and expense to the condemning party and the property owner.

The wording would seem to cover both the court's "reasonable necessity" and the highway safety doctrines. The statute's necessity definition goes on to list a number of other factors to be considered such as the amount of farm land to be taken out of production, the adequacy of alternate locations, the effect on home and homestead rights, the convenience of the property owner, the effect of scenery and recreation values and the effect on town grand lists and revenues.

Compensation for Damages

Civilized man has moved a long way from the early times in history when the king, if he needed or wanted certain lands, simply appropriated the land to himself and little or nothing could be done about it by the unfortunate landowner. Today no one will deny the right still exists whereby the sovereign can take any land it needs, but a countervailing principle is now well established in law which provides no land can be taken without just compensation first being paid the landowner. When there is disagreement as to what constitutes just compensation, the courts attempt to reach a fair decision.

A cursory review of all reported 1957 court cases dealing primarily with land acquisition problems, leaves the impression that the vast majority of the cases can be generally placed in one of two categories: those in which the landowner claims he was not compensated enough, and those in which the state claims he was compensated too much. Admittedly, such a two-camp categorization is an oversimplification of land acquisition problems, which, in reality, present the courts with some of their knottiest cases. The cases outlined below are no exception.

Change in Grade. Four cases were reported during the year involving the question of whether compensation should be awarded for a change in grade. All four came from the New York courts. Each one of these cases involves a different situation. Thus, in one, the change in grade resulted from an improvement made by a town, and although no land was taken, compensation was awarded under state statutes permitting recovery in such instances when the taking is by a town. The second case involved a change in grade resulting from an improvement by the state but part of the owner's land was also taken, and compensation awarded reflected damage due to such change. But since New York law does not specifically provide for consequential damages resulting from an improvement made by the state, when no land is taken, landowner in the third case was denied compensation for a change in grade. Finally, in the fourth case discussed no land was taken, but the court awarded compensation for damages for the reason that the landowner's access was impaired as a result of the improvement by the state.

New York. The first case was based on Section 197 of the Highway Law, which expressly allows a landowner to recover damages from a town due to a change in grade of a highway. Pursuant to this section of the Highway Law, in a proceeding to recover damages resulting from a change in grade of a town highway in the town of Hempstead, the Supreme Court, Appellate Division, Second Department, held that the town had the duty to restore and replace grass and sidewalks on the damaged land after completion of a filling operation.[7]

This case arose as a result of differing opinions concerning a report of commissioners on the value of the land in question. The report was questioned because of what the commissioners had included in the allowance for the restoration of the landowners' property. The landowners asked on appeal that the report be confirmed, and the town asked that it be set aside.

Under the existing statute, the commissioners, in determining compensation, must consider the fair value of the work done, or necessary to be done, in order to place the land in question in the same relation to the changed grade as it was to the former grade. The court reasoned that the only practical way to do so in this case was to restore or replace the grass and sidewalks after completion of the filling operation. Thus the

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[7] Application of Kruger, 162 N.Y.S. (2d) 442, 1957.

court held that the commissioners properly allowed compensation therefor.

In the second case Lewis J. Spinner brought an action against the state to recover consequential damages resulting from the appropriation of a permanent easement for highway purposes.[8] In addition to this easement, a fee strip of land was also taken. These appropriations were made in connection with an improvement of the approach to a circle at a highway intersection in the village of Johnson City, Broome County. The grade of Spinner's land was raised 14 to 15 in. as part of the project.

The court of claims awarded Spinner $12,300, with interest, as payment for both appropriations. This amount represented a compromise sum for the permanent easement, and both parties appealed the judgment. The sole controversy on appeal related to the amount allowed for consequential damages as a result of the taking of the easement.

The easement ran across the front of the property, upon which a two-family residence stood. The appropriation map indicated the state had acquired the easement "for the purpose of constructing, reconstructing and maintaining thereon embankments and/or excavations."

One expert witness expressed the opinion that, in view of the fact that the state had the right to completely block access to Spinner's property by building an embankment of considerable height on the easement strip, the property was practically unsalable, except to a person who might be willing to gamble on the state's future action. On this basis, he found that the consequential damage resulting from the taking of the easement was about ⅔ of the value of the remaining property. The witness for the state, on the other hand, while recognizing the seriousness of the situation, took the view that an allowance of about ¼ of the value was adequate, because he did not believe that the state would exercise its right under the easement to the fullest possible extent but would only use it in connection with a possible grade crossing separation which might ultimately replace the circle.

The supreme court held that the damages allowed in the court of claims were inadequate according to the record. It reasoned that if the state wished to limit its rights under the easement to the continuance of the existing use or to the prospective use envisaged by its expert, it should have done so by formal action, by deed, release or otherwise. In the absence of such modification, the damage must be evaluated on the basis of what the state has the right to do under the terms of the easement as appropriated. On the other hand, said the court, if the easement were limited to the present use, the amount of the award might have been excessive.

The judgment of the court of claims was reversed, and a new trial was ordered.

In the third case[9] the Supreme Court, Appellate Division, Fourth Department denied recovery for damages allegedly sustained by changing the grade of a highway when the state had previously acquired a perpetual easement for constructing, reconstructing and maintaining highways. The denial reversed the holding of the court of claims which had awarded the claimant $15,000 as the result of the reconstruction by the state of Thompson Road near its intersection with James Street in the Town of De Witt in Onondaga County.

The facts indicated that in 1943 the state acquired from the claimant's predecessor in title the above mentioned perpetual easement. At that time Thompson Road was widened and reconstructed as an access road to a nearby airbase. The then owner was paid for the easement which for the stated purpose placed a burden upon some 900 ft of frontage on Thompson Road and consisted of a parcel containing approximately 0.951 acre of land.

In 1950 Thompson Road was again rebuilt. In altering the approach to a nearby viaduct crossing certain railroad tracks the elevation of the road in front of claimant's property was changed from a substantially level grade to an elevation of 9 ft on claimant's southerly boundary and gradually descending on a five percent grade to a 1.7-ft elevation at the northerly boundary.

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[8] Spinner v. State, 167 N.Y.S. (2d) 731, 1957.

[9] Raymond v. State, 162 N.Y.S. (2d) 838, 1957.

The findings of fact of the trial court were, among others, (1) all work subsequent to the taking of the 1943 perpetual easement was performed within the limits of that area, (2) a 1943 appropriation map showed a profile of the proposed road to be then constructed at substantially level grade in front of the property of claimant's predecessor in title. The trial court took recognition of the long established rule that damages sustained by an abutting owner on a highway by a change of grade are not recoverable in the absence of express statutory authority conferring the right to compensation, and then laid down the general rule that "where the state changes the grade of a highway and usurps more land, rights, privileges or interest therein than those it had previously acquired, then it is liable to the owner and must make compensation therefor." Elsewhere in its decision the trial court narrowed this finding by the statement that in 1950 the state took an additional easement "by increasing the elevation of the road."

The supreme court said that it found no proof in the record that in 1950 the state took any action except to change the grade of Thompson Road. The state had already acquired a perpetual easement over a portion of claimant's predecessor in title for the purpose of constructing, reconstructing and maintaining a highway. Having acquired this right, any damage sustained by the claimant as a result of the change of grade in 1950, the court held was damnum absque injuria. In the absence of an enabling statute the claimant was without remedy. The court conceded that the result was harsh and was discriminating as to property located in a town, but the remedy lay with the legislature.

On the other hand, in the fourth case recovery of damages actually due to a change in grade by the state were allowed by a decision of the Court of Claims of New York [10] on the ground that the landowner's easement of access had been substantially interfered with.

The foundry had sued for compensation for an alleged de facto appropriation of a strip of land off the easterly or front side of its property. It also sued for damages caused by the change of grade, and interference with its access resulting from a grade crossing elimination.

The land belonging to the foundry was located on the westerly side of Lemoyne Avenue, formerly called "the State Road." The grade crossing of Lemoyne Avenue over the New York Central Railroad tracks was eliminated by depressing the highway under the tracks.

Before the construction, the railroad extended along the foundry's northerly boundary, and the highway along the east side. Lemoyne Avenue was a two way road and was practically level and substantially at grade with the foundry's premises. The buildings and signs on the property were in full view. Advertising placed on or near the front thereof could readily be seen and read. The foundry corporation was engaged in a business which required trucks to deliver and take out approximately 100,000 pounds of raw materials and finished products each month. The trucks could be backed directly from the highway so that the rear door of the truck would be flush with the platform inside the front door of the plant, resulting in reduced cost in loading and unloading.

After the construction work, the foundry's driveway and easement of access was cut off by an embankment descending 22 to 24 ft, along the front of the foundry's property, with a curb constructed at the bottom, a heavy steel cable fence along the top, and a fence barricade along the railroad right-of-way on the foundry's north boundary. Trucks could no longer be backed into the plant or even get in over the foundry's own or public property. In lieu thereof, without the foundry's consent, the state constructed a sort of substitute for the easement of access along the top of the embankment commencing about 1,200 ft southerly of the foundry's lands and running northerly past the front of the Grandinetti Building, Consolidated Gas property, Laure Building Supply, and the driveway of one private residence, then a short distance onto the foundry's lands (see Fig. 1).

The state denied that it appropriated any of the foundry's lands, property or rights, and contended that the lands used were within the state's right-of-way.

The general rule is that the state is not liable for damages due to construction or

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[10] Meloon Bronze Foundry v. State, 166 N.Y.S. (2d) 586, 1957.

alteration, including change of grade, of its highway within its own right-of-way, unless provided for by statute. Payment for damages for change of grade had not been provided for by statute. Such damages were, therefore, according to the court, damnum absque injuria.

The parties in this case disagreed as to the location and width of the right-of-way involved. The burden of proving the location and width of the right-of-way, the court said, was with the landowner, and here the landowner's evidence fell short of overcoming the evidence presented by the state. The court concluded, therefore, that the state had taken no additional land from the foundry.

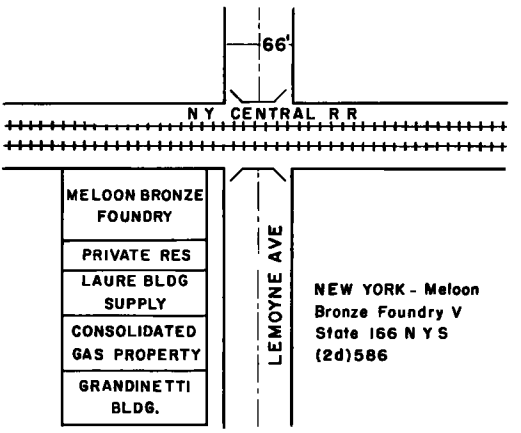

Figure 1.

However, the court did find that the state did not own the fee to this right-of-way. It only had an easement therein for highway purposes. The foundry was an abutting owner, and, according to its deed, it owned to the center of the highway. The court reasoned, therefore, that the foundry had a special easement in the highway for purposes of ingress and egress, known as an access easement. This easement was property and could not be taken away or materially impaired or interfered with even under legislative authority, without compensation.

The foundry's cost of operation was increased because of interference with its direct easement and the substitution of a new means of access. This necessitated the rental of a parcel of land on claimant's south side to enable trucks to turn and back in, so that the side of the truck stopped adjacent to a newly constructed platform instead of backing into the rear door. The foundry had to move its power lines at its own expense to accomodate the new loading platform addition leading out from the front door.

The court ruled that the interference with the foundry's easement of access was more than an inconvenience and the substitute access road was not suitable for the foundry's purposes. The court held that the foundry had suffered damages for which it must be compensated. This damage was the difference in value immediately before the taking of the easement, less the value immediately after the taking, because of the loss of suitable access without allowance for change of grade.

The court found that the value of the foundry's property immediately before and at the taking of such easement of access was $80,190 and the value thereof immediately after the taking of the access easement was $66,190. Therefore, the foundry was awarded $14,000 with interest for damages.

Other Consequential Damages. Other cases involving consequential damages where no land was taken were reported in Massachusetts, New York and Pennsylvania.

Massachusetts. The decision handed down by the Supreme Judicial Court of Massachusetts in May 1957, allowed the landowners to recover [11] damages for an injury which the court held to be special and peculiar within a state statute providing for recovery of damages to property not taken. The recorded facts of this case showed that under an order of taking dated July 10, 1951 the department of public works appropriated certain property located on State Street, between a building owned by the Webster Thomas Co. and a building of Theopold and Bigelow, for the purpose of constructing a portion of the Boston Central Artery. The taking of the property and the subsequent demolition of the buildings situated on the condemned land, exposed an interior brick boundary wall of both the Webster and Boyden buildings. One half of each wall stood on the lots of each building and one half on the lots taken by the commonwealth. There was expert testimony that while these boundary walls were safe and adequate as interior walls, they were not designed as exterior walls; that so long as the buildings on the land taken were standing, the boundary walls were safe, but upon the removal of the adjacent

[11] Webster Thomas Co. v. Commonwealth, 143 N. E. (2d) 216.

buildings the walls would have buckled outward unless tied in. By letters dated July 1, 1952, the building commissioner of Boston informed the commonwealth that certain things should be done in order to made the exposed walls safe. The commonwealth having "refused to take any action along the lines required in these letters," the petitioners at their own expense performed the work required.

Since the walls were made of soft, underburned bricks which were not suitable as outside walls, the owners of the buildings were obliged to incur additional expense to make it weatherproof.

In addition to the expenses incurred in connection with its wall, Webster suffered other damage. On November 23, 1953, before the boundary wall was reconditioned, there was a comparatively heavy, but not unusual, rain which resulted in flooding the basement of the Webster building and causing damage to property therein.

Webster and Boyden filed petitions to recover for the taking of its right to support and shelter and for special and peculiar damage to their buildings even though there was no actual taking. The trial court entered judgment in favor of the petitioners whereupon the commonwealth took exception and appealed.

The Supreme Judicial Court of Massachusetts held that the damage caused in laying out a limited access highway when the condemned buildings were torn down, leaving the interior walls of the Webster and Boyden buildings exposed and necessitating work to make the walls safe, was an injury which was special and peculiar within the statute providing for recovery of damages to property not taken, and the commonwealth was liable for the reasonable cost of tying in and weatherproofing the exposed walls and for the water damage to the Webster building. (G. L. (Ter. Ed.) c. 79, Sec. 12 as amended.) The court therefore overruled the commonwealth's exceptions.

New York. In this case [12] a landowner was not allowed to recover for alleged damages because of an appropriation of his right-of-way over adjacent lands which took place subsequent to a formal release of his claims negotiated between the landowner and the state at the time of the original taking.

The facts of the case disclosed that the Levinsons owned a large tract of land upon which was situated a main building which was used as a hotel or lodge. There were also a riding stable, a swimming pool, a baseball diamond, some tennis courts, and a number of other buildings and recreational facilities such as are generally found in an establishment of this kind which is ordinarily known as a summer hotel.

The landowners contended that the negotiated settlement and the "taking" of the right-of-way should have been regarded as separate transactions, for the settlement was not intended to release any rights in the right-of-way. The landowners argued that the highway had not been constructed on that part of the adjacent land where the right-of-way was located when the settlement was negotiated, and the "taking" of the right-of-way was an appropriation of the adjacent land, and not the original appropriation referred to in the settlement papers.

The state urged the court to hold that the landowners had not established that they had any rights in the right-of-way. Or, in the alternative, if they had any such rights, the release actually eliminated all claims for damages by reason of the interference with or the taking of the right-of-way. Furthermore, the state simply denied that the papers were signed under any mutual mistake of fact.

Assuming that the landowners had established an interest in the right-of-way, the court of claims agreed with the state that any claim for damages against the state was released by virtue of the provisions of the settlement papers, and particularly the "Agreement of Adjustment" and the "Release of Owner."

The "Agreement of Adjustment" dated June 21, 1950, set forth, among other things, that a sum of $5,000 was paid in consideration for the full adjustment of the claims the landowners had against the state.

The "Release of Owner" dated May 19, 1951, acknowledged the "Agreement of Ad-

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[12] Levinson v. State, 158 N.Y.S. (2d) 180, November 17, 1956 (See Memorandum 93, July 1957, Committee on Land Acquisition and Control of Highway Access and Adjacent Areas, Highway Research Correlation Service Circular 343).

justment" and contained the following language which the court said was controlling:

> . . . and from any and all claims which claimant has or may have by reason of any estate or interest in the streams, lakes, streets, roads, highways or rights-of-way, if any, adjacent to or abutting on the above mentioned property required for the purposes of said project . . . . (Emphasis supplied by the court)

The court said that the above language, and particularly the underlined part, released any claims for damages arising because of any right, title or interest in the right-of-way, since the landowners' property, which was originally appropriated, was "adjacent to or abutting" thereon.

The court wanted to be sure, however, that it was clear that the release did not include any property interest itself. In other words, whatever right the landowners had in the right-of-way was still theirs, but there was now imposed upon those rights the newly constructed highway project. Only the damages resulting from such public use had been released.

The court also assumed for the sake of argument that at the time of the original appropriation, the landowners had acquired their right by prescription or otherwise, and that it constituted an easement over the neighboring land. The court repeated the rule that the value of such an easement could not be evaluated in gross and could not be ascertained without reference to the dominant estate which in this instance was the landowners' property. Upon such an assumption, the court said that if damage had resulted to the alleged right-of-way by reason of the original appropriation, it had been compensated for as consequential damages when the sum of $5,000 was paid to the landowners in accordance with the settlement.

In the light of the foregoing conclusions, the court felt that it was not necessary to determine any other issue, and the claim of the landowners was accordingly dismissed.

Pennsylvania. Pennsylvania statutes impose no liability upon the commonwealth for consequential damages when no property is taken. This fact was emphasized in a superior court decision decided in June 1957.

This case [13] involved relocation of a highway in Butler County.

Dean E. Moyer and Olivdene V. Moyer, his wife, were the owners of a house and lot in the Borough of Evansburg, Butler County, fronting 75 ft on old State Highway Route 78. In relocating the highway, it was moved away from the Moyers' lot some 30 ft, and a fill varying from 9 to 15 ft was made. No land was taken. Access to the Moyers' property was accomplished by filling in a portion of the old highway and making a steeply declining approach from an intersecting street, which approach ended in a cul-de-sac. The Moyers alleged that the value of their property had decreased. The borough council refused to assume liability for property damage resulting from the highway construction. Viewers appointed by the court reported that the commonwealth was not liable because no land had been taken, and appeal to the court of common pleas resulted in judgment adverse to the landowner. The judgment was affirmed by the superior court.

The Moyers alleged that a property right had been taken for which they were entitled to compensation under Section 10 of Article 1 of the Constitution of the Commonwealth. They argued that although no physical part of their property was taken, by depriving them of their ingress and egress to the state highway and by building a fill in front of their property, they lost a property right which was included in the above constitutional provision.

The Moyers' principal contention rested upon the premise that a borough, as a municipality under Section 8 of Article 16 of the Constitution of the Commonwealth, was liable for consequential damages. Therefore, had the work been done by the Borough of Evanburg the Moyers would have been entitled to damages. Upon that foundation the Moyers endeavored to base the proposition that the statutes amounted to an assumption

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[13] Moyer v. Commonwealth, 132 A. (2d) 902, June 11, 1957 (See Memorandum 96, November, 1957, Committee on Land Acquiaition and Control of Highway Access and Adjacent Areas, Highway Research Correlation Service Circular 351).

by the commonwealth of the borough's liability.

The superior court noted that the Constitution of the Commonwealth contained two provisions restricting the use of the power of eminent domain. Article 1, Section 10 required compensation only for property "taken or applied to public use," whereas Article 16, Section 8 required compensation "for property taken, injured or destroyed." It was important to note, according to the court, that Article 16, Section 8 applied to a municipal corporation, but not to the commonwealth, whereas Article 1, Section 10 was a limitation upon both.

The court declared that it was well settled that the constitution imposed liability upon a municipal corporation for consequential damages, but that no liability was imposed upon the commonwealth where no property had been taken. Therefore, contrary to the Moyers' allegation, damages which were merely consequential did not constitute a taking of property within the provisions of Article 1, Section 10 of the constitution. The court said the reason for the rule was obvious: In addition to many others, the commonwealth owns the highways of the state and constructs yearly thousands of miles of road. If it were to be liable for consequential damages the burden imposed on the commonwealth would be enormous.

The court ruled that the state highway law was not, either in its title or in its various provisions, the type of express legislative mandate, which was required to impose liability on the commonwealth for consequential damages resulting from the improvement of a highway within a borough without the taking of realty. The work "damages," appearing frequently in the statute, did not appear to the court to include consequential injury.

Judgment of the lower court in favor of the commonwealth was affirmed.

Another Pennsylvania case denied damages to a landowner whose house was damaged by a landslide resulting from a highway improvement. This case involved an actual taking.[14]

The facts of this case revealed that Lewis W. Holmes owned a lot with a 30-ft frontage abutting on West Fifth Avenue in McKeesport and a depth of 109 ft—a total area of 3,236 sq ft. In 1950, in the court of common pleas, Allegheny County petitioned for the appointment of viewers to determine and award damages to Holmes and other property owners whose property was taken, injured or destroyed by the widening of the avenue. Ten feet of the front of Holmes' lot was taken for the right-of-way. Additionally, 1,136 sq ft was occupied for slope easement, with the top of the slope running from a point on the westerly sideline of the lot 35.14 ft south from the right-of-way line to a point on the easterly sideline of the lot 40.57 ft south from the right-of-way line. The slope line ran through the middle of a two-story frame dwelling, resulting in its total demolition. There was a one-story cottage at the rear of the lot, 60 ft removed from the top of the slope line. Based on the report of the Board of Viewers, Holmes was awarded $8,000 on July 14, 1950, representing "the damages for all property taken, injured or destroyed." No appeal was taken.

On or about December 5, 1950, earth commenced to slide on the remaining portion of Holmes' lot, resulting in damage to the small cottage at the rear. On August 26, 1952, Holmes filed a petition asking for the appointment of viewers to ascertain and award compensation for damages suffered "by reason of the removal of the support necessary to the premises remaining." The petition alleged that the resultant "injury and damage to said premises was the necessary and unavoidable consequence of the non-negligent performance of said construction."

The court of common pleas rendered judgment for Holmes, and the county appealed, on the ground that the 1950 award was conclusively presumed to include all damages. The superior court held that where the Board of Viewers filed a report as to the damages to an owner's property caused by the widening of the street and the report was confirmed absolutely and no appeal had been taken, that award included consequential damages and the owner could not recover for any alleged subsequent damages.

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[14] In re Holmes' petition, 132 A. (2d) 918, June 11, 1957 (See Memorandum 96, November 1957, Committee on Land Acquisition and Control of Highway Access and Adjacent Areas, Highway Research Correlation Service Circular 351).

The superior court said the lower court apparently reasoned that in a condemnation proceeding a municipality did not acquire "the right of the owner of the remainder of the tract to have the adjacent soil supported." In other words, where land was taken for public use, the right of support for the adjoining soil was not taken, but such rights should be retained by the owner, and improvements would have to be constructed so as not to interfere with that right, or further compensation would have to be made. In other words, the property owner should not be precluded from recovering damages for injury to his property arising out of a condition not ascertainable at the time the award was made, and which could not possibly have been considered as an item of damage even if alleged, since the condition giving rise to claim of damage was nonexistent at the time of claim and could not be recognized because of its speculative, remote and unforeseeable aspects. The superior court, however, held that such reasoning was contrary not only to law, but also to the facts [15] in the instant case.

Under established rule in Pennsylvania:

> Where a street or highway is laid out, the property owner must submit his whole claim for the damage caused by the opening and grading thereof, embracing consequential as well as direct injuries.

According to the court, it was beyond question, therefore, that the original award in the principal case must have included consequential damages.

Furthermore, not one of the many Pennsylvania appellate cases which the court examined upheld the decision of the court below. To the contrary, they all supported the contention of the county that the damages presently claimed were included in the first award. Having been adjudicated in the original proceeding, they could not have been made the subject of a second claim. No individual or municipality "should be vexed twice for the same cause."

The order of the court below was reversed and no subsequent award was allowed.

In dissent, Justice Ervin said that it seemed extremely unfair and contrary to the constitution to prohibit an owner from securing damages for an injury actually suffered. For a jury of view to fix damages for an injury which had not occurred and which might never occur could unduly penalize the municipality. To permit a jury of view to assess damages before the happening of the event would permit them to indulge in the rankest kind of speculation. How could a jury of view intelligently assess damages for something which had not occurred? Ervin believed it would be more reasonably for a second jury of view to assess the damages if and when such consequential damages occurred. Such a rule, according to the justice, would prevent the payment of consequential damages which had not and might not ever occur and, on the other hand, would allow to an owner damages intelligently assessed if and when they did occur. If the law of Pennsylvania needed changing so that justice may prevail, he was in favor of the changing.

Offset of Special Benefits. When part of a landowner's property is appropriated for highway improvements, and such improvements would be specially beneficial to the remaining property, courts generally permit such special benefits to be set off against damages to such remaining property. However, if the benefits are equally salutary to the public in general, then they are considered general in nature and cannot be set off against the severance damages. The Indiana case discussed below illustrates this principle. On the other hand, in a few states, benefits to the remaining land may be offset against the value of the land taken as well as that remaining. This doctrine was brought out in a Missouri case, also discussed below.

Indiana. This was an action by the state to acquire a strip of defendants' land for highway purposes. The circuit court, Jackson County awarded defendants the sum of $5,500 and the state appealed. [16]

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[15] Holmes' engineer, L. F. Savage, testified that the hillside in question had been "a sliding proposition" for over 50 years. It was certainly not "speculative, remote and unforeseeable" that further, and probably more severe slides would occur as a result of the new cut. (Footnote by the court)

[16] State v. Smith, 143 N. E. (2d) 666, 1957.

The state contended that it was error for the trial court to refuse evidence introduced by it to prove that part of the land in question actually had a value for something other than farming. According to the state, parts of the farm along the new highway had a higher value as small tracts than the property had as an entire farm.

Smith, the landowner, contended that the benefits which the state was attempting to show by the testimony of its witnesses were common to all the other owners whose lands were intersected by the relocation of the highway, and hence such benefits, if any, were general and not special.

The court held that, in line with its past decisions, any benefits which accrued to the property remaining after appropriation should be deducted from the amount of damages allowed; and the difference, if any, plus the damages allowed for the property actually appropriated, should be the amount of the award, but in no case should the total damages awarded be less than the damages allowed on account of the land and improvement actually appropriated. [17]

The court therefore concluded that if the value of residual land was enhanced because the location of the new highway had made it desirable for purposes other than farming, such enhanced value was a special benefit to the landowners, although other landowners along the highway might have been similarly benefited. The jury was entitled to consider such facts in determining the damages to be awarded, and the trial court erred in refusing to allow the question as to value of the remaining land as small tracts which would have presented this issue to the jury.

The judgment was reversed with instructions.

Missouri. The State Highway Commission of Missouri brought suit to condemn a right-of-way consisting of 5.09 acres across land belonging to Mr. and Mrs. Roy L. Mattox. [18] The jury returned a verdict of no damages. Mattox claimed this fact was a clear indication that the verdict was arbitrary and the result of prejudice. For this reason the case was appealed to the Kansas City Court of Appeals.

The facts brought before this court showed that the Mattox farm consisted of approximately 140 acres. It was located slightly south and west of the town of Bigelow in Holt County, and had been in Mrs. Mattox's family for over 50 years. An existing road running through the farm had a 40-ft right-of-way with a 20-ft gravel surface. The new road would be 24 ft from shoulder to shoulder with an 80-ft right-of-way.

Mattox claimed the existing road had always given adequate service. According to other witnesses, it had not. Mattox also claimed his farm was extremely fertile for corn, and that there was a grove of walnut trees many of which would have to be removed. These trees acording to Mattox, were worth $50 apiece. He placed the reasonable value of the farm at $350 per acre, and stated that its value would not be enhanced by the construction.

The defendants called Silas C. Combs, as a witness. He testified that the farm was reasonably worth $250 an acre and the fact that it would front on the farm to market road would not add to its value.

In presenting its case, the state highway commission called six witnesses, among whom were neighboring landowners, a real estate broker and the state highway commission's district engineer. The highest appraisal placed upon the land by these witnesses was $200 an acre, and the lowest figure was $185 an acre. Furthermore, these witnesses stated that after the road was improved the Mattox farm would be worth from $10 to $25 per acre more.

In reaching a decision, the court of appeals cited as authority the case of State ex rel. State Highway Commission of Missouri v. Baumhoff. [19] That case was another condemnation case in which the jury returned a verdict for the plaintiff and awarded the defendant no damages. The court in an exhaustive opinion held that if the amount of damages exceeded the amount of special benefits, the landowner was entitled to the difference, but if the special benefits exceeded the total damages, the landowner would recover nothing. In estimating damages, the value of the land taken and damages to

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[17] State v. Ahaus, 63 N.E. (2d) 199, 1945.

[18] State v. Mattox, 307 S.W. (2d) 382, 1957.

[19] 230 Mo. App. 1030, 93 S.W. (2d) 104, April 28, 1936.

the remaining tract might be computed and any special benefits to the remaining land subtracted therefrom, or the proper valuation might be taken as the difference between the reasonable market value of the entire tract before improvement and its reasonable market value thereafter.

In the instance case, the court held that the state had offered substantial evidence that the defendants would receive special benefits vastly in excess of the damages they would sustain. Thus it had no right to disturb the jury's finding. The judgment of the lower court was thus affirmed.

Admissibility of Evidence. Few segments of condemnation law are more unpredictable than the matter of what the courts will allow to be admitted as evidence for measuring damages. The cases summarized below clearly point this out, each case being decided on its own particular facts. Evidence admitted or denied ranges from that of comparable sales in the neighborhood to the inadequacy of rent reserved in a lease. Only two dealt with the same problem, that of evidence as to value of land taken where a reasonable possibility of a zoning change existed.

California. Heretofore, in determining the market value of property being condemned, the established rule in California was to allow prices paid for similar property in the vicinity to be admitted as evidence only through cross-examination of expert witnesses. In other words, after the expert offered his opinion of value, it was then the burden of the cross-examiner to bring out the sales upon which he relied so as to impeach his estimate. The rule was adopted to avoid unnecessary time-consuming procedures in the administration of justice. There is a long line of authorities in California supporting this view. The most recent Supreme Court of California case on the subject, however, overruled the principle and held instead that prices paid for similar property in the vicinity are admissible on direct examination.[20]

The facts of this case indicated that L. C. Faus and others owned strips of an abandoned right-of-way formerly used as a street car route, located in the middle of Huntington Drive. The strips were 60 ft wide and the county had condemned a 30-ft strip for the purpose of widening Huntington Drive.

The superior court entered judgment and the landowners appealed. The district court held, in part, that though experts who testified for the county on market value of property based valuation on sales where one of the parties possessed the power to condemn, where property owners, on cross-examination, failed to elicit the fact that latent power of eminent domain actually prevented sale from being true market transaction no grounds existed in evidence for striking any of the estimates of market value. The district court of appeal therefore, affirmed the judgment of the superior court. Justice Ashburn in a concurring opinion declared that all the difficulty in this case grew out of the established rule that sales of similar properties were not admissible upon direct examination, and that the real reason for the exclusion of evidence of other sales was to avoid attempts to use comparables as proof of market value. The rule in his opinion was designed to avoid collateral issues and their resultant delays, but was unrealistic in practice. He thought it should be re-examined and changed, but the district court of appeals was powerless to depart from the rule as laid down by the supreme court.[21]

The supreme court on appeal apparently adopted Justice Ashburn's theory, using this very case as the vehicle for effecting the change. In taking its position the court realized it was overruling a line of decisions, but believed the former rule was "contrary to logic, unrealistic, and followed in only a few other states."

The court held, therefore, that it was error for the lower court to refuse to give a requested instruction that the price paid for other property by a public corporation having the right of condemnation would not be a proper basis for determination of market value of the property condemned.

The court cited section 1872 of the Code of Civil Procedure which provided that evidence of prices paid for similar property in the vicinity, including prices paid by condemner, was admissible on direct examination and cross-examination of a witness who

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[20] County of Los Angeles v. Faus, 312 P. (2d) 680, 1957.
[21] Los Angeles County v. Faus, 304 P. (2d) 257, 1956.

was presenting testimony on the value of property being condemned.

Three judges dissented, on the theory that the old rule avoided prolongation of condemnation trials. Under the changed rule, the expert would not only be permitted, but would be practically required, to go into detailed facts upon direct examination concerning every sale which he had considered in forming his opinion. If he should fail to do so, the dissenters feared he might find that the court would sustain objections later upon the ground that the questions should have been asked on direct examination and, therefore, would not constitute proper redirect examination. This would tend to bring into the case on direct examination numerous collateral issues, and make direct examination of every expert unduly prolonged.

Connecticut. The Connecticut Superior Court upheld the appraisal of land by a state referee in a decision handed down on February 5, 1957.[22] In this case the landowner appealed to the superior court from the action of the state highway commissioner in appraising damages in the sum of $5,000. The matter was referred to a state referee for reassessing the damages. The referee heard witnesses, viewed the property and filed a report in which he found that the fair market value of the property at the time of the taking was $5,000, or a sum total of $9,500 damages.

In this case, the landowner challenged the referee's findings that there was no access from a public highway, that the highest and best use of the land was for residential purposes, that the land was of a wild character, and that the expense and the difficulty of making it available for residences were obvious. The landowner contended, also, that there was no evidence of the prices paid for similar land in the neighborhood with street frontages.

The landowner offered evidence as to its possible use for a gravel mine in support of his claim that it was available for light industry and sought to prove that its value for gravel mining was $100,000. The evidence proved, however, that no test pits had been dug. The exposed ground, as was shown by various cuts made in connection with the construction of the highway, did not appear to be gravel of even fair quality. It consisted mostly of boulders and pebbles. Furthermore, development of the 3-acre piece for light industrial use was obviously dependent on obtaining a right-of-way to the highway. The court was of the opinion that the obtaining of a right of access was surrounded by too many uncertainties to merit consideration.

The court noted that a witness for the highway commissioner had testified that the highest and best use of the land taken was for residential purposes, and also as to prices paid for similar land in the neighborhood with street frontages, including a parcel sold by the landowner. The referee's view of the land had furnished evidence of its character.

The court concluded that the landowner's claim that the challenged facts were found without evidence had no merit, and found no reversible error in the referee's report.

Massachusetts. This case was instituted after the corner of Brook Road and Adams Street in Milton was widened.[23] The landowners had petitioned the court for an assessment of damages for the taking of a part of their premises in December, 1953. When the jury returned its verdict for only $1,250 the landowners appealed, claiming that the trial judge erred in excluding certain evidence.

The property was attractively located with a 10-room structure designed for a doctor's office and a dwelling. A lawn ran from the house to within a foot or two of Brook Road and the corner where it sloped abruptly down about four feet to the level of the road. There was evidence that before the taking the premises were worth $26,500 and afterward $21,500.

The land taken comprised 290 sq ft and was triangular in form. The lawn adjacent to the taking had become eroded. The top layer of loam had washed down exposing the under layer of gravel upon which grass would not grow.

The landowners' expert witness was not allowed to give his opinion as to what would

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[22] Altman v. Hill, 129 A. (2d) 358 (See Memorandum 93, July 1957, Committee on Land Acquisition and Control of Highway Access and Adjacent Areas, Highway Research Correlation Service Circular 343)

[23] Kennedy v. Commonwealth, 143 N. E. (2d) 203, 1957.

be reasonably necessary to restore the property to its approximate appearance before the taking. The trial judge observed that if the property was left in "a mess," the jury had taken that into consideration, for they had seen the property; that there was no embankment wall before the taking; that there was no place for a landscape architect in a land damage case; and that this was the usual case where the damages were the difference in value before and after the taking.

The landowners offered to prove that the area adjacent to the part taken would not now bear vegetation of any kind; would constantly erode and gradually work back toward the house; that to correct this condition it would be necessary to construct a retaining wall approximately 110 ft in length and 4 ft high which would prevent any further erosion; that in connection with this wall considerable landscaping in the area adjacent to the wall would be necessary; and that the fair cost of these items would be about $4,000.

The supreme judicial court held that it was error to exclude the evidence. The court said that had it been admitted, the jury could have disregarded it or they could have accepted the whole or any part of it in determining whether it was reasonably necessary and an economical method to make such a repair in adapting the premises to the new condition created by the taking. The evidence was competent as bearing upon the diminution in value caused by the taking and as corroborative of other testimony upon that issue.

The landowners' exceptions were sustained.

Maryland. January 3, 1957, the Court of Appeals of Maryland handed down an opinion which held that a reasonable possibility that land sought to be condemned would be rezoned could be considered in awarding damages.[24]

The state roads commission instituted eminent domain proceedings against Warriner and paid into the circuit court for Baltimore County the sum of $17,139.80 as its estimate of the fair value of the land and improvements taken and damages done to the property. A subsequent trial increased the award to $49,825.00 and the commission petitioned the court of appeals to lessen damages. This court, however, affirmed the lower court's decision.

At the time of the taking, the property was zoned for residential use, but testimony by Warriner was allowed to show that at that time the property should have been reclassified, and that possibly it would have been reclassified for light industrial use within a reasonable time if it had not been taken. In connection with this point the court said that it was for the jury to decide whether there was a reasonable probability that the land would be re-zoned.

In deciding the case the court said that evidence as to population growth of the area, expansion of its commercial area, demand for property for industrial use, proximity of land already zoned as light industrial, adaptability of land taken to such use, widening of a road and opening of an expressway in the vicinity, and opinions of expert witnesses that the highest and best use of land taken was for light industrial use, were sufficient to show at least a reasonable probability that, if land had not been taken by eminent domain, it would have been reclassified for light industrial use within a reasonable time. Therefore, to consider its influence upon the market value at the time of the taking, the evidence was properly admitted. The judgment of the lower court for higher damages was affirmed.

New Jersey. An award of $11,415.84 was made by the Law Division of the Superior Court of New Jersey in compensation for certain property taken by the state highway commissioner and the landowner appealed.

The property was substantially triangular in shape, having its apex at the intersections of State Highway No. 4, and Saddle River Road in Fair Lawn. At the time the proceedings to condemn were commenced, virtually all the property along the highway was zoned for business, except Gorga's property which was zoned for residential purposes. The reason given for this was that Fair Lawn had at a prior data intended to use Gorga's property as part of a county park (see Fig. 2).

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[24] State Roads Commission v. Warriner, 128 A. (2d) 248 (See Memorandum 92, April 1957, Committee on Land Acquisition and Control of Highway Access and Adjacent Areas, Highway Research Correlation Service Circular 336).

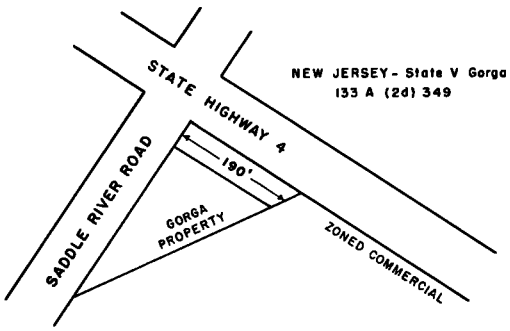

Figure 2.

Expert witnesses testified to the effect that the highest and best use of this property was for business, and it would not be worth very much for residential purposes. The state's witness testified he felt that the owner "would have a reasonable chance to have his property re-zoned . . . for business."

During the course of the trial, the landowner sought to introduce into evidence a certified copy of a zoning ordinance, adopted almost 10 months after the taking of the property, which changed the zone of the remainder of the property from residence to business. The trial court refused to admit this evidence. The principal question on appeal was the propriety of that ruling.

The state contended that the zoning change was merely speculative at the date of the taking, but the superior court pointed out that the assertion was not supported by the evidence. It noted that even the state's expert witness testified that there was a reasonable possibility of the property being re-zoned. The court, therefore, ruled that the zoning ordinance might well have been received into evidence.[25]

The superior court held that exclusion of the zoning ordinance warranted reversal, since it could not be said that such exclusion had no substantial effect on the jury's award. Although the award was based on the value of the property for business use, it was necessarily affected by the probability that such use might not be permitted. Proof of the zoning ordinance change might have minimized or eliminated any improbability of such a change.

This case was reversed and remanded for a new trial.

New Jersey. The Superior Court of New Jersey held recently that it was error to exclude evidence showing that rent reserved in a lease was inadequate, for it was a necessary element in determining the fair market value of business property.[26]

The Hudson Circle Service Center, Inc., was a New Jersey corporation which owned the property condemned by the state. The land acquired involved two parcels, one of 1.279 acres and the other of 0.701 acre out of a total area of approximately 20 acres owned by the corporation. The property was located in the town of Kearny, New Jersey. The first condemnation award was $223,500, but after appeal by both parties and a new trial in the superior court, law division, the amount was lowered to $168,200. It was this judgment which the corporation sought to have set aside in the appellate division.

Part of the premises acquired had been leased to Jersey Truck Center, a partnership owned by brothers of one Myron G. Auerbach, an officer and stockholder of the Hudson Circle corporation. The lease was for 21 years from April 30, 1948, at a rental of $7,200 per annum, payable in equal monthly installments of $600.

According to expert testimony, the amount of rent was determined primarily by estimating the gallonage of the site and then applying a "rule of thumb" factor to translate the estimate into a definite rental figure. The objective was to secure as low a rate as possible, but, the witness said, "we usually go up to two cents a gallon." The state objected to such testimony on the grounds: (1) that a specific annual rental of $7,200 was designated in the lease and an additional rental of two cents for each gallon of gasoline delivered to the demised premises became payable only in the event of default in the terms of the agreement incorporated in the lease; and (2) that a computation based on the number of gallons of motor fuel oil sold constituted evidence bearing on a claimed business loss, not to be the subject of computation in condemnation proceedings. The

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[25] State v. Gorga, 133 A. (2d) 349, 1957.

[26] State v. Hudson Circle Service Center, Inc., 134 A. (2d) 113, 1957 (See Memorandum 97, December 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service Circular 354).

lower court apparently barred the testimony on the first ground.

The appellate division stated that, in order for an award to be considered just compensation, it was essential that it include all the separate interests in the property. To properly determine that amount, evidence was admissible here to support the contention of the corporation that the portion of the property leased to Jersey Truck Center had a rental value in excess of the rent reserved by the lease.

According to the court, this was not an attempt to prove business profits, although it had that collateral effect. The proffered evidence had as its objective the determination of what rental income would probably have accrued to a purchaser in the open market.

The court felt it should be noted that the lease in question incorporated within its terms the contract referable to the gallonage and the 2 cents per gallon additional rental payment. The court conceded that it was to become operative only in case of the breach of the lease terms, but it was, nevertheless, an important element of the terms of the entire property.

The state asserted that, on the theory that a tenant was entitled to recover the difference, if any, between the fair value of his leasehold and the actual rent reserved, the value of the lease computed by the gallonage method would greatly exceed the value of the property taken as estimated by one of the corporation's witnesses. The court held that this argument involved the value of the testimony and the weight to be accorded to it by the jury. It was not determinative of the basic issue, namely, whether the jury should have had an opportunity to consider the evidence.

The court noted that, in determining the fair market value of business property, the tendency now was to consider all of the elements which an owner or a prospective purchaser could reasonably urge as affecting its fair price.

Under these circumstances, the court determined that the rigid confinement of the evidence by the lower court to the rental fixed by the lease was substantial error, as it went to the heart of the question of valuation.

Judgment was set aside and a new trial was ordered.

New York. A difficult situation arises whenever cemetery land is condemned for highway improvement. The main difficulty lies in deciding what factors are proper to use in determining just compensation. Two extreme alternative views were presented in a recent case in the Court of Appeals of New York.[27]

In this case the action was brought by the St. Agnes Cemetery against the State of New York to recover damages for a portion of its land which was appropriated in 1952 for the construction of the highway. The trial court awarded $230,712.79 (including interest), for the 3.2 acres involved, and the appellate division of the supreme court affirmed the judgment "in all things." The issue appealed to the Court of Appeals of New York was whether the finding of value was the product of the application of an erroneous principle of law. The court of appeals, in a divided opinion, affirmed the judgment of the lower court.

The facts of the case showed that the cemetery was located two miles north of the city of Albany and had been in existence for almost a century, during which time there had been over 50,000 interments. Prior to appropriation, the cemetery contained about 150 acres. The condemned strip bisected the parcel of 13.939 acres located at the southern extremity of the cemetery.

The 13.939 acres of land in question were originally purchased for the cemetery in 1938 at a total cost of $22,500. By 1951 this parcel, as well as the adjoining cemetery property, had been improved by arranging it as a modern garden-type cemetery—that is, in place of headstones which are found in a monument cemetery, there were bronze markers set in concrete at ground level which gave the area a parklike appearance. Furthermore, as part of this improvement plans had been drawn for the construction of a memorial entrance with a central drive from the entrance to a memorial statue in the interior portion of the cemetery.

The testimony of the experts revealed enormous discrepancies as to the value of the property before and after appropriation. The state's witnesses estimated the market

[27] St. Agnes Cemetery v. State, 143 N.E. (2d) 377, 1957.

value of the tract at $42,000, the value of the remainder after the taking $16,000, leaving a difference of $26,000. The witnesses on the other side valued the 13.939 acres at $429,500 and the damage at $327,000.

The court of claims, following the general rule, found the reasonable market value of the affected area of the cemetery before appropriation and after appropriation. In determining the value before and after appropriation, the court referred to the sales prices which the cemetery had obtained for the sale of burial lots in the adjoining garden sections. Value of burial lots in the affected area of the cemetery was determined by applying the unit value based on the acreage sales price per lot, less sales costs, of the lots sold in the adjoining garden section to the number of lots affected.

The court ruled that where a property has a higher value because of a restricted use, the value resulting from such restrictive use is the highest and best use of that property.

The majority opinion said the weight of authority supported the rule that if the land taken is an integral though unused portion of a well-established cemetery, that is, a portion of the cemetery in which there have been no interments and no sales of graves, the property should, nevertheless, be appraised on the basis of its value for cemetery purposes.

The court stated that there was ample authority that testimony as to future income has been accepted by some courts as evidence. It conceded superficially that it appeared in these cases the trial courts reached a value derived from capitalization of profits, a theory of appraisal which had been condemned.[38] However, this court, conscious that business profits are not allowable, adopted the rule that present value of "clearly to-be-expected future earnings may be considered." The court found in this case the theory of damage and method of appraisal were based upon a proof of loss of the value of the land itself, and not a capitalization of profits. The court also noted that the circumstances of an established cemetery are less subject to change than business enterprises, and offer a safe guide to value. The method used by the court was not a capitalization of hope of expected profits. The actual sales of nearby burial plots were before the court with the prices received and the expenses incurred in connection with the sales. Besides, the court of appeals found that the judge of the court of claims disregarded any increment which would be the profit on the land.

The state argued that damages were to be measured by the value of the cost of replacement of the land. However, the principle of replacement cost, the court said, was not germane where the taking, as here, split apart property held in one parcel and used for a single purpose. Restoration of the use of such property as a unified whole was manifestly impossible. The land taken was irreplaceable by the substitution of other land in a different location. The court said evidence of replacement or reproduction cost had been accepted only in case of structures designed for special purposes, such as the stock exchange, but not as to vacant land.

The court of appeals ultimately found no error of law in the judgment of the court of claims. Consequently it was affirmed.

Van Voorhis, in a strong dissent, believed the judgment should have been reversed for the reasons, among others, given below.

It was conceded by the cemetery that there were no consequential damages. No part of the condemned portion had been developed, and no burials had taken place, and not a single plot had been sold. All that existed on the day of appropriation was a plan by a sales organization. The court's determination of value involved too many conjectural and speculative amounts. The uncertainty, said the dissenting judge, of the sale of lots even out of the developed areas was indicated by the high rate of commissions—30 percent—which the cemetery agreed to pay to the selling organization. While the trial court decided it would take 40 years to sell the lots of this area, there was no finding as to the date when the sales would begin. If these lots were not available for sale for a number of years, the trial court's calculation would be wide of the mark. Furthermore, no deductions were made for administrative expenses nor even for the permanent and current maintenance of the cemetery. According to one of the state's wit-

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[38] U.S. ex rel. T.V.A. v. Powelson, 319 U.S. 266, 1943.

nesses, these deductions would have amounted to 95 percent of the retail sales price of the individual lots. The dissenting judge said that the market value depended upon what a purchaser would pay for the 2,912 lots in this undeveloped portion of the cemetery at the appropriation date, not upon how much it was imagined could be realized from their individual sales during the unknown future. Finally, the judge indicated that the claimant introduced no evidence concerning what a willing buyer would pay for cemetery lots of this nature.

Utah. On January 10, 1957, the Supreme Court of Utah handed down a decision following a different line of reasoning in determining damages than did the New York court under somewhat similar circumstances in the case just discussed.[29]

The property in question, being condemned by the state for highway purposes, contained a residence, an antique business, a trailer court business and a sand and gravel business. The state road commission appealed from the award of the trial court. The supreme court noted that all the expert witnesses who testified for the owners, and for the state, fixed the value of the land by finding the product of the total tons of sand and gravel on the premises times the price per ton. The court held that this was not the proper method of fixing the fair market value of the property, calling attention to the fact that courts with great unanimity had rejected the proposition that just compensation is the equivalent of the total profits which would be realized from the future operation of the property. The measure of damages is, said the court, the market value of the property and not the output thereof. The landowners were not entitled to the value of the sand and gravel independently of the land of which it was a part. As a result of using the appraised value of the sand and gravel in arriving at the value of the land, the supreme court held that there was no competent evidence to support the verdict and remanded the case for a new trial.

Authority to Condemn

An especially difficult problem arises when one public authority, having the power of eminent domain, desires to condemn property belonging to another public authority. This problem is accentuated when property desired by a state belongs to the federal government, as presented in a New Mexico case in a very interesting setting.

New Mexico. A very important case concerning the Pueblo Indians, which doubtless will have very limited application outside the States of New Mexico and Arizona, was decided by the U. S. District Court for the District of New Mexico on February 8, 1957.[30]

This is a relatively unique case in which the State Highway Commission of New Mexico brought eminent domain proceedings against the United States and the Pueblo of Laguna (Pueblo Indians) for the purpose of acquiring a strip of land in Bernalillo County. The commission sought to take a total of 178 acres alleging the strip was necessary for the construction and improvement of a public highway as part of the National System of Interstate and Defense Highways. The commission also alleged that the action was brought pursuant to a congressional statute, and that the Pueblo of Laguna, as a corporate body, held title to the lands in question which were subject to the restraint on alienation by the United States of America through its Secretary of the Interior.

The defendants asked the court to dismiss the case and deny the plaintiff's motion for an order permitting immediate entry. The defendants based their answer on the grounds, among others, that only two days prior to the institution of this litigation, the commission applied to the Secretary of the Interior for the desired right-of-way so that the secretary had not had an opportunity to act on the application. Since the application was still being considered, they alleged that the plaintiff had not exhausted its administrative remedies.

The problem presented in this case was whether or not the Congress had enacted legislation sufficiently broad in scope and within constitutional limits, to permit a condemning authority to acquire Pueblo Indian lands by eminent domain.

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[29] State v. Noble, 305 P. (2d) 495.

[30] State of New Mexico, ex rel. State Highway Commission of New Mexico v. U. S. and the Pueblo of Laguna, 148 F. Supp. 508.

Congress by 44 Stat. 498, Chapter 282, Act of May 10, 1926, passed an Act to Provide for the Condemnation of the Lands of the Pueblo Indians in New Mexico for public purposes, and making the laws of the State of New Mexico applicable in such proceedings. The gravamen of the act is that lands of the Pueblo Indians of New Mexico, the Indian title to which had not been extinguished, could be condemned for any public purpose, and for any purpose for which lands might be condemned under the laws of New Mexico.

The court said it was of the opinion that there are three independent and separate methods of acquiring title to Pueblo Indian lands, namely, (1) by condemnation proceedings, as in the case at bar; (2) by negotiations with the Secretary of the Interior, as provided in Section 322 et seq., and (3) by cooperation between various heads of the Executive Department, as provided in Section 109(d) of the Highway Act of 1956. (23 U.S.C.A. Section 159(d))

The court ultimately decided, first, that under the Act of Congress of May 10, 1926, 44 Stat. 498, a remedy for condemnation of Pueblo Indian lands was created; second, that the Act of 1926 was still in effect, and was one of three separate and independent methods by which title to Indian lands for right-of-way could be acquired; third, that under the doctrine of State of Minnesota v. U.S., [31] the United States must be and has been joined as a defendant; and, lastly, that this court was the proper forum and had the jurisdiction to try and determine the respective rights of the parties.

The court, therefore, upheld the authority of the state highway commission to condemn land across property held by the U.S. in trust for the Pueblo Indians.

Abandonment of Condemnation Proceedings

Occasionally an abandonment of condemnation proceedings results in genuine injury to the property of a landowner. It has been difficult, however, to get recovery in the courts due to the generally accepted reasoning that a highway commission ought to have full use of its discretion in altering and abandoning a proposed highway construction without incurring liability. A case involving this problem was decided by the Supreme Court of Missouri based on the above reasoning.

Missouri. The plaintiff, in this case [32] brought a claim against the highway commission for an alleged taking and damaging of his property as a result of proposed construction of a highway over his land and the subsequent change of location of the proposed highway. The trial court dismissed the petition on the grounds that it failed to state a claim upon which relief could be granted. The plaintiff appealed to the Supreme Court of Missouri.

The facts disclosed that on May 1, 1954, the plaintiff purchased approximately 250 acres of land in Clay County, Missouri, and then started to develop it as a subdivision to be known as Hamilton Heights. Shortly thereafter he was told by agents of the Missouri State Highway Commission that a new limited access highway was to be constructed over a part of his land, and that he should not develop that part of his land, because if he did the improvement placed thereon would be lost to him. He was then allowed to examine the highway plans and surveys prepared by the highway commission for the proposed highway, and he redesigned his subdivision plans to correspond therewith. The highway commission attempted to negotiate with him for the purchase of the right-of-way over his land, but the plaintiff declined because he needed more time to determine the proper price. Two weeks later the commission informed him that the location of the proposed highway had been changed, and that no land of the plaintiff's was to be taken. Plaintiff then alleged that because of this abandonment he was damaged in the amount of $148,000.

The plaintiff stated that although none of his property was physically invaded or trespassed, he based the theory of his case upon the constitutional principle that his private property could not be taken or damaged, for public use without just compensation. The sole question before the supreme court was whether the above mentioned

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[31] 305 U.S. 382.

[32] Hamer v. State Highway Commission, 304 S.W. (2d) 869, 1957.

acts amounted to a taking or damaging of plaintiff's property within the meaning of Art. I, Sec. 26, Constitution of Missouri 1945.

The court said that while it is not always necessary that there be an actual physical taking of any part of property in order to have a taking or damaging thereof within the meaning of the Constitution of Missouri, it is necessary that there be an invasion or an appropriation of some valuable property right which the landowner has to the legal and proper use of his property, which invasion or appropriation must directly and specially affect the landowner to his injury.

The court said that a close analogy to the present situation was to be found where condemnation proceedings are abandoned after they have actually been instituted, and the landowner then seeks compensation for the damages alleged to have resulted from the pendency of the proceedings. However, the court said that such a situation obviously presented a stronger case for the landowner than did the facts of the present case. The court held that the changes plaintiff made for the future use of his property in expectation that the highway commission would purchase or take by condemnation the right-of-way for the proposed highway were entirely voluntary on his part, although possibly ill advised under resulting circumstances. It had expressly been held that there can be no recovery by reason of the constitutional provision against taking or damaging private property for public use, for loss or expense resulting from voluntary acts of a landowner in making changes on his premises in expectation that condemnation proceedings will be prosecuted to judgment.

The rationale the court adopted for this case is expressed in the following language:

> The highway commission must, for obvious reasons, have the right to alter or abandon a proposed location of a highway without incurring liability to landowners along the abandoned route. A property owner who voluntarily makes changes on his property in anticipation that a proposed public improvement will be constructed thereon or nearby does so at the risk of losing his investment if the public agency exercises its unquestioned right to abandon the project or move it to a different location.

The judgment was affirmed.

Procedures

For the sake of fairness and justice, condemnation procedures of every state are elaborate systems designed to fulfill the due process requirements of the Fourteenth Amendment. A Kansas case was decided recently by the U. S. Supreme Court in which the question of adequate notice was raised.

U. S. Supreme Court (Kansas). In this case[33] the U. S. Supreme Court held that a single newspaper publication used to notify landowner that his property was being condemned for highway purposes was not adequate notice as required by due process even though in accordance with state statutes.

The facts of the case revealed that Walker owned land in the City of Hutchinson, Kansas. In 1954 the city filed an action in the District Court of Reno County, Kansas, to condemn part of his property in order to open, widen, and extend one of the city's streets. The proceeding was instituted under the authority of Article 2, Chapter 26 of the General Statutes of Kansas, 1949. Pursuant to Sec 26-201 of that statute the court appointed three commissioners to determine compensation for the property taken and for any other damage suffered. These commissioners were required by Sec 26-202 to give landowners at least ten days notice of the time and place of their proceedings. Such notice could be given either "in writing . . . or by one publication in the official city paper . . . ." Walker was not given notice in writing but publication was made in the official city paper of Hutchinson.

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[33] Walker v. City of Hutchinson, 352 U.S. 112, 77 S. Ct. 200, 1956 (See Memorandum 92, April 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service Circular 336).

The commissioners fixed his damages at $725, and pursuant to statute, this amount was deposited with the city treasurer for the benefit of Walker. After the time authorized by Sec 26-205 for an appeal from the compensation award had elapsed, Walker brought this action in the Kansas District Court. His petition alleged that he had never been notified of the condemnation proceedings and knew nothing about them until after the time for appeal had passed. He charged that the newspaper publication authorized by the statute was not sufficient notice to satisfy the Fourteenth Amendment's due process requirements. He asked the court to enjoin the City of Hutchinson and its agents from entering or trespassing on the property "and for such other and further relief as to this court seem just and equitable." After a hearing, the Kansas trial court denied relief, holding that the newspaper publication provided for by Sec 26-202 was sufficient notice of the commissioner's proceedings to meet the requirements of the due process clause, and on appeal the state supreme court affirmed. (178 Kan. 263, 284 P. (2d) 1073, June 11, 1955). From that decision the U. S. Supreme Court allowed an appeal on the constitutional due process question.

Measured by the principle that, if feasible, notice must be reasonably calculated to inform parties of proceedings which may directly and adversely affect their legally protected interests, as stated in the case of Mullane v. Central Hanover Bank and Trust Co. (339 U.S. 306, April 24, 1950), the supreme court held that the notice by publication here fell short of the requirements of due process. The court said that it is common knowledge that mere newspaper publication rarely informs a landowner of proceedings against his property. In the Mullane case, the court pointed out many of the infirmities of such notice and emphasized the advantage of some kind of personal notice to interested parties. In the present case the court held that there seemed to be no persuasive reasons why such direct notice could not have been given. Walker's name was known to the city and was on the official records. Even a letter would have apprised him that his property was about to be taken and that he must appeal if he wanted to be heard as to its value.

The court stated that there is nothing peculiar about litigation between the government and its citizens that should deprive those citizens of a right to be heard. Nor is there any reason to suspect that it will interfere with the orderly condemnation of property to preserve effectively the citizen's rights to a hearing in connection with just compensation. Notice by publication in too many instances is no notice at all. The court warned that if such notice were permitted it would leave government authorities free to fix one-sidedly the amount that must be paid owners for their property taken for public use.

For the foregoing reasons the judgment of the Supreme Court of Kansas was reversed and the case was remanded for further proceedings not inconsistent with this opinion.

Justice Frankfurter dissented on the ground that the only constitutional question raised by Walker was whether failure to give adequate notice of the hearing on compensation of itself invalidated the taking of his land, apart from any claim of loss. Frankfurter suggested that Walker should have had to show that the provisions for payment as they operated in this case were inadequate before he could attack the Kansas statutory scheme for compensation in condemnation cases. The justice stated that since on the record the compensation was not alleged to be inadequate, the taking was valid and the judgment of the Kansas Supreme Court should have been affirmed.

Justice Burton's dissent was on the ground that the statutory provision under consideration was constitutional. This justice considered that the length and kind of notice of proceedings to determine just compensation was largely a matter of legislative discretion, and was not ready to hold that the Constitution of the United States prohibited the people of Kansas from choosing the standard here in controversy.

Relocation of Highways

The relocation of a highway by its very nature disturbs established uses of property located on the old route. In spite of the fact that courts generally have held that it is in the discretion of highway authorities to make the final decision as to whether a highway should be relocated or not, landowners continue to bring the matter before the

courts on one ground or another. A recent Iowa district court decision is in point.[34]

Iowa. Action was brought by two landowners, whose property would be adversely affected by the proposed relocation of the highway and its extension into the westerly part of Sioux City, and one John C. Kelly, a prominent business man and civic leader of the city, suing in a representative capacity. The plaintiffs did not object to the improvement, but they asked for an injunction to restrain the city council of Sioux City and the Iowa State Highway Commission from proceeding with the proposed improvement in the location selected. They suggested an alternative route a short distance north of the presently proposed location.

The plaintiffs alleged that the proceedings were illegal. They believed the city council should have had a public hearing on the proposed extension into Sioux City with prior notice to the public of such hearing, before adopting the resolution.

In compliance with federal regulations a public hearing on the proposed relocation had been held, at which time the members of the Iowa State Highway Commission were present, and the plaintiffs were heard and registered their objections. This hearing was duly certified to the Federal Bureau of Public Roads by the chief engineer of the Iowa State Highway Commission, and the certificate stated that the said Iowa State Highway Commission had considered the economic effects of the relocation of the road in question, and that due notice of the hearing was given.

Where the highway was within the limits of Sioux City, it was necessary that the state highway commission get the approval of the city. This was done, and the city by resolution, which was offered in evidence, approved the detailed plans of the Iowa State Highway Commission. Complaint was made that a public hearing should have been held by the council prior to the approval of these plans, and that a three-fourths vote of approval was required. The law provides that the state highway commission may, with the approval of the city council of the city or town, extend the primary road system into and through a city or town, and that the route and location shall be determined by said commission. The court could find no provision in the law that under these circumstances a hearing by the city council is necessary for such approval.

The court has no jurisdiction over the selection of routes, this being a matter for determination by the state highway commission. The decision of the highway commission is final. It might be true, said the court, that the highway commission encouraged the city council to act with speed, and that the commission, in effect, told the council that they must either approve the plans as set out or the whole project would be delayed past this year. However, according to the court, that was not material here. If the various agencies followed the law and substantially complied therewith, then it followed that their action must be approved and the petition of the plaintiffs for an injunction was refused.

Right-of-Way Costs and Land Values

As indicated in Figure 3, farm real estate values continued to increase during the period from March 1, 1957 to March 1, 1958. Although dollar values increased in every state, and increased by 5 percent or more in 41 states, the national average increase of 6 percent was one percent less than the period for March 1, 1956 to March 1, 1957 (7 percent).[35]

Biggest increases took place in two groups of states—8 percent or more—one group consisting of Atlantic Coast states extending from Maryland to Massachusetts, and the other including three Northern Plain states—North Dakota, Nebraska and Kansas.

According to the Department of Agriculture, the recession in non-farm business activity has so far had little effect on the farm real estate market, which the department attributes to the fact that the agricultural segment of the economy has not been as adversely affected recently as have other sectors; and also because the farm real estate market reacts slowly to moderate changes in non-farm business activity.

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[34] Kern v. Peck, Docket No. 80743 Equity, June 1957.

[35] Current Developments in the Farm Real Estate Market, Agricultural Research Service, U. S. Department of Agriculture (May 1958).

Farm real estate reports expect prices of farmland to decline slightly in the summer and early fall of 1958.

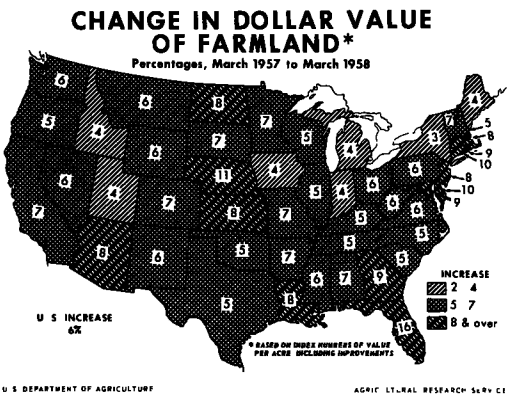

Figure 3.

CONTROL OF ACCESS

Now that Minnesota,[36] New Mexico[37] and North Carolina[38] during their 1957 legislative sessions have passed laws providing for the construction of controlled-access highways, all states except Arizona have specifically authorized the construction of such highways.

Wyoming extended the authority of its state highway department by permitting it to control the use of highway access. Both private and commercial access rights may be granted, but if private access is allowed, it cannot be used for roadside business or commercial enterprise.[39]

Authority to Control Access

The courts of three states, North Carolina, Illinois, and Maryland, were confronted with questions as to the extent of the highway department's authority to control access. It is interesting to note that even though the North Carolina case arose prior to the enactment of the state's control of access statute, the highest court of the state held that the state highway and public works commission had the authority to construct controlled-access highways.

North Carolina. In the recent case of Hedrick v. Graham[40] the Supreme Court of North Carolina held that under existing statutes the state highway and public works commission has authority to exercise the power of eminent domain to condemn or severely curtail an abutting landowner's right of access to a state highway adjacent to his property upon payment of just compensation.

This case arose when the state highway and public works commission attempted to condemn certain property owned by Hedrick and to use it as a part of a controlled-access highway. The landowner, Hedrick, asked the court for an injunction, alleging that the state was without legal authority to create controlled-access highways. The lower court refused the injunction and Hedrick appealed to the state supreme court.

The supreme court noted that the Federal-Aid Highway Act of 1956 in Sec 108(a), 23 U.S.C.A. 158(a) states:

> "It is hereby declared to be essential to the national interest to provide for the early completion of the 'National System of Interstate Highways'. . . . It is the intent of the Congress that the Interstate System be completed as nearly as practicable over a 13-year period and that the entire system in all the states be brought to simultaneous completion. . . . All agreements between the Secretary of Commerce and the State Highway Department for the construction of projects on the Interstate System shall contain a clause providing that the state will not add any points of access to, or exit from, the project in addition to those approved by the Secretary in the plans for such project without the prior approval of the Secretary."

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[36] H. 57.
[37] H. 211, Ch. 234.
[38] H. 123, Ch. 993.
[39] S. 86, Ch. 67.
[40] 96 S.E. (2d) 129, January 11, 1957 (See Memorandum 92, April 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service, Circular 336).

The court also noted that this act provided for the apportionment of federal funds among the states for the purposes of the act, and that Sec 108(h) provided for construction by the states of such highways in advance of apportionment of federal funds.

Since the reconstruction of the highway in question was under the control and direction of the commission and according to statute (G. S. Sec 163-18 (1)), the commission would have such powers as would be necessary to fully comply with the provisions of present or future federal-aid acts, the court thought it a fair inference that the reconstruction of the highway was being done in compliance with the state statutory requirements, and that it was being reconstructed to meet the standards and requirements of the 1956 Federal-Aid Highway Act, so that it could be incorporated into the National System of Interstate and Defense Highways.

The court adopted the following observations as underlying practical reasons for its decision:

> "Motor car transportation is a basic need of modern society. It is of vital importance in the social and economic life of our people. The development of high speed motor car transportation has brought more and more traffic congestion and an ever mounting grisly toll of automobile accidents. Forty thousand deaths, a million and one-half injuries, and two billion dollars worth of property damage each year (Levin, 'Public Control of Highway Access and Roadside Development 3'—Public Roads Administration, 1943) demonstrate the gravity of the problem confronting public highway authorities."

The court recalled its holding in another case (Sanders v. Town of Smithfield, 221 N.C. 166, 19 S.E. (2d) 630, 633, April 8, 1942) in which it was pointed out that the owner of abutting property had a right in the street beyond that which was enjoyed by the general public, or by himself as a member of the public, and different in kind, since egress from and ingress to his own property was a necessity peculiar to himself. In citing other authorities, the court described the right as in the nature of an easement appurtenant to the property, and abridgement or destruction thereof by vacating or closing the street, resulting in depreciation of the value of the abutting property, may give rise to special damages compensable at law. Beyond acceptance of that fundamental principle the supreme court admitted authorities differed as to practically every other phase of the subject under discussion. However, following the line of authorities considered commendable and controlling, the supreme court decided that it was settled law in North Carolina "that under such circumstances the interference with the easement, which is itself property, is considered pro tanto a 'taking' of the property for which compensation must be allowed, rather than a tortious interference with the right."

The court acknowledged that the most important private right involved in controlled-access highway cases was the right of access to and from the highway by an abutting landowner. It stated the basic problem in every case involving destruction or impairment of the right of access was to reconcile the conflicting interests—i. e., private versus public rights. The court held that the time had come when an ever-increasing consideration must be given to the promotion of public safety on the highways and to the concept of roads whose purpose was not land service but traffic service.

The court explained that there are two methods available for curtailing the right of access—the right of eminent domain and the police power. The court made the distinction that eminent domain is the power of the sovereign to take or damage private property for a public purpose on payment of just compensation, while the police power is not subject to any definite limitations, but is coextensive with the necessities of the case and the safeguarding of the public interests. The construction of controlled-access highways is bound to cause a dislocation of rights. Justice demands that these dislocations be adjusted in a way that will be fair to both property owners and the public.

The court thought there seemed no doubt that the General Assembly of North Carolina could authorize the state, or a governmental agency or instrumentality of the state, to exercise the power of eminent domain to condemn or to severely curtail an abutting landowner's right of access to a public highway adjacent to his property for the con-

struction or reconstruction of a controlled-access highway upon the payment of just compensation for the destruction or impairment of his right, which is in the nature of an easement appurtenant to his property, and upon giving him a reasonable notice and a reasonable opportunity to be heard.

The court recalled the failure of the 1951 session of the general assembly to enact into law a bill introduced to provide for limited-access roads by the commission but stated that this fact did not change its opinion. The statutes conferring the power of eminent domain upon the commission, the court stated, were not ambiguous or of doubtful meaning, but were so clear and plain, so general and comprehensive in nature and the object so general and prospective in operation that there could be no reasonable doubt as to their meaning.

The court said that it was a well-known fact that some 170 miles of limited-access roads were constructed by the state in 1955, and the general assembly did nothing to stop such work. Such legislative acquiescence the court thought was entitled to some weight.

In concluding the case, the court held that the complaint did not state facts sufficient to constitute a cause of action for injunctive relief against the individuals comprising the membership of the state highway and public works commission.

Illinois. Questions concerning the extent of the state's authority to condition the use of access rights were presented to the Supreme Court of Illinois in Department of Public Works and Buildings v. Finks.[41]

A resume of the facts showed that in 1944 a large segment of Route 66 was designated by the Department of Public Works and Buildings as a freeway. Thereafter, eminent domain proceedings were instituted in the circuit court to acquire certain land and to extinguish or limit the rights of access, air, light and view of the owners of certain property abutting Route 66 in the vicinity of the City of Lincoln. Finks owned some land abutting the highway. None of his land was to be taken, but the department sought to limit his right of access and to extinguish rights of air, light and view. The jury returned a verdict awarding Finks $500 as compensation for the rights taken. The landowner appealed.

The theory of the landowner's case was that since the object of the proceeding was to assess the value of the rights of access, air, light and view being taken, the proper measure of damages should have been determined from the decline in value of the entire property affected by the taking. And inasmuch as access to 150 acres of landowner's property would be limited as a result of this action (unless Kickapoo Creek was bridged), the landowner reasoned that all 150 acres should have been mentioned in the case, and not just the 80 acres that abutted the highway.

The supreme court conceded that the argument had a logical appeal, but thought it impractical. The state was interested in acquiring the rights of direct access to the highway. The more remote the property was from the highway, the greater the probability that the damage, if any, would be consequential. Here, in the case of farm land, the state had pursued its title search back a quarter of a mile from the highway. The supreme court agreed with the trial court that the description of the area was sufficient to enable the jury to determine the nature of the property, and to ascertain its highest and best use. Beyond that point, the court held, the condemner could hardly be required to explore either the ownership of the land or its configuration. If the landowners felt that other land was injured, they should have filed a cross petition describing that land.

Another contention of the landowners was that the department had exceeded its statutory authority when it attempted to condition the use of the existing entrance at the east line of their property by the phrase "so long as the land served thereby was used for residential or farming purposes." The power to extinguish, the landowners argued, was not the power to condition.

The court said that in its opinion statutory power to "extinguish . . . any existing

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[41] 139 N. E. (2d) 242, 1956 (See Memorandum 93, July 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service Circular 343).

rights . . . of access" must have meant the power to extinguish those rights of access that unduly impinged upon the flow of traffic on the freeway. The landowner suggested no purpose which might have prompted the legislature to require the acquisition of access rights beyond the extent necessary to protect through traffic; in other words, the state was not required to extinguish completely all rights of access of property abutting upon existing highways which were designed as freeways. What was involved in limiting rights of access, rather than extinguishing them, was not, as the landowner urged, an exercise of the zoning power. The power involved was that of eminent domain and the condemner was required to pay the difference in value caused by the limitation of access.

The court said that when rights of access were only partially extinguished, however, those taken must be clearly distinguished from those that remained. Responsibility for an accurate description of the rights to be taken rested on the condemner, not on the property owner or the court. In this case the department had not complied with this duty and the court remanded the case to the lower court.

Maryland. The court of appeals handed down a decision to the effect that landowners, who had deeded a part of their land and their right of highway access to the state highway commission for a controlled-access arterial highway, and who were asking for an order directing the commission to grant them a right of access, were not entitled to such access because the commission unlawfully granted access to the highway to others.[42]

The report of the case indicated that the State Roads Commission of Maryland on September 8, 1955, had brought suit against several members of the Jewell family for ignoring a limitation to their access rights to the Annapolis Bypass. The commission alleged that the Jewells on December 30, 1952, had conveyed land to the commission for the highway, a controlled-access arterial, and all rights of ingress and egress from the bypass to their remaining property, a filling station. The barriers put up by the commission to deny access had been removed by the Jewells. The commission asked the court to prevent the Jewells from breaking the denial of access clause contained in the deed. The Jewells, on the other hand, claimed that the deed was procured in an improper manner by the commission.

After a hearing, the chancellor passed an order in favor of the commission, from which the Jewells appealed to the court of appeals.

In this court, the Jewells contended that sometime prior to 1950 the commission had determined that it was necessary to construct the Annapolis Bypass. However, before the dissemination of general knowledge relative to the construction of the bypass and prior to the acquisition of land, the commission by one or more of its members, agents or employees "must have disclosed its plant" to Parr and Della. Thus provided with such advance information from the commission, Parr and Della, during the years 1950 up to and including 1954, procured various tracts of land along the proposed bypass. The commission, according to the Jewells' allegations, had conspired with Parr and Della to grant access to their properties at various points along the bypass, despite the action of the commission in designating and constructing the road as a controlled-access highway. When the commission purchased the property in question in December 1952, its representatives implanted in the minds of the Jewells the conviction that this highway was to be of a "non-access" type. It failed to disclose that only Parr and Della were to be accorded the "exclusive bounty of access roads." Subsequent developments had convinced the Jewells of the utter bad faith in such "capricious, arbitrary, collusive and discriminatory acts." They asked that the commission be ordered and directed to grant them the right to maintain a 30-ft entrance into their gasoline filling station, permitting vehicles to pass thereto from the northbound artery of the Annapolis Bypass.

The above argument for the Jewells was disposed of by the court stating that:

> By Code 1951, Article 89B, Section 3, all records of the state roads commission were public records. Before the adoption of

[42] Jewell v. State Roads Commission of Maryland, 131 A. (2d) 727, May 8, 1957 (See Memorandum 95, September 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service, Circular 346).

> Chapter 59, Acts of 1956, we know of no requirement that plats containing the information, which the Jewells allege that Parr and Della "must have received" from the commission, be denied the public. By that act, 1956 Cumulative Supplement, Article 89B, Section 9D, such plats and maps showing such information "shall not be considered public record of the commission, and shall not be open to public inspection except by permission of the commission, ..." From this legislation it appears that the reason for withholding the plats and maps is to prevent their use by speculators.

The court held that even assuming, without deciding, that the commission was capricious, arbitrary, collusive and discriminatory, as alleged, in granting benefits to Parr and Della, and that access should not have been granted on this controlled-access highway, no authorities were either found by the court or cited to it which would justify the granting of such access to the Jewells. In addition to that reason the court seemed to feel that the Jewells were asking the court to judicially sanction their violation of the deed on the ground that others had acted unlawfully.

Assuming, again without deciding, that fraud had been practiced by the commission in obtaining the deed from the landowners, the court said the Jewells had neither sought to have that deed set aside and declared null and void, nor had they offered to return the purchase price. Only in their argument in this court had they made such an offer, and the court held, in effect, that it was too late here. The argument and offer should have been made before the chancellor, and, therefore, the order of the lower court was affirmed.

Access Rights on New Highways

The courts of seven states have now held that when a controlled-access highway is established in an area where no highway previously existed, there can be no taking of rights of access since none ever existed. Two of the pertinent decisions—in Connecticut and Washington—were handed down in 1957.

Connecticut. An interesting decision pertaining to access rights was handed down by the Connecticut Supreme Court of Errors on March 5, 1957. The South Meadows Realty Corporation, the owner of two tracts abutting the Hartford Bypass, asked for a declaratory judgment determining whether it had a right of direct access to the bypass. The Superior Court of Hartford County held that the corporation had no right of access thereto. On appeal, the Supreme Court of Errors affirmed the judgment of the lower court.[43]

The bypass was constructed some years ago as a part of the Wilbur Cross Parkway under the provisions of a special act. The term "parkway" is defined by Connecticut statutes as a "trunk line highway . . . to which access may be allowed only at highway intersections designated by the highway commissioner and designed by him so as to eliminate cross traffic of vehicles." The city deeded certain land, including the portion of the bypass abutting on the property now owned by the corporation, to the state in 1944, the deed containing no provision for direct access from any of the abutting land remaining in the ownership of the city. In 1947, after the parkway, including the bypass, had been constructed and in use for several years, the city quitclaimed to one Peter M. Anselmo the land now owned by the realty corporation.

Access to the land conveyed to Anselmo was, and still remained, by way of Airport Road. Buildings constructed by the realty corporation or its predecessor in title were so designed as to permit access thereto from Airport Road. No request was made at that time for direct access to the bypass.

In 1952, the realty corporation first sought permission from the highway commissioner for direct access from its land to the bypass. The requested permission was refused.

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[43] South Meadows Realty Corporation v. State, 130 A. (2d) 290 (See Memorandum 94, August 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service, Circular 345).

The corporation now claimed that since its land abutted on the bypass, the right of direct access was an existing easement appurtenant to its land. It based this contention upon its assertion that the right of direct access came into being when the bypass was constructed, and that the state had neither paid damages for the deprivation of the claimed right not taken any steps to acquire it from the city or any subsequent owner.

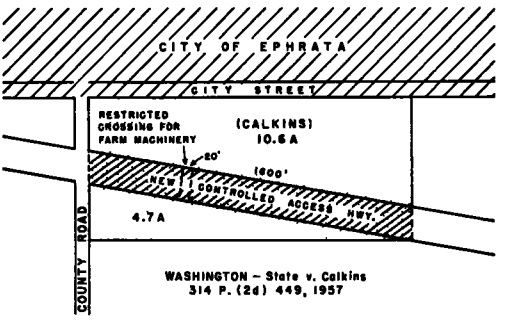

Figure 4.

The court answered that the bypass was not a conventional highway, but was part of a parkway which fact was stipulated by the parties at the trial. The land in question was not landlocked and the claimed right of direct access to the bypass was not based on any claim of a right-of-way by necessity. The court held, on the basis of its finding, that the bypass was a part of the parkway, and that the corporation did not have the right of direct access to the bypass.

Washington. State v. Calkins[44] involved a condemnation action to establish a new controlled-access highway, extending a distance of approximately five miles from Ephrata to secondary state highway No. 11-G, and connecting Soap Lake and Moses Lake in Grant County.

The land condemned was a part of the Calkins' 20-acre farm which was rectangular or oblong in shape. The farm was bordered on the westerly side by a county road and on the northerly side by a city street, which marks the city limits of Ephrata. The right-of-way involved was 1,600 ft long and 150 ft wide. It diagonally bisected the Calkins' property and embraced a total of 4.42 acres. The Calkins were left with a 10.6 acre tract of land on the north side of the highway, and a 4.7 acre tract of land on the south side of the highway. The north tract continued to be served by the city street. The tract to the south continued to be served by the county road which provided access to the new highway. A restricted crossing was provided the Calkins for the purpose of crossing the highway with farm machinery (see Fig. 4).

The principal question was whether there had been a constitutional taking of an alleged easement of access. During the trial testimony was taken relative to the nature of the highway project, the value of the land taken, and the severance damages to the land remaining in the north and south tracts. The estimates of total damages ranged, on behalf of the state, from $10,958 to $13,610; and on behalf of the Calkins, from $25,600 to $40,000. Much of this testimony was based upon the theory that the best and highest use of the farm acreage was for subdivision purposes. The jury returned a verdict of $19,000 and the state appealed.

The court held that where a new controlled-access highway was established by condemnation in an area where no highway previously existed, there was no taking of an easement of access, because such an easement had never in fact existed. And since the property owner had no easement, it followed that an allowance of damages for the loss of such a non-existent easement or right of access would be unrealistic, unjustified in fact, and improper.

One of the trial court's instructions emphasized the loss by the owner of access rights to the highway, and of the rights of air, view, and light. The supreme court said this constituted reversible error, because the claimed loss of the property rights of access, air, view and light, were not proper issues in this case, for the reason given in the preceding paragraph.

According to the court, the market value of the property remaining might have been affected by the nature and the extent of the taking for the controlled-access highway, the separation of an owner's land into different tracts and the added inconvenience, if

[44] 314 P. (2d) 449, August 15, 1957 (See Memorandum 96, November 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service, Circular 351).

any, in managing the property and in going from one tract to the other. Additional circumstances to be considered included (1) the access provided, if any; (2) the presence of existing streets, roads and highway; and (3) the reasonably probable uses of the remaining property in determining the question of special benefits, if any, to the Calkins. But the severance damages must not be based upon any theory of a loss of access rights to the highway.

The supreme court noted that there was much confusion between (1) the supposed easement or right of access to the highway and (2) the inconvenience of access from one part of the farm to the other after construction of the new controlled-access highway. The court felt that the trial judge erred in ruling that the expert witnesses could testify as to loss of access in their estimates or opinions as to damages to the remaining property. Under the circumstances the line of questioning pursued tended to emphasize to the jury the non-existing easement or loss of access to the highway.

It was argued that the trial court improperly admitted expert testimony relative to the commercial value of highway frontage property located in Ephrata. The court said that this testimony would have been admissible if the case had involved an existing highway. Because it did not, and since there was no easement or right of access to the new controlled-access highway, the subject property did not have commercial frontage, and the admission of testimony as to this the court held was error.

The court took notice of the general rule that evidence of the price received at a free and voluntary public auction was competent and admissible as evidence of value where, presumably, a willing buyer meets a willing seller in open competition. However, forced sales are not admissible as evidence of value. Here, so far as the record revealed, the court was not concerned with a forced sale.

Whether or not, upon a new trial, the state could prove (1) that the public auction sales were free and voluntary, (2) that the property sold was not too far removed from the subject property and was comparable thereto and (3) that the sales were not too remote in time, were issues which the court did not pass upon. The court said that these were matters in which it is difficult to formulate specific rules, and they must rest largely in the discretion of the trial court to be reviewed only for manifest abuse.

The judgment was reversed and the cause remanded for a new trial.

Frontage Roads

Many states are including frontage roads in their plans for expressway projects, thus affording the abutting landowner a means of access to the controlled-access facility at designated intervals. Whether or not the affected landowner has suffered a compensable loss because he does not have direct access to the main highway apparently depends on the circumstances in the individual case, or the court's interpretation of the facts. Some of the court's rulings in this respect indicate a lack of understanding of the function of a frontage road. A recent Georgia case is in point.

Georgia. The Georgia State Highway Department brought eminent domain proceedings against one Catherine T. Porter to condemn 8.79 acres of her land for use in establishing a limited-access highway in Tiff County.[45]

The trial court awarded a total of $21,548 to the landowner, including $10,548 for the 8.79 acres taken and $10,500 as severance damages to the remaining 21.21 acres. The state highway department requested a new trial, which was denied. On appeal to the state court of appeals, the state argued that the trial judge's charge to the jury was in error, inasmuch as it did not go far enough. The charge was as follows:

> I charge you, gentlemen of the jury, that a limited-access highway is a highway, road or street for through traffic and over, from or to which owners or occupants of abutting land, or other persons have no right or easement or only a limited right or easement of access, light, air or view by reason of the fact that their property abuts upon such limited-access highway or for any other reason;

[45] State Highway Department v. Porter, 99 S.E. (2d) 519, June 27, 1957.

> I also charge you that a limited-access highway may be so designated as to regulate, restrict or prohibit access thereto so as to best serve the traffic for which such facility is intended. No person shall have any right of ingress or egress from or passage across any limited-access highway to or from abutting lands except at the designated points to which access may be permitted, and under such arrangements and conditions as may be specified from time to time.

The state contended that the following should have been included:

> A local service road is any road or street, whether or not existing at the time of the designation of a limited-access highway or thereafter established, which serves the owner or occupant of any land or improvements abutting a limited-access highway and which gives a means of ingress to and egress from such lands or improvements.

The court of appeals held that this was not a good assignment of error. The judge's charge stated a correct principle of law applicable to the case, and there was no error in failing to include some other correct and appropriate instruction.

The high court held that the verdict was within the range of the pleadings and evidence and was consequently authorized. The verdict had the approval of the trial judge, and, said the court, since every presumption would be indulged in favor of jury verdicts, the trial court did not abuse its discretion in denying the motion for a new trial.

Impairment of Access

Determination as to whether access rights have been impaired by construction of a highway to an extent recognized by the law as compensable is in many cases an extremely difficult question to resolve. Cases of this type came before the courts in two states—California and New York—during the year. Entirely different situations were involved and each case was decided on the basis of the particular situation found by the courts.

California. A question of whether there was a compensable impairment of access rights was decided by the Supreme Court of California in the case of People v. Russell.[46]

The facts of this case disclosed that the Russell property fronted on a county road known as Firestone Boulevard between Elmcroft and Ringwood Avenues. A state highway also known as Firestone Boulevard ran parallel with and contiguous to the county road. Reconstruction of this state highway to provide a railroad overpass resulted in raising the grade of that highway, the taking of a portion of the county road right-of-way for maintenance of an embankment to support the overpass, the closing of any access to the state highway at Ringwood Avenue and the provision of a new access to that highway at Elmcroft. The state sought an easement across the Russell property for the relocated county highway which was to be exactly the same as the old facility in all respects except that the 12-ft unimproved parkway on the opposite side of the road would be eliminated. The trial court awarded Russell the value found for the easement taken and $33,499.83 for impairment of his right of access to this county road. The state appealed.

The supreme court held that the landowner was not entitled to compensation for severence damages resulting from the construction of the improvement, because the evidence did not disclose any impairment of his right of access to the county road.

The court noted that the parkway adjoining Russell's property and the paved street area for vehicular traffic were of exactly the same width and grade, and bore the same relationship to his property as theretofore. Any inconvenience in the use of this property for commercial purposes because of these widths was no greater as a result of the improvement.

Use of the parkway as a traffic separation strip between the state highway and the county road was proper in the control of traffic, and as such presented no valid claim for damages.

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[46] 309 P. (2d) 10, 1957.

The supreme court affirmed the judgment of the trial court as to the land taken, striking therefrom the $33,499.83 awarded as severance damages.

New York. This case arose when the Taconic State Park Commission acquired and extinguished two easements owned by one Homer Robinson, consisting of right-of-way over state lands to the driveway of the Taconic Parkway. At the same time the commission appropriated a parcel of 2.38 acres from Robinson. The parcel taken extended some 465 ft along the easterly line of state lands used for parkway purposes and some 355 ft along the southerly line of Underhill Road, all of Robinson's frontage on this highway being taken. Following the appropriation, the grade of Underhill Road was elevated above that of the parkway to permit passage over the parkway by means of a highway bridge, and embankment slopes to support the easterly approach to the bridge were constructed within the area of the appropriation. The landowner based his case on the theory that the appropriation left him without any access to Underhill Road.

The state's only expert testified to damages of $3,000, assuming access to Underhill Road. On that basis, he said there was no consequential damage. On his cross-examination, it appeared that he had at one time furnished to the state a report in which he advanced the opinion that the total damages would amount to $29,000 if claimant's remaining property were "landlocked." He also testified, however, that he had not considered a particular width of a possible easement to Underhill Road in arriving at his opinion of damages.

During the trial the state tendered the landowner a deed purporting to grant him an easement, 50 ft in width and to be located by mutual agreement of the landowner and the commission, extending from the remaining land across the parcel taken, to Underhill Road.

The trial court held, in line with the commission's argument, that the lands taken by the state contiguous to the local highway became part of the highway, so that Robinson's remaining lands abutted the highway, and he enjoyed the status of an abutting owner. The court awarded Robinson $12,500 for property taken and for damages to his remaining property, and he appealed, claiming that the trial court erroneously considered that he continued to have access to the public highway.

The state supreme court held that the state's theory of an easement was advanced in too nebulous a form (being undefined, unlocated and far more restrictive than the unlimited access of an abutting owner) to permit a determination and award of damages. In short, the owner's rights were not defined by the express terms of the appropriation.[47]

The court thought it unrealistic in the extreme to hold that a landowner, whose property was distant from the traveled portion of the highway more than 90 ft at the nearest point and some 465 ft at the farthest, enjoy the privileges and convenience of an abutting owner.

Since the granting of an easement to Underhill Road would have an important effect on the right of consequential damages, the court ruled that until such easement was specifically defined and located by appropriate action, the landowner could not be properly awarded damages for the extinguishment of the easement.

For the above reasons the court reversed the judgment and award of the trial court and ordered a new trial.

Regulation of Access

There are a number of situations being brought before the courts by landowners who argue that their access rights have been curtailed or impaired as a result of highway improvements, and who demand that they be compensated for alleged damages to their property, or in some instances, seek to enjoin the highway authority's action. These cases, discussed in this and following sections, involve such matters as the construction of curbs, separation of traffic by means of a dividing, or median strip, the closing of a street or road causing circuity of travel, etc. Such actions by the highway authorities are generally conceded to be police power controls, imposed for the purpose of regulating traffic, and as such are not compensable. There are, however, certain ex-

[47] Robinson v. State, 160 N.Y.S. (2d) 439, 1957.

ceptions to this theory as will be noted in the case reports.

The following cases in which decisions were handed down by the courts of Nebraska and Texas involve, respectively, an action to enjoin the City of Scottsbluff from construction of a curb which curtailed parking in front of the property involved, and a suit to compel the City of San Antonio to issue a permit for a curb cut.

Nebraska. The Supreme Court of Nebraska, in the case of Hillerage v. City of Scottsbluff,[48] denied the landowner recovery for alleged damages to her business property due to a proposed improvement of U. S. Highway 26, called 27th Street in Scottsbluff.

The landowner in this case sought an injunction against the City of Scottsbluff to prevent the erection of curbs which allegedly would interfere with the use of parking areas in front of her buildings. She contended that the city's action was an infraction of Article I, Section 21, of the state constitution which provides that the property of no person shall be taken or damaged for public use without compensation.

The district court made the following findings of fact: There were two tracts of business property belonging to the landowner. Tract 1 was known as "Terry's Town and Country," used, among other purposes, as a supermarket. Tract 2 was used as a launderette. Both tracts abutted on U. S. Highway 26 with Tract 1 on the south of the street and Tract 2 on the north, two blocks west of Tract 1. U. S. 26 had a 66-ft right-of-way, but only a 20-ft strip was paved. There were no curbs. Customers transacting business on the premises parked motor vehicles partly on a paved portion of the parking area in front of the premises and partly on the highway right-of-way, but not on the paved portion of the highway.

The city adopted an ordinance August 4, 1953, creating an improvement district for widening and improving a portion of 27th Street beginning at Avenue A and continuing westward past the landowner's property. Plans and specifications provided for the construction of barrier curbs in front of the landowner's premises. No part of the street improvement was on private property, and the proposed construction would not interfere with the use by the public of the street for highway purposes. However, the method of entering the properties and of parking in front thereof would be changed. Parking in front of the premises would be curtailed and perhaps even eliminated. There was proof, said the court, that completion of the construction, as provided by the plans and specifications, would substantially diminish the value and the use of the property.

The trial court refused the injunction without prejudice to an action at law by the landowner for the recovery of damages which might result from construction proposed by the city or from the adoption of later regulations restricting parking and access of vehicles to the landowner's properties. The landowner appealed.

The state supreme court stated that the right of a property owner to ingress and egress by way of an abutting street is a property right in the nature of an easement in the street which the owner of an abutting property has, not in common with the public generally, and of which he cannot be deprived without due process of law and compensation for his loss.

The court noted that the police power of a city is not absolute and unlimited, and the exercise of such power could not be so arbitrary, unreasonable, confiscatory or discriminatory as to deprive an owner of property without due process of law. However, the court held that where a city entered into agreement with the state for a widening of a highway for the purposes of public safety and convenience it was a reasonable and proper use of its police power. The court found sufficient justification for the state's action in the fact that a hazardous condition existed due to the parking of vehicles partially in the roadway.

The court held that the landowner was not entitled to damages or the aid of equity to assure her against the loss of value of her property due to restrictive parking, in view of the fact that such parking could not be carried on without the use of a part of the street which the city held in trust for the use of the public.

The judgment was reversed and the cause remanded to the district court with directions to dismiss the case.

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[48] 83 N. W. (2d) 76, 1957.

Texas. The Court of Civil Appeals, San Antonio, in the case of City of San Antonio v. Pigeonhole Parking of Texas held that owners of property abutting on a street have a right of ingress and egress to their property from such street, and a city ordinance providing that no permit should be issued for construction of any curb cut or driveway leading to property abutting on a certain street denied abutting property owner of right of access without due process of law and without compensation, and was unconstitutional.[49]

This suit was brought by Pigeonhole Parking of Texas, Inc., against the city to require the city to issue a permit to make a curb cut and construct a driveway for egress and ingress of motor vehicles from its lot to the street. A writ ordering the city to issue the permit was granted by the trial court and the city appealed.

Before the writ was granted, the city passed an ordinance prohibiting the granting of any additional curb cuts on the street where the Pigeonhole Parking lot was located. The owner claimed a right of access as an abutter and that the right was a property right. He also claimed that the ordinance which flatly prohibited the issuance of permits which would make such access possible was an unconstitutional taking of said property right. The court sustained the owner's contentions.

The Pigeonhole Parking Corporation's lot abutted both Soledad and West Houston Streets in the City of San Antonio. It had been allowed to cut the curb and construct a driveway about 89 ft wide on the Soledad side, and subsequently applied for a permit to cut the curb on the Houston side of the property. Before the issuance of the writ by the lower court, the city passed an ordinance prohibiting the granting of any additional curb cuts on certain streets, including that part of West Houston Street on which the lot in question abutted. The ordinance was actually passed before the suit was filed, but the corporation had delayed filing its suit at the suggestion of the city attorney, so it was stipulated that the suit should be regarded as filed before the ordinance was passed.

The court declared that the city could pass ordinances for the purpose of regulating the cutting of sidewalks and building driveways across the same, but it could not arbitrarily deny to abutting property owners such right. If such right was prohibited entirely, it would amount to the taking of property and that could be done only by due process of law and the payment of just compensation. The court added the maxim that the right to regulate is not the right to prohibit.

In conclusion, the court quoted from a recent Oregon case, State, By and Through State Highway Commission v. Burk (200 Or. 211, 265 P. (2d) 783, 792). The Oregon court said:

> Reduced to its simplest terms, our problem is to determine at what point we should hold that the police power ends and the power of eminent domain begins. . . . (Citing authorities) Private rights relative to highways may be regulated in many ways under the police power, and that without compensation. If the action of the state amounts to a "taking," then the principles based upon the constitution control and the state must proceed by condemnation.

In the principal case, the court held that the trial court properly granted Pigeonhole's petition for the writ to have the permit issued and, accordingly, affirmed the trial court's judgment.

Dividing Strip

The Court of Appeals of Maryland and the highest courts of three states, Iowa, Maryland and Georgia, handed down decisions in cases which raised questions involving the construction of a dividing strip in a street or highway. Most courts have consistently held that inconvenience and damages caused by such construction of a highway does not entitle an abutting landowner to compensation. Three of the four cases re-

[49] 300 S. W. (2d) 328, April 3, 1957 (See Memorandum 93, July 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service, Circular 343).

ported here reinforced this rule. The Georgia case is an exception, inasmuch as the court held that an abutting landowner must be compensated for any depreciation in the value of his property.

Iowa. On May 7, 1957, the Supreme Court of Iowa decided the case of Iowa State Highway Commission v. Smith[50] which involved the limitation of access points and the prohibition of crossings, left turns, and U turns except at designated points on a controlled-access highway (see Fig. 5).

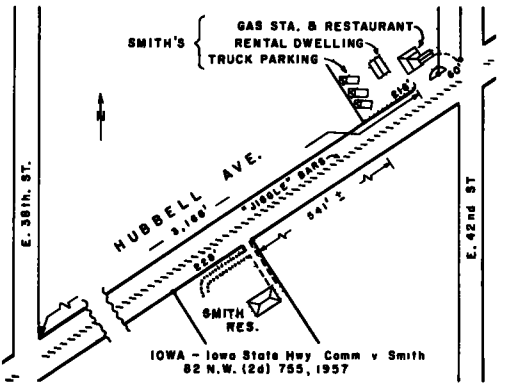

Figure 5.

This case was brought by the state highway commission against the city and the owners of certain property abutting on the controlled-access highway for a judgment declaring that the limitation established by the commission did not constitute a "taking" of property for which compensation had to be paid. The lower court entered a judgment that the limitations upon access constituted a "taking" but that the prohibition of crossings and turns did not, and the commission and property owners appealed. The supreme court held, among other things, that two 34-ft wide driveways connecting a filling station with the highway were all that were reasonably necessary, and, therefore, the filling station owners and operators were not deprived of reasonable or free and convenient access to the highway.

The two parcels of land in question abutted on Hubbell Avenue. One parcel had a frontage of 216 ft on the northerly side of Hubbell which ran northeast and southwest. On, roughly, the east half of this tract the owners had a filling station with connected garage and cafe which catered primarily to heavy cross-country trucks. There was a space with a frontage on Hubbell of about 150 ft west of the filling station where trucks parked and truckers slept. Just east of their 216 ft was a strip of ground 50 ft due east and west, with a frontage of about 60 ft on Hubbell on which the owners had easement rights. This 50-ft strip abutted the west side of East 42nd Street which ran due north and south and intersected Hubbell. The east part of the concrete approach to the gasoline pumps occupied the south part of this strip.

Before the attempted change by the commission, the trucks had entered the filling station at any point from either east or west and left at any point in either direction. Under the combined action of the commission and the city only two places of access to the filling station were permitted, each 34 ft wide and 45 ft apart.

Also, because of the median separating traffic in opposite directions, which was part of the highway improvement, traffic would only be allowed to enter the property from the east. Therefore, eastbound travelers could only enter by making a U turn at East 42nd Street and going back west a short distance to the east driveway. When leaving the station these travelers would be required to go west about 3,168 ft to East 38th Street and make a U turn there. No turns were permitted between 38th on the west and 42nd on the east.

The other parcel involved here was the one where the home of the owners was located. The parcel had a frontage of 228 ft along the southerly side of Hubbell Avenue. The east line of this property was approximately 541 ft west of the west line of the filling station property on the north side of the avenue.

The owners had enjoyed unlimited access to this 228-ft frontage from either direction. However, the commission and the city left only a single point of access, 18 ft wide. The east side of this driveway was about 7 ft west of the owners' east line. Thus there were approximately 203 ft between the drive and the west property line. The

[50] 82 N. W. (2d) 755 (See Memorandum 95, September 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service, Circular 346).

landowner was a contractor as well and had construction equipment stored adjacent to the residential property.

Not only did the owners enjoy unlimited access, but heretofore they could cross Hubbell Avenue by motor vehicle between their home and business properties by driving from 500 to 600 ft. When the contemplated highway improvement was completed they would only be able to cross at East 38th or 42nd Street. The increased distance in traveling from their home to place of business and back again would approximate one mile.

The court acknowledged the fact that in Iowa the owners of property abutting a street or highway could not be deprived by public authorities of all access thereto without just compensation. There was no claim here that the owners were totally deprived of access to either tract. However, the court noted that it had held several times that the destruction of the right of access or the substantial or material impairment or interference therewith by the public authorities was a taking of the property. The landowners, consequently, in reliance upon those holdings, contended that there was such a substantial impairment or interference with their right of access as would constitute a taking of their properties for which compensation would have to be made. Apparently the trial court went along with this view. But the supreme court did not believe those precedents were controlling here, because none of them considered the extent of the right of access to property from and adjoining the street or highway. The court said, while admitting some authority to the contrary, it was well settled in Iowa that, while access could not be entirely cut off, an owner was not entitled, as against the public, to access to his land at all points between it and the highway. If he was allowed free and convenient access to his property and the improvements on it and his means of ingress and egress were not substantially interfered with by the public he had no cause for complaint.

The court said that the space between the two driveways might have been fixed at 45 ft because that was the maximum length permitted for trucks and semitrailers upon Iowa highways under section 321.457 (3), Code 1954, I.C.A. However, the court said that since the recent 57th General Assembly had increased this length to 50 ft the space between the driveways should likewise be increased to 50 ft. The court felt that the commission would be willing to do that.

The court held that the owners had not been deprived of reasonable access to their dwelling on the south side of Hubbell Avenue. However, there were about 140 ft west of their dwelling suitable for a residential site, and no access to this ground had been allowed except at the extreme northeast corner of the residence property. The only way in which this driveway could have been utilized as a means of ingress and egress for the residential site to the west was by constructing an outer roadway or private service road parallel to the south side of Hubbell Avenue between the residential site and the driveway the commission had provided.

The court decided that unless means of access were allowed this residential site its value would be greatly diminished, and it would be difficult to find a purchaser for it. The court felt, therefore, a driveway should be permitted for this site or, in the absence thereof, just compensation should be paid.

The supreme court easily disposed of the owners' appeal from the part of the judgment which held that the prohibition of crossing the highway, left turns, and U turns except at designated points where there were no raised "jiggle" bars did not constitute a taking of the owners' property within the law of eminent domain, on the basis of recent court decisions, and, therefore, affirmed the judgment of the lower court on this point.

Maryland. This case, decided on the same day as the case above, arose as a result of the state roads commission's action in reconstructing a highway into a divided, 4-lane dual facility with center median strip dividing north-bound and south-bound lanes of traffic so that left turns could not be made directly into a shopping center without taking a more circuitous route. The owners of the shopping center sought an injunction to halt construction, which was denied by the circuit court.

On appeal the state supreme court held that construction of the median did not constitute a taking of the abutting properties and the state roads commission was not

liable for damages.[51]

The owners of the shopping center did not deny the state roads commission's authority to construct median strips. They did complain, however, that the strip would prevent direct access to the far sides of the roads bordering on their properties, and this would amount to substantial denial of their rights to ingress and egress, and to a taking of their property without compensation.

The court was of the opinion that the state's action was more nearly akin to a diversion of traffic than to a blocking of the owner's means of access to the highway. It appears entirely reasonable, continued the court, that if the state could divert traffic entirely away from the owners' corners without being liable for damages for so doing, it might, in the interest of safety, and without incurring liability for damages, interpose an obstacle which might render access to the property more difficult, while not actually destroying access to the highway. Any other view, the court concluded, would require the state to pay through the nose for the privilege of further improving and adding to the safety of highways which it had built and which had evidently brought customers to the doors of owners of land abutting such highways.

The Langley decision was accepted by the Court of Appeals of Maryland as controlling in its ruling in the case of Turner v. State Roads Commission.[52] The point raised involved the question as to whether the lower court committed error by denying damages to appellants for the impairment of access caused by the median strip. The court of appeals answered in the negative.

This case was a combined appeal from two judgments of the Circuit Court of Prince George's County, in two condemnation cases tried together by stipulation. The owners of the two properties involved were father and son, Albert H. and Albert W. Turner, respectively. The portions of the two properties condemned were located on the opposite sides of Enterprise Road in Prince George's County.

The commission planned to improve Enterprise Road and provide for a future interchange to serve U. S. Route 50, the Washington-Annapolis Expressway. The father's property fronted 336 ft on the east side of Enterprise Road. The roadside strip to be taken from the father would consist of 3.48 acres. The commission's plans called for a dual highway on Enterprise Road with two lanes divided in the center by a 16-ft median strip at the area of the interchange. Such plans required the father, in order to go south from his property, to take a frontage road for about 200 ft before gaining access to Enterprise Road.

The commission proposed to condemn a total of 11.543 acres of the son's property on the west side of Enterprise Road. To go south the son would have to proceed north 400 to 500 ft to the nearest break in the median strip and then make a U turn to travel south. The son would be denied access to the new expressway and to Enterprise Road to a point some 75 ft north of his present driveway.

The court said it was true that construction of a median strip would result in inconvenience to the property owners and others entering or leaving the properties in question, but there certainly was no blocking of access shown, nor was it so contended.

The court said that the facts in this case should be given the same interpretation as were the facts in the Langley case. Since the Langley case was said to be controlling, the court held that the trial judge was correct in not allowing damages for the impairment of access to appellants' properties.

Georgia. Although inconvenience caused by construction of a dividing strip in a street or highway is generally not held compensable as noted in the three previous cases, there are exceptions to the general rule as illustrated in a decision handed down on March 13, 1957, by the Supreme Court of Georgia.[53] In this case the court

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[51] Langley Shopping Center v. State Roads Commission, 131 A. (2d) 690, May 7, 1957 (See Memorandum 94, August 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service, Circular 345).

[52] 132 A. (2d) 455, June 3, 1957.

[53] Dougherty County v. Hornsby, 97 S. E. (2d) 300 (See Memorandum 94, August 1957, Committee on Land Acquisition and Control of Access and Adjacent Areas, Highway Research Correlation Service, Circular 345).

held that a county was liable to an abutting land owner for depreciation in value of his property caused by construction of such a dividing strip and concrete curb and gutter along the side of the highway adjacent to his property.

The protesting landowner operated a drive-in restaurant and trailer court which were both largely dependent upon traffic on the highway for trade, according to the owner. He further alleged that the three entrances allowed him were only 20 ft in width and that any traffic entering his premises was hampered and deterred because of the insufficient width and faulty construction thereof (see Fig. 6).

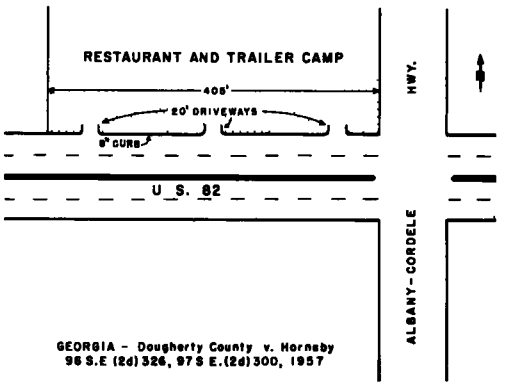

Figure 6.

The county's contention was that it was under no obligation to supply the landowner with customers. The court held, however, that although this was true, the county was liable for any interference with the rights of ingress and egress to the property which might cause any diminution in the market value of the property. The court cited previous decisions in which it had been held that damages which an individual might recover for injuries to his property need not necessarily be caused by acts amounting to a trespass, or by an actual physical invasion of his real estate. But if his property be depreciated in value by his being deprived of some right of user or enjoyment growing out of and appurtenant to his estate as the direct consequence of the construction and use of any public improvement, his right of action was complete, and he might recover to the extent of the injury sustained.

In line with these previous decisions, the court held that the present landowner was entitled to just compensation in an amount represented by the difference between the market value of the property before and after the taking for public purposes.

Circuity of Travel

Two court decisions—one in Kentucky and one in New York—involved the question of whether a landowner is entitled to compensation when the street or road on which his property abuts is closed at a certain point, making it necessary for the landowner to take a more circuitous route in reaching his destination. The answer of both courts was in the negative.

Kentucky. The issue before the Court of Appeals of Kentucky in the case, Department of Highways v. Jackson,[54] was whether the property owner could recover damages for depreciation in the value of his land as a result of the closing of the county road between his land and the nearby town, which required him to travel a greater distance to the town.

Jackson's property was located about one mile east of Lebanon Junction, on Samuels Road, a county highway. When the department of highways closed the county road at the Kentucky turnpike, west of Jackson's property, he had the choice of going east two-tenths of a mile to Maraman Road, thence south to State Route 61, thence west to Lebanon Junction, or going three-tenths of a mile east to Old Pine Tavern Road which ran north and then around to the west to Lebanon Junction. The distance from the Jackson farm to the junction by either route was about two miles.

The court of appeals held that closing the county road at one end did not deprive Jackson of reasonable access from his land to the public highway system, and he was not entitled to damages, even though closing the road required him to travel a slightly longer distance to the nearby town. The court said that a property owner in a situation like this would be entitled to damages only when the closing would deprive him of his

[54] 302 S. W. (2d) 373, 1957.

sole or principal means of ingress and egress.[55]

The court also held that insofar as this decision was in conflict with previous decisions, those decisions were overruled.[56]

New York. In this street closing case, the Court of Claims of New York granted the state's motion to dismiss the landowners' claim for alleged damages resulting from the closing.[57]

The landowners' land was located between two lots which were appropriated by the state. None of his property was taken. His property fronted on Lenox Street which ran in an east-westerly direction. Before its relocation, Ashmond Road intersected Lenox Street west of the landowners' frontage, and Lenox was a through street. After the relocation of Ashmond Road, it intersected Lenox Street on the east of his property, and old Ashmond Road was elevated so that it blocked Lenox Street making it a dead-end street so that the landowners no longer had access to and from their property in a westerly direction.

The court held that this case fell within the general rule controlling a street closing case, and claimants' damages were damnum absque injuria.

Economic Impact of Expressways

Interest in economic impact research developed remarkably during 1957. Pursuant to the 1956 resolution of the American Association of State Highway Officials, the Highway Research Board held a special two-day conference on economic impact research, under the aegis of the Land Acquisition Committee. Those associated with this type of research at the time of the meetings were asked to participate. The conference proceedings were published by the Board as Special Report 28, entitled "Economic Impact of Highway Improvements, Conference Proceedings." Those interested will find a wealth of ideas contained in the discussions of this conference.

At this time, there are 41 economic impact studies underway in 26 states, most of them programmed through the highway planning survey mechanism. The requirements of the Highway Cost Allocation Study have been largely responsible for this noteworthy development of economic impact research. Reports on how three of these studies are being carried on were presented at the Annual Meeting of the Board in January 1958. These studies concern a new turnpike in Connecticut, the Boston Circumferential Highway (Route 128) and a route bypassing Lexington, Virginia.

A comprehensive before-and-after inquiry into the economic and social impact of the Connecticut Turnpike is being carried on cooperatively by the University of Connecticut, the Connecticut State Highway Department and the Bureau of Public Roads. It has been underway since early in 1956, almost two years before the opening of the turnpike in January of 1958. According to present plans, the study will cover a period of at least five years. Changes involving property values, manufacturing activity, the recreation industry, retail sales, community services, and agriculture will be noted in the course of the study. A report on the objectives sought and the methods being used in conducting the study are included in another paper in this bulletin by Walter C. McKain, Jr.

The purpose of the Route 128 study, sponsored by the Massachusetts Department of Public Works and the Bureau of Public Roads, and carried on by the Massachusetts Institute of Technology, is to make an investigation of the basic factors underlying the changes that have taken place along the highways. Three types of surveys have been initiated: (1) survey of residential property values and sales before and after construction of the highway, both in the immediate vicinity and in areas removed from the location; (2) survey of industrial and commercial developments along the highway and in nearby areas, and an investigation of employee travel patterns; and (3) traffic survey of Route 128, including trends in volumes over a period of years, and an origin-and-destination count as of 1957. The present report, included in full in this volume, deals

[55] See Ex parte Commonwealth, 291 S.W. (2d) 814, 1956.
[56] See Standiford Civic Club v. Commonwealth, 289 S.W. (2d) 498, 1956.
[57] Spicer v. State, 169 N.Y.S. (2d) 128, December 12, 1957.

with the survey of industrial and commercial developments and with traffic characteristics and travel patterns of the employees at one industrial location group. A. J. Bone and Martin Wohl, both of M. I. T., prepared the paper, entitled "Industrial Development Survey on Massachusetts Route 128."

"Methods Used to Study Effects of the Lexington, Virginia, Bypass on Business Volumes and Composition," also included in this report, contains an account of the methods used to determine the effects of the bypass on business volumes and composition. It includes a comparative evaluation of commonly-used methods of assessing the economic effects and an analysis of data obtained. The report presented at the Board's Annual Meeting was prepared by Joseph W. Harrison, of the Virginia Council of Highway Investigation and Research, which organization carried on the study under the sponsorship of the Virginia Department of Highways and the University of Virginia. According to the author, the study was designed to permit employment of classifications and comparisons which have been used in previous economic impact studies with the aim of testing their congruity.

ROADSIDE REGULATION

Efficiency and safety of the highway can be greatly augmented by the use of certain regulations which may legally be imposed under the police power. The committee has long concerned itself with these regulations, stressing the importance of adequate driveway control, the use of setbacks, establishment of zoned districts for highway service facilities, subdivision regulations designed to insure compatibility with existing and proposed highways, appropriate control of outdoor advertising, and many others. The majority of these controls can be put into effect without additional legislative authorization. Consequently, there is a relatively small amount of new legislation in the field. During 1957, some of the state legislatures did, however, concern themselves with certain aspects of the roadside problem. Colorado, Michigan, New Mexico, North Carolina, and Tennessee enacted provisions prohibiting service facilities in the right-of-way of the interstate system, substantially the same as that contained in the Federal-Aid Highway Act of 1956. In a number of other states, including Connecticut, Maryland, New York, South Carolina, Vermont, and West Virginia, such legislation failed of passage.

An interesting enactment of the West Virginia Legislature in 1957 authorizes the state highway commission, after appropriate surveys, to promulgate and enforce reasonable rules and regulations relating to setback lines, traffic islands, curb separations, entrance approaches, etc. The law specifies that the commission may not "unduly" interfere with any abutting property owner's entrance or access rights or approaches without his consent or through appropriate proceedings in court "in the exercise of the right of eminent domain for determination of the lawful rights of the respective parties and the damages, if any, to be assessed."

Also of interest is a resolution passed by the California legislature which took notice of the amount of funds spent for controlled-access facilities in relation to those spent in landscaping and maintaining the beauty of these facilities. The legislature therefore resolved that henceforth its policy would be to urge that more attention be given to landscaping and beautification of such highways.

Of great importance at the federal level was the attempt to obtain passage of legislation pertaining to regulation of outdoor advertising in areas adjacent to the interstate highway system. A number of bills were introduced, hearings were held, and there was great activity on the part of both proponents and opponents of such legislation. No legislation was enacted, however, but in 1958, an amendment to the 1956 law including a provision providing for a minimum amount of control was passed. The amendment provides for payment of small amounts of additional federal funds to those states agreeing to prohibit outdoor advertising within 660 ft of the edge of the right-of-way of highways in the interstate system, with certain exceptions, as indicated in the act.[58] Regulation is to be consistent with standards promulgated by the Secretary of Commerce.

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[58] Public Law 85-381, 85th Congress, H. R. 9821, Sec 122, April 16, 1958.

At the state level, laws providing for control of billboards on the interstate system have been enacted by the legislatures of three states—Maryland, Vermont, and Virginia. The Vermont law, enacted in 1957, prohibits the erection or maintenance of advertising signs within 750 ft of the right-of-way of highways on the interstate system. Exceptions are directional and official signs, signs in towns and cities, signs advertising sale of business or products, and signs not visible from the traveled portion of the highway. The Maryland and Virginia laws were enacted in 1958, and prohibit signs within 600 and 500 ft of interstate highways, respectively, again subject to certain exceptions.

Various other state legislatures passed laws regulating certain types of billboards or prohibiting their erection in certain places or areas. Laws passed in Georgia, Minnesota and Nevada prohibited, or clarified existing provisions prohibiting billboards in the highway right-of-way. Florida, Indiana, Kansas, New Hampshire and Washington laws prohibited, or regulated, rotating or flashing signs under certain conditions.

The regulation or control of outdoor advertising has always been the subject of a great deal of litigation. The year 1957 was no exception. Some of the more significant decisions are discussed in the following section.

Outdoor Advertising

California. The City of Los Angeles sought a preliminary injunction in order to enjoin Richard Barrett and others from constructing an advertising sign upon their lot, which adjoined the Hollywood Freeway and was considerably below the level of the traffic artery. The preliminary injunction was granted by the superior court, and the defendants appealed to the district court of appeal.[59]

The defendants had obtained from the Department of Building and Safety, a permit to construct the sign in question. This department had authority to issue permits for the construction of what was termed "roof signs." No permit was obtained from the Board of Public Works which was authorized to issue permits for the construction of "ground signs."

The sign was to be 16 ft by 37½ ft and designed to display the name of the lot occupants' business, viz., "The Barra Co. Wine Vinegar." It was to be supported by two piers situated on opposite sides of, but not touching, a one story building located near the freeway. The sign was to pass over and well above the building. Amendatory plans indicated the building was to be modified so that the roof was to be extended to cover a patio, with the extension of the roof to be attached to one of the piers. The building department also issued a permit authorizing the alteration, but both permits were subsequently revoked "as they were issued in error." Nevertheless, the defendants continued to work without any permit until served with a restraining order.

The district court of appeals said this case involved two primary questions: (1) Whether the sign was a "roof sign" requiring a building permit from the Department of Building and Safety, or an "outdoor advertising structure" falling within the jurisdiction of the Board of Public Works and requiring its permit for construction; (2) whether the continued construction of the sign after revocation of a permit was properly enjoined as one designed to have its advertising viewed primarily from the freeway and creating a condition endangering the safety of persons thereon. The court noted that Section 67. 15. 01 of the statutes provided that no outdoor advertising structure, post sign or advertising statuary was to be erected, constructed, relocated or maintained, regardless of the district or zone in which it was located if designed to have the advertising thereon maintained primarily to be viewed from a main traveled roadway of a freeway, or if, because of its location, size, nature or type, it constituted or tended to constitute a hazard to the safe and efficient operation of vehicles upon a freeway.

The main contention of the defendants was that this was a roof sign within the jurisdiction of the Building and Safety Department because it stood over a roof. Defense counsel relied upon the literal reading of certain sections of the municipal code as grounds for this contention. The court said it could not accept such a literal construc-

[59] City of Los Angeles v. Barrett, 315 P. (2d) 505, 1957.

tion, for the claim that this was a roof sign simply because it was over the roof of the small building below it "sticks in the bark." It said to so hold would throw open the flood gates of evasion and enable any property owner to avoid the freeway ordinance provisions by placing a detached ground sign over his hen house or garage, though not in contact with it. Such a construction, the court said, was too far fetched to be accepted as reasonable. According to the court, ordinances, like other statutes, must be given a reasonable construction.

The court also held that the evidence was sufficient to support the city's allegation that the sign was designed to have its advertising matter viewed primarily from the Hollywood Freeway, and that this would afford adequate basis for a preliminary injunction.

The court said the order granting a preliminary injunction carried with it an implied finding that the sign in question was within the field covered by permits from the Board of Public Works, and the erection without its permit was a violation of the law and a public nuisance.

The courts have been given broad discretion in passing upon a motion for temporary injunctions. It is not necessary to determine at that time the ultimate rights of the parties. Unless an abuse of discretion appears, such an order will not be reversed. No abuse of discretion appeared here, so the court affirmed the lower court's order granting a temporary injunction.

Pennsylvania. Another decision pertaining to so-called roof signs was handed down by the Supreme Court of Pennsylvania on January 17, 1957.[60] The Landau Outdoor Advertising Company leased the roof area above a drug store located in an area zoned "A" Commercial in the City of Philadelphia. Their application for a permit to erect a large illuminated billboard 15 ft high and 42 ft wide for general advertising purposes was denied by the zoning division, and on appeal by the zoning board of adjustment. The board found that the area was partly residential and partly commercial, that the proposed use was not an accessory one, that proper and orderly development of the neighborhood could best be obtained by limiting the area to accessory signs advertising business conducted on the premises, that the sign would be a distraction to motorists and that the health, morals, safety and general welfare of the immediate neighborhood would be affected if permission were granted to erect the sign for general advertising, not accessory to any business at this location. On appeal, the court of common pleas reversed the action of the zoning board, without taking further testimony, holding that the proposed billboard was an accessory use. The court reasoned that use of the roof of a business building for the erection of a sign thereon was "customarily incidental" to its main use as a buisness building, in line with the definition of an accessory use included in the zoning ordinance.

The state supreme court, on appeal, agreed with the city that an accessory use sign must advertise activities conducted on the premises, and therefore the sign in controversy was a non-accessory sign, and that the contemplated use of the roof bore no relationship whatever to the occupancy of the building.

The advertising company argued that refusal to permit the sign for general advertising use, when erection of a similar sign by the owner to advertise the business conducted on the premises would be permitted, was a restriction which bore no substantial relation to public health, safety, morals or general welfare, and was unconstitutional. In refutation of this argument, the court cited several previous decisions including a New Jersey case in which the state supreme court held:

> The business sign is in actuality a part of the business itself, just as the structure housing the business is a part of it, and the authority to conduct the business in a district carries with it the right to maintain a business sign on the premises subject to reasonable regulations in that regard as in the case of this ordinance. Plaintiff's placements of its advertising signs, on the other hand, are made pursuant to the conduct of the business

[60] Landau Advertising Co. v. Zoning Board of Adjust., 128 A. (2d) 559.

> of outdoor advertising itself, and in effect what the ordinance provides is that this business shall not to that extent be allowed in the borough. It has long been settled that the unique nature of outdoor advertising and the nuisances fostered by billboards and similar outdoor structures located by persons in the business of outdoor advertising, justify the separate classification of such structures for the purposes of governmental regulation and restriction.[61]

The supreme court reversed the order of the court of common pleas, holding that the contemplated use of the roof in this case would not be an accessory use and therefore could not be permitted.

Maryland. The authority of City of Baltimore to enforce a 1950 zoning ordinance, requiring all outdoor advertising structures in residential districts to be removed within five years from passage of the ordinance, was recently upheld by the Maryland Court of Appeals.[62]

In its decision, the court noted that the fundamental problem facing zoning is the inability to eliminate non-conforming uses. Originally they were not regarded as serious handicaps to the effective operation of zoning ordinances, because it was felt they would be few and likely to be eliminated by the passage of time and restrictions of their expansion. After a while other ways to get rid of them were tried. Two tools which were resorted to mostly were eminent domain and the law of nuisances. The effectiveness of eminent domain, however, is restricted by the necessity that the purchase must be for a public use, by the complexities of administrative procedures, and by the high cost of reimbursing the property owners. The law of nuisances is limited as an effective tool in that some courts will restrain only common law nuisances and even where the lawmakers have expanded the nuisance category, judicial enforcement seems often to have been restricted to uses that cause a material and tangible interference with the property or personal well-being of others, uses that are equivalent to or are likely to become common law traditional nuisances.

The facts brought out in the present case showed among other things, that all the billboards in question were on leased land. Most of the leases were for terms of one year, with options to renew. None were in effect before April 5, 1950, when the city council passed Ordinance 1101, requiring all outdoor advertising structures in residential districts to be removed within five years. The leases all provided that the advertising company could terminate them if the law forbade the maintenance of the boards. The signs were so constructed that if they had some further useful life after five years they could be moved to locations in commercial and industrial zones and there earn revenue for their owner.

The billboard people and the owners of property on which the signs were located contended that their rights to non-conforming uses were vested rights of property which the enforcement of Paragraph 13(d) would take from them without compensation, contrary to Art. 3, Sec 40 of the Constitution of Maryland, and so would deprive them of property without due process of law, as well as be discriminatory and a denial of the equal protection of the laws.

The billboard interests argued that removal of the non-conforming structures would seriously injure their business.

Here the court said it found nothing in the record to rebut the presumptive validity of the ordinance under consideration. Only after extended hearings and full consideration of the views of both proponents and opponents was it enacted. Over 40 civic and improvement associations endorsed it. The council had the benefit of the views of especially well-qualified expert witnesses, C. William Brooks and Dr. Flavel Shurtleff. The court, therefore, ruled that the validity of the classification would seem to destroy the argument of the plaintiffs that the ordinances were discriminatory as to them.

Having determined the harm to the public welfare, the court said the city council

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[61] United Advertising Corporation v. Borough of Raritan, 93 A. (2d) 362, 1952.
[62] Grant v. Mayor and City Council of Baltimore, 129 A. (2d) 363, February 14, 1957.

undoubtedly concluded that the equitable means of reconciling the conflicting interests of the public on the one hand, and those of advertising companies and those leasing land to them on the other, and thus the satisfaction of the requirements of due process, would be a 5-year amortization period. The court found that the remedy chosen was not arbitrary, nor was the city council wrong in its conclusion that the effect for good on the community by the elimination of billboards within five years would far more than balance individual losses.

The court thus upheld the validity of the ordinance.

Encroachments

Many highway departments are plagued by persons maintaining or constructing various types of encroachments on the highway rights-of-way. It is not uncommon to find that some of these encroachments have been in existence for 15 or 20 years, and the problem of their removal has often been a difficult one.

Georgia. The state highway department at one time contemplated asking for special legislation to cope with its encroachment problem. This was averted, however, when the idea of removing these encroachments by means of an injunction was generated by the Georgia Department of Law. There was some doubt as to whether the courts would uphold such action on the theory that the injunction sought would be mandatory. The Supreme Court of Georgia held otherwise, however, in the case of Davidson v. State Highway Department.[63] This decision has greatly lessened the encroachment problem in Georgia.

In this case the state highway department asked the court for an injunction to restrain one Davidson from continuing trespass upon a state highway right-of-way. The facts in the case were as follows. In 1931 the State Highway Board of Georgia acquired land in McDuffie County for right-of-way purposes. Thereafter, Davidson constructed a building which encroached 9 ft upon the right-of-way. The state obtained a commitment from the federal government to share in the costs of improvement of the highway. The government, however, withheld a sum of money because of the encroachment, since the commitment specified that the department would keep the right-of-way free of encroachments. Davidson argued that he could not legally be required to perform the act of removing the building by injunction. The trial court held that the continuing trespass on the state's land could be enjoined.

The Supreme Court of Georgia affirmed the lower court's ruling, basing its decision on many authorities. While fully recognizing the rule that mandatory injunctions would not be issued, the court held that a continuing trespass such as this could be stopped by using an injunction, even though in so doing the wrongdoer would be required to take affirmative action.

The court reasoned that, properly construed, the petition did not seek primarily to require Davidson to perform an act. The main purpose of the relief sought was to restrain Davidson from maintaining a continuing injury upon the right-of-way, although in rendering obedience to a restraining order he might be incidentally required to perform some act.

Mississippi. Injunction was also the remedy used to obtain removal of obstructions in the right-of-way of a state highway in Mississippi. G. H. Guckert and T. V. Adams operated commercial enterprises on land abutting U. S. Highway 82 near the eastern corporate limits of Columbus. The state highway commission requested that they remove signs and other encroachments in the right-of-way, and upon their refusal to do so, asked the court for an injunction to require removal of the obstructions. The trial court refused the injunction, holding that the power and authority to regulate and prohibit obstructions upon or over the right-of-way but outside the traveled portion of the highway were vested in the city, and not the state highway commission. The commission appealed.

The state supreme court noted that the state highway commission had full statutory authority over all matters relating to construction or maintenance of state highways,

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[63] 100 S. E. (2d) 439, 1957.

and was further vested with the power to make reasonable rules and regulations pertaining to the placing of obstructions that might in its opinion be considered hazards upon such highways.

Guckert and Adams on the other hand relied on a provision subsequently inserted in the statutes to the effect that the municipality should have "full control and responsibility beyond the curb of any such streets." The supreme court held that this latter provision had reference to municipal streets or "parts of sections thereof" which had been taken over for maintenance by the commission, not to state highways constructed by the commission in or through municipalities upon rights-of-way owned by the commission. In the present case, the court found that the commission had a fee simple title to the entire right-of-way. In other words, it owned the right-of-way outside and beyond the street curbs. The legislature, the court said, did not intend to place the commission at the mercy of municipal authorities. The commission had title to the right-of-way, and it could not be used or obstructed by others against the wishes of the commission, whether such use or obstructions constituted safety hazards or not. The supreme court thus reversed the ruling of the trial court, remanding the case so that the time and other details of removal of the obstructions might be worked out.

Roadside Control Through Zoning

An interesting decision was handed down in Maryland during the past year, in which the court refused to sanction a zoning change which the court believed would result in congestion on the adjoining highway, thus creating a traffic hazard.[64]

A landowner, Thelma D. Price in August, 1955, asked the Zoning Commissioner of Baltimore County to reclassify her property on Liberty Road from a residential to a business use. She contemplated constructing a shopping center upon her land. After a hearing the request was denied on the ground that the proposed construction would increase the traffic hazard on this very heavily travelled highway. An added reason for the denial, said to be according to a recent court of appeals opinion, was that the area was being studied by the Baltimore County Planning Board. The commissioner believed an area as great as this should be so studied in order to make recommendations for a new use map.

The landowner appealed from the commissioner to the board of zoning appeals. The testimony at the hearing before the board showed that this tract was roughly triangular in shape and was bounded on the southwest by Liberty Road on which it had a frontage of approximately 1,750 ft, on the east by Gwynns Falls, and on the north in part by the flood plain from Gwynns Falls. Liberty Road was hilly in this section and had a right-of-way 66 ft in width. The road was 22 ft in width, with 5-ft stabilized shoulders. Across the street opposite the landowner's property there was a branch bank and the Woodmore Shopping Center. Within a radius of a mile and a half of this tract was a shopping center at Pikesville, another at Colonial Village, and a number of stores on Edmondson Avenue. The proposed center was to have from 18 to 20 stores and parking places for approximately 800 cars. Three entrances were planned. After this hearing, the board granted the requested rezoning.

The board stated, among other things, that in spite of the local residents' opposition to the change, the phenomenal increase in population in the area constituted a substantial change in conditions which justified additional commercial zoning. It acknowledged that the traffic situation presented a problem, but one which could be solved by proper engineering and possibly the erection of a traffic light.

Residents of the neighborhood on June 13, 1956, were granted a review of the board's decision by the Circuit Court for Baltimore County. The circuit court held that the contemplated shopping center for which the reclassification was sought would generate additional traffic upon Liberty Road causing congestion in the streets and create a traffic hazard. The reclassification was denied and the order of the board was reversed. The landowner appealed to the court of appeals.

The court of appeals was of the opinion that the rezoning here would have materially

[64] Price v. Cohen, 132 A. (2d) 125, 1957.

increased the traffic hazard on Liberty Road. This road handled capacity traffic, and it was indefinite whether it would be improved. In changing zoning regulations, traffic conditions should be given material consideration, and as this was not done by the board in this case, the rezoning was arbitrary and an abuse of discretion was found by the trial judge. The order of the circuit court was affirmed.

PARKING

The number of cases contesting the authority of governmental and quasi-governmental agencies to provide public parking facilities, and to regulate the parking of vehicles in certain areas has steadily declined during the past several years. The provision of off-street facilities to ease the traffic problem is rather generally considered to constitute a legitimate governmental enterprise. Regulation of on-street parking, for the same purpose, has consistently been held a legitimate exercise of the police power. There is an occasional exception, however, as will be noted in the Georgia decision reported in a following section, in which the court held that the provision of parking facilities is a service or function ordinarily performed by private enterprise and not a governmental function. With the further exception of a Texas decision in which the court held that the subsurface of a public park could not be used for a parking garage, under the particular circumstances involved, all of the cases discussed in the following pages upheld the governmental bodies' authority to provide for, or regulate, parking.

Authority to Establish Parking Facilities

The Supreme Courts of Massachusetts and Georgia decided cases involving the question of whether or not the establishment of public parking facilities was accomplished within the authorized powers of the state. The Massachusetts decision held that the city was authorized to take private parking lots, which were open to the public, in order to provide for the continued use of the land as parking lots. The Georgia case held unconstitutional the legislative act which attempted to set-up a parking authority and a certain system of financing the project.

Massachusetts. In this case[65] the owners of certain parking lots in the City of Boston asked the court to enjoin the city from taking their parking lots for the purpose of constructing public parking facilities. The owners also asked for a decree determining that the city was without authority to take the lots. The superior court held that the city did have such authority, and the owners appealed. The supreme judicial court held that the statute authorizing the city to establish public off-street parking facilities to "insure public interest in free circulation of traffic in and through the city," and a supplementing statute authorizing the city to lease property acquired for parking facilities was constitutional.

The facts in the case indicated that the owner or operator of each lot had under preparation plans to construct a structure thereon so that the capacity would be greatly increased. After taking the land, the city intended at an early date to lease the land to a private person or persons upon condition that the lessee construct a facility which would greatly increase the accommodations—in two instances from 45 and 90 to 700 cars and in the third instance from 90 to "greatly increased" capacity. The prospective lessee, subject to the statutes, would operate the facilities for his personal profit.

Pending the execution of a lease under which a building would be constructed, the city would lease the lots to private operators who would operate the same without substantial change from existing conditions as a public parking lot for their own personal profit. If for any reason the city did not conclude a lease conditioned on construction, it would continue to lease the land to private persons or to construct the structures with municipal funds and to lease the same to private persons for operation.

All leases entered into must contain schedules of maximum rates to be charged by

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[65] Court Street Parking Company v. City of Boston, 143 N. E. (2d) 683, 1957 (See Memorandum 97, December 1957, Committee on Land Acquisition and Control of Highway Access and Adjacent Areas, Highway Research Correlation Service Circular 354).

the lessee for use by the public, and also regulations with respect to the use, operation and occupancy of the property.

The enabling act specifically prohibited the city from acquiring, except by gift or demise, any property privately held and operated as a garage.

One of the important questions raised here was whether there was a possibility that in some instances the only apparent change, so far as parking facilities were concerned, would be that the facilities presently operated by a private owner would instead be operated by a private individual who leased from the city. Did this make the statute invalid as involving a use of the power of eminent domain for a predominantly private purpose? But the court said that a public purpose would also be served. The land taken would be permanently devoted to the public purpose, and not subject to the decision of an owner who could, if he so desired, change the use. Furthermore, it would constitute a part of a statutory plan to provide enough such areas to relieve a pressing public need. Its ownership would have changed as a part of a plan designed to use public authority to marshal private capital to meet the public need. The possibility upon which the owners relied was not the primary purpose of the statutes. The existence of this possibility did not make the intent of the statutes or their effect in operation the use of public authority to serve a private end. There was reasonable provision for control in the public interest if such a possibility developed as a fact.

The statutes were to be judged as enactments designed to increase the amount of space available for the parking of automobiles in the City of Boston by facilitating the construction of buildings for this purpose in areas of parking congestion. It could not be known in advance when private capital for this purpose would surely be available. Therefore, the court held it was reasonable to provide for the continued use of the land for parking purposes pending construction, either by private operators or by the city. The possibility that some lot or lots would continue indefinitely without the construction of a building thereon could have been provided against either by requiring that the city itself build after a period of attempted leasing or, as the owners suggested, by authorizing a taking only after a lease to construct had been secured. But it was not necessary, according to the court, to so limit and hamper the city in its acquisition and development of property for a public purpose.

The court held that such aspects of private advantage as the statutory plan presented were reasonably incidental to carrying out a public purpose in a way which was within the discretion of the legislature to choose.

The court did not believe, and the parking lot owners had not contended, that an arbitrary and unreasonable distinction was made by the statutes in excluding existing garages from the category of property which could be taken or purchased. Existing garages presumably already provided substantially more space for parking automobiles than would be afforded by the use of the underlying land without a structure thereon, and hence already served the purpose of the statutes. The fact that owners of particular parking lots might have plans for building garages, which so far as appeared might have developed or matured after the board began the action for the taking of their lots, did not make the statutes arbitrary in their application. The validity of action under a general plan for serving a public need cannot depend on such uncertainties.

Bills of complaint dismissed.

Georgia. Recently the Supreme Court of Georgia decided that the act of its legislature (Ga. L. 1957, p. 2744) which attempted to establish the Cobb County Parking Authority and a system of financing off-street parking facilities, was unconstitutional.[66] Earlier the superior court had declared the act constitutional and valid, including the proposed issuance of revenue bonds by the parking authority.

The act was alleged to be unconstitutional because it violated several enumerated provisions of the constitution, among them, Article 7, Section 7, Paragraph 5 (Code Ann. Sec 2-6005), which provided in part:

> Revenue anticipation obligations may be issued by any county, municipal corporation or political subdivision of the state, to pro-

[66] Tippins v. Cobb County Parking Authority, 100 S. E. (2d) 893, 1957.

> vide funds for the purchase or construction, in whole or in part, of any revenue-producing facility which such county, municipal corporation or political subdivision is authorized by the Act of the General Assembly approved March 31st, 1937, known as the "Revenue Certificate Laws of 1937," as amended by the Act approved March 14, 1939, to construct and operate or to provide funds to extend, repair or improve any such existing facility. . . . This authority shall apply only to revenue anticipation obligations issued to provide funds for the purchase, construction, extension, repair or improvement of such facilities and undertakings as are specifically authorized and enumerated by said Act of 1937 as amended by said Act of 1939.

It was conceded by counsel for the parking authority that parking garages or facilities were not mentioned in either 1937 or 1939 acts of the general assembly providing for issuance of revenue certificates or bonds, but they insisted that this constitutional provision was applicable only to "any county, municipal corporation or political subdivision of this state, and that the revenue bonding powers of the Cobb County Parking Authority were not limited by this provision of the constitution, since it was a separate and distinct body corporate and politic. The court noted, however, that while strictly speaking the parking authority was neither a county, municipal corporation nor political subdivision of the state, the title of the act creating the parking authority, said that it was "An Act to Create the 'Cobb County Parking Authority' as a Public Body Corporate and an Instrumentality and Agency of the State."

The supreme court held that the furnishing of facilities and services necessary or convenient in constructing, erecting, maintaining and operating motor vehicle parking facilities and any area or space of any parking facility for lease or rental to commercial enterprises was a service or function ordinarily performed by private enterprise and was not a governmental function. Certainly, continued the court, under the unanimous decision of the court in Beazley v. DeKalb County,[67] the county itself would not be authorized to issue revenue certificates or bonds for the purpose of engaging in the business of acquiring, maintaining, and operating parking facilities and space for lease or rental to commercial enterprises, which could include mercantile and manufacturing establishments; and the parking authority, being an agency of the county, could not be clothed with greater power or authority than its principal. The court reasoned that the county could not do by delegation that which it could not do itself, for no greater power than that possessed by the principal could be conferred upon an agent thereof.

Parking as a Public Purpose

Although the courts have rather consistently held the provision of public parking facilities to be a public use, or public purpose, the question must still be adjudicated in certain instances, generally where interested parties believe the facilities to be provided to be for the benefit of individuals or groups of individuals rather than for the public at large. Such a case arose in California in 1957.

California. The City of Menlo Park brought eminent domain proceedings against certain landowners to condemn their land for off-street parking plazas.[68] The land in question was located in an area in the vicinity of a commercial district comprising a six block strip of Santa Cruz Avenue, the main business street of Menlo Park, and was zoned to permit multiple residence and parking uses. The zoning classification recognized that the area's uses were transitional and moving into commercial uses.

At least two areas in the transitional area had been rezoned to permit construction of supermarkets and customer parking areas. In 1955, the city council adopted a resolution to acquire and construct parking plazas, the cost of which was to be paid by assessment upon the lands benefited thereby, and to form an assessment district for that purpose. No part of the cost of acquisition of land and construction of the parking

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[67] 77 S. E. (2d) 740, 1953.

[68] City of Menlo Park v. Artino, 311 P. (2d) 135, 1957.

plazas was to be borne by the public generally. Condemnation awards were rendered for all lots taken, and the owners of several parcels appealed, on the ground that the purpose for which the city was taking their lands did not constitute a public use.

The district court of appeal held that the condemnation was for a public use within the meaning of the statute authorizing condemnation of realty for off-street parking, and the constitutional provision that private property shall not be taken or damages for "public use" without just compensation. In so doing, the court cited a previous decision upholding the validity of the Vehicle Parking District Act of 1943,[69] in which the court recognized that public parking places relieve congestion and reduce traffic hazards, in accord with the broader interpretation of public use recently followed in California.[70]

The property owners further contended that because two areas of the transitional zone, which had been commercial and had provided their own private parking, were excluded from the assessment district, and because no part of the costs of the plazas were to be paid out of general funds or bonds, the city had admitted that the proposed parking facilities were entirely for the benefit of the Santa Cruz Avenue frontage.

In answer to this contention, the court again cited the case of Whittier v. Dixon,[71] in which the court stated that the levy of a special assessment was justified if the improvement was a public one and the property to be assessed would receive a special benefit. Merchants, said the court, frequently acquire and operate private parking places to attract customers and vacate buildings when no parking space for customers is available. Parking places that tend to stabilize a business section, continued the court, by making it readily accessible to trade, benefit the property in the vicinity.

The present court noted that "public use" within the meaning of the California Constitution had been defined as a use which concerns the whole community or promotes the general interest in its relation to any legitimate object of government.[72] The court felt this test had been met in the instant case.

Use of Park Land for Public Parking Purposes

It is the general rule that where land has once been dedicated to public use, such as for park purposes, no use inconsistent with its use as a park can be made of the property so long as the public is still using the land as a park. So said the Texas Supreme Court in a recent case in which it held void a lease entered into by the City of San Antonio for the construction of an underground parking garage, which would partially destroy use of the surface as a park.[73]

The City of San Antonio, pursuant to an ordinance passed by the city council, proposed in 1953 to lease to one Zachry, for a period of 40 years, the right to construct and operate an underground parking garage beneath the city's Travis Park.

The facts indicated that shortly after the lease was entered into, an heir of the person who had dedicated the park some 100 years before filed suit, claiming that the park should revert to her because the lease constituted a use of the park contrary to the purpose for which it had been dedicated. In that suit the city joined with Zachry in upholding the lease contract. The court held that the city was the owner of the fee simple title to Travis Park.[74]

Subsequently the city filed suit to cancel and set aside the lease.

Testimony showed that the land in question had been used as a park for 100 years, and was being used for that purpose at the time of the trial. The court took notice of the general rule that property, having once been dedicated to public use as a public park, could not be subjected to a use inconsistent therewith. Zachry contended that under its home rule charter, the City of San Antonio might, among other things, dispose

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[69] City of Whittier v. Dixon, 151 P. (2d) 5, 1944.
[70] University of California v. Robbins, 37 P. (2d) 163, 1934.
[71] Ibid.
[72] Bauer v. County of Ventura, 289 P. (2d) 1, 1955
[73] Zachry v. City of San Antonio, 305 S.W. (2d) 558, 1957.
[74] Green v. City of San Antonio, 282, S.W. (2d) 769, 1955.

of any property whatever within the city, and might also abandon, discontinue, abolish, close, etc. park squares, public places, etc. The court however, ruled that under the provisions of a state statute, no public park or square could be sold until the sale had been authorized by a majority vote of the qualified electors voting at an appropriate election. Another statute made this applicable to all cities and towns, regardless of population or manner and method of incorporation. The court held that these provisions would apply to prevent sale or incumbrance of Travis Park by the City of San Antonio until authorized by a majority of the qualified electors of the city.

The court held that while it was intended to have an underground garage, approximately one-fourth of the park area would have been required for entrances and ramps. Public sidewalks bordering the park would be destroyed. In the center area of the park, now occupied by a statue, there would be escalators to permit patrons of the storage area to enter and leave the garage. All of the present surface of the park would be excavated and removed. The public would be unable to use the park during the period of construction. Trees could only be grown in boxes. Considering these and other details of the proposed plan, the court came to the conclusion that an unlawful diversion of Travis Park would take place in the construction of the underground parking facilities, and that the city council was without authority to make and enter into the lease. The court held the lease null and void and of no force and effect.

Necessity of Taking Property for Off-Street Parking

Florida. The question as to the necessity of taking property for public off-street parking facilities was brought before the Supreme Court of Florida, after the owners of certain property in Miami Beach applied for a permit to erect a multiple-level parking garage on their property.[75] Plans called for a number of mercantile stores to be located on the street level for the purpose of financing the project. It appeared from the record that a successful financial venture could not be undertaken without the revenue to be derived from rent for such establishments.

The property was located in an area zoned for multiple-family use, multiple-level parking garages without store fronts on the street were permitted. The city council denied the application for a permit as being a use not sanctioned by the ordinance, insofar as the plan called for construction of mercantile establishments not permitted by the zoning ordinance.

Subsequently, the city instituted condemnation proceedings to acquire the land in question for the purpose of establishing public parking facilities thereon. The property owners, David and Harry Rott, then asked the court to enjoin enforcement of the zoning ordinance which prohibited construction of parking garages with street-front stores. They also asked for a continuance of the condemnation action pending determination of the validity of the zoning ordinance. The injunction was denied and the landowners appealed.

The supreme court noted that the reasonableness and constitutionality of the ordinance in question had been upheld in a previous decision (Parking Facilities, Inc., v. City of Miami Beach, 88 So. (2d) 142, 1956). That decision the court held controlling here. The trial court was thus correct in refusing to grant the requested continuance.

The landowners contended that there was no necessity for taking this particular property. The court noted, however, that everyone agreed that this was an area of great traffic congestion. Furthermore, the finding of the city council on the question of necessity could not be easily or casually overthrown by the courts. Strong and convincing evidence of the most conclusive character was required to upset the findings of the elected officials charged with the responsibility of operating the city government in matters of this kind. Here there was no showing nor even allegation of fraud.

That the owners of the property were willing and had planned to provide better and even greater parking facilities than the city contemplated, the court held was not the

[75] Rott v. City of Miami Beach, 94 So. (2d) 168, March 13, 1957 (See Memorandum 94, August 1957, Committee on Land Acquisition and Control of Highway Access and Adjacent Areas, Highway Research Correlation Service Circular 345).

answer. The owner, continued the court, could change his mind both as to whether he would build and what he would use the property for after he had built it. It might become a private enterprise subject to private control and used for private purposes. Evidence sustained the city council's finding that the taking was necessary, continued the court, and was sufficient to establish the city's good faith.

Prohibiting Parking by Ordinance

During 1957, the courts of Louisiana and New Mexico decided cases questioning the validity of city ordinances which attempted to prohibit parking on certain streets. In both cases the courts upheld the validity of the parking ordinances.

Louisiana. The object of this action[76] was to have decreed null and void Ordinance No. 1212 of the City of West Monroe which prohibited parking of all types of vehicles or things on Cypress Street between its intersections with North Seventh Street and with Bridge Street, and on Bridge Street between its intersection with Natchitoches and Bridge Streets.

The plaintiffs were eight owners of businesses located on property abutting and fronting on Cypress Street, within the zone in which parking had been prohibited by the ordinance. The ordinance was attacked as an unreasonable, arbitrary, and unfair regulation of traffic, the enforcement of which would be injurious to the landowners, and would impair their property rights. Additionally, it was contended that the ordinance violated Article 1, Section 2, of the Louisiana Constitution, which provides that no person shall be deprived of life, liberty or property, except by due process of law. The city denied these allegations on the grounds that due to the great and constantly increasing volume of traffic on this street, which, as a part of U. S. Highway 80, formed a main thoroughfare, the city's action being in the interest of public safety, convenience and welfare, was not only imperative but a proper and valid exercise of its police power. The trial court upheld the validity of the ordinance and the landowners appealed.

Evidence showed there had been an extensive survey made of traffic conditions before the ordinance was enacted. The first of these tabulations showed there had been a general and constant increase in volume of traffic in the street affected by the ordinance. Before undertaking the widening of this street, it was concluded by the Department of Highways that, in order to properly expedite traffic through this area, a four-lane highway or thoroughfare was required. To permit the parking of vehicles on each side of this highway would be to reduce a four-lane highway to a two-lane highway and return to the conditions existing prior to the widening of this highway.

According to the court of appeal, it is conceded that a municipality may, under its police power, regulate in a reasonable manner vehicular traffic on its streets. Furthermore, the city, through its governing authority, is vested with control over its streets and may make reasonable regulations for their use, and is only precluded from exercising that power in an arbitrary and discriminatory manner. It has likewise been held, the court said, that the legitimate exercise of the police power is not subject to restraint by constitutional provisions for the general protection of the rights of individual life, liberty and property.

Considering the reasons advanced to justify adoption of the ordinance, particularly as to the traffic load on the street during all hours of a normal business day, and applying the aforesaid principles, the court found nothing unreasonable or arbitrary in the ordinance or its enforcement and consequently no manifest error in the conclusion reached by the trial court that the ordinance afforded a reasonable regulation of traffic in the interest of safety.

The court ruled that the landowenrs had not been deprived of their right to the street, nor had their customers and/or their friends and neighbors.

Under the established facts, the court concluded that the ordinance was not unreasonable, arbitrary, unjust or oppressive, nor did it violate Art. 1, Sec 2, of the Louisiana Constitution. Therefore, the validity of the ordinance should be upheld.

The lower court's judgment for the city was affirmed.

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[76] Scott v. City of West Monroe, 95 So. (2d) 343, 1957.

New Mexico. Several property owners and tenants in the City of Roswell, New Mexico, sought an injunction to prevent enforcement of an ordinance which prohibited parking of vehicles on a certain street. The main question before the court was whether the city had, by reason of a contract, bartered away the exercise of its police power contrary to the general rule that the police power of a municipal corporation cannot be divested by contract or otherwise. The trial court held the ordinance valid and the property owners appealed. The state supreme court held that an ordinance adopted subsequent to execution of an agreement between the city and the state providing for widening of a portion of a state highway traversing the city, which prohibited the parking on a portion of the highway, was not invalid.[77]

The agreement between the city and the state provided that the state would participate in the cost of improvement of U. S. 380 within the city limits to the extent of 100 percent for resurfacing the existing paving, and one-third of the cost of the widening. A supplemental contract entered into by the parties specified that parking would be prohibited in the area in question except as permitted by written authorization from the state.

Among the important conclusions of law reached by the trial court were, that the action of the city council in prohibiting parking was not unreasonable, that the city had the power to prohibit or place a ban upon the parking of vehicles upon public streets within its corporate limits, and that the action of the city council was a reasonable exercise of the police power delegated to it and with which the court would not interfere.

The property owners did not question the city's power to enact a no parking ordinance as a reasonable exercise of the city's police power. They did not even question the reasonableness of the ordinance. They alleged, however, that the ordinance, however reasonable, was void because it was not enacted to meet an emergent traffic problem, but rather to secure for the city the greater part of the cost of the improvement.

The supreme court noted that there were facts which indicated the existence of a bona fide traffic problem, for example, the physical fact of two-way vehicular traffic flowing into and out of a bottleneck created by a sudden narrowing of the three-block stretch involved from a 52 to a 46-ft street, the council's declaration that it was acting in the interest of public safety and welfare, plus the presumption of good faith attending the council's exercise of discretion in the matter in the absence of a showing of fraud or conduct equivalent to fraud. The court thought these facts should be given more weight than those advanced by the property owners.

The property owners' reasoning in connection with the facts of this case did not appear to the court as sound. In the first place, according to the court, it laid a charge of bad faith against the action of the city in the premises. In the second place, in demanding the declaration that the city abdicated and waived its police power, it would deny the city the right to its day in court on whether it was not, at the same time, acting in good faith for the safety of all its inhabitants, in imposing the regulation.

The court said it found nothing either immoral or illegal in the agreement made. The court based its finding upon the principle that where two separate governmental agencies, or political subdivisions, are committed by the inherent nature of each to the attainment of a common purpose or end, there was no ethical consideration which proscribed, nor any sound business practice which condemned, an agreement between the two to cooperate in achieving the common aim of both.

The supreme court affirmed the judgment of the trial court upholding the validity of the ordinance.

INFORMATION INTERCHANGE

The committee issued seven monthly memoranda during the year 1957 through the Highway Research Correlation Service. These memoranda contain digests of new laws, court decisions, administrative practices, and other items of current interest. Memoranda numbers and the month of release are listed on the next page.

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[77] Farnsworth v. City of Roswell, 315 P. (2d) 839, 1957.

Committee Memorandum Number	HRCS Circular Number	Month
91	334	March
92	336	April
93	343	July
94	345	August
95	346	September
96	351	November
97	354	December

Industrial Development Survey on Massachusetts Route 128

A. J. BONE, Associate Professor of Transportation Engineering, and
MARTIN WOHL, Instructor in Civil Engineering,
Massachusetts Institute of Technology

This paper summarizes the results of a survey of the industrial and commercial establishments which have been built along and near Route 128, a limited access 4- and 6-lane circumferential highway around metropolitan Boston. Among the subjects covered are role of highway in choice of plant locations, benefits expected and received from highway, volume of commercial and passenger car traffic contributed to Route 128, home origins of employees, home-to-work travel time and distance, and usage of Route 128.

● THE PURPOSE of the Route 128 Economic Impact Study, which is sponsored by the Massachusetts Department of Public Works and the U. S. Bureau of Public Roads, is to make an investigation of the basic factors underlying the changes that have taken place along the highway. The study will include a survey of the residential and industrial development which has taken place along the new sections of Route 128 and will attempt to evaluate the extent to which the highway has been responsible for it. The traffic generated by the development and its effect on traffic patterns in the metropolitan area will also be investigated.

In a broad sense the study has been undertaken to develop factual data which will demonstrate the ability of a modern limited access highway to create community benefits as well as provide superior traffic service.

Description of Route

Route 128 is a circumferential highway which is located about ten miles from the Boston central business district; however, the northeast section continues as a radial route to Gloucester (Figure 1). The present route replaces an earlier route composed of local roads connecting and passing through the business centers of most of the cities and towns surrounding Boston. The old route followed heavily traveled 2-lane roads of obsolete design. Although it appeared upon road maps as a bypass of Boston, it actually had little to offer in time savings or congestion relief.

Between 1936 and 1941, sections of 4-lane divided highway were built on new location in Peabody and Beverly, east of Route 1. Only partial access was obtained. Cloverleafs were constructed at all important cross roads, but several minor roads were allowed to cross at grade. Following World War II a 5-mile section of 4-lane divided highway was built westward from Route 1 to Wakefield, and the prewar section ending in Beverly was extended in stages as a 4-lane limited access highway to Gloucester.

The longest section to be built at one time was the 22.5-mile portion from Wakefield to Route 9 in Wellesley, a 4-lane, fully controlled access highway bypassing the congested business districts of Wakefield, Stoneham, Woburn, Lexington, Waltham and Newton. This link, opened in August 1951, provided for the first time an effective, high-speed circumferential highway around the most congested districts of the metropolitan area.

Subsequently the work was extended south of Route 9 as a 6-lane limited access divided highway, mostly on new location, and was opened as far as Route 138 in December 1956. Construction is continuing to a junction with Route 3 in Braintree. This will substantially complete the new Route 128 around Boston. The length of the route from Gloucester to Braintree is about 70 miles.

The old Route 128 carried traffic volumes ranging from 5,000 to 8,000 vehicles

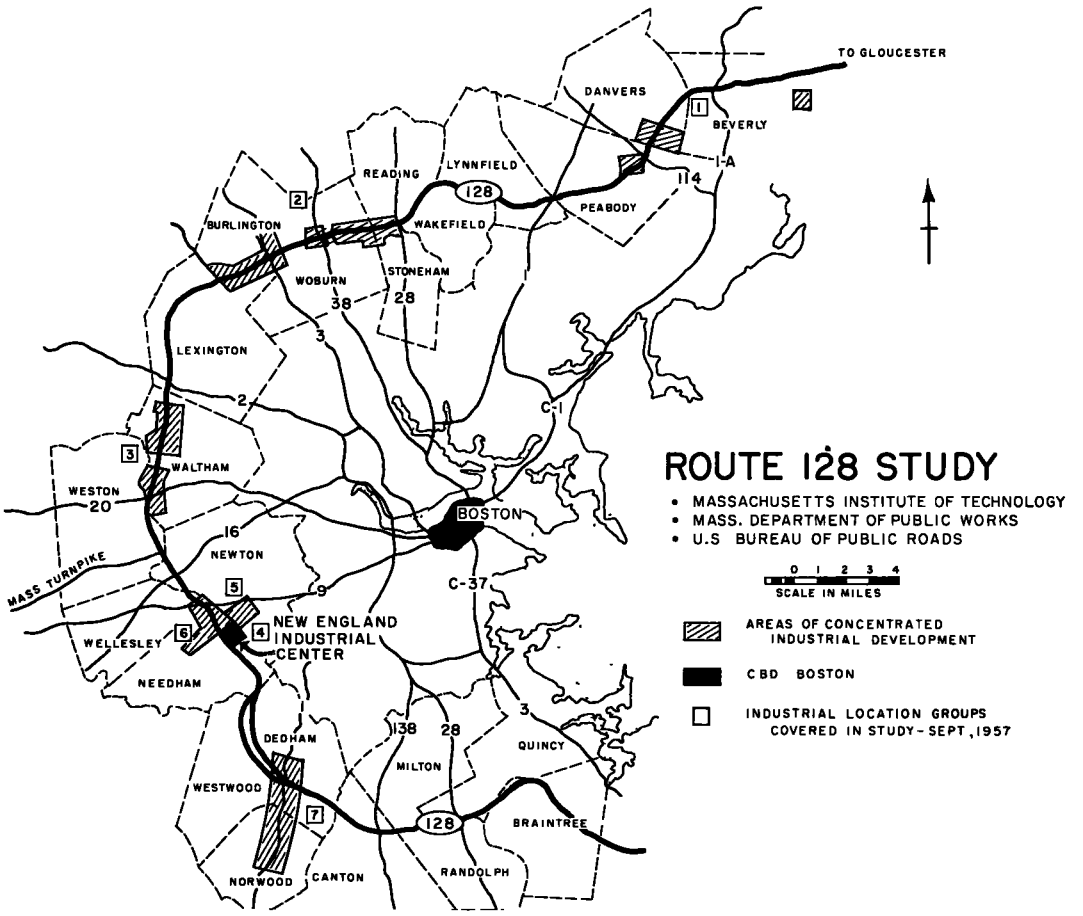


Figure 1.

per day. When the new section from Route 1 (north) to Route 9 was opened in 1951, traffic volumes of 12,000 to 15,000 vehicles per day were predicted with possibly 20,000 on Sundays. Actual traffic volumes have greatly exceeded these predictions, and are still rising. Figure 2 shows traffic volumes on a 4-lane divided section.

Program of Investigation

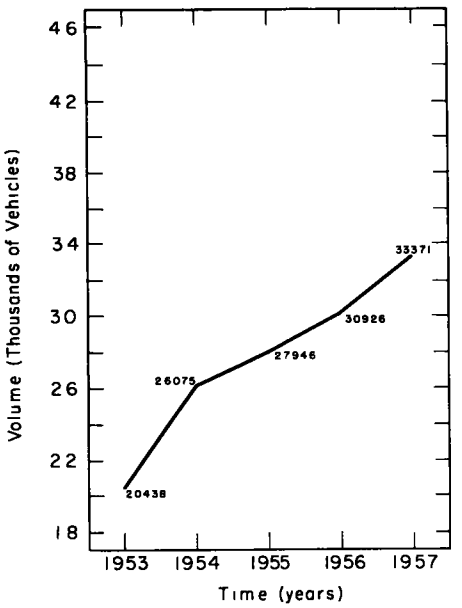
The first step in the investigation was to make a literature survey of all previous or current studies of a similar nature and to examine the methods and procedures used.

Next a search was made for available data pertaining to Route 128, such as aerial photographs, land use maps, zoning maps, and published statements regarding industrial and residential data. Planning boards and other governmental agencies were contacted to determine the availability of property assessments, sales data and evidences of building activity. Right-of-way, construction and engineering costs for each contract section of Route 128 were obtained from the Massachusetts Department of Public Works.

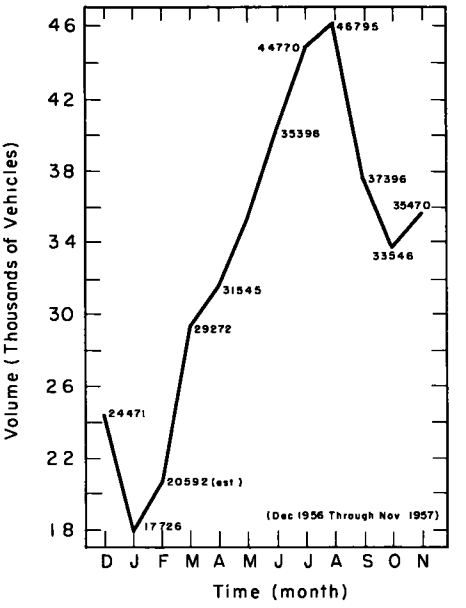
Three types of surveys were then initiated:

1. Survey of residential property values and sales before and after construction of the highway, both in the immediate vicinity and in areas removed from the location.
2. Survey of industrial and commercial developments along the highway and in nearby areas, and an investigation of employee travel patterns.
3. Traffic survey of Route 128 including trends in volumes over a period of years, and an origin-and-destination count as of 1957.

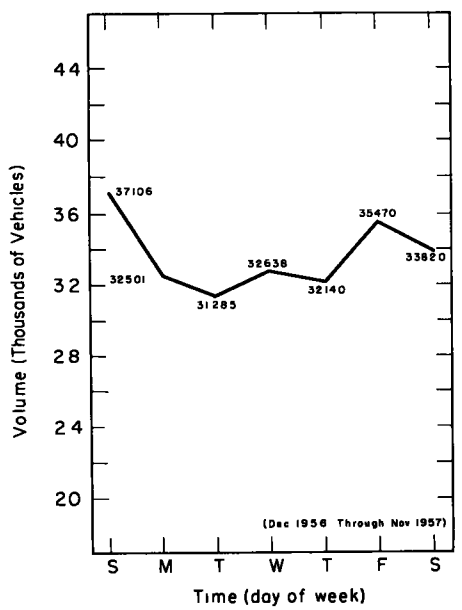
This paper deals with the survey of industrial and commercial developments and with the traffic characteristics and travel patterns of the employees at one industrial location group (the New England Industrial Center).



AVERAGE ANNUAL DAILY TRAFFIC VOLUMES ROUTE 128 AT D.P.W. COUNTING STATION IN BURLINGTON



AVERAGE DAILY TRAFFIC VOLUMES BY MONTH—ROUTE 128 AT DPW COUNTING STATION IN BURLINGTON.



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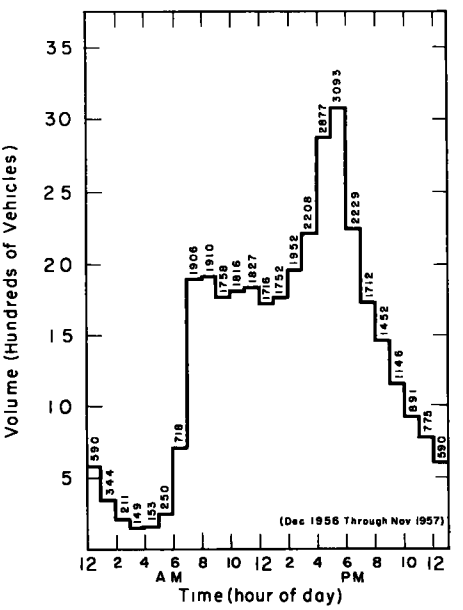


AVERAGE HOURLY TRAFFIC VOLUMES — ROUTE 128 AT D.P.W. COUNTING STATION IN BURLINGTON

Figure 2.

SURVEY OF INDUSTRIAL AND COMMERCIAL DEVELOPMENT

Methods and Procedures

The survey of industrial and commercial enterprises along Route 128 was conducted by direct interview with management. In this way it was hoped to obtain information on capital investment in plant, type of operation, factors considered in choosing a site on Route 128, other sites considered, and benefits (or disadvantages) expected and realized by virtue of location on Route 128. Also desired was information regarding employee commuting problems and any difficulties encountered in holding or procuring new employees.

Tentative questionnaire forms were prepared and then reviewed by the sponsors, by members of the city planning, marketing and economics staff at M. I. T., and by the Massachusetts Department of Commerce staff. A pilot study was made at one plant to test the questionnaires before reproducing them in quantity. In spite of these precautions, defects were found in the forms, which required several revisions.

In order to solicit maximum cooperation from industry two personal letters were mailed to top management of each industry prior to the interview. The first, from the Massachusetts Commissioner of Commerce, outlined the nature of the study and the interest of the Department of Commerce. This organization is concerned with state-wide planning and industrial development, and is therefore vitally interested in the study.

The second letter, by the supervisor of the study at M. I. T., explained more specifically the nature of the information desired, and stated that an interviewer would call for an appointment.

It is the opinion that these letters were to a considerable degree responsible for the fine cooperation received in all phases of the study. These also provided management with enough background to prepare for the interview and to produce the desired information with a minimum of time and effort.

In the planning stages of the study, it was feared that industry might be hesitant to release data regarding investment, number of employees, reasons for choosing location, etc., because of the competitive nature of some businesses. Therefore, considerable attention was given to convincing each industry of the serious intent of the study and of the fact that all data would be treated in a confidential manner, and that the results would be presented in such a way that no one company could be identified.

A listing of all industries near Route 128 was obtained from the Massachusetts Department of Commerce. Visits were also made to local chambers of commerce and local industrial development commissions to inform them of the study and to obtain any advice or information which they cared to offer. In addition, they were asked to review the listing of industries, and furnish the names of top management officials.

A schedule of interviewing was then set up and groups of plants assigned to each interviewer. At first it was thought advisable to interview in pairs in order to correlate and standardize techniques. Later, interviews were handled by a single interviewer. Most management interviews were pleasant and stimulating. A typical interview lasted about 20 to 30 minutes. However, considerable time and effort were required to make appointments.

Although the principal part of the industrial survey was concerned with industries that located in the Route 128 area after the highway was constructed, it was felt advisable to include two other types of industries in this survey for "control" purposes. One type of industry was that located in the Route 128 area before the new highway was constructed. The other type was one that had built its plant after the highway was constructed, but in an area definitely not influenced by the highway. Plants of the latter type were chosen in locations at least five miles within the periphery of the circumferential highway, i.e., closer to the center of the city. In interviewing these industries the main interest was to determine why they chose their location, whether or not they were satisfied with it, whether they had considered a location on Route 128 or at another suburban site; if so, why they discarded such locations, and whether or not they would choose a Route 128 location if they now were given another opportunity to select a site.

The purpose in investigating the older industries on Route 128 was to discover what benefits, if any, these companies have received as a result of the building of the new Route 128. Another objective was to compare travel patterns of workers in the older industries with those in the newer ones.

The Management Questionnaire (Appendix A)

The items in this questionnaire were arranged in two general groups. The first group concerning plant, products, transportation, employees and parking facilities, included direct questions calling for quantitative answers. The second group involved qualitative factors for which answers could be developed only by an interchange of questions with the interviewed party. It was not intended to present the questionnaire forms to the management official to fill out but rather to develop answers through verbal questioning. The qualitative parts of the questionnaire were filled out by the interviewer after the interview was over.

1. Plant. The first question in this group was designed to determine whether the plant represented new business or a transfer from another location. The address and disposition of the previous plant were desired to investigate what loss in taxes or rentals may have been suffered at the former location. The number of employees at the previous plant, when compared with employees at the present plant, indicates the shift in employment opportunities, and also the gain or loss of jobs resulting from relocation.

The question regarding the company's investment was very important. Most plants furnished complete figures; others were reluctant to give any answers. Still others held their property under lease and kept no record of its value. In cases where no values were given, an estimate was made based on sales prices of similar properties, assessments or appraisals.

2. Products. This question was useful in identifying type of business and its scope of operation. Only very generalized answers were obtained regarding the distribution of markets and source of raw materials.

3. Transportation. Changes in modes of transportation were generally affected by the availability of rail transportation. For the most part, few changes took place. In some cases there was a shift to rail where a convenient siding was made available, and in other cases the shift was to truck where industry moved away from rail facilities.

4. Employees. This information was desired to estimate times at which employee traffic was concentrated. The relation between total employees and number of forms returned gave a basis for expanding the sample obtained from employee questionnaires.

5. Parking Facilities. The parking questions were asked to determine ratios of employees to parking spaces for different types of industries. Such information should be useful for future planning purposes.

6. Qualitative Factors. This set of questions was of major importance since they were directed to the essence of the study: to determine reasons for the industrial growth along the highway, and to appraise the benefits (or detriments) derived from a location on or near the highway.

The question regarding trucking might better have been included in the section on transportation. It was intended to supplement passenger car travel information derived from employee questionnaires. Some information was obtained, although in most instances the companies could not give definite answers.

Processing Industrial Management Interviews

In the initial planning of the questionnaire, consideration was given to whether data would be tabulated by manual means or by machine. It was decided that the management survey data would be compiled manually since only about 100 industries were involved, and since many of the questions were of a general nature not adaptable to coding.

The data obtained from the management interviews was analyzed both quantitatively and qualitatively. A general summary of the replies to the factual questions was made including percentage distribution of replies to multiple choice questions. For more specific analyses, the industries were separated into 7 groups along different sections of Route 128. The grouping was also made according to concentration of industries

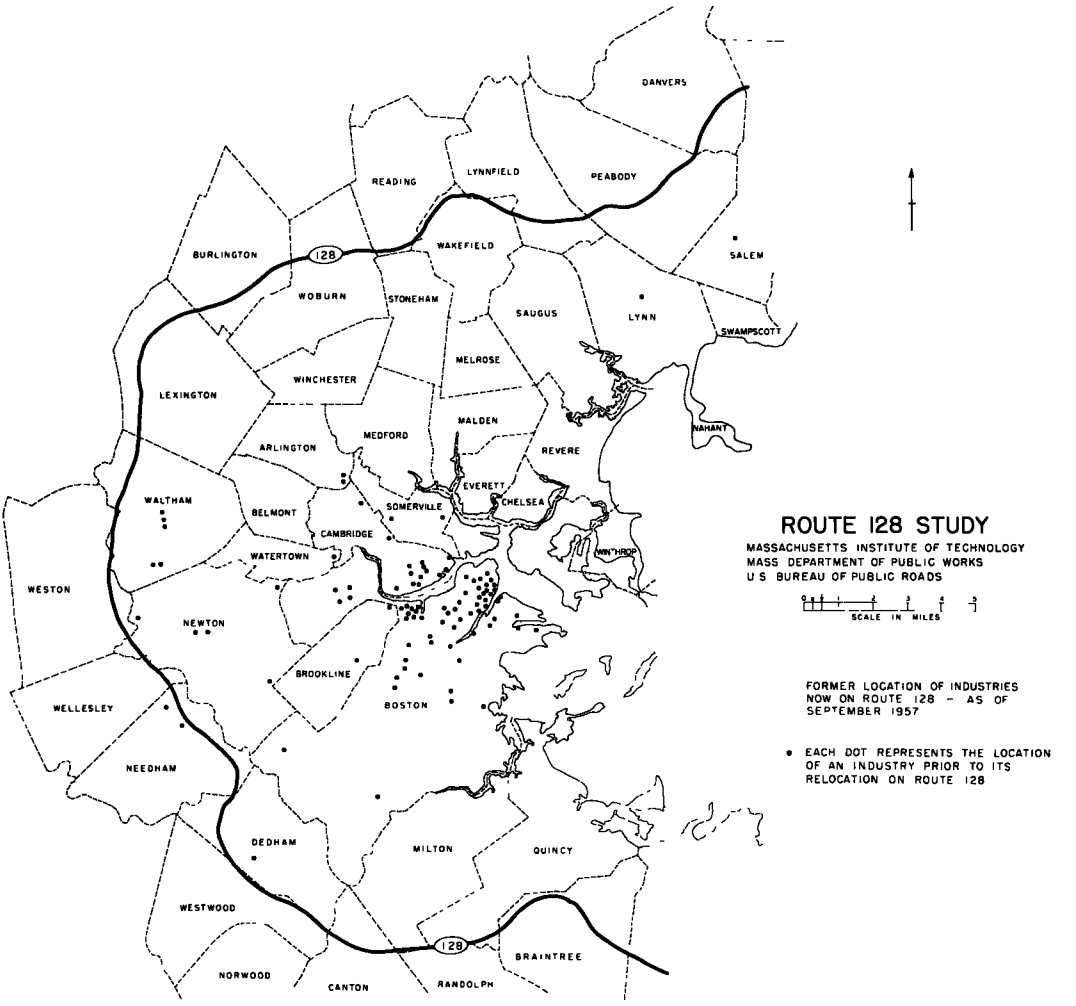


Figure 3.

(Figure 1). For each of these groups, and for each type of industry in the group, tabulations have been made showing investment in land and plant, site areas, building to land ratios, number of employees before and after locating on Route 128, ratio of parking spaces to employees, etc.

For all industries and for each of the 7 groups separately, tabulations were made of replies obtained from qualitative questions coordinated with type of business, percent of total investment and percent of total employees represented by the companies contributing to the replies.

Results and Analysis of Industrial Survey

1. General. This survey included 99 new industrial and commercial plants built along the new sections of Route 128, from just north of Route 1A (on the north) to Route 1 (on the south). The 7 industrial groups shown in Figure 1 fall within these limits, but are not uniformly distributed along the road; the groups are characterized by clusters of plants. In the Needham and Newton area, for example, 3 location groups of different identities are very close together; namely, the New England Industrial Center, the Newton Industrial Center and other individual plants in the vicinity outside of these centers.

2. Former Plant Locations. The former locations of plants which have located on Route 128 are shown by dots on a map of the greater Boston area (Figure 3). It will be noticed that most of these plants were formerly located near the heart of the city. Of the 99 industries interviewed, 59 percent were formerly located within a 2¼-mile radius of the State House (city center), and 79 percent were within a 4¼-mile radius.

3. Origins of Plants Located on Route 128. Some of the new plants on Route 128 are truly new industries. Others have relocated from another area, some are new branch plants, and still others are relocated branch plants. The distribution of these classes of plants among industrial location groups is shown in Table 1.

This distribution will ultimately be made on the basis of employees and of investment in plants. Such breakdowns will be significant in disclosing the employment opportunities and wealth created in the different industrial group locations.

The types of industry found in each of these classes are shown in Table 2.

4. Investment and Employment Represented by New Industries. The 99 plants on Route 128 where interviews were conducted represent a total investment of $94,000,000 in buildings, land and equipment. In addition, new plants under construction will cost about $34,500,000, and a few plants not yet interviewed account for an investment of $5,000,000. The grand total of plants built or under construction as of December 1957 is about $133,500,000. Other projects are in the planning or promotional stages. The plants in operation employ over 17,000 persons.

The distribution of investment, employment and number of plants among different

TABLE 1

Origin of Plant	Industrial Location Groups								
	1	2	3	4	5	6	7	Total %	Percent of Total
	Number of Plants								
New Industry	-	-	-	-	2	3	1	6	6.1
Relocated Industry	1	13	9	9	6	11	10	59	59.6
New Branch Plant	1	2	1	4	3	-	2	13	13.1
Relocated Branch Plant	-	1	2	9	7	1	1	21	21.2
Total Number of Plants	2	16	12	22	18	15	14	99	100.0
Percent of Total Plants	2.0	16.2	12.1	22.2	18.2	15.1	14.2	100.0	100.0

TABLE 2

Type of Plant by Origin	Type of Industry				
	Production	Research and Development	Service	Distribution	Total
New Industry	4	1	-	1	6
Relocated Industry	23	8	5	23	59
New Branch Plant	5	2	1	5	13
Relocated Branch Plant	1	1	-	19	21
Total Number of Plants	33	12	6	48	99
Percent of Total Plants	33.3	12.1	6.1	48.5	100.0

types of industry is shown in Table 3. Also shown are percent of total plant land area and percent of total plant building area occupied by each type of industry. Average total investment per sq ft of land is also given.

A further breakdown of this information by industrial location groups is provided in Table 4, and shown graphically in Figure 4.

The average investment in buildings and land by each type of industry is summarized in Table 5.

The unit investment in dollars per square foot of land is a convenient measure of the relative values of different types of plants. The values, however, are influenced by the size of the site. One of the service companies and two of the research and development companies owned large land areas around their plants. If these companies are eliminated from the averages, more representative results are obtained, as shown in Table 6.

TABLE 3

Type of Industry	Percent of Total Investment	Percent of Total Employment	Percent of Total No. of Plants
	%	%	%
All 128 Industry	100	100	100
Production	57.0	63.1	33.3
Research & Devel.	16.1	18.5	12.1
Service	4.1	3 2	6.1
Distribution	22.8	15.2	48.5
Type of Industry	**Percent of Total Land Area**	**Percent of Total Building Area**	**Average Investment per sq ft. of Land**
	%	%	$
Production	66.6	54.5	1.70
Research & Devel.	10.0	11.7	3.21
Service	10.1	1.6	0.80
Distribution	13.3	32.2	3.46
All 128 Industry	100.0	100.0	1.99

The average employment at most types of plants has increased substantially since they moved to Route 128, as shown in Table 7.

Table 7 indicates that the new plants on Route 128 have created an enlarged labor market in the metropolitan area. Total employment data show an increase of 6,500 jobs in the Route 128 industries over those provided at their previous locations.

Of the above types of industry substantial gains were shown in employment for production, research and development, and service industries, but a decrease (-4.3 percent) appears for the distribution type. A possible explanation of the decrease may be found by examining the tabulation of origins of plants in section 3. It will be seen that 43 of the 46 new distribution industries (93 percent) are either relocated industries or

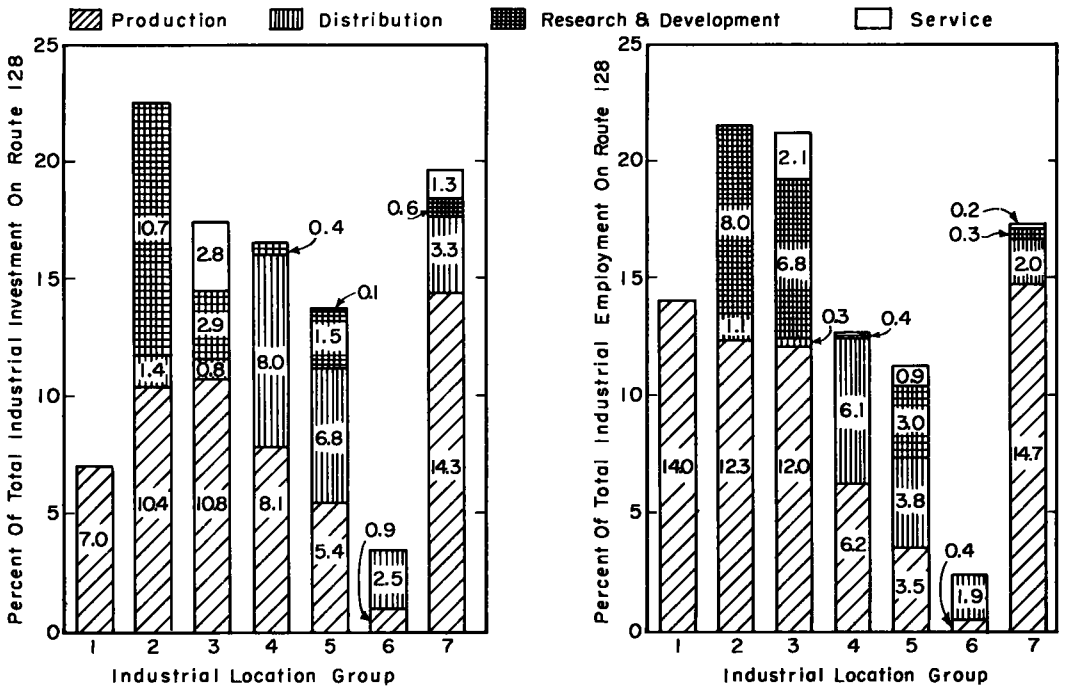


Figure 4. Percent of total employment and investment on Route 128 in each industrial location group--as of September 1957.

relocated branch plants. The drop in employment may, therefore, be traced to greater efficiency of operation in the modern facilities provided at the new location.

5. Site Locations Considered Before Building on Route 128. As an aid to establishing the effectiveness of Route 128 in attracting industries in preference to other locations, the industries were questioned regarding their consideration of other sites before choosing Route 128. The various sites considered, inside and outside of

TABLE 4

DISTRIBUTION OF INVESTMENT AND EMPLOYMENT, BY INDUSTRIAL LOCATION AND TYPE OF INDUSTRY

Location	Type of Industry	% Total 128 Investment	% Total 128 Employment	% Location Investment	% Location Employment
Area No. 1	P	7.0	14.0	100.0	100.0
	R & D	-	-	-	-
	S	-	-	-	-
	D	-	-	-	-
	Total	7.0	14.0	100.0	100.0
Area No. 2	P	10.4	12.3	46.1	57.5
	R & D	10.7	8.0	47.8	37.5
	S	-	-	-	-
	D	1.4	1.1	6.1	5.0
	Total	22.5	21.4	100.0	100.0
Area No. 3	P	10.8	12.0	62.3	56.7
	R & D	2.9	6.8	17.0	32.1
	S	2.8	2.1	16.1	9.9
	D	0.8	0.3	4.6	1.3
	Total	17.3	21.2	100.0	100.0
Area No. 4	P	8.1	6.2	49.1	49.1
	R & D	0.4	0.4	2.5	3.0
	S	-	-	-	-
	D	8.0	6.1	48.4	47.9
	Total	16.5	12.7	100.0	100.0
Area No. 5	P	5.4	3.5	39.4	31.5
	R & D	1.5	3.0	10.8	27.2
	S	0.1	0.9	0.7	7.6
	D	6.8	3.8	49.1	33.7
	Total	13.8	11.2	100.0	100.0
Area No. 6	P	0.9	0.4	26.9	16.7
	R & D	-	-	-	-
	S	-	-	-	-
	D	2.5	1.9	73.1	83.3
	Total	3.4	2.3	100.0	100.0
Area No. 7	P	14.3	14.7	73.7	85.3
	R & D	0.6	0.3	3.2	1.4
	S	1.3	0.2	6.1	1.2
	D	3.3	2.0	17.0	12.1
	Total	19.5	17.2	100.0	100.0

P = Production R & D = Research and Development S = Service
D = Distribution

TABLE 5

Type of Industry	Average Investment in			Average Total Investment
	Land	Building	Equipment	
Production	$167,000	$837,000	$619,000	$1,623,000
Research & Devel.	62,400	794,000	412,600	1,269,000
Service	152,000	362,000	124,000	638,000
Distribution	121,000	248,000	78,000	447,000
All 128 Industry	131,000	509,000	310,000	950,000

Type of Industry	Percent of Total Investment		
	Land	Building	Equipment
	%	%	%
Production	10.3	51.6	38.1
Research & Devel.	4.9	62.6	32.5
Service	23.8	56.7	19.5
Distribution	27.1	55.5	17.4
All 128 Industry	13.8	53.6	32.6

TABLE 6

Type of Industry	Percent of Total Investment	Percent of Total Land Area	Average Investment per sq ft of land
	%	%	$
Production	63.1	76.7	1.70
Research & Devel.	9.0	5.5	3.39
Service	2.6	2.6	2.00
Distribution	25.3	15.2	3.46
All 128 Industry	100.0	100.0	2.07

TABLE 7

Type of Industry	Average Employment (Present Site)	Percent Increase, Over Former Site
	persons	%
Production	334	+95.8
Research & Devel.	269	+55.2
Service	92	+38.9
Distribution	55	- 4.3
All 128 Industry	176	+60.5

Boston, by 89 of 99 industries in the study, are grouped in five categories in Table 8, and the number of plants that considered each category are entered under each heading. Since some industries considered more than one location, their plants will appear under more than one category and the numbers of plants will add to a total greater than 73. Since number of plants does not truly represent the weight to be given to the sites considered, the percentage of total Route 128 investment in each category is also given. A more detailed breakdown of site considerations is given in Table 9.

It will be seen that most consideration was given to sites in a Boston suburb or to another location on Route 128. Much less consideration was given to sites in downtown Boston or outside the metropolitan area.

TABLE 8

Number of Plants in Sample	No. of Plants that		Plants that Considered Plants in				
	Considered Other Sites	Did Not Consider Other Sites	Downtown Boston	Boston Suburb	Other Route 128 Sites	Other Mass. Cities	Outside Mass.
89	73	16	19	52	30	5	5
Percent of Sample Investment Represented by Above Numbers							
100	89.0	11.0	12.1	54.3	41.9	12.1	7.8

In terms of investment in those plants which considered other locations, 68 percent represents plants that considered only a Boston suburb, another location on Route 128, or both.

6. Factors Influencing Route 128 Site Selection. In choosing a site on Route 128 each company was influenced by one or more factors, such as cost of site development, accessibility, space for expansion, labor market, taxes, and environment. One company might consider a given factor more important than another company. In the industrial survey it was hoped to bring out the major factors considered, particularly those relating to a location on Route 128.

When the management questionnaire was being prepared, consideration was given to attaching "weights" to the different replies, such as by asking the management to attach a weight to each of the site selection factors which led them to locate on Route 128, or to list factors in the order of their importance. These methods were discarded as unnecessarily complicated and not likely to develop a reliable degree of distinction between one factor and another. Instead, it was decided to ask for only major factors, which, if more than one were given, could be considered of nearly equal weight. The major factors were solicited directly from management. A list of factors was not suggested, as it might have served to bias the replies.

7. Explanation of Major Factor Groups. Each company stated their major site selection factors in different words, so that quite a number of major factors were obtained. After analyzing the interview replies, however, it was found that they could be grouped under 11 headings, as follows:

a. Business Accessibility—refers to ease of access for business purposes, such as truck pick-up and delivery, salesmen and business calls, and customers' visits.

b. Employee Accessibility—refers to ease of access by employees involving savings in time or distance from home to work.

c. Labor Procurement and Retention—refers to labor market supply on Route 128 and ability of industry to acquire and hold labor force.

TABLE 9

OTHER SITE LOCATIONS CONSIDERED BY INDUSTRIES THAT LOCATED ON ROUTE 128

Location Group No.	No. of Plants	Other Feasible Sites Considered[a]				Category of Other Sites Considered									
		Yes		No		Downtown Boston		Suburban Boston		Elsewhere on 128		Other Cities in Mass.		Outside of Mass.	
		(a)[b]	(b)[c]	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
			%		%		%		%		%		%		%
1	2	2	100 0	0	0	0	0	1	17.9	0	0	1	82.1	0	0
2	15	14	98.2	1	1.8	2	6.9	7	44.7	8	50.4	2	11.4	0	0
3	12	12	100.0	0	0	2	9 9	9	70.5	8	80.3	1	13.2	2	17.0
4	20	15	34.5	5	42.5	11	22.4	11	26.1	3	2 8	1	1.4	0	0
5	16	14	66.0	2	3.8	2	12.2	12	53.7	4	28.7	0	0	1	4.1
6	13	6	35.4	7	52.0	1	5.2	5	30.2	2	25.4	0	0	0	0
7	11	10	87 1	1	0.4	1	9.9	7	62.4	5	40.5	0	0	2	18.0
All 128	89	73	89.0	16	11.0	19	12.1	52	54.3	30	41.9	5	12.1	5	7.8

[a] The sum of the (b) columns in Yes and No in some cases do not add up to 100.0 percent because information is missing from 10 plants.
[b] Column (a) in each case lists the number of plants.
[c] Column (b) in each case shows percent of investment represented by the plants in column (a).

d. Space for Expansion and Improved Operational Efficiency—includes availability of enough land for both present and future space requirements. This space may be needed for enlarged production, more efficient operation in 1-story buildings versus multiple story buildings, enlargement of parking facilities, or a combination of these factors.

e. Advertising—includes expected benefit or increase in prestige to be derived from frequent viewing of signs and attractive grounds by passing motorists and potential customers.

f. Aesthetics—indicates a desire to locate in a good-looking site, both with respect to buildings and landscaping.

g. Land Cost—implies land cost was low, or lower than at other sites considered.

h. Railroad Facilities—includes the necessity or desirability of having a rail siding available.

i. "Package Deal"—refers to the availability of a promoter who will provide a plant as a "package," including land, preparation of site, erection of buildings to owner's specifications and aid in the financing of the project. Such plants may be acquired in different ways: some are bought outright, others are taken on lease, and others on lease with option to buy. The purchaser is relieved of the burden of site selection, and of dealing with many contractors. The developer is in a position to acquire desirable tracts of land at low price on a "wholesale" basis, and to gain economies from "volume" production of sites and buildings.

j. Site Potential—This classification indicates that the industry interviewed expressed satisfaction with the site selected without pointing to specific site factors considered. They also indicated that they expected their site to increase in value with time.

k. Lower Taxes—refers to taxes being lower than at former site or at other sites considered, and also the prospect that taxes would not rise excessively in the future.

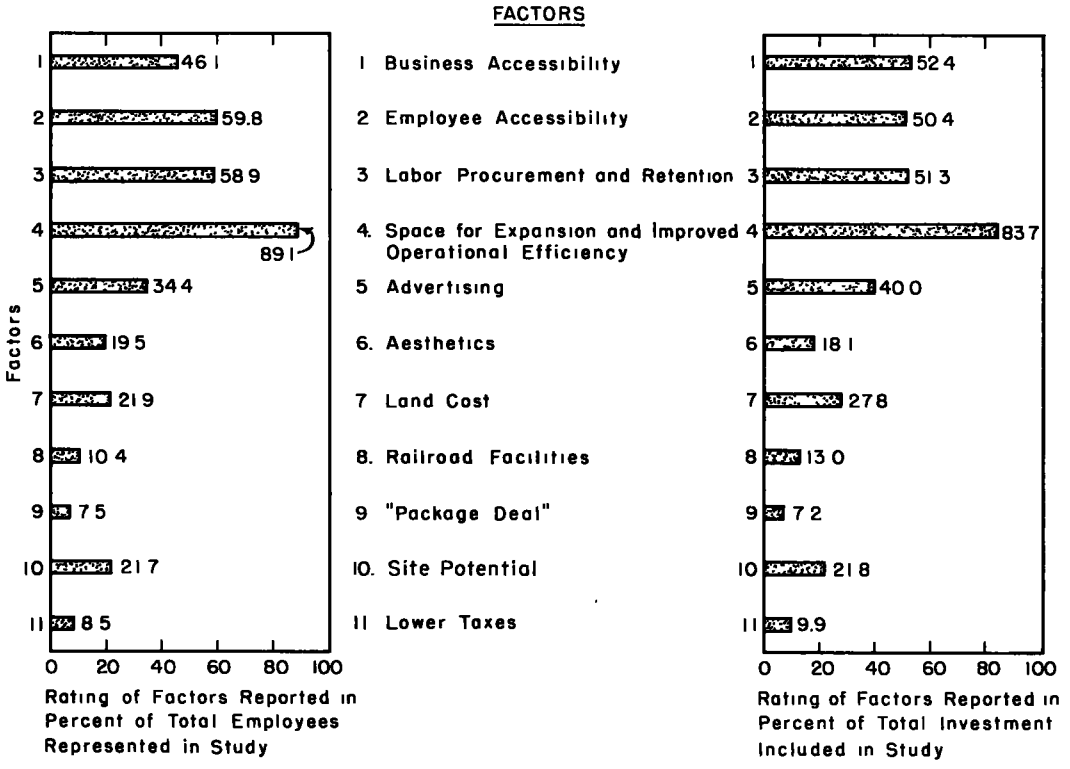


Figure 5. Rating of major factors considered in site selection by all new industries interviewed on Route 128--as of September 1957.

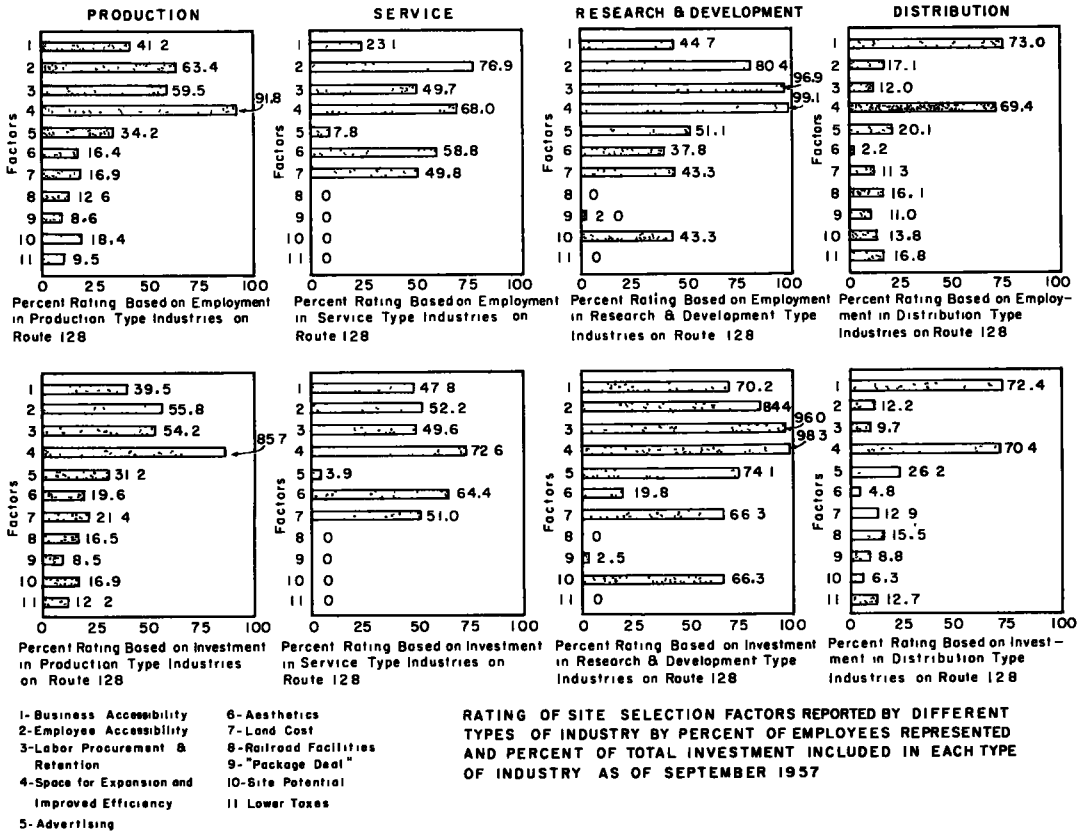


Figure 6.

8. Evaluation of Major Route 128 Site Selection Factors. The industries indicating a given factor were grouped under that particular factor heading. If an industry gave only one primary site selection factor, it would be recorded only once. If it gave three factors, it would be recorded under each of those three factors. For comparison purposes the number of industries in each factor group are expressed in percent of investment, and in percent of employees represented. The results of this analysis for all industries on Route 128 is shown in Figure 5. Similar results for each type of industry are shown in Figure 6.

The graphs are presented to show the relative importance attached to each of the 11 site selection factors.

Referring to Figure 5, it will be seen that for all Route 128 industries, space for expansion and improved efficiency of operation is the most important factor in site selection, followed by labor procurement and retention, employee accessibility and business accessibility.

An inspection of Figure 6 shows that although the space and efficiency factor is high for all types of industry there is more variation in the other highly rated factors. Business accessibility rates high for distribution type industries, but employee accessibility and labor procurement rate low. Aesthetics and land cost rate high for service types (insurance companies, etc.) and for research and development types, but low for production and distribution types.

In order to further bring out the influence of the major factors on the choice of a location on Route 128, Table 10 has been prepared. The 5 highest rated factors (in terms of percent investment) have been arranged in order of decreasing magnitude for all Route 128 industries and for each type of industry separately. The investment percentages are taken from Figures 5 and 6. To simplify the comparison, an index has

TABLE 10

ROUTE 128 SITE LOCATION FACTORS ARRANGED IN ORDER OF DECREASING INVESTMENT REPRESENTED

All Route 128 Industries	Factor	No. 4	No. 3	No. 1	No. 5	No. 7	Others	Total
	% Invest.	83.7	51.3	52.4	40.0	27.8	70.0	325.2
	Index	26	16	16	12	8	22	100
Production	Factor	No. 4	No. 2	No. 3	No. 5	No. 7	Others	Total
	% Invest.	85.7	55.8	54.2	31.2	21.4	73.7	322.0
	Index	27	17	17	9	7	23	100
Service	Factor	No. 4	No. 6	No. 2	No. 7	No. 3	Others	Total
	% Invest.	72.6	64.4	52.2	51.0	49.6	51.7	341.5
	Index	21	19	15	15	15	15	100
Research and Develop.	Factor	No. 4	No. 3	No. 2	No. 5	No. 1	Others	Total
	% Invest.	98.3	96.0	84.4	74.1	70.2	154.9	577.9
	Index	17	17	14	13	12	27	100
Distribution	Factor	No. 1	No. 4	No. 5	No. 8	No. 7	Others	Total
	% Invest.	72.4	70.4	23.8	15.5	12.9	54.5	249.5
	Index	29	28	10	6	5	22	100

TABLE 11

PARKING SPACE AVAILABILITY ON ROUTE 128

Type of Industry	Average Employment per Plant	Parking Space to Employee Ratio
All Route 128	176 persons	0.75
Production	334	0.69
Distribution	55	0.93
Service	92	0.94
Research & Development	269	0.78
Range of Employees	**No. of Plants**	**Parking Space to Employee Ratio**
0 - 50	48	1.52
51 - 100	16	1.03
101 - 150	4	0.69
151 - 200	3	0.90
201 - 500	12	0.70
501 - 1000	5	0.66
1001 Up	3	0.54

been derived for each type of industry. It is obtained by adding the percentage investments assigned to each of the 11 factors in each industry group and calling this total 100. The individual indices are then made proportional to the individual percentages.

The one factor entering most prominently into the choice of a Route 128 location is space for expansion and improved operational efficiency (No. 4). It is followed by employee accessibility (No. 2), labor procurement and retention (No. 3), advertising (No. 5), business accessiblity (No. 1), and land cost (No. 7).

These factors can be closely tied to the effect of Route 128. This highway opened up large areas of low-valued land where expansion was possible. The high-speed, limited access character of the highway extended practical home to work distances and enlarged the labor market. The absence of congestion and availability of ample parking space increased accessibility for both business purposes and employees.

9. Availability of Automobile Parking Space. From the management survey, data were obtained concerning parking spaces available and their relation to number of employees during the shift of greatest employment. The ratios of parking space to employees at different types of industries are shown in Table 11. A further separation of ratios is made up of ranges in number of employees in plants of different sizes.

10. Control Industries. The companies located on old Route 128 before the new route was built in substantially the same location expressed the view that the new highway had favorably influenced their business. Better access had contributed to a larger volume of business. In some cases this was brought about by the new advertising medium provided by the new route. The owners felt that their property had increased in market value. One disadvantage mentioned by a number of companies was a more than normal increase in wages of employees, apparently due to increased competition from new industries along Route 128.

The opinions of industries located 5 miles or more inside the periphery of Route 128 varied. One large industry with international markets saw no special advantage in locating on Route 128, but was more concerned with the possibility of sites in other parts of the country. Another company engaged in research under government contract preferred to use older, low-rent buildings on a temporary basis, so that they would not be left with a large fixed investment if government contracts should be canceled. However, this same company does have plans for an administration building to be constructed on Route 128.

Still another company felt that their particular type of skilled labor requirements could not be met as well in a suburban highway location as in town. Another company decided against building on Route 128, and located elsewhere. However, they would now prefer a Route 128 location.

11. Influence of Zoning on Plant Locations. One factor which significantly influences industrial growth on Route 128 is the zoning restrictions of individual towns and cities. Some towns, such as Needham, were reluctant to zone for industry. About two years of promotion and education were necessary to persuade this town that the New England Industrial Center was a good thing for the town. Now that it is built they are quite proud of it. Lexington, on the other hand, has resisted efforts to change the semi-rural, suburban atmosphere of this historic, residential town. An inspection of Figure 1 shows concentration of industry on either side of Lexington, but none within the town boundaries. The only industrial establishment on Route 128 in the town is a restaurant and gasoline station, operating as state-controlled concessions.

12. Benefits or Disadvantages, Expected and Realized. In addition to being questioned on their decision to locate on Route 128, the management of each firm was asked what benefits (or disadvantages) they expected because of the plant's proximity to Route 128, and what labor procurement and commuting problems they anticipated. Further, they were asked if these benefits were realized, or if they received other unanticipated advantages because of their particular relationship to the highway.

In nearly every case, management stated that the expected benefits were closely related to the major factors in their decision to locate at their Route 128 site. In other words, if they chose their particular site because of the necessity for business accessibility, they felt that the route would provide this advantage.

In general, management felt the highway not only provided access for business purposes and employees, but also, by virtue of the additional access, made heretofore undeveloped land available and feasible for development and expansion. Most of the industries did not anticipate labor procurement or retention problems as they normally chose their particular site with regard to known labor markets and necessary access requirements. Generally they expected a higher quality of labor at the new site. However, those companies who located without regard to the employees homes or who employed principally unskilled and part-time help sometimes found difficulty in obtaining it at the new Route 128 location. For example, some of the industries are having this problem at the N. E. I. C., which is not surprising when it is considered that 47 percent of the old employees at the center had to change from public transportation and walking to automobile (Table 14).

For the most part, industries found their labor procurement problems much less

difficult than anticipated. Quite often passing motorists voluntarily enter a Route 128 industry office seeking employment. On the other hand, those industries hiring engineers are finding some difficulty in holding them as these people can easily visit similar industries along the road during lunch hour and shop around for better job opportunities.

Some plants hiring principally secretarial personnel were hesitant in locating on the circumferential highway, as they felt it might be hard to retain this help due to the lack of car ownership and nearby shopping conveniences. However, most of these companies reported less turnover of secretarial help at the Route 128 location than in town.

Some complaint has been registered because of the lack of public transportation to and from the different locations on Route 128. However, in those cases where this service was offered after the company's move to Route 128, it was not used by more than a handful of employees, even in areas where more than 2,000 persons were employed, and therefore was discontinued. Some companies set up their own bus service to nearby towns, but almost all have since found even this service unnecessary.

Many of the new establishments wanted to be located in a good looking industrial park; some expressed the opinion that their personnel considered this quite important. Most companies are satisfied if not exceedingly proud of being part of a good looking industrial community.

Though few of the industries actually anticipated advertising or prestige value from the highway, a number pointed out that they had received considerable unexpected benefit from this medium.

Route 128, as built, had few frontage-type roads. In many cases the industries had to build their own access roads and maintain them. At an intown location, the municipality would have provided and maintained these facilities.

Another objection was made to the lack of good eating places on the road or in the vicinity of the industrial parks. At present more restaurants are being planned by private operators, and this problem should be abated in the near future.

TRAVEL PATTERNS OF EMPLOYEES AT THE NEW ENGLAND INDUSTRIAL CENTER

Methods and Procedures

An employee travel pattern survey was conducted to determine the amount of traffic generated by the industries along Route 128, when and where this traffic was concentrated and its influence on local travel patterns. Answers were desired to such questions as: Are distances to work becoming longer or shorter? Are travel times becoming longer or shorter? Are modes of travel changing? Are car pools becoming more common? Does the availability of Route 128 permit longer distances to work in less time? Are people tending to move closer to their place of work?

A questionnaire was designed to yield the desired information in the fewest number of questions, with the least effort on the part of the employee and with the least possibility of ambiguity. The first form of the questionnaire (Appendix B) was tried out at one of the companies in the New England Industrial Center. As a result certain changes were made resulting in the form shown in Appendix C which was used for most of the survey.

At the conclusion of each management interview, the company was requested to distribute questionnaires to their employees. Excellent cooperation was obtained. Most industries preferred to circulate the employee questionnaire in their own way and at their own convenience. Some prepared their own directives urging their employees to cooperate, and distributed them with pay checks; others merely placed them in a convenient place, such as near the lunch room door, and left it to the initiative of the employee to fill it out. Some decentralized the responsibility for distribution by routing the forms to department heads and sub-department heads. The latter method proved most effective in obtaining a high percentage of returns.

To verify the reliability of the sample obtained from the questionnaires regarding vehicles and people at each plant and their use of Route 128, "gate" counts were made

TABLE 12

DISTRIBUTION OF INDUSTRIES IN NEW ENGLAND INDUSTRIAL CENTER COMPARED WITH THAT OF ALL INDUSTRIES CONTACTED ALONG ROUTE 128

Type of Industry	Percent of Total Investment		Percent of Total Employees		Percent of Total Number of Plants	
	N.E.I.C.	All Rt. 128	N.E.I.C.	All Rt. 128	N.E.I.C.	All Rt. 128
	%	%	%	%	%	%
Production	49	58	49	63	9	33
Service	0	4	0	3	0	6
Research and Devel.	2	16	3	19	9	12
Distribution	49	22	48	15	82	49
All Types	100	100	100	100	100	100

at several individual industries and at the New England Industrial Center. The counts were made at the end (or beginning) of the day shift. Usually the factory or shop workers had different hours than office workers, so a separation often could be made between data for these two classes of workers.

Processing Employee Questionnaires

In planning this survey estimates indicated a total of about 5,000 employees in the industries located on Route 128. If a maximum of 60 percent returns were realized, only 3,000 forms would need processing. Therefore, it was felt that data could be processed manually and the questionnaire was designed with this method in mind.

As the survey progressed, it was found that considerably more employee questionnaires would need processing than anticipated. To date about 7,500 forms have been returned from industries located on Route 128. Manual processing proved too slow and cumbersome, so a shift was made to machine methods.

At this writing, machine processing is still in progress, and data are available for only one industrial location group, the New England Industrial Center (N.E.I.C.) located in Needham (Location Group 4). The results which follow relate to that center. They are not necessarily typical of those that will be obtained for other location groups or for the route as a whole. The center does, however, represent the most concentrated group of establishments currnetly located along Route 128.

TABLE 13

EMPLOYEE QUESTIONNAIRES DISTRIBUTED AND RETURNED BY TYPE OF INDUSTRY IN THE NEW ENGLAND INDUSTRIAL CENTER

Type of Industry	Number of Employees	Forms Distributed		Forms Returned		
		Number	Percent of Total Employees	Number	Percent of Forms Distributed	Percent of Total Employees
Production	1,085	875	81	211	24	19
Service	0	0	0	0	0	0
Research and Devel.	66	30	45	22	73	33
Distribution	1,054	617	59	379	61	36
All Types	2,205	1,522	69	612	40	28

Characteristics of the New England Industrial Center

Table 12 shows a comparison of the distribution of types of industries in the N. E. I. C. with that of all industries contacted along Route 128. Since the size of the individual industries varies considerably (from 4 to 875 employees), a comparison based on number of plants alone would not be significant. Therefore, additional comparisons have been made on the basis of plant investment and number of employees in each type of industry. It will be seen that the N. E. I. C. contains primarily production and distribution types of activity.

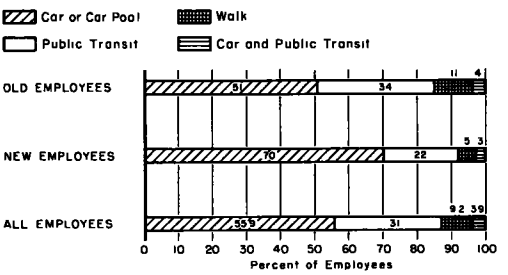
The number of employees in each type of industry, number of forms distributed and forms returned in the N. E. I. C. are shown in Table 13. It was hoped that questionnaires would be distributed to all employees, and that as large a percentage as possible would be returned. As the questionnaires were distributed voluntarily by the companies, it did not seem appropriate to impose on them a systematic sampling process that would cause them substantial inconvenience and expense. Certain companies considered it inadvisable to distribute forms, consequently only 69 percent of all employees in the center received forms. Of these, 40 percent were returned, representing 28 percent of all employees in the center. The percent of returns was significantly lower (19 percent) for the production companies than for the research and development (33 percent) and distribution (36 percent) types. Since no control was possible over the distribution of returns, the extent of their randomness is not known.

TABLE 14

TRAVEL PATTERNS OF EMPLOYEES AT NEW ENGLAND INDUSTRIAL CENTER[a]

Employment Status—1957	Old Employees	New Employees	Both Categories
	%	%	%
Percent Distribution	69.4	30.6	100.0
Home to Work Trip			
a. Percent using Rt 128	43.2	46.5	44.2
b. Percent not using Rt 128	56.8	53.5	55.8
Average Distance to Work	miles	miles	miles
a. Rt 128 users	15.7	12.9	14.7
On Rt 128	8.5	7.2	8.0
Off Rt 128	7.2	5.7	6.7
b. Non-Rt 128 users	9.9	5.9	7.8
c. All workers	12.4	9.1	11.0
Average Time to Work			min
a. Rt 128 users			27.9
b. Non-Rt 128 users			21.2
c. All workers			24.1
Mode of Travel to Work	%	%	%
a. Before working on Rt 128			
Auto and car pool	51.0	70.0	55.9
Public transit	34.0	22.0	31.0
Auto and public transit	4.0	3.0	3.9
Walk	11.0	5.0	9.2
b. After working on Rt 128			
Auto—1 person	63.2	79.6	67.7
Car pool	35.2	19.0	30.7
Public transit	1.6	1.4	1.6
Walk	0	0	0

[a] Based on analysis of questionnaires returned by 612 of the 2,205 persons employed at New England Industrial Center.



MODE OF TRANSPORTATION USED BY NEW ENGLAND INDUSTRIAL CENTER EMPLOYEES.
SEPTEMBER 1957

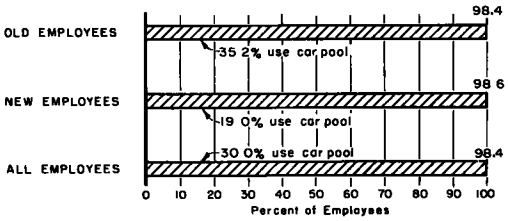
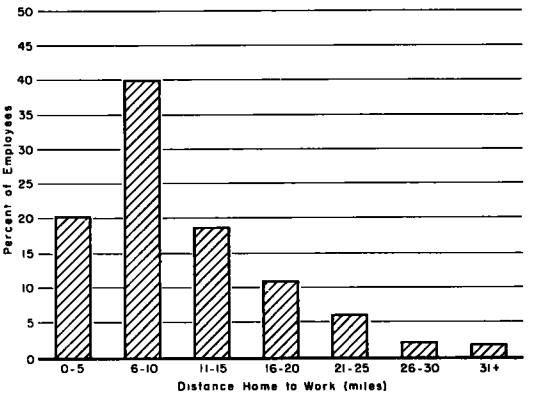


Figure 7. Mode of transportation used by New England Industrial Center employees prior to working at a Route 128 industry.

DISTANCE HOME TO WORK FOR ALL NEW ENGLAND INDUSTRIAL CENTER EMPLOYEES
SEPTEMBER 1957



DISTANCE HOME TO WORK FOR ALL NEW ENGLAND INDUSTRIAL CENTER EMPLOYEES, ROUTE 128 USERS vs NON-USERS
SEPTEMBER 1957

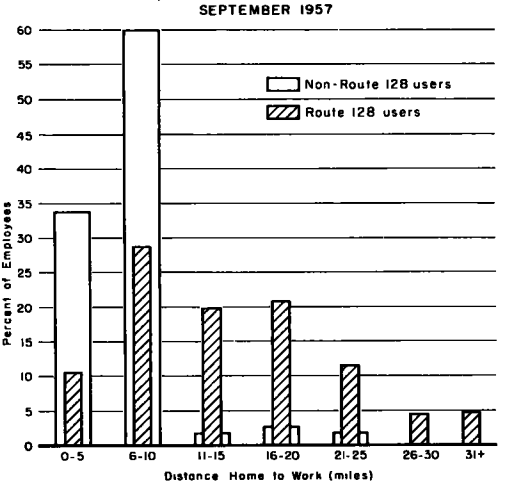


Figure 8.

Results and Analysis of Travel Pattern Survey at N.E.I.C.

General. The employee travel patterns found at the New England Industrial Center are summarized in Table 14. They are illustrated in more detail in Figures 7 to 11, inclusive. The changes that have taken place in employees' place of residence since working in the N.E.I.C. are shown graphically in Figure 12, and their home areas, as surveyed in 1957, are shown in Figure 13.

Two major classifications are made of all employees: (1) Those employed by the company before it moved to Route 128 ("old" employees) and those who have joined the company since it moved to Route 128 ("new" employees); (2) Those who travel on some portion of Route 128 in their trip to work (Route 128 users), and those who do not use Route 128 (non-users). The traffic characteristics of these groups were found to be sufficiently different to warrant a separation. Also, the influence of the highway will become evident in its effect on employees time and distance to work and on their change of residence.

As of 1957, old employees comprise 69 percent, and new employees 31 percent; 44 percent of all employees use Route 128 and 56 percent do not. Route 128 users average 14.7 miles and 28 minutes to work, whereas non-users average 7.8 miles and 21 minutes. The average for all employees are 11.0 miles and 24 minutes.

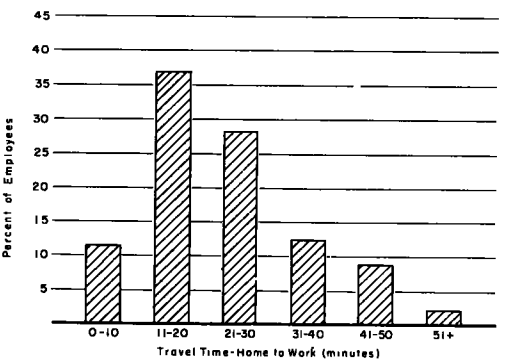
Mode of Travel. Modes of travel of N.E.I.C. employees before and after working on Route 128 are shown in Table 14 and in Figure 7. The shift from use of public transit or walking to automobile after the plant moved to Route 128 is evident. Considering all employees, 56 percent reached their plant by automobile before the move to Route 128 and 98 percent used this mode after the move. The change to automobiles was greater for old employees than for new ones. This change was inevitable, since walking

to work was no longer possible. Also, the transit trip to Route 128 from intown is very time-consuming and requires two fares. Some companies with a large number of employees living in the central city were much concerned about how their people would get to work, and made arrangements for special public transportation. However, when the move was made, nearly all the employees managed to reach the plant by automobile. Arrangements for public transportation usually were abandoned. The change to automobile transportation was accomplished by some employees purchasing cars for commuting purposes, and by the formation of car pools. Old employees increased their home-to-work travel in automobiles from 51 to 95 percent.

Car pool data prior to plant location on Route 128 is not available. After the move, however, 35 percent of trips were in car pools.

Travel Times and Distances. The percentage distribution of home-to-work distances for N. E. I. C. employees is shown in Figure 8 by 5 mile ranges for all employees, and for Route 128 users and non-users. Most trips (60 percent) of all employees are 10 miles or less, but a few (2 percent) exceed 31 miles. The non-users trips are even more concentrated in the 0 to 10 mile range, whereas the Route 128 users trips are fairly well distributed up to 25 miles. For example, 94 percent of the non-users travel 10 miles or less to work whereas only 39 percent of the users of Route 128 travel in this range.

TRAVEL TIME TO WORK FOR ALL NEW ENGLAND INDUSTRIAL CENTER EMPLOYEES SEPTEMBER 1957



TRAVEL TIME TO WORK FOR ALL NEW ENGLAND INDUSTRIAL CENTER EMPLOYEES, ROUTE 128 USERS vs NON-USERS SEPTEMBER 1957

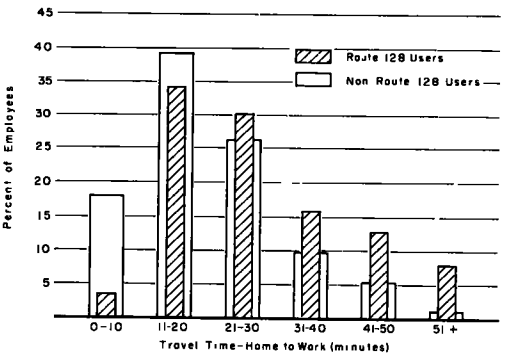


Figure 9.

The percentage distribution of home-to-work travel times of N. E. I. C. employees is shown by 10-minute ranges in Figure 9. Most (75 percent) of the trips of all employees take 30 minutes or less. Only a small fraction (2 percent) take over 51 minutes. The non-users of Route 128 account for most of the shorter trips. For example, 57 percent of non-users make the trip in 20 minutes or less, compared to 37 percent of Route 128 users.

The advantages in travel time gained by Route 128 users compared to non-users is brought out in comparison of average distances, travel times and speeds of users and non-users of Route 128 shown in Table 15.

The time versus distance advantage gained by the use of Route 128 is further emphasized in Figure 10, which is a plot of travel distance against travel time for different percentage ranges of Route 128 use. The curves shown in Figure 10 were obtained

TABLE 15

Home-to-Work Trip	Average Distance	Average Travel Time	Average Speed
	miles	min	mph
Route 128 Users	14.7	27.9	31.3
Non-Users	7.8	21.2	22.1
All N. E. I. C. Employees	11.0	24.1	27.4

TABLE 16

Home-to-Work Time—40 minutes			
Percent of Trip on Route 128	Home-to-Work Distance miles	Ratio of Increase in Distance	Average Speed of Total Trip
%			
0	14.7	1.00	22.0
1 - 20	18.0	1.23	27.0
21 - 40	19.0	1.30	28.5
41 - 60	21.2	1.45	31.8
61 - 80	22.4	1.53	33.6
81+	28.8	1.96	43.2

from separate plots for each percentage range. On these graphs all available trips were plotted as points and an average curve drawn through them.

Since travel times are influenced by many factors, the curves did not always follow a regular pattern. The 41 - 60 percent curve, for example, might logically be expected to rise uniformly instead of bulging at 30 minutes and then flattening out. The origins of the trips for which this curve was plotted were investigated and it was found that most of the trips longer than 20 miles originated in congested city areas or in some cases were on slow-speed secondary roads. When more data are processed from other locations a more consistent relation may be obtained.

Regardless of the irregularities of the individual curves, one trend is evident; as Route 128 usage increases, employees can travel a greater distance in a given time. Table 16 illustrates this point.

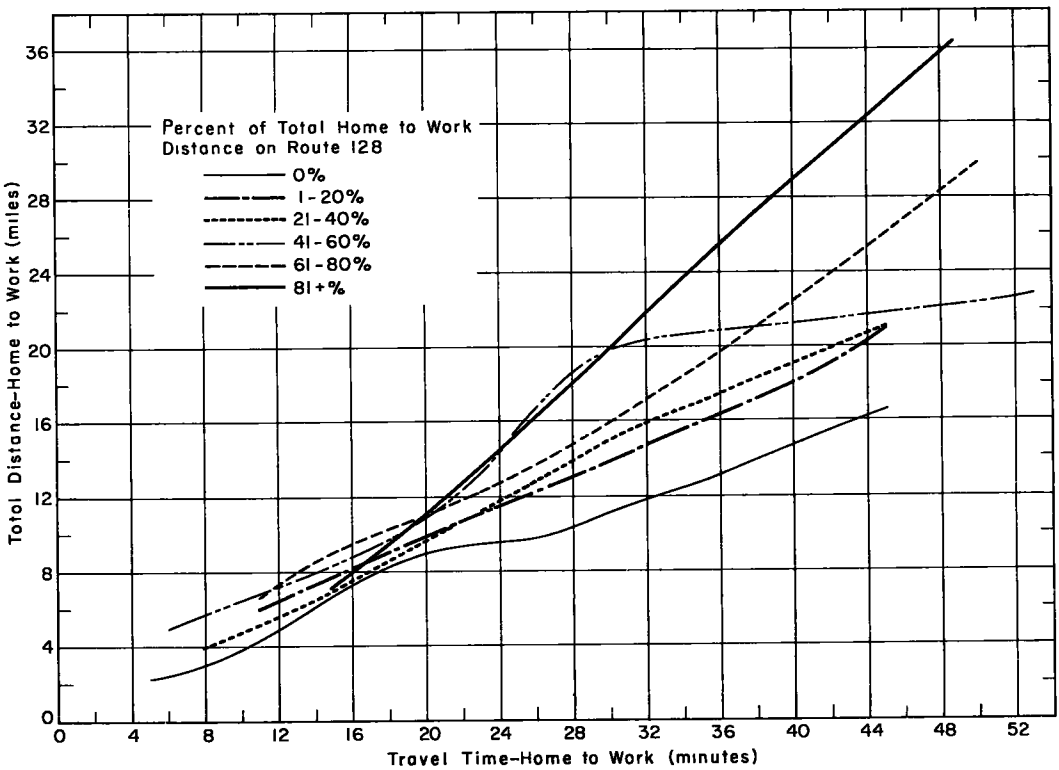
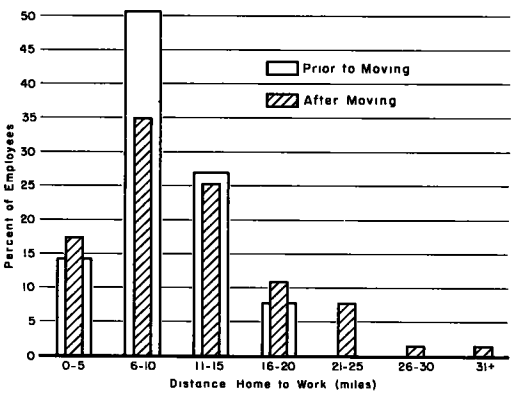


Figure 10. Time-distance relationship for home-to-work travel of New England Industrial Center employees for various percent Route 128 usage.

DISTANCE HOME TO WORK FOR ALL NEW ENGLAND INDUSTRIAL CENTER EMPLOYEES WHO HAVE CHANGED THEIR RESIDENCE SINCE STARTING TO WORK AT A ROUTE 128 INDUSTRY
SEPTEMBER 1957



DISTANCE HOME TO WORK FOR ALL NEW ENGLAND INDUSTRIAL CENTER EMPLOYEES WHO HAVE CHANGED THEIR RESIDENCE SINCE STARTING TO WORK AT A ROUTE 128 INDUSTRY, COMPARING ROUTE 128 USERS WITH NON-ROUTE 128 USERS
SEPTEMBER 1957

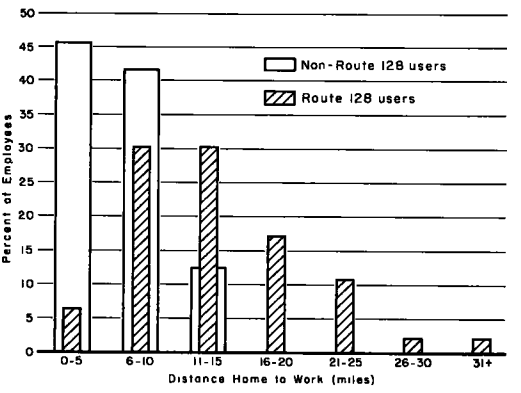


Figure 11.

Another finding indicated by Figure 10 is that as the length of trip increases the average speed of the non-users of the route tends to decrease while that of the Route 128 users increases with the amount of use of that route. For example, for trips taking 20 minutes or less the average speed represented by the slope of all the curves is about 30 mph. For a 40 minute trip, the non-users average speed is about 23 mph, while the 81+ percent Route 128 users average about 44 mph. If the average travel-time speed is considered as a measure of trip efficiency, the 81+ percent group users of Route 128 have gained a 91 percent advantage over non-users in the case of a 40 minute trip.

While it would be expected that the 81+ percent users of Route 128 would gain in average speed as the trip is lengthened, it is not obvious why the non-users should show a loss in average speed. The explanation appears to lie in the nature of the trips. The shorter trips are made in the outer suburbs where there is little if any traffic congestion, whereas the longer trips start in the downtown areas where considerable congestion is encountered before the drivers reach the suburbs. The home locations of workers in the N. E. I. C. (Figure 13) indicate that a large number live in congested areas south and southwest of the Boston central business district where travel time would be slow.

Travel Patterns of Employees Who Have Moved Since Starting to Work on Route 128. Of the 612 N. E. I. C. employees who returned forms, 72 or 12 percent have moved since starting to work at a Route 128 industry. Of the 72 reporting, 19 percent were old employees who worked for their company before it moved, and 81 percent were new employees.

Figure 11 shows (in 5-mile ranges) the percentage distribution of the distance traveled to N. E. I. C. before and after change of residence. The chart shows the trend of distance to work to be longer after a move, particularly in the 6 - 10 mile range which included 51 percent of trips before moving and only 35 percent after moving. In the group that moved, Route 128 users travel considerably farther than non-users.

The old and new home locations of employees who moved and the direction of the move are shown in Figure 12. The general movement out of the central city is evident, but a movement toward the N. E. I. C. is less evident. Of the old employees who moved only 40 percent moved nearer to work; of the Route 128 users 55 percent moved nearer to Route 128. The pertinent facts regarding employees who moved are summarized in Table 17.

There are many factors that influence people to change their residence aside from its proximity to work, such as price, community environment and suitability to the buyer's (or renter's) needs. The time to work is usually more important than distance. Unfortunately the questionnaire did not include a question regarding time to work before employment on Route 128. However, those employees questioned directly about their use of Route 128 said time saving was its principal advantage.

TABLE 17

SUMMARY OF EMPLOYEES WHO CHANGED THEIR RESIDENCE SINCE STARTING TO WORK ON ROUTE 128

12 Percent of All the N.E.I.C. Employees Moved		
Of the 12% Who Moved:	a.	19% Are Old Employees
		81% Are New Employees
	b.	75% Are Route 128 Users
		25% Are Non-Users
Of the Old Employees Who Moved:		40% Moved Closer to Work
		44% Moved Further from Work
		16% Had the Same Distance to Work
Of the Route 128 Users:		55% Moved Closer to Route 128
		34% Moved Further from Route 128
		11% Had the Same Distance to Route 128

Gate Counts. Vehicle and passenger "gate" counts were made at 9 separate industries and at the New England Industrial Center. In some cases counts were conducted at such points that the vehicles entering or leaving Route 128 could be separated from those not using Route 128. The purpose was two-fold: one, to obtain a 100 percent count of the number of vehicles and their occupants entering and leaving at a peak hour,

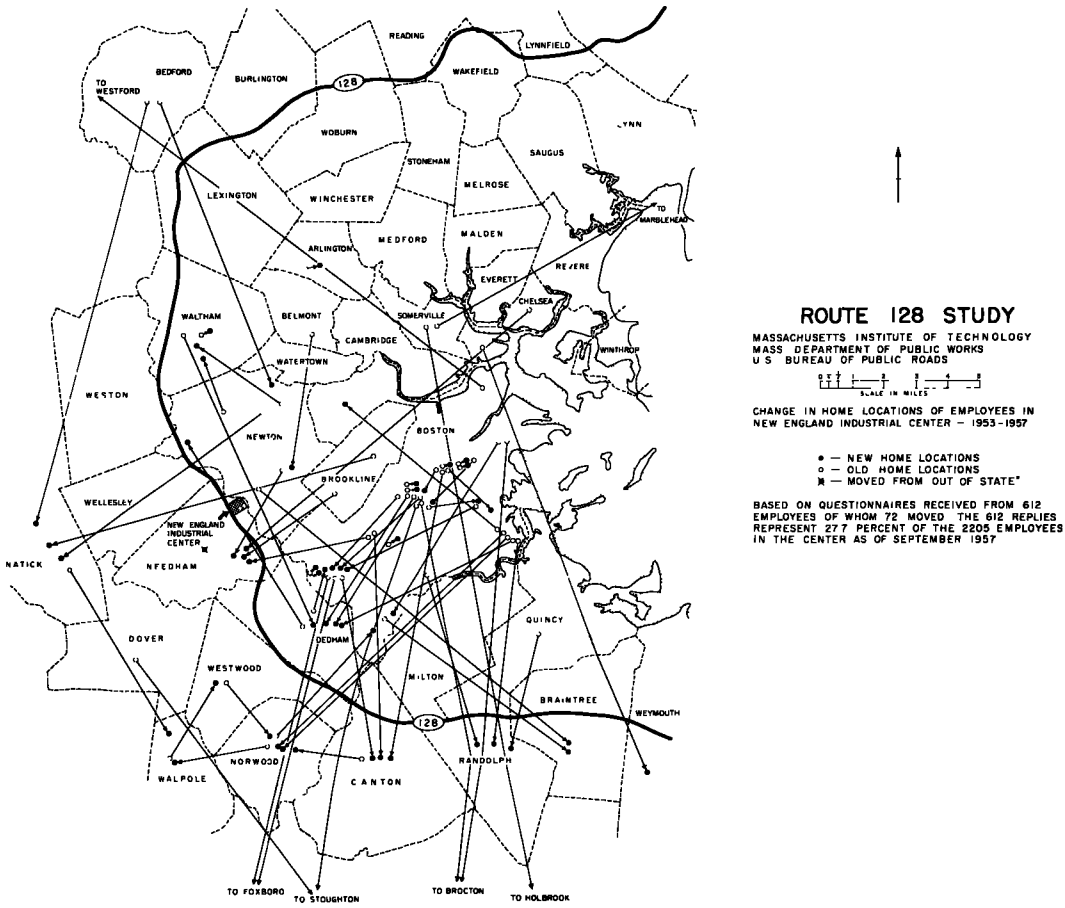


Figure 12.

In the final report both the industrial development and travel pattern data will be assembled and analyzed in three major groupings: (1) Route 128 as a whole, (2) functional types of industry, and (3) industrial location groups.

Within each industrial location group a further separation will be made by type of industry.

The assessed valuations of new industries and their tax contribution to the towns in which they are located will be obtained.

Employee travel data will be obtained for each industrial location group, and vehicle-miles contributed to different sections of Route 128 will be computed. Traffic generation statistics will be compiled for different types of industry.

A study will be made of rate of growth of industry on Route 128 since its construction, including number of jobs brought into area and traffic generated each year.

The data obtained from the origin-and-destination survey of Route 128 will be analyzed and traffic studies made of the influence of that highway on the over-all traffic patterns of metropolitan area, particularly with reference to traffic generated by activities on Route 128.

SUMMARY OF FINDINGS

This paper is a preliminary report of the principal findings of a survey of 99 industrial establishments along Massachusetts Route 128, the Boston Circumferential Highway. The industrial survey findings are based upon interviews with management of these plants. Employee travel patterns at the New England Industrial Center were obtained from questionnaires distributed to employees; this data was verified and supplemented by field counts at certain plants.

Industrial Survey

Of the 99 new Route 128 industries interviewed, 59 percent were formerly located within a 2 ¼-mile radius of the city center, and 79 percent within 4 ¼ miles. New industries comprised 6 percent, relocated plants 60 percent, new branch plants 13 percent, and relocated branch plants 21 percent.

These plants represent an investment in land, buildings and equipment of about $94,000,000. Plants under construction as of December 1957 will bring the total to about $134,000,000.

The types of industries represented are: production 33 percent, research and development 12 percent, service 6 percent, and distribution 49 percent. Although production-type industries comprise only one-third of the number of plants, they account for most of the investment (57 percent) and employment (63 percent).

Average investments in buildings and land were found to be $1,004,000 for production, $856,000 for research and development, $514,000 for service and $369,000 for distribution-type industries.

As of September 1957 about 17,000 persons were employed by Route 128 industries. This number is 6,500 more than employed by these companies at their former locations. The gain was 96 percent for production types, 55 percent for research and development, 39 percent for service, minus 4 percent for distribution, and 60 percent for all types.

When asked why they located on Route 128, most industries gave space for expansion and improved efficiency of operation as a major factor. Production types also particularly stressed employee access, labor procurement, and business access; service types, aesthetics and employee accessibility; research and development types, employee accessibility, labor procurement and retention; distribution types, business accessibility.

Parking space ratios for all industries averaged 0.75 spaces per employee. Some variations occur among different types of industry, but the principal influence is number of employees. At companies employing less than 50 people the average ratio is 1.52; for companies employing over 1,000 people it is 0.54.

Travel Patterns at New England Industrial Center

The industries in the New England Industrial Center (located on Route 128 in Needham) employ 2,205 persons of whom 1,522 (69 percent) received travel pattern ques-

tionnaires, of which 612 (40 percent) were returned, representing 28 percent of the total employment.

"Old" employees who worked for a company before it moved to Route 128 comprise 69 percent of the total employees. The remaining 31 percent are "new" employees who joined a company after it moved.

Of the old employees, 43 percent make use of Route 128 in traveling to work. The average trip length of Route 128 users is 8.5 miles on Route 128 and 7.2 miles on other highways, a total of 15.7 miles. Non-users of Route 128 average 9.9 miles to work.

Of the new employees, 47 percent make use of Route 128 in traveling to work. The average trip length of Route 128 users is 7.2 miles on Route 128 and 5.7 miles on other roads, a total of 12.9 miles. Non-users of Route 128 average 5.9 miles to work.

For all workers, the average home to work distance for Route 128 users is 14.7 miles which is covered in 27.9 minutes at an average speed of 31.6 mph. For non-Route 128 users, the averages are 7.8 miles, 21.2 minutes and 22.1 mph, respectively.

The distance that can be traveled to the N.E.I.C. in a given time increases substantially as the percentage use of Route 128 increases. Users of Route 128 for 81 percent or more of their trip average 28.8 miles in 40 minutes (43.2 mph); in the same time non-users average only 14.7 miles (22.0 mph).

Before working on Route 128, employees used automobile transportation (56 percent), public transit (31 percent), combination of automobile and transit (4 percent) and walked (9 percent). After working on Route 128 they used automobiles and car pools (98 percent) and public transit (2 percent). A negligible number walked. The shift from public transit and walking to automobiles was greater for old employees than new ones.

Of all N.E.I.C. employees, 12 percent have moved since starting to work on Route 128. Of these 19 percent are old employees and 81 percent new employees; 75 percent are Route 128 users and 25 percent are non-users.

Of the old employees who moved, 40 percent moved closer to work, 44 percent moved farther away and 16 percent made no change in distance to work.

Of the Route 128 users who moved, 55 percent moved closer to Route 128, 34 percent moved farther away and 11 percent made no change in distance.

The major advantage given by workers for use of Route 128 was savings in time. Principal objections raised were strain and discomfort of driving in heavy, fast moving traffic and frequency of accidents, even though the accident rate is low based upon fatalities (2.0) or accidents (121) per 100,000,000 vehicle-miles (year of 1955).

ACKNOWLEDGMENTS

The authors wish to express their sincere appreciation to the many organizations and individuals who contributed to this study, and particularly to the sponsors, the Massachusetts Department of Public Works and the U.S. Bureau of Public Roads. They are also deeply appreciative for the assistance of the Massachusetts Department of Commerce.

The project was conducted by the Transportation Engineering Division, Civil and Sanitary Engineering Department, Massachusetts Institute of Technology. Particular thanks are extended to Billy Rose, Research Assistant at M.I.T., who assisted in assembling and analyzing data for the report.

Appreciation is also expressed for the cooperation of the management personnel of the industries interviewed, and for the assistance of the M.I.T. Joint Highway Research Project Staff.

Appendix A

MANAGEMENT QUESTIONNAIRE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Cambridge 39, Massachusetts

ECONOMIC STUDY OF THE INFLUENCE OF ROUTE 128
sponsored by
Massachusetts Department of Public Works
and
U.S. Bureau of Public Roads

PLANT

1. Is this plant a
   - ☐ new branch plant?
   - ☐ relocated plant?
   - ☐ relocated branch plant?
   - ☐ new industry without a previous plant?
2. What was the disposition of your previous plant?_____
3. What was the address of your previous plant?_____
4. What was the number of employees at your previous plant?
5. What is the company's approximate investment in
   land? (_____sq. ft. x_____cost/sq.ft. = _____total cost)
   buildings?_____
   equipment?_____
   sq. ft. of buildings_____

PRODUCTS

1. What products does this company produce and/or distribute?_____
2. Where is the market located for your products?

_____%	_____%	_____%	_____%
Metropolitan Boston	Other Parts of Mass.	Other parts of New England	Other parts of the United States

3. Where is the source of your raw materials?

_____%	_____%	_____%	_____%
Metropolitan Boston	Other Parts of Mass.	Other Parts of New England	Other Parts of the United States

TRANSPORTATION

1. What changes have occurred in your method of transporting your raw materials and finished goods?

   a. Raw materials

      (1) Previous location _____% Rail _____% Truck

      (2) Present location _____% Rail _____% Truck

   b. Finished goods

      (1) Previous location _____% Rail _____% Truck

      (2) Present location _____% Rail _____% Truck

EMPLOYEES

1. How many shifts does your company employ?

   ONE ☐ TWO ☐ THREE ☐

2. What are the hours of each shift?

_____	_____	_____
Shift 1	Shift 2	Shift 3

3. What are the number of employees on each shift?

_____	_____	_____
Shift 1	Shift 2	Shift 3

PARKING FACILITIES

1. Upon commencement of operations at this site, what was the original size of your parking facilities? (number of cars)?_____
2. What percentage of this space was considered excess?_____
3. What additions have been made to these parking facilities (number of cars)?_____
4. Are the present facilities adequate?_____
5. What future additions to your parking facilities are contemplated?

   _____

QUALITATIVE FACTORS

1. Were there other feasible sites considered for your plant location?

   YES ☐ NO ☐

   a. If yes, were one or more of these sites located in

      ☐ downtown Boston?
      ☐ suburban Boston?
      ☐ elsewhere on Route 128?
      ☐ other cities in Massachusetts?
      ☐ outside Massachusetts?

2. What would you consider to be the major factors in your decision to move to Route 128?

3. At the time you decided to locate at this site, what were the benefits that the company hoped to derive because of its proximity to Route 128? (or disadvantages?)

   a. If not explained above, ask "What did you consider the effects would be from locating on Route 128 on employee procurement in so far as (1) Commuting problems of employees?

(2) The change in the potential labor market with respect to quantity and quality"?

(3) Better employee facilities available"?

4. Do you believe that your company is receiving the above benefits from being located on Route 128 and are there other benefits that you are now receiving that were not anticipated? (or disadvantages?)

5. How many truck loads of material do you estimate are arriving and departing from this plant each day?

   a. What would you estimate as the average number of miles per truck that these trucks utilize Route 128 each day?

   b. Are there any hours in which this trucking is concentrated?

Appendix B

EMPLOYEE QUESTIONNAIRE—PILOT STUDY

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge 39, Massachusetts

ECONOMIC STUDY OF THE INFLUENCE OF ROUTE 128

sponsored by

Massachusetts Department of Public Works

and

U.S. Bureau of Public Roads

A STUDY IS BEING MADE IN ORDER TO BETTER UNDERSTAND THE EXTENT TO WHICH ROUTE 128 HAS BEEN RESPONSIBLE FOR THE INDUSTRIAL AND RESIDENTIAL DEVELOPMENT IN THIS AREA. THE INFORMATION REQUESTED IN THE FOLLOWING QUESTIONS IS A VITAL PART OF THIS STUDY. YOUR ASSISTANCE IN SUPPLYING THIS INFORMATION WILL BE APPRECIATED.

---

1. Your present home postal address is? _____

2. Did you work for this company prior to the company's location on Route 128? ☐ YES ☐ NO

3. Have you moved since starting to work for a company on Route 128? ☐ YES ☐ NO
   If yes, what was your previous home postal address? _____

4. What method of transportation did you use prior to working for a company on Route 128? ☐ Walk ☐ Car ☐ Public Transportation

5. When traveling to work, how far do you drive on Route 128? _____ miles

6. How many minutes does it take you to drive from home to work? _____ minutes

7. Do you belong to a car pool? ☐ YES ☐ NO
   a. If yes, how many share this pool with you? _____ persons
   b. If you do not use your car pool every day, how many days per month do you drive alone? _____ days per month

Appendix C

REVISED EMPLOYEE QUESTIONNAIRE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Cambridge 39, Massachusetts

RESEARCH STUDY
Sponsored by

Massachusetts Department of Public Works and
U.S. Bureau of Public Roads

TO AID IN THE DESIGN OF THE 41,000 MILE FEDERAL HIGHWAY PROGRAM, M.I.T. IS MAKING A STUDY OF THE TRAVEL HABITS OF PERSONS EMPLOYED IN INDUSTRIES LOCATED ON ROUTE 128. THIS INFORMATION WILL BE USED TO BETTER DESIGN THE HIGHWAYS TO ACCOMMODATE THE ADDITIONAL TRAFFIC RESULTING FROM EMPLOYEES COMMUTING TO WORK. THE INFORMATION FURNISHED BY YOU WILL BE HELD CONFIDENTIAL.

1. Where do you live?

_____ Street

_____ City or town Zone State

2. Did you work for this company prior to the company's location on Route 128? ☐ YES ☐ NO

3. Have you moved since starting to work for this or another company located on Rte. 128? ☐ YES ☐ NO

   a. If yes, where did you live?

_____ Street

_____ City or town Zone State

4. What method of transportation did you use prior to working for a company on Rte. 128? ☐ Walk ☐ Car ☐ Public Transportation

5. What method of transportation do you now use to travel to work? ☐ Walk ☐ Car ☐ Public Transportation

6. How far do you travel from home to work? _____ miles

7. In traveling from home to work, how far do you drive on Route 128? _____ miles

   a. What entrance to Route 128 do you use?

_____ (Entrance number, street, or highway route number)

8. How many minutes does it take you to drive from home to work? _____ minutes

9. Do you belong to a car pool? ☐ YES ☐ NO

   a. If yes, how many share this car pool with you? _____ persons

   b. If you belong to a car pool, but do not use your car pool every day, what is the average number of days per month that you

      1. drive alone? _____ days per month
      2. walk? _____ days per month
      3. use public transportation _____ days per month

Economic and Social Impact of the Connecticut Turnpike

WALTER C. MC KAIN, JR., The University of Connecticut

● ALMOST EVERY variety of social form and social process directly or indirectly feels the impact of highway development. The colonial toll roads made of planks helped to shape early America just as modern super highways cast in concrete are influencing contemporary America. A highway program of the scale envisioned in the United States Highway Act of 1956 will undoubtedly initiate many changes in the economy. Any attempt to measure the variations or modifications in the society that stem from highway development requires an understanding of what is meant by "change." Five characteristics of change make it a most nebulous and evanescent concept.

First, change in itself is amoral. Its consequences may be considered good or bad, partly both or neither. A particular bypass, for example, may result in changes that are beneficial, or changes that are harmful. The same effect could be considered either favorable or detrimental depending on who is making the observation or when the observation is made. Change per se is neutral and the researcher who forgets this or chooses to ignore it violates one of the essential elements of the concept.

Second, change has both immediate and future relevance. Some changes are temporary, transitory and impermanent. Others may be of lasting importance. A new turnpike that temporarily disrupts a number of local services may in the long run add to the permanence of the services that are available. Land values in one locality may begin to shrink when a new highway creates place utility elsewhere and then eventually may rise when the full effects of the road are realized.

Third, change may take place gradually or it may occur quickly. Lightning fast changes may be more impressive than transformations that develop more slowly, even though the latter have far greater social import. For example, in certain locations the highway may bring a rapid shift in land use, and land values in such places may rise almost immediately to astronomical levels. A gradual appreciation of land values throughout a much larger area may remain unnoticed even if the latter is more significant by far to the region as a whole.

Fourth, change may be direct or it may be diffuse. In some instances the succession of events occurs so repeatedly and so closely that the process of change is readily observed. More often, however, the process of change is blurred by the impact of a large number of events occurring simultaneously or so close together in sequence that their individual effects are indistinguishable. In general, change is pluralistic in origin and multidirectional in destination. If a new marketing pattern follows the opening of a highway it may be partly the result of the highway and partly the result of many other economic and social factors.

Finally, in an industrial society such as ours most social change receives its impetus from technological advances. Material changes usually precede non-material changes. Under some circumstances this "cultural lag," as W. F. Ogburn (1) has named it, will lead to maladjustment and disorganization. Thus, a new highway may expose the rural population to the materialistic culture of the city. Changes in their material way of living can result in social problems if changes in their values and attitudes do not keep pace.

Previous Research

Despite the limitations inherent in the meaning of change, to understand what has happened and to forecast what will happen require the use of change as a research concept. Social scientists, particularly rural sociologists and land economists, have recognized highways as a powerful force for social change in the past. They saw how road programs made new resources available and thus raised the level of living of the population. They saw how highways extended community boundaries, broadened trading centers and caused villages to appear and disappear like magic. School and church

consolidations were hastened by highway development. Labor markets were widened as good roads and good automobiles made it possible for persons to live in one area and work in another. Suburbanization was another by-product of highway improvement. In Connecticut, for example, the growth of suburbs in the 1930's followed the "Get Connecticut Out of the Mud" road program of the 1920's. Roadways, these social scientists found, are the parents as well as the children of social change.

Most research dealing with the social and economic effects of highways has been of necessity ex post facto. Highway programs heretofore were often relatively unplanned on a nationwide basis, being authorized sporadically by vast numbers of local and state highway departments in response to a multitude of various pressures. Social scientists in many instances lacked the imagination or the funds to engage in speculative research of this type. Under such conditions, change was more easily observed after the fact.

The current United States highway program furnishes an opportunity to observe change in the making. Social legislation permits social research. Since information regarding various parts of the highway system will be known in advance, sounding lines concerning social and economic phenomena in these areas can be lowered. After the highway has been completed, any changes that begin to unfold can be measured against the original soundings. The United States Highway Act of 1956 makes possible the method of projected experimental design (2).

The Connecticut Turnpike

This method is the one being used in determining the impact of the Connecticut Turnpike in eastern Connecticut. The Connecticut Turnpike extends from Greenwich to Killingly and serves the area between New York City and Boston. It is a limited access highway with provision for 90 interchanges. It will have eight toll stations. Much of the traffic along this 129 mile expressway will be local in nature although considerable through traffic is also expected.

The Storrs Agricultural Experiment Station has undertaken a survey of the impact of the Connecticut Turnpike upon two counties in eastern Connecticut. For many years eastern Connecticut has been one of the less favored sections of the state with respect to both manufacturing and agricultural activities. It has been the home of a gradually declining textile industry and there has been a tradition of part-time farming. The turnpike, it is believed, will accelerate the trend toward a more diversified industry and will greatly strengthen manufacturing communities and summer resort towns in the area.

This project is a cooperative one including the University of Connecticut, the Connecticut State Highway Department and the United States Bureau of Public Roads. It was undertaken early in 1956, almost two years before the opening of the turnpike on January 2, 1958. According to present plans the social and economic effects of the turnpike will be charted annually for a period of at least five years. Benchmarks of data have already been established covering a number of years before the highway was opened for traffic.

Some Methodological Considerations

Because, as has been pointed out, the study of change involves so much more than simple "before and after" comparisons, a number of variables will be analyzed at the same time. This procedure will yield a better understanding of their interdependence and at the same time permit a closer scrutiny of the exact time sequence of events. "Before and after" analysis becomes more meaningful when the individual elements in the situation can be traced longitudinally and related to other elements, both before and after the introduction of the independent event, (in this case before and after the opening of the Connecticut Turnpike). For example, an analysis of changes that take place in the volume of retail sales could be made preceding and subsequent to the opening of the turnpike. This rather static approach would have limited value in assessing the effects of the turnpike upon retail sales. However, if this were combined with an analysis of new manufacturing plants and resulting population shifts the significant

relationship between the turnpike and retail sales would fall into its proper place.

Controlled comparisons of this type may be designed on an area basis as well as with a time dimension. If the effects of the turnpike are more pronounced in the area immediately adjacent to it and become less noticeable as the distance from the turnpike increases, an analysis of the changes that occur in areas at varying distances from the highway will provide useful comparisons. The influence of the turnpike may not follow this pattern and the relation between distance and effect may vary between one kind of influence and another. (For example, population growth may be greatest at a point somewhat removed from the turnpike.) These zonal gradients will then be useful in demonstrating the kind of relation that does apply, provided that the step by step development of the elements can be determined.

Five major areas have been designated for intensive analysis. These are: (1) the area immediately surrounding the interchanges (the most dramatic land use changes frequently occur here), (2) a five-mile strip on each side of the highway, (3) towns traversed by the turnpike, (4) towns not traversed by the turnpike but lying wholly or partly within the 5-mile strip, and (5) towns in the two counties lying wholly outside the strip. Other areas, especially those near new industrial sites, those where suburban real estate developments may occur and those along alternate routes may be added to the list. These areas of influence are not mutually exclusive and control groups have been set up for the various categories.

Property Values

A new highway, of course, can influence any or all aspects of an area's economy. A single event theoretically affects all parts of the society. In the analysis of the effects of the Connecticut Turnpike, six major areas of change will be considered. The first of these relates to changes that may occur in real property values.

Most changes in property value resulting from highway development mirror changes in land use. A record of land use is being maintained for the area surrounding each interchange. In addition, for each of the 36 towns in the two counties data are available on the number of new homes, new retail establishments, new factories and other items which will provide evidences of change in land use. The valuations placed on these properties by local assessors are being recorded and comparisons can be made each year. Even the prospect of a new highway stimulates real estate activity in the surrounding area as shifts in land use are made or contemplated. Between 1954 and 1956 the number of real estate transactions excluding the purchase of rights-of-way increased 18 percent in the towns traversed by the turnpike. During this same period the number of real estate brokers in this area increased 32 percent compared with an increase of 8 percent for the state as a whole.

Research has demonstrated that where an expressway effects changes in land use, the value of property usually rises. Sometimes the gains in property values are spectacular, especially at interchanges where motels, restaurants, filling stations and other businesses directly related to highway traffic compete for a limited number of economic sites. Although changes of this type will be recorded, another item of equal interest consists of changes that occur in the value of property held by the average home owner in the area. His individual gain or loss may not be large but, in the aggregate, changes in the value of this type of real estate may greatly exceed the more sensational shifts in property values that accure to the few owners of property in favored locations. If the turnpike stimulates industrial activity and promotes an immigration of families, real estate values, in general, will rise. In the area under study, a 10 percent appreciation in this type of property would represent a $40,000,000 increase in property values. Nearly one half of the value of all assessed property in the two contuies consists of the value placed on dwellings. The demonstration of non-user benefits for such a large segment of property owners should be of particular interest to highway planners and highway sponsors.

Manufacturing Activity

A second kind of change concerns manufacturing activity. An expressway may

encourage the growth of manufacturing in the area it serves in a number of ways. Transportation costs and time may be lowered and translated directly into more efficient production. In eastern Connecticut over 90 percent of the manufacturing companies use trucks both for importing raw materials and for shipping out part or all of their finished products. The expressway also widens the labor market area. This is particularly important in eastern Connecticut where workers are accustomed to commuting fairly long distances. Finally a new turnpike may set in motion a general feeling of growth and progress that may encourage companies that are settling where the climate of public opinion is optimistic.

In this survey seven time series related to the manufacturing industry have been established. These are (1) the number of plants, (2) the number of workers employed, (3) the trend toward diversified manufacturing, (4) the commuting patterns of the labor force, (5) the scale of manufacturing plants as measured by the number of workers each employs, (6) the seasonality of employment, and (7) the wages of employees.

A new highway may tend in three ways to reduce the number of workers who are adversely affected by seasonal employment. In the first place new companies attracted to the area may not have a seasonal lag. Second, if they have a slack season it may dovetail with the employment pattern of existing companies. Third, the presence of more employment opportunities and the commuting advantages afforded by the new highway may serve to provide a greater year around employment potential.

The Recreation Industry

The Connecticut Turnpike will make the facilities available for recreation in eastern Connecticut more accessible to such large centers of population as the metropolitan areas of New York and Boston. An attempt will be made to assess the effects of the turnpike on the tourist trade and on other parts of the recreation industry. Some of the 50 motels and cabin courts in the two counties may be relocated to tap this new source of revenue. Others may expand their existing accommodations or remain open for the entire year. A few new establishments are already under construction. The quality of the service may improve, particularly as the specialized service of the modern motel replaces the more general service provided by cabin courts. An analysis will be made of other businesses related to the tourist trade including filling stations, restaurants and gift shops.

In addition, there is a second kind of recreation business in eastern Connecticut which in the long run may be deeply affected by the Connecticut Turnpike. This business caters to persons and families who spend several days, a week or two, or even an entire season at a vacation spot in the area. The seashore resort communities with their camping facilities, summer cottages and hotels cater to a large population. The mountain and lake resort areas also attract summer vacationists. Summer boarding homes that began in eastern Connecticut as small farm house ventures are expanding into a business that is heavily capitalized.

If more families begin to see the possibility of vacationing in eastern Connecticut as the result of the turnpike, not only will the recreation business grow but the permanent population of the area will increase as well. There are two reasons why population growth accompanies an expanding summer recreation business. First, more people are needed to service a larger recreation industry and second, many summer visitors eventually become permanent residents. This is particularly true where the summer home is within commuting distance of employment opportunities and when it can be made into an attractive retirement home.

Retail Sales

Economic change in an area is perhaps best reflected by fluctuations in the number of retail stores and in their total sales. These two items not only constitute a measure of general prosperity but when broken down by type of establishment they have value in diagnosing which segments of the economy are growing. Thus, a disproportionate increase in the sale of building materials would suggest the construction of new homes and an increase in gasoline and restaurant sales would suggest the growth of the tourist business.

Data on retail stores and sales have been compiled annually beginning in 1954 for the area immediately surrounding each interchange, for the area within five miles of the turnpike and for each of the towns in the two counties. In the three year period between 1954 and 1956 retail sales increased 42 percent in the interchange areas, 15 percent in the five-mile area and 13 percent for all towns in the area. Changes in total retail sales will be computed annually and changes in sales for the various types of establishments will also be recorded. These include grocery, drug, gasoline, building materials, automobile, clothing and approximately 50 other kinds of retail businesses.

Community Services

The kind of community services that are available will influence industrial development and population growth in an area. At the same time population shifts and the growth of manufacturing plants will influence the community services that are offered. The Connecticut Turnpike may act as a catalytic agent in this situation, first, giving rise to new plants and new families in areas where community services are attractive and second, effecting changes in existing community services.

Several kinds of change in local government are being observed. The extent, quality and cost of services for police protection, public roads, fire protection, education and public health have been examined in each of the governmental units in the two counties. New functions of local governments also will be noted each year. These include among others, zoning and planning, the promotion of industrial development, and the sponsorship and control of recreation areas.

Closely allied to the services offered is the tax base that pays for these services. Assessments and mill rates may change if the Connecticut Turnpike substantially alters either the total taxable property in the town or creates changes in distribution of taxable property among its component parts, namely homes, commercial and manufacturing holdings, farms, and personal property, including automobiles.

Agriculture

A highway that consumes thousands of acres of farm land is certain to affect agriculture in the area. Its influence upon the farmers whose property falls in the right-of-way is harmful in some situations, beneficial in others. The farmer who finds himself with an uneconomic unit must either reorganize his business along different lines or seek a new location. As agriculture is undergoing some sweeping changes on its own at the present time, the highway may actually accelerate and smooth the way for changes that are inevitable. The sale of the right-of-way property by the sub-marginal producer may encourage him to dispose of holdings that he would eventually lose by a slower and more costly process. It may urge him to shift to another type of farming which in the long run he would have adopted in any event. It may enable some farmers to consolidate holdings and thus remain in operation.

Each of the farms that sold land for the Connecticut Turnpike is being analyzed to determine what changes, if any, were made in the operation of the farm business and whether or not these changes represented a loss or a gain to agriculture in the state.

The turnpike may influence agriculture in other ways. Although farmers may not be direct users of the highway, the local market for farm products may increase if population grows, if the seasonal recreation business prospers or if the tourist trade increases. Part-time farming, direct selling, and vertical integration will also be examined to see if the Connecticut Turnpike has changed the direction or scope of these developments.

The investigators believe that the six topics mentioned above, together with population shifts, represent the major areas in which change will occur. Undoubtedly the Connecticut Turnpike will have an impact on eastern Connecticut in ways that have not been considered in the present report. As these unforeseen changes occur they will be included in the analysis.

REFERENCES

1. Ogburn, W. F., "Social Change," New York: The Viking Press (1950).
2. Chapin, F. S., "Experimental Designs in Sociological Research," New York: Harper and Brothers (1955).

Methods Used to Study Effects of the Lexington, Virginia, Bypass on Business Volumes and Composition

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This paper contains a description of the methods applied in pursuing a study of the economic effects of the U. S. Route 11 bypass at Lexington, Va., a town with a population presently estimated at 6,500. This study was limited to the effects of the bypass on business volumes and composition. The primary source of data was the state business license application, which indicates gross income and useful information on location and ownership. These data have been summarized and compared with various indices of economic activity. Effects of changes in the total economy have been identified and removed where possible.

Particular attention was devoted to the development of continuity in the data assembled. Exhaustive field checks and cross referencing of data sheets were employed. This study was designed to permit employment of classifications and comparisons which have been used in previous economic impact studies with the aim of testing their congruity. Machine data processing has been employed for experience, although the number of businesses is not sufficiently large to demand this refinement.

● DURING THE past few years, research agencies in several states have been conducting studies of the economic impact of highway improvements. In most of these studies special attention has been paid to the effects of the limited access feature. The Virginia Council of Highway Investigation and Research is currently conducting a comprehensive study of the economic effects of the U. S. Route 11 bypass at Lexington, Va. This study, now nearing completion, has been concerned with the impact of this highway improvement on business volumes and composition. Because this is the first economic impact study undertaken by the Virginia Department of Highways, it has the dual purpose of evaluating the economic effects of the Lexington Bypass and of developing methods for use in future studies. This paper is primarily concerned with reporting this development of method.

In preparation for the study, many reports of economic impact studies from other states were reviewed.[1] While these studies differed in the kinds of data used and the areas studied, there were many similarities in the techniques of study employed. The two techniques most frequently found were the "before and after" comparison and the "study and control area" comparison.[2] It was considered desirable to use an established technique in the Lexington study but no report or reference was found which contained an evaluation of the relative merits of the two methods of comparison, that is, "before and after" and "control and study area." Because of this it was decided to design the study to permit application of both methods of comparison to a common set of data while keeping the other factors of analysis simple and secondary. With this design it was hoped to reach an evaluation of the relative merits of the two techniques of com-

[1] The results of this review have been reported by the Virginia Council of Highway Investigation and Research in a publication entitled "Bibliography—The Economic Effects of Limited Access Highways and Bypasses," by Joseph W. Harrison.

[2] Both techniques have been employed in the well known group of studies conducted by the California Department of Highways as well as in studies made in Texas, Oregon and elsewhere. Because these techniques have been widely used it is not intended to refer to any particular study.

parison. The purpose of this paper is to present this evaluation together with a summary of the individual steps taken in the investigation. Data contained are for illustrative purposes and are not intended to represent results of the study which will be reported later.

The primary source of data for this study was the state business license application which indicates gross income and information about business type, location and ownership. These data were classified by business type and location, summarized and indices of change were computed. Using these indices, changes in the activity of the several business groups were compared by the two techniques described above. Where possible, supplementary data were employed in order to identify causes for trend changes noted.

For the reader who is unfamiliar with the study area, some background information may be helpful (1). Rockbridge County was formed in 1778 from two neighboring counties and named for the famous Natural Bridge of Virginia, found in its southern part. Lexington, founded a year earlier, became the county seat. In 1950 Rockbridge County had a population of 24,359, which included Lexington's 5,976. However, this figure did not include the City of Buena Vista, incorporated in 1892, which had a 1950 population of 5,214.

Rockbridge County (land area 604 sq mi) lies in a broad valley between the Allegheny Mountains on the northwest and the Blue Ridge Mountains to the southeast. About half of the total area is wooded; two national forests extend into the county. Several local industries utilize forest products. Mineral resources in commercial production include glass sand, limestone, quartzite, and brick clay. Tin, manganese, and iron ore have been mined in the past, and marble, granite, barite and shale are available. Agriculture and manufacturing are the chief sources of employment and income. The 1950 census reports that agriculture and allied pursuits occupied 25.2 percent of all employed persons in the county and manufacturing employed 25.7 percent. Fertile limestone soils make excellent pastures and sales of beef cattle, calves, hogs, and sheep produce the greatest portion of farm income. Dairy products are next in importance, then poultry, grain and hay crops, and in addition there are some very productive orchards. Manufacturing industries, chiefly in Buena Vista and Glasgow, produce a wide variety of products including textiles, wood products, paper and building materials.

A chronology of the bypass follows. Late in 1951, the Town Council of Lexington formally requested the Virginia Department of Highways to make a preliminary location survey and appropriated funds to cover the town's share of the costs. Plans were approved by the highway department and funds for rural construction allocated in May 1953. At that time, federal aid and state funds were made available for construction and right-of-way purchases within the town limits. Paving bids were received and the contract awarded in June. Bids were received for grading, drainage and structures, and contracts were awarded in November. Construction began in mid-December 1953 and the U. S. Route 11 bypass at Lexington, Va., was opened to public use on November 25, 1955.

COLLECTION AND CLASSIFICATION OF DATA

The primary source of data for this study was the business license application, required by the State Department of Taxation and normally retained on file for three years. Since these applications contain confidential information, special permission to use this information was granted by the Governor of Virginia, subject to the condition that it be handled in a confidential manner and that any report avoid disclosing the identity of the individual businessman and the volume of his business. In complying with these requirements, all data used in this paper have been summarized into groups, percentages, and indices.

From the files of the Rockbridge County Commissioner of the Revenue, the following information has been tabulated: name of licensee, name of business unit, mailing address of proprietor or business, location of business, change of location, type of ownership, change of ownership, date the business began, type of business, annual gross income, number of employees, and annual rental value of the business property. In

addition, annual sales of gasoline were tabulated. This information was available for gasoline retailers because they are required to report the number of gallons sold annually in order to qualify for a deduction of the state gasoline tax.

During the process of collecting data, several questions arose which affected either the reliability of the data or the analysis thereof. First was the question of the accuracy of the data source. When submitted to the Commissioner of Revenue, the business license application bears a sworn statement of the accuracy of the information contained and is signed by the licensee. After some study it was agreed that the applications may contain some degree of inaccuracy, but it was presumed that the bias would be consistently downward for gross incomes and upward for gasoline sales. There is no ready means of identifying such a bias, if it exists; and it has been assumed that the information is accurate as attested by the sworn statement of the licensee. The next question arose when it became necessary to decide on the length of the study period. It is the policy of the Department of Taxation to destroy the business license applications after the third tax year has passed. This three year period was considered too short to permit a study of the economic changes which may occur after a highway improvement. For the present study, the problem was solved because the files of the Rockbridge County Commissioner of Revenue extended back for several years. Another difficulty was encountered in the disparity of information recorded on the license application from year to year. Aside from the information actually required for identification of a business and for assessment of the tax, revenue officers and applicants differed on the amount of supplementary information recorded. Most often omitted was the name of the business, information on location and ownership, number of employees and rental value of the property. Also, inconsistencies were found in the applications from year to year. The application was not always filed by the same person in succeeding years and the addresses and locations listed varied. Coupled with the omission of the business name, these inconsistencies sometimes indicated a new owner, a new business, or a new location; but more often not. These omissions and inconsistencies did not prevent the compilation of complete case histories but did extend the amount of time and effort required. Because some types of businesses are taxed on a flat rate basis and their license applications contain no other indicator of business volumes, these businesses were not included in the study. Finally, the use of annual data imposed certain restrictions upon the analysis.

The business license data does offer certain advantages in this type of study. The information is recorded in a standardized manner and is available for all the businesses in the state. In some cases, economic studies have been handicapped when one or several businesses have not permitted access to their records. This handicap is overcome by the use of business license data. All businesses, except those upon which a flat rate tax is imposed, may be included in a study and questions of sampling techniques may be avoided. Further, data can be collected quickly and inexpensively.

While the business license applications were the primary source of data the collection of secondary data was carried on concurrently. These contain records and measures of economic activity of the national economy and its several parts. All of these data were selected to present some information in relation to the economy of the study area. Several of these sources were: "Standard Industrial Classification Manual," "Directory of Virginia Manufacturing and Mining," "Economic Data," price and construction indices, "Survey of Current Business," "Census of Population," agricultural prices, maps, and annual totals of gasoline sold and tax paid in Virginia. From these sources, information was selected for comparison with the primary data.

Defining study and control areas for the project was a difficult problem. Here the term "study area" was used to indicate the geographic area(s) within which are included those businesses presumed to have been affected by the bypass. The term "control area" designates another geographic division of data to be used for comparison. The problem was resolved into one of selecting geographic areas which contain similar numbers of businesses carrying on similar activities in a similar sociological climate. Vital to this question was the choice of areas where data were available. In choosing Rockbridge County and several sub-areas, two needs were served: (1) the study and control areas contain similar groups of businesses within a similar geographical and

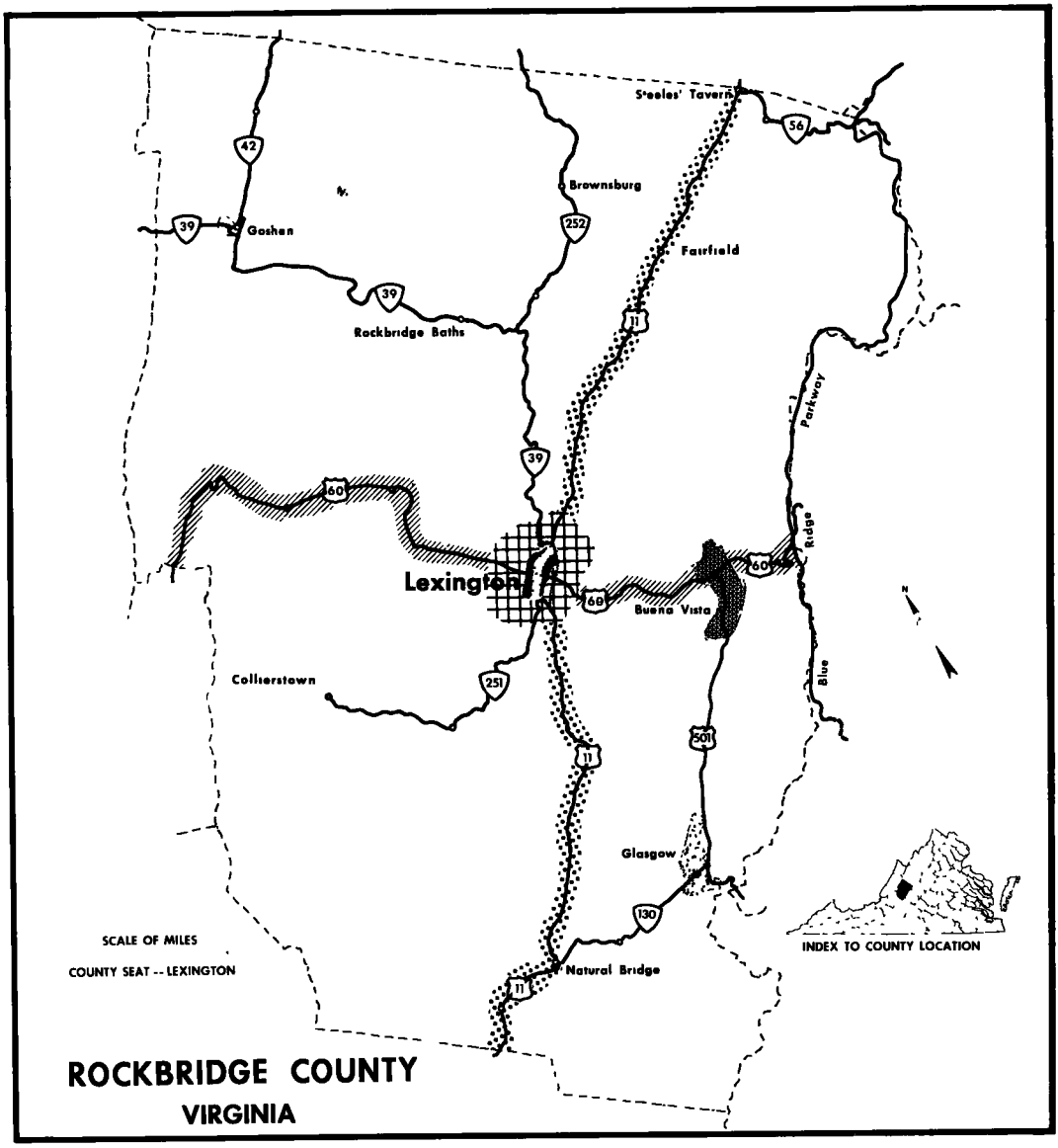

Figure 1. Study and control areas.

sociological sphere and (2) this choice permitted the application of the techniques of comparison described earlier. An attempt was made to test these techniques by comparing conclusions reached with the several combinations and disjunctions of study and control areas.

The several areas are named and described below (see Fig. 1):

Area 1. Bypassed Business on U. S. Route 11 (Study Area)—those businesses abutting U. S. Route 11 and Main Street between the north and south termini of the bypass.

Area 2. Businesses within the Corporate Limits of Lexington (Study Area)—not including those in Area 1 above.

Area 3. Businesses within the Lexington Fringe Area (Study Area)—roughly defined as extending about one mile from the corporate limits in all directions, particularly defined to include businesses adjacent and near to the corporate limits, extending on each roadway so far as to include those which are grouped thickly around the Town of Lexington but to exclude those which are farther away and definitely rural in location.

Area 4. East-West Roadside Businesses (Control Area)—those businesses abutting on or adjacent to U. S. Route 60 east and west of Lexington, extending to the county line in both directions, not including businesses in other areas.

Area 5. North-South Roadside Businesses (Control Area)—those businesses abutting on or adjacent to U. S. Route 11 north and south of Lexington, extending to the county line in both directions not including businesses in other areas.

Area 6. Buena Vista (Municipal Control Area)—those businesses within the corporate limits of the City of Buena Vista.

Area 7. Rockbridge County (Rural Control Area)—all businesses not included in Areas 1 through 6.

It was recognized that the businesses in Area 1 are those likely to be most strongly influenced by the bypass. They constitute the primary study area. This area may not contain all the businesses formerly influenced by the through traffic which has been routed elsewhere. Area 2 contained the remainder of businesses in the Town of Lexington but still did not encompass all businesses directly within the economic influence of Lexington. Area 3 contained the businesses within a "short distance" of the Lexington corporate limits. Areas 1, 2, and 3 were jointly and separately conceived as study areas, though 2 and 3 have proven to have other value. The "short distance" in the description of Area 3 was loosely defined deliberately. Thought and discussion were devoted to seeking a more precise definition. Measuring frequency per mile of businesses, plotting curves of frequency versus distance from the corporate limits, measuring distance from the corporate limits and other means of more precise definition were discussed. It was concluded that the study and the geography are not so complex that they require these refinements. An observer, by driving along the highways leading away from Lexington in several directions, can readily see the businesses near Lexington and the open, rural countryside a little farther along. This kind of observation was employed in defining the "fringe area." Areas 4 and 5 are composed of roadside businesses on the two main highways which cross the county. The potential usefulness of these control areas was always judged on the basis of the number and kinds of businesses contained, keeping in mind the desired similarity to the Lexington business group. For some business groups these areas did contain sufficiently similar groups of businesses. Generally, Areas 4 and 5 were combined to form a roadside business control area. The independent City of Buena Vista was selected as a municipal control area. Notwithstanding the presence of industry, the city is quite like Lexington in its business composition. Both serve as centers of commerce for the rural agricultural county and they are similar in population. Lexington, with its historic landmarks, enjoys a considerable tourist trade, little of which passes through Buena Vista. Other towns in the county (Glasgow and Goshen) were not sufficiently large to have similar business compositions. In essence, Buena Vista was the only municipal area in Rockbridge County which could be compared with Lexington. Area 7 was defined to include all businesses in the county, not contained in the other study and control areas. These were mainly small, rural enterprises. This control area, in combination with others, permitted comparison of the bypassed town with the surrounding county. Indeed, the desire to make this methodological comparison was one of the bases for defining these study and control areas. In a future study it may be desirable to compare one county with another, hence using the remainder of the county as a control area permits a summary of Rockbridge County business volumes and composition during the study period.

Having defined study and control areas, it became necessary to categorize the businesses contained. While it may be interesting to know that all businesses in an area experienced change, it is more meaningful to know that certain types of businesses have experienced a greater or lesser degree of change than others. It was presumed that some businesses will be more strongly affected by highway relocation than will others, both in nature and degree. Businesses may be classified by any of several systems, depending upon the purpose of the classification. A telephone directory offers two such systems. In seeking meaningful classifications, systems used by other agencies have been reviewed and that used by the U. S. Bureau of the Budget has been selected. It offered the advantages of being a recognized standard system, adaptable to a small or large study, and designed for machine processing. Definitions for these business categories may be found in the "Standard Industrial Classification Manual."

As the study progressed, it became evident that precise information on the geographic locations of businesses would be required. The business license applications did not contain sufficient detail to permit certain identification. In the face of varying addresses and locations listed on the applications, precise knowledge of the location of a business was necessary to eliminate duplicate data sheets and to establish continuity of the data on business volumes. Further, this knowledge of location was necessary to assign data sheets to the several study and control areas. Several sources of information were used to accumulate information on business locations. An extensive field inventory of businesses was conducted through the whole county in June, 1957. Individual businesses were sighted and pertinent information recorded, including the route numbers, mileage from a known point, business name if shown and a description of the business with mention of the principal products or services. At the same time, each entry of the inventory was coded to a number written on a county map. In addition, other inventories and maps were used in this effort to establish business locations. Street maps were obtained for cities and towns included in the study. The U. S. Post Office Department furnished, on request, several copies of a map showing rural U. S. mail routes in the county. The result of these several steps was the selection of the seven study and control areas described earlier. Data sheets have been identified for businesses described in the field inventories and coded to indicate geographic location.

ANALYSIS OF THE DATA

Automotive Dealers and Service Stations

In choosing to analyze these business classifications first, several factors have been considered. Retailers of gasoline were readily identifiable because they are required to state gallons of gasoline sold (annually) in order to justify a deduction from taxable gross income. Secondly, information about the progress of this segment of the economy will be of immediate interest to those concerned with the economic effects of highways. Thirdly, for this business group, paired data (gross incomes and gallons sold) permitted a more detailed analysis than that possible for the remaining groups. Finally, the conclusions reached about this segment of the study indicated the kinds of information that might be gained from the remainder of the study.

In describing the analysis of service station data, it will be useful to state some definitions. Service stations are described as those retail businesses for which the sale of gasoline is the primary source of income, group number 554 of the "Standard Industrial Classification Manual." This definition, if rigidly applied, would have excluded some de facto service stations if they had gained considerable income from automotive service, repair and other secondary service station activity. In this analysis, the author has judged which retail gasoline outlets to include based on a personal knowledge of the business and from supplementary data such as the detailed field inventory of businesses previously described, telephone directories, and tax records. The term automotive dealer is here used to describe those businesses which, though they sell gasoline at retail, have another business activity as their primary source of income. These businesses include new and used auto dealers, auto repair garages, and retailers of automotive accessories and parts. These groups are defined in greater detail in the "Standard Industrial Classification Manual" as groups numbered 551, 552, 553, 559, and 753.

TABLE 1

TABULATIONS OF GROSS INCOMES OF SERVICE STATIONS (Reported in dollars)

Areas	Before						During Construction						After		
	1952			1953			1954			1955			1956		
	Gross Incomes	No.	I	Gross Incomes	No.	I	Gross Incomes	No.	I	Gross Incomes	No.	I	Gross Incomes	No.	I
Study															
Primary	610,425	9	100	630,898	9	103	628,694	9	103	631,114	9	103	473,458	10	78
Secondary	281,471	9	100	274,835	9	94	324,895	10	115	412,597	10	147	543,888	10	193
Control															
Roadside	492,585	21	100	616,724	20	125	616,561	21	125	656,247	21	133	711,413	20	144
Municipal	386,929	10	100	473,493	11	122	518,062	11	134	521,234	11	135	653,928	12	169
County	1,423,359	62	100	1,666,505	63	117	1,747,193	67	123	1,932,342	68	136	2,201,647	67	155

No. = Number of businesses included in tabulations.

I = Index, a simple relative of gross incomes in a given year compared to gross incomes in a base year (1952). For Area 1 and 2,

$$I_{53} = \frac{\text{gross incomes - 1953}}{\text{gross incomes - 1952}} = 103$$

In this part of the analysis it has been necessary to amend slightly the definitions of study and control areas. This has been done to avoid disclosure of information from which could be deduced the gross income of a business; to eliminate changes in gross incomes of an area due only to change in a single business unit whose gross income dominated a small area; or to establish a control area of meaningful size and composition. In each case, the redefinition has been accomplished by combining areas previously described. For this discussion, the following areas will be used. Areas 1 and 2 have been combined to constitute the principal study area, Area 3 remains as earlier defined—the secondary study area. Areas 4 and 5 have been combined to form a roadside business control area. Area 6 remains as before, the municipal control area. By combining Areas 4, 5, 6 and 7, a comparison of the study areas with the "remainder of the county" is made possible.

Service Stations

As a first step in the analysis of these data, gross incomes and gallons of gasoline sold per year were totalled for each study and control area. The data on service stations are presented in Tables 1 and 2. The years 1952 and 1953 constitute the "before" period, the building of the bypass took place during 1954 and 1955, and the data reported for 1956 represents the first full year of business activity after the bypass was opened to the public. As stated earlier, in each step in the analysis, an attempt has been made to parallel the "before and after" and "control area" methods of comparison used in other studies. For the former comparison, data for 1952 and 1953 in the study areas has been compared with data for the same areas in 1956. For the latter comparison, data for the study areas has been compared with that for the control areas. First the "before and after" picture will be discussed. The index of change of gross incomes is a simple relative of gross incomes in a given year compared to gross incomes in the base year (1952). Figure 2 presents indices for the several areas.

Businesses in the principal study area sold fewer gallons and grossed less income after the bypass was opened than in the "before" period. At the same time, those in the secondary study area enjoyed considerable increases in sales and gross incomes.

TABLE 2

TABULATIONS OF GALLONS OF GASOLINE SOLD BY SERVICE STATIONS

Areas	Before						During Construction						After		
	1952			1953			1954			1955			1956		
	Gallons	No.	I	Gallons	No.	I	Gallons	No.	I	Gallons	No.	I	Gallons	No.	I
Study															
Primary	1,607,946	9	100	1,609,018	9	100	1,540,401	9	96	1,449,698	9	90	1,038,348	10	65
Secondary	722,252	9	100	700,482	9	97	786,798	10	109	1,015,142	10	141	1,288,962	10	178
Control															
Roadside	1,029,111	21	100	1,303,019	20	127	1,311,106	21	127	1,220,977	21	119	1,359,931	20	132
Municipal	800,267	10	100	898,318	11	112	1,045,481	11	131	1,061,656	11	133	1,181,908	12	148
County	2,693,896	62	100	3,091,781	63	115	3,329,970	67	124	3,467,099	68	129	3,851,701	67	143

No. = Number of businesses included in tabulations.

I = Index, a simple relative of gallons sold in a given year compared to gallons sold in a base year (1952). For Area 1 and 2,

$$I_{53} = \frac{\text{gallons sold - 1953}}{\text{gallons sold - 1952}} = 100$$

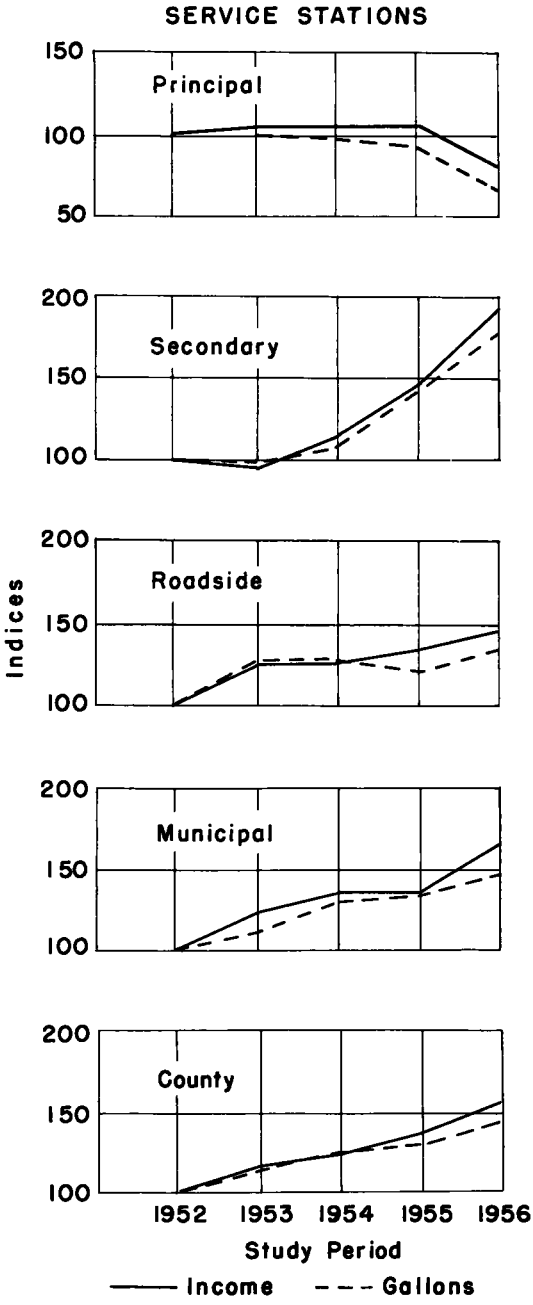

Figure 2. Indices of gross income and gallons by areas.

If no further analysis were made, a considerable loss of business for the bypassed businesses might be claimed. However, further study has indicated the existence of at least two other factors. In seeking to discover reasons for the increases in the fringe area, it has been found that this area contains the principal growth potential of the town. There is practically no land area within the town available and desirable for commercial expansion. Growth of business and residential areas adjacent to the town has been significant and is expected to continue. During the study period, four new businesses were started in the fringe area while only one was started in the primary study area. During the period, two businesses changed location from the principal to the secondary study area. Three businesses ceased operations; of the two that were in the secondary study area one ceased operation at the death of the proprietor and the other for unknown reasons. These changes have contributed to and substantially account for the greater relative increases of sales and gross incomes of service stations in the fringe area. The other factor was found in the trend of decreasing gasoline sales in the principal study area. The data in hand does not indicate the reasons for this trend but does show that it began not later than in the year 1953. It cannot be determined if this trend began earlier because earlier business years are not included in this study. By plotting the index of gallons sold in this area on semi-log graph paper, a slightly increasing rate of decreasing sales was indicated. The total decreases increased in a geometric progression, by extending this progression to the end of the study period, it is estimated that the factors causing the trend account for a decrease in sales of 19 percent while other factors, including the rerouting of traffic, account for the remaining 16 percent of decreased sales. In applying a similar analysis to gross incomes, it was found that the index of gross incomes closely followed that of sales for service stations as was expected, since by definition their primary source of income is the sale of gasoline. At this point, it may be observed that expansion of the service station group in the fringe area was a major factor in the increases of sales of gasoline and of gross incomes. In the primary study area, a trend of undetermined causes was believed to have influenced the sales and gross incomes more than did other factors, including the relocation of the highway. Speculation on the "undetermined causes" of the trend seems to indicate that they are reciprocal to the causes for the increases in the fringe area, namely,

TABLE 3

TABULATIONS OF GROSS INCOMES OF AUTOMOTIVE DEALERS (Reported in dollars)

Areas	Before						During Construction						After		
	1952			1953			1954			1955			1956		
	Gross Incomes	No.	I	Gross Incomes	No.	I	Gross Incomes	No.	I	Gross Incomes	No.	I	Gross Incomes	No.	I
Study															
Primary	1,007,666	7	100	1,234,969	7	123	1,015,339	7	101	1,577,403	7	157	1,453,228	7	144
Secondary	752,996	7	100	808,439	7	107	838,055	8	111	922,102	8	122	861,690	8	114
Control															
Roadside	471,371	11	100	428,355	11	91	477,414	13	101	452,070	13	96	482,086	12	102
Municipal	1,458,877	9	100	1,575,884	8	108	1,716,603	9	118	2,090,883	10	143	1,755,166	9	120
County	3,127,742	56	100	3,244,754	56	104	3,365,568	57	108	3,716,373	55	119	3,371,119	49	108

No. = Number of businesses, I = Index.

growth of businesses in the secondary study area attracting trade from within the town. There seems to be no way to support this assumption from the data, yet it remains a possibility.

For this group of businesses, comparison between study and control areas yields little information not already observed. The control areas showed steady trends of increasing gasoline sales and gross incomes. Though none of the control areas experienced increases as great as were found in the secondary study area, the municipal control area increases were significant. This area, Buena Vista, seems to have shared the expansion of business with the Lexington fringe area. Three new service stations opened during the period while only one went out of business. Evidence of growth potential is found in the numbers of new residences, new and remodeled stores, and the existence of land suitable for commercial use.

Automotive Dealers

This classification contains the remainder of businesses which are identifiable in the tax records as "retailers of gasoline." This analysis will conclude the use of paired data. These businesses differ from service stations in that gasoline sales do not constitute the primary income source. Tables 3 and 4 present tabulations of gross incomes and gasoline sales. Figure 3 pictures the indices by areas.

In both study areas, this business group enjoyed significant increases in gross incomes. In Lexington, because it is a business center in the county, this business group is largely composed of new and used car dealers. As such enterprises do not normally attract the transient motorist, the greater relative increases of gross incomes in the principal study area are considered to reflect the state of the automobile market. On the other hand, this same group in the fringe area is made up of other types of automotive business—generally smaller ones. Though gasoline sales are of minor significance to these businesses, it is interesting to note that the trend of decreasing sales of gasoline in the primary study area has also affected gasoline sales by automotive dealers. This seems to affirm the existence of some "other factors" which have been influencing gasoline sales in Lexington. Because of the peculiarities of the composition of this business group in the several areas, comparisons with the control areas are restricted. The municipal control area—Buena Vista—automotive group is like that in Lexington. This group reported increased incomes during the study period but significantly less than were reported in the primary study area. The secondary and roadside areas con-

TABLE 4

TABULATIONS OF GALLONS OF GASOLINE SOLD BY AUTOMOTIVE DEALERS

Areas	Before						During Construction						After		
	1952			1953			1954			1955			1956		
	Gallons	No.	I	Gallons	No.	I	Gallons	No.	I	Gallons	No.	I	Gallons	No.	I
Study															
Primary	207,863	7	100	211,452	7	102	194,626	7	94	197,615	7	95	179,032	7	86
Secondary	215,751	7	100	216,846	7	101	239,864	8	111	244,483	8	113	210,171	8	97
Control															
Roadside	218,541	11	100	193,991	11	89	217,558	13	100	218,994	13	100	204,319	12	93
Municipal	321,919	9	100	315,531	8	98	327,665	9	102	344,032	10	107	311,975	9	97
County	1,080,742	56	100	1,090,769	56	101	1,132,091	57	105	1,201,870	55	111	1,190,962	49	110

No. = Number of businesses, I = Index

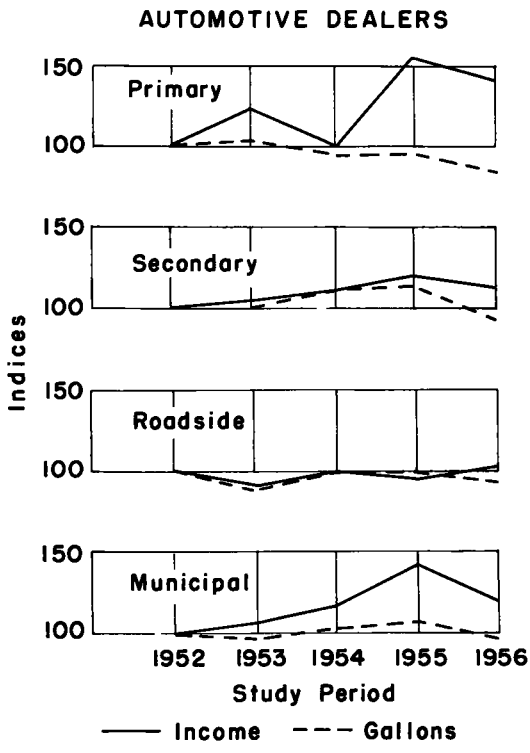

Figure 3. Indices of gross income and gallons by areas.

tain similar business groups and may be compared. The fringe area businesses reported greater than base year incomes in each succeeding year while the roadside businesses reported greater decreases than increases. Comparison with the county area is not considered meaningful because of dissimilar business compositions.

Before closing the discussion of data on "gasoline retailers," a final comparison is made. Table 5 shows indices of total gallons of gasoline sold in Rockbridge County during the study period by all service stations and all other gasoline retailers compared with an index of total sales in the state. It is observed that gasoline sales by service stations in Rockbridge County did parallel sales in the whole state. Further, this confirms the reliability of the total data collected for gasoline retailers.

Notes on Methods

This section presents some details of the analyses which were applied to the preceding data. Because a retailer of gasoline, if he does not wish to claim the deduction, is not required to state gasoline sold when declaring gross income for tax purposes, a few data sheets did not indicate gasoline sales for each year of the study period. When indices of change of gallons sold by areas were computed, the lines presented an inconsistent picture. An accurate means of estimating gallons sold was sought, based on gross incomes as the known values.

A scattergram, plotted from all known pairs of data (X = gross incomes and Y = gallons), showed a strong linear relationship with a ratio of approximately 2 to 1. Another less strong linear pattern appeared with a ratio of less than 1 to 1. Very few pairs of data plotted between these patterns except near the intersection of the coordinates (that is, when the paired values were small numbers of dollars and gallons). Examination of the data sheets revealed that the data plotting in the former scatter pattern represented those businesses which have as a primary source of income the sale of gasoline—service stations. The latter scatter pattern collected together the data of those businesses which derive their primary incomes from sale of new and used autos, accessories, parts, automotive repairs and services but which also sell gasoline.

Based on the strength and separation of these two patterns, an attempt was made to compute values for the linear equation ($y = a + bx$) which would permit estimating gallons of gasoline sold when gross income is known. Values were computed for each area from data sheets, selected by the investigator to represent de facto service stations. Estimates were made for individual businesses and were checked for accuracy with the standard error of the estimate

$$SE = \sqrt{\frac{(Y - Yc)^2}{N}}$$

TABLE 5

GASOLINE SALES COMPARED WITH STATE TOTALS BY INDICES OF GALLONS

Business Group	1952	1953	1954	1955	1956
County Service Stations	100	108	113	118	123
Automotive Dealers	100	101	104	109	105
Total Sales	100	106	111	116	119
State Total Sales	100	105	108	118	125

where N is the number of pairs of known data, Y is the known number of gallons sold and Yc is the computed number of gallons sold. It had been decided that estimates which exceeded one standard error would be rejected. It was found that too many estimates for individual businesses did not fit this criterion. In rechecking computations and the selection of data sheets, a ratio of gallons sold to gross income was computed for each year on every data sheet. These ratios confirmed the apparent selectivity of the scattergram and showed several errors in the investigator's judgment in selecting data sheets purporting to represent service stations. It was decided that the criterion of one standard error was too rigid for estimates of an individual business and it was then realized that estimates by this method may be expected to be accurate only for groups of data. It was then decided to use this method to estimate by areas, and to check these estimates against the sums of gallons actually reported and against separate estimates based on the sums reported when adjusted for the individual business by the mean ratio of gallons to dollars in previous and/or subsequent years. This decision is appropriate since no information may be reported for a single business and all will be reported in terms of totals by areas.

TABLE 6

SLOPE OF THE REGRESSION LINE (b) BY AREAS

Area	Service Stations	Other Gasoline Retailers
1	2.345	0.01186
2	2.262	0.01512
3	1.661	0.01716
4	2 179	0.3247
5	2.520	0.3360
6	1.614	0 01612
7	1.722	0.3718

Two linear equations ($Y = a + bx$) have been solved for each area, one representing service stations and the second representing other businesses selling gasoline at retail. The slope of the line (b), the values of which are shown in Table 6, in each case has confirmed the effectiveness of the ratio between gallons and gross income in identifying service stations within a group of gasoline retailers.

As anticipated from the scattergram, the values for b are greater than one for service stations and less than one for other retailers. With these linear equations, estimates of gallons sold per area per year were computed and compared with totals of gallons reported with and without the individual business ratio adjustment. These estimates were satisfactorily accurate and have been used to confirm the accuracy of the totals presented in Tables 2 and 4 from which the analysis was made.

A second point worth mention is the use of a price index to remove from the reported annual gross incomes of service stations whatever change was due only to a change in the selling price of gasoline. This was accomplished by a commonly used "deflation" technique (2). An index of gasoline prices was required. The optimum index would be that compiled from prices of gasoline sold in Rockbridge County during the study period; such information was not available and would be too costly to compile at this time. As an alternative, an index was computed from retail gasoline prices of 50 cities of the United States (3) to which were added federal and state taxes applicable in Virginia. It is recognized that this index may not be the best measure of changes in gasoline prices that have occurred in the study area; however, it is believed that this evaluation is meaningful. Recognizing the limitations of the index, the "deflation" technique was employed in the belief that the adjustment constituted a step in the right direction and that the constant dollar gross incomes would describe the changes in gross incomes of service stations more accurately than the unadjusted figures. These adjusted gross incomes were used as an aid in evaluating changes indicated, but are not presented in the tables or charts of this paper for several reasons. While the constant dollar gross incomes derived were slightly lower than the reported incomes, as expected, indices of the two sets of gross income figures were still distinctly similar, a result of the narrow range of price changes of the index used. In addition, the objection, that an index of city prices does not represent the study area prices with sufficient accuracy, is avoided. Finally, in presenting the data on graphs, the indices of adjusted incomes were so nearly coincident with indices of gallons sold that they detracted from the simplicity of the graphs. This near coincidence adds nothing to the analysis since service stations are defined as gaining their income primarily from selling gasoline.

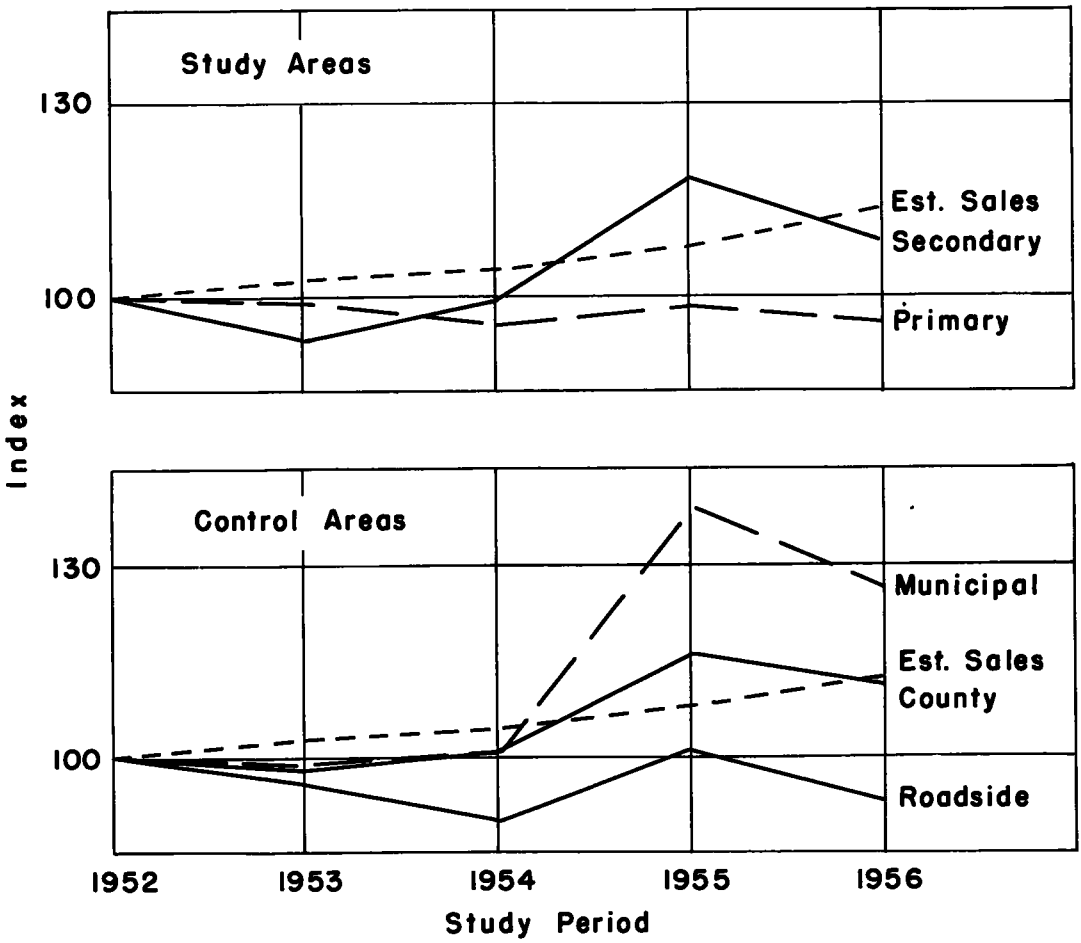

Figure 4. Indices of restaurant gross incomes by areas compared with index of estimated sales of restaurants from "Survey of Current Business."

Restaurants

The choice of restaurants as the next subject of analysis was prompted by essentially the same reasons that dictated the choice of service stations earlier. Though not as readily identifiable as service stations and automotive dealers, this category presented no special problems of identification and was, in fact, more typical of the total data collected than were the two groups of gasoline retailers. Restaurants were chosen as typical of businesses for which the license applications indicate only gross incomes.

TABLE 7

TABULATIONS OF GROSS INCOMES OF RESTAURANTS

	Before						During Construction						After		
	1952			1953			1954			1955			1956		
Areas	Gross Incomes	No.	I	Gross Incomes	No.	I	Gross Incomes	No.	I	Gross Incomes	No.	I	Gross Incomes	No.	I
Study															
Primary	497,398	12	100	494,944	12	100	475,174	12	96	490,305	12	99	477,936	12	96
Secondary	247,174	8	100	228,192	7	92	246,425	9	100	292,360	10	118	268,144	9	109
Control															
Roadside	267,199	11	100	257,136	10	96	238,577	11	89	269,366	13	101	248,399	10	93
Municipal	216,595	8	100	214,178	6	99	218,933	8	101	300,624	10	139	274,184	10	127
County	593,461	27	100	581,723	23	98	598,453	27	101	685,435	30	116	660,095	29	111

No. = Number of businesses, I = Index

For this analysis, businesses in Area 1 will be considered the primary study area. Those in Areas 2 and 3 have been combined to constitute the secondary study area. The roadside, municipal, and county control areas remain as previously described. Table 7 summarizes the data for restaurants and Figure 4 presents an index of gross incomes reported and, for comparison, an index of seasonally adjusted estimated sales of eating and drinking places published by the U. S. Department of Commerce (3). As stated before, this statistic is computed from an estimate on a nationwide scale based on a sampling of the business group. The index is not offered as a measure of what local restaurant sales should or could have been.

At the outset, it was found that the restaurant businesses reported greater proportional changes in gross incomes from year to year than did the two business groups discussed earlier. Also, there were considerably fewer changes in ownership reported. Although restaurants, like service stations, serve the motoring public, it is apparent from the data that they are subject to substantially different economic influences. For this group, the "before and after" comparison yields little meaningful information. It can be seen that the Main Street (Area 1) businesses reported decreased gross incomes after the bypass was opened while those nearby (Areas 2 and 3) reported incomes greater than "before." The gross income picture becomes meaningful when the control areas are studied also. Observe that businesses in all areas reported incomes in 1953 less than in 1952; in 1955 all areas reported increases, and in 1956 all areas again reported incomes less than the previous year. The same pattern of changes in gross incomes was reported by all restaurants in Rockbridge County during the study period. It is concluded that if the bypass had any effect on this business group, it is obscured by the effects of another influence, not identifiable from this data source, which affected the whole county in a like manner.

CONCLUSIONS

Although the purpose of this paper has been to describe methods employed in this study, it has been necessary to make the description in terms of the actual data. There follows a summary of the conclusions of this portion of the study; first concerning the effects of the Lexington Bypass, and second concerning the methods of the study.

It has been observed that the bypassed service stations experienced decreased sales of gasoline and gross incomes. One contributing factor was found in the town's growth beyond the corporate limits, hence away from the bypassed Main Street business area. These growth areas have attracted more new businesses than the downtown area and some businesses moved from downtown to the fringe area. It is apparent that the fringe area has also attracted customers from the downtown area, all of which accounts for some of the decrease in incomes of the bypassed businesses. A portion of the remainder of the decreases is attributed to a trend of undetermined causes which is apparent as early as 1953. There remains a residuum of decreases in "the year after" which is attributed to all other factors, including the relocation of traffic.

No indication has been found that automotive dealers have been influenced by the bypass. This is to be expected since the normal trade of these businesses is carried on with local residents. Few tourists buy a car enroute and they require parts, accessories and repairs relatively infrequently.

Restaurants in the whole county reported the same patterns of increases and decreases of gross incomes. There was no indication in these data that the bypass exerted any separate influence on this business group.

Several conclusions about the methods employed in this study are offered. It has been found that the information gained from the state business license applications has indicated changes which occurred but was not sufficient to identify all of the causes of the changes. The personal knowledge of the investigator and his continuing contact with the study area and people who know it well have been indispensable but not sufficient. A longer study period would be helpful, expecially in the analysis of trends and in view of the use of annual data. Further sources of secondary data are required to permit more complete identification of the causes of changes found.

One of the principal purposes of the study and the aim of this paper has been to test

the congruity of the "before and after" and "study-control area" comparisons. Each of these methods has been well-defined and widely used in the past. Comparison of conclusions reached with these two techniques shows no indication of contradiction but rather shows a complementary relationship. The "before and after" technique is the simpler of the two and requires less data but is limited in its scope. While the "study-control area" approach is a little more complex and requires more data in proportion to the number of control areas employed, it does permit a more complete analysis. This technique, in fact, contains all the data required by the former comparison plus those for the control areas. It is considered that the "study-control area" method of study is preferable because of the more complete analysis possible. In this study, the wider range of comparisons of the "study-control area" technique has revealed more meaningful conclusions than those gained from the "before and after" comparison.

ACKNOWLEDGMENTS

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Grateful acknowledgment is made to W. W. Whitmore, Commissioner of Revenue, Rockbridge County and the members of his office staff for their assistance in securing the data; Professor Marvin Tummins of the School of Commerce of the University of Virginia for help in the statistical procedures; and to Arthur L. Straub, formerly Highway Research Engineer with the Virginia Highway Department, for his counsel in the early stages of the project. C. M. Gallier, H. A. Gallier, W. R. Trenor, and D. L. Marsee, student assistants with the staff of the Research Council, aided in the collection of the data and in the performance of the necessary computations. The project was conducted under the general supervision of T. E. Shelburne, Director of Research. A subcommittee of the Virginia Department of Highways, composed of G. D. Felix, J. P. Mills, Jr., K. M. Wilkinson, and W. F. Smith, exercised over-all guidance for the project.

REFERENCES

1. "Economic Data—Rockbridge County," Division of Planning and Economic Development, Virginia Department of Conservation and Development, Richmond (1956).

2. Neter, John and Wasserman, William, "Fundamental Statistics for Business and Economics," Allyn and Bacon, Inc., New York, 1956, pp. 469-470.

3. "Survey of Current Business," Office of Business Economics, U. S. Department of Commerce, Vol. 23-36, 1952-1956.

Discussion

CLAUDE A. ROTHROCK, Ohio Department of Highways—The stated aim of the paper is to compare and evaluate the methods used, that is, the "Before and After Study" and the "Study and Control Area Study." The results show that the author's conclusion that the comparison of the two techniques show no consequential differences in results, is well established. Either method alone would have led to a similar evaluation of the end results, that the economic consequences of the bypass was a loss of business to certain elements of business (depending upon their proximity to the main highway in the bypassed area), and to other elements there appeared to be no changes attributable to the bypass. The kinds of business studied were limited to those expressly expected to be affected by the facility.

The results of the study indicate the probability that, in areas of similar economic composition, the fears of restaurant owners and most automobile service stations and probably some other businesses, that bypasses cause a loss of sales are not well founded although such a conclusion is not warranted from the results of only one study. Regardless of the results, information such as produced by the present study, and others made for the same purpose, should be useful in hearings on proposed bypasses.

One of the principal virtues of the study is the apparently complete objectiveness of its approach. The impression gained from a great many of such studies, supposedly

made to determine effects of highway changes, is that many have not been quite so impartial in their aim. The present case does show by both, the before and after and control area techniques, that establishments on the bypassed main line whose principal income was from the sale of gasoline suffered an actual loss of business, with a strong inference being that the bypass was responsible. It would be of considerable interest to investigate to what extent the owners of these businesses have re-established themselves in some other zone, and in such a case what was the actual net result in profit or loss by reason of such a change. It would also be of interest to determine to what extent the owners of affected businesses have diversified their lines and the consequences of such diversification. To accomplish this would require an extension of the study in time.

Another correlation that might yield information of value for application and comparison to other cases, is with the traffic volumes before and after. A "before and after" traffic survey might be revealing. Usually it is found that the removal of a certain element of the traffic volumes from a main highway, say that part consisting of through or bypassable traffic, is followed by an intensification of local traffic so that volumes remain at, or rapidly arise up to, the original volumes. In such a case the customer potential for the fronting businesses should remain about as originally, and losses of sales should be chargeable to some other cause.

The investigator has made use of data which had been submitted for other purposes than the study but made available, although with some restrictions, for the study purpose. It may be a source peculiar to Virginia and not similarly available in other states. It is to be hoped that similar studies might be anticipated with planning in advance of the fact, so that the sources of data can be assessed and refined if possible.

All in all the present study is a valuable contribution in the field, and, in combination with other such examinations, should be of considerable general value. To be of specific value in an engineering economic analysis an effort should be made to put an absolute money value on the consequences, rather than an index, so that the total value of the consequences can be sifted through the framework of an engineering economic determination of the justification of the project.

Tenant Relocation for Public Improvement

ROBERT S. CURTISS, Director of Real Estate
The Port of New York Authority

The Port of New York Authority is concerned with the planning and development of terminal and transportation facilities to carry out its responsibility for the improvement and protection of New York-New Jersey Port District commerce.

Various real estate functions must necessarily be basic to all projects and facilities. One of the most significant responsibilities of the Port Authority's Department of Real Estate is its tenant relocation function.

The construction of the second deck to the George Washington Bridge is a $170,000,000 project which includes extensive enlargement of present approaches to the bridge, a $13,000,000 bus passenger facility, and a 12-land depressed highway straight across Manhattan Island.

This paper sets forth the basic planning, controlling policies, and detailed procedures used in relocating 1,835 apartment house tenants, after acquiring 82 buildings in the right-of-way of the new 12-lane highway.

● THE SUBJECT of tenant relocation for public improvements is one that is currently of considerable interest to The Port of New York Authority, for in the continual expansion and improvement of its facilities the Port Authority must concern itself not only with the structures themselves but also with their approaches. In recent years the Authority has constructed a third tube of the Lincoln Tunnel, has purchased land toward improving the handling of vehicular traffic at the New York plaza of the Holland Tunnel, and within the last few months has begun the construction of a second level of the George Washington Bridge.

A few years ago the Port Authority cooperated with an agency of the City of New York, the Triborough Bridge and Tunnel Authority, in a study of arterial facilities. The consultants retained by the two Authorities, after studying the problems involved, recommended the building of two new bridges—the Narrows Bridge and the Throgs Neck Bridge—both to be operated by the Triborough Bridge and Tunnel Authority, and a major expansion of the Port Authority's George Washington Bridge. A series of expressways linking these crossings with existing facilities and roads were also recommended, have been accepted by the two Authorities and have received local, state and federal government approvals.

The Port Authority's primary mission in this plan will be fulfilled in building, at a cost of $182,000,000, the second deck of the George Washington Bridge and approaches to the bridge, both in New Jersey and in New York. On the New York side, the construction of approaches involves building connections to the Henry Hudson Parkway which, as it parallels the Hudson River, passes beneath the bridge, and the construction of an entirely new 12-lane cross-Manhattan depressed expressway above which a $13,000,000 bus passenger facility will be erected. The contemplated improvement is shown in Figure 1.

The Real Estate Department of the Port Authority is responsible for acquiring the property required for these improvements, for obtaining possession of the structures and for relocating residential tenants so that the then vacant buildings may be demolished and so that construction programming may proceed on schedule.

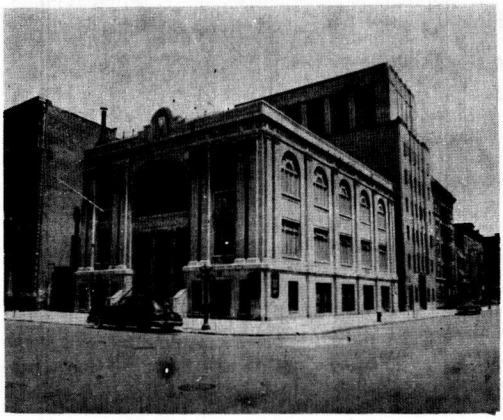
In the acquisition of property the Real Estate Department's activity is not restricted to tunnel and bridge projects but with the Port Authority's other three operating departments—the Marine, Inland Terminals and Aviation Departments—as well. In the past five years property has been acquired for these departments which ranged from a wine bottling building adjacent to the Brooklyn-Port Authority Piers to the successful negotiation for a half dead tree which projected into the aircraft approach lane at La Guardia Airport.

Figure 1. Artist's rendering of The Port of New York Authority's plans for improved Manhattan approaches to the proposed lower level of the George Washington Bridge showing new connections to Henry Hudson Parkway, the new Trans-Manhattan Expressway to connect with Cross-Bronx Expressway, and a suburban bus passenger facility.

When over-all planning has determined the route of approaches to facilities the Real Estate Department's Property Acquisition Division determines the particular parcels of property which will be required. The Board of Commissioners then approves acquiring the property, either by voluntary purchase or through condemnation proceedings. Condemnation sometimes is necessary, as it is in the George Washington Bridge expansion, by very tight construction scheduling. In its acquisitions the services of the Authority's own experienced staff is supplemented by expert real estate appraisers retained on a consulting basis. Estimates of fair market value of the required properties are made and negotiations with the property owners involved are begun.

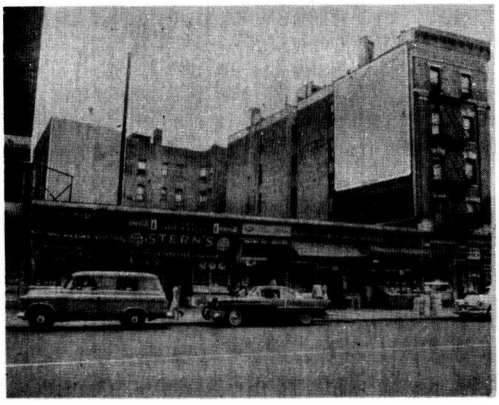
In pursuing negotiations for voluntary settlements, appraisals are used as a basis for offers but only as a basis. This relieves the Authority of being bound by the appraisals or by some percentage formula. Where owners are reasonable or have had appraisals or other real estate advice, the results of negotiated settlements are reasonably close to the Authority's appraisal. In any case settlements are never made at a figure which might be higher than that which would result from litigation. The Authority's history of awards versus appraisals pretty much follows the pattern established during a recent acquisition of land for a centerline approach light system at La Guardia Airport. In that area 50 ownerships were appraised at an approximate value of $1,095,000. Twenty-four ownerships were settled voluntarily prior to condemnation for about 104 percent of appraisals. In the subsequent condemnation and trial of value awards on the remainder totalled 107 percent of appraisals or an over-all average of 105 percent of appraisals. While it appears that the owners who litigated fared better than those who settled voluntarily, it must be remembered that the expenses of litigation were lost to the litigating owners. In addition one must consider the length of time involved for those litigating owners to finally receive their money.

The initial step in the acquisition of the required property in the Washington Heights area of Manhattan occurred in October of last year when the Port Authority by condemnation gained title to 76 parcels of property. This blanket condemnation included 62 apartment buildings, 3 private residences, 3 boarding houses, 7 commercial structures and a synagogue. Through negotiation with the federal government, a site on which there is a Post Office Station will be acquired. Voluntary agreements have been



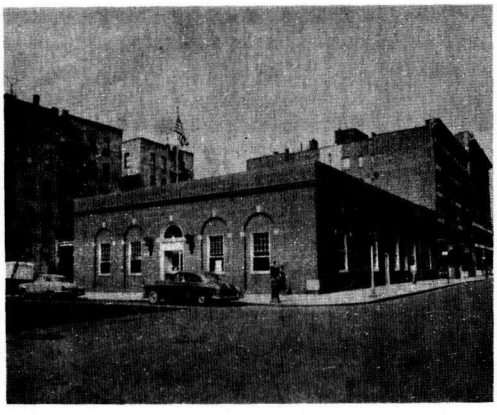
SYNAGOGUE

WALK-UPS AND STORES



COMMERCIAL BUILDING

ELEVATOR APARTMENTS



U.S. POST OFFICE

ELEVATOR APARTMENTS

Figure 2.

reached on four of these parcels comprising a total value of $582,000 or roughly 1/10th of the entire Manhattan taking. At least ten others are close to agreement. This improved real estate, together with five large apartment houses previously owned by the Authority, extends from the Hudson River on the west to the Harlem River on the east. The buildings pictures in Figure 2 illustrate the kinds of structures acquired for this development.

The Port Authority in gaining title to the properties became landlord to 1,824 families-in-residence and considers itself to be responsbile for their relocation. This is a voluntary and not a prescribed action. To plunge into a program of this scope unmindful of the problems to be faced would be imprudent. The Port Authority has been prepared for it by virtue of its successful relocations spanning the past decade. In 1948 and 1949, 599 families were relocated from an area in mid-Manhattan in order that the 200 ft by 800 ft four-story Port Authority Bus Terminal might be constructed. Then in the two-year period from November 1952 to November 1954, 817 families were relocated from a Manhattan area sometimes called the "Tenderloin District" but more popularly known as "Hell's Kitchen" in order that new approaches to, and exists from, the three tube Lincoln Tunnel could be built. That this larger relocation effort was accomplished without a single eviction and without delay to either the demolition or construction contractors is a matter in which quite some pride is taken particularly when viewed against the average relocation cost of $311.00 per family.

A budget of $400,000 set up to cover the cost of the third tube relocation program was more than sufficient. Of this amount $253,989 was actually spent in making payments amounting to $49,900 to those who voluntarily relocated, to brokers and owners in the amount of $72,900 for successfully offering apartments, to tenants in the amount of $48,600 for moving expenses and more than that much for decorating new apartments. In excess of $30,000 was spent in maintaining and operating the properties during the period of relocation. Some of the pertinent statistics on that relocation follow:

RESIDENTIAL TENANTS AFFECTED BY ACQUISITION FOR LINCOLN TUNNEL THIRD TUBE

Tenants who vacated voluntarily:	
(a) Tenants receiving $200 relocation bonus	140
(b) Tenants receiving $175 relocation bonus	42
(c) Tenants receiving $150 relocation bonus	97
(d) Tenants relocated to Port Authority owned properties (no bonus paid)	6
(e) Tenants receiving no bonus (mostly janitors)	33
Total tenants relocated voluntarily	318
Tenants relocated into apartments submitted by real estate brokers:	
(a) Relocated to Manhattan apartments	394
(b) Relocated to Bronx apartments	32
(c) Relocated to Queens apartments	12
(d) Relocated to Brooklyn apartments	16
(e) Relocated to New Jersey apartments	32
Total relocated to apartments received from brokers	486
Tenants abandoning apartments	11
Tenants deceased during relocation program	2
Total tenants relocated	817

CHRONOLOGICAL RECORD OF RESIDENTIAL TENANT RELOCATION

		%			%
1952 - December	23	2.82	1953 - April	98	12.00
1953 - January	66	8.08	May	95	11.63
February	158	19.34	June	79	9.67
March	107	13.10	July	65	7.96

1953 - August	36	4.41	1954 - March	4	x
September	11	1.35	April	2	x
October	22	2.69	May	5	x
November	14	1.71	June	1	x
December	16	1.96	September	1	x
1954 - January	9	1.10	November	2	x
February	3	x	Total	817	100.00

x = less than 1 percent

Tenants who through their own initiative located new apartments for themselves were paid relocation allowances. If they moved during the first 60 days after being given notice to vacate, the allowance was $200. If the move occurred during the next 30 days the payment was $175 and if it occurred during the next 30 days they were given $150. In all 279 families or 34 percent of the total relocated availed themselves of this benefit.

Agreements were made with 843 licensed real estate brokers and apartment house owners under the terms of which $150 was paid for every relocation effected to an apartment offered by the broker or owner. It is estimated that a total of 3,000 apartments were offered to the 817 residential tenants during the two year period and that 486 were accepted. Thus 59 percent of the total relocations were effected to apartments offered through the Tenant Relocation office. The program could not have been the success it was nor could it have been completed in so short a time without the continuing cooperation of the brokers and owners.

Each tenant family relocated to an apartment offered by a broker or owner was given $100 toward meeting its moving expenses and the accepted apartment was decorated by a Port Authority contractor or by the broker or owner who received $100 for doing the job.

These methods for effecting relocation have proven to be both logical and effective. With some changes they are being utilized today in the Washington Heights relocation. One instance of change covers the payments for voluntary vacatings. In the present program $200 is paid to each tenant who through his own efforts finds an apartment and moves to it during the four months following receipt of notice to move. Tenants in the newly acquired properties received this notice on October 14, 1957, the day that the Port Authority's ownership began while those who were occupants of buildings previously owned by the Port Authority received a similar notice on August 1, 1957. Should a tenant locate an apartment and move to it during the ensuing eight months a relocation allowance of $150 is paid. Those who move after a year has passed are given $100.

Another instance of change is found in the moving and decorating allowances which now are paid to all tenants including those who voluntarily vacate. In the current program every tenant receives a moving allowance of $25 for each full room in the apartment he vacates and a decorating allowance of $30 for each full room and $15 for each smaller room such as a bathroom, kitchenette or foyer in his newly found apartment. These payments which are made as soon as the move occurs have been instrumental in encouraging tenant moves.

The raising of payments is the result of the economic situation prevailing both nationally and locally. Average rentals throughout New York City have increased substantially in the five years since the Lincoln Tunnel third tube relocation program commenced. In addition, apartments located in the western half of the Washington Heights area which overlook the Hudson River command rentals in excess of $20 a room. Greater incentives are needed to cause tenants of this economic level to want to move.

That these more generous offers have been effective is demonstrated by the 223 tenants (12 percent of those residing in the zone) who have been paid the full $200 amount.

At the close of December 1957 when the Washington Heights tenant relocation program had been underway in 10 percent of the area for five months and in 90 percent of the area for 2½ months a vacancy factor of almost 28 percent had been attained. In

every program voluntary relocations take place in greatest numbers during the early months, while involuntary moves gain momentum thereafter. The rate at which vacancies occur is usually influenced by several factors. The Christmas and New Year holidays have a dampening effect on the desire to move. Families with school age children tend to plan their moves in conjunction with the ending of semesters in January and June.

The progress made in the current relocation program is reflected in the following summary.

RESIDENTIAL TENANTS AFFECTED BY ACQUISITION FOR GEORGE WASHINGTON BRIDGE SECOND LEVEL AND APPROACHES

Tenants who vacated voluntarily:	
(a) Tenants receiving $200 relocation bonus	223
(b) Tenants receiving $150 relocation bonus	
(c) Tenants receiving $100 relocation bonus	
(d) Tenants receiving no bonus (vacated apartments before program began)	32
Total tenants relocated voluntarily	255
Tenants relocated into apartments submitted by real estate brokers:	
(a) Relocated to Manhattan apartments	226
(b) Relocated to Bronx apartments	22
(c) Relocated to Queens apartments	2
(d) Relocated to Brooklyn apartments	1
(e) Relocated to New Jersey apartments	1
Total relocated to apartments received from brokers	252
Tenants abandoning apartments	
Tenants deceased during relocation program	
Total tenants to be relocated	1,317
Total	1,824

CHRONOLOGICAL RECORD OF RESIDENTIAL TENANT RELOCATION

		%
1957 - October (and prior)	211	11.65
November	167	9.15
December	129	7.07

As soon as the proposed additions and improvements to the George Washington Bridge and approaches received formal official approval the staff publicized the need for the improved transportation facility and the scope of assistance to be given to tenants. The cooperation of public and private agencies such as the Public Housing Bureau, local churches, synagogues, civic associations, the neighborhood chamber of commerce and of community leaders was solicited. Tenants were given written notice of the change of ownership, a detailed statement of the relocation program and, most of all, a thorough personal explanation of how the relocation program would proceed. This thorough personal explanation of the relocation program is basic for any such program must be a humane one. Constant recognition of the fact that one deals with the human element throughout a period of relocation prevents its becoming a dislocation plan.

Those who undertake a tenant relocation program must do so with a realization that they are dealing in quite basic emotions and with people who may not normally be entirely conversant with the facts of public improvements. The Port Authority in approaching tenant relocation projects does so in a considerate, fair and humane manner recognizing that human beings are being asked to give up the sanctity of their homes, in some cases it may be the only home in which they have ever lived, for a public need. To be forced to move from one's home can be thoroughly upsetting. Therefore, the

policy has been established that tenants should be fairly compensated and treated with much consideration. Since relocations may severely alter the lives of many people, each special problem must be treated as if it were the only one to be handled. It is believed that these objectives can only be pursued through a staff of highly trained, understanding and competent employees, supported by a creative program which must be a working combination of extensive real estate experience and knowledgeable good public relations.

An article (see Fig.3) published in the "Christian Science Monitor" points up the public's acceptance of these policies.

However it is absolutely essential in any tenant relocation program that announced policies be unwaveringly adhered to. To vary to any degree is to invite uncontrolled difficulty. One technique occasionally practiced by others involved in tenant relocation programs has been the offer to double allowances in order to urge diehard holdout cases to vacate. To follow such an expedient invites disaster because the same tenants to whom these offers are made have a right to believe that further holding out will cause the ante to be increased. Since speed always seems to be of the essence no program director can brook any such delay and must make it crystal clear from the beginning that no tenant will be treated preferentially over another.

The success of a tenant relocation program is dependent in large measure on the degree of pre-planning given to it and upon the efforts of skilled, dedicated people in carrying out that planning. The Port Authority, through experience, gained in its earlier relocation efforts, has formalized a series of instructions to its field staff in a tenant relocation instruction manual. The manual formalizes the experience gained by property managers and supervisors, real estate representatives, accountants, maintenance foreman and other clerical and maintenance personnel. Their experiences and established working methods brought together in the relocation manual serve as a reference source for those with prior experience in this field and as a means of training personnel newly assigned to the program.

In the manual are to be found instructions covering every situation which may be anticipated in a relocation. The scope of the manual may be seen in its table of contents which is shown on page 124.

But every problem that will be met by people working in the field cannot have been foreseen. It is in these situations that the staff members of a tenant relocation office must demonstrate ingenuity and initiative. A real estate representative or his supervisor may be faced with the seemingly impossible task of relocating a family of 12 which had been occupying a 5-room apartment and resolve the problem through encouraging the family's ultimate purchase of an up-state farm. Having scored that success the team may next be assigned to aid another family of almost similar size and do so by securing an apartment of 7 rooms including—wonder of wonders—two bathrooms.

Through conducting a door-to-door sociological survey of the entire area required for the cross-Manhattan expressway and bridge approaches, the field staff became familiar with the situations which would be hardest to resolve. This survey was initiated in the properties previously owned by the Port Authority and in others where permission had been granted before title passed to the Port Authority and completed for all tenants shortly afterward.

The kinds of information that may be obtained through a sociological survey are demonstrated in the sample copy of a Tenant Relocation Data Sheet which is included in this paper.

When the sociological survey was completed and each tenant's desires were known, card files were established categorizing the tenants space needs by number of rooms and by rent levels. When a real estate broker or owner offers an apartment through the Tenant Relocation Office a member of the staff chooses from the list of tenants those whose needs would be most nearly satisfied by the offered apartment. A real estate representative then contacts the tenant, informs him of the listing and makes an appointment to inspect the offered apartment with the tenant. It has been found that a tenant more readily accepts an offered apartment when he has viewed it with a member of the Tenant Relocation Office staff than when the inspection is made only by the tenant.

The Port Authority's Engineering and Tunnels and Bridges Departments have devel-

THE CHRISTIAN SCIENCE MONITOR
BOSTON, FRIDAY, SEPTEMBER 27, 1957

Bridge Softly Budges Tenants

By Harry C. Kenney
Staff Correspondent of The Christian Science Monitor
New York

Hidden within the framework of the huge second-deck construction project of the George Washington Bridge is a very human and warm story.

It is a story of people caught up in the whirlwind demands of ever-increasing traffic and the need for getting more millions of automobiles across the Hudson more quickly.

It is the story of hundreds of families affected by the elimination of blocks of apartment houses so that approaches to the bridge will be adequate.

It will be necessary, for instance, for 1,833 families now living in the Manhattan approach area alone to be relocated. This uprooting of thousands of individuals, men, women, and children of all tongues, color, and creed, is indeed a dramatic and emotional experience for them.

Thousands to Move

The Port Authority of New York is not only doing the bridge and approach job but has taken upon itself the work of helping the tenants to relocate. Some 82 properties in an irregular eight-block area extending from Broadway to Amsterdam Avenue between West 178th and 179th Streets are involved. Also, there are certain properties between Cabrini Boulevard and Haven Avenue between West 177th and 180th Streets which are a part of the approach area.

The over-all project, which includes the six-lane lower deck of the bridge and the approaches, will cost an estimated $167,000,000. The second deck will increase capacity by 75 per cent, and with this expansion the bridge will accommodate more than 60,000,000 vehicles annually.

The relocation of families is proceeding under a program so humane and so compassionate that the authority is being lauded not only by New York and New Jersey but is expected to be a pattern for other major cities.

Efficient Staff

The authority is not required by law to relocate families. But it has within the area a very efficient staff organized to give each family and each individual personal attention.

In certain instances, tenants who vacate their apartments immediately and from their own choice move from the area under their own steam may receive allowances totaling as much as $600. For instance, one family accepted this and used the money for a down payment on a house in New Jersey. Another individual always wanted to live in Florida. He got there on his bonus.

Some tenants receive up to $200 as a basic payment for

No Evictions

voluntary relocation. In addition, they will receive redecorating expenses up to $210 and moving expenses up to $25 a room.

Tenants aided by the Port Authority staff or by real estate brokers working through the authority are paid $100 just for incidental expenses.

The authority pays brokers $150 for each apartment a tenant accepts. If tenants find their own apartment, they are given a cash bonus of $100 plus moving expenses, redecorating, and proper stoves and refrigeration.

Long-Time Residents

The Port Authority staff is in constant personal contact with the melting pot of America — Jews, Irish, Greeks, Poles, and Negroes. Many of these people have lived in the neighborhood for half a century. Many have lived in the same building and often in the same apartment since the buildings were constructed in 1914. Hundreds have been in the same apartment for 23 to 35 years.

More than 75 per cent of the tenants want to be relocated within an area of 15 blocks. It is their home and all their friends are there. And the authority staff is able to do this.

The problem becomes more evident when it is realized that apartments of three to seven rooms must be found at a rental of $35 to $90 a month. There is an exception here and there, such as the family with 11 children which has to pay $100 for seven rooms. Incidentally, the family was mighty happy to get it, too.

36 Offers—So Far

The authority's staff member always talk over the needs of the moving tenant. They show apartments, discuss individual church, social, and school needs. Some tenants want a walk-up, others must have an elevator building. Some won't go above the first floor, others won't live below the fifth floor.

One family wrote that it now has the cheeriest and cleanest apartment ever. Another said that the change has done the whole family good—new friends, new stores, better building, and brighter outlook. What most of the letters indicated is that the authority has found a compassionate way of doing a very tough job in a good American way.

When the increased thousands of cars begin streaming over two decks of the George Washington Bridge in 1962, many kinds of individuals will have contributed in their way to its accomplishment. But beyond this, the port authority will certainly be credited with combining concrete, steel, and traffic with a superb humane job with people

Figure 3.

oped a series of target dates on which various properties will be required for construction of the bridge approaches. The Real Estate Department's Properties Division has used that timetable to set deadlines upon which properties must be vacated. Adherence to that schedule is the objective of every member of the relocation staff and intensive effort is given to relocating tenants from those buildings highest on the priority list. Among the first buildings required are the five previously owned by the Port Authority. The next section required is near the Hudson River and Henry Hudson Parkway—the area populated by those of our highest economic level. The greatest attention is given to these properties but not to the exclusion of others.

Perhaps an entirely new approach from the aspect of developing good community relations is the recently initiated plan for protecting buildings during demolition. Three buildings have already been demolished. As soon as a building's last residential tenant has been removed, entrances are boarded over, utilities are cut off and a sidewalk bridge is erected in front of the structure. It would appear that the more that is done toward discouraging entry into a vacant building the more vandals and mischievous youths are attracted to it. To combat the problem created by the great attraction these empty buildings have for venturesome youths, a constructive and probably unique alter-

native has been developed and adopted. In order to further the established boys work program conducted in the Washington Heights area by the Y. M. C. A. of Greater New York, $30,000 has been appropriated by the Port Authority to help the association meet expenses for the next two years for retaining trained personnel and organizing programs which boys work directors and part time college student assistants will conduct in a vacant store in the project area. Ping pong tables, games, craft work, supervised clubs and athletic teams will help to keep the boys out of trouble. Bus trips to airports, museums and other interesting attractions in the city will consume after-school, early evening and Saturday leisure hours. The Y. M. C. A. and the Port Authority believe that through providing activities to absorb the energies of youths of every race, color and creed during these leisure hours, that the boys will be led toward useful pursuits and diverted from those which can cause harm. This precedent-setting program is expected to be of assistance in other tenant relocation projects.

THE PORT OF NEW YORK AUTHORITY
111 Eighth Avenue at 15th Street New York 11 NY

DEPARTMENT OF REAL ESTATE

Robert S. Curtiss
DIRECTOR

Gentlemen:

The Port of New York Authority soon will begin to acquire property which will be needed for approaches to the new lower level of the George Washington Bridge. This Washington Heights area, generally speaking is bounded by 178th and 179th Sts. extending from the Hudson River east to the Harlem River.

Our preliminary survey indicates that approximately 1,800 families reside within the area. As a matter of policy, the Port Authority will assist these families in relocating to other residential quarters.

In order that we may meet our building demolition schedule, we are approaching licensed real estate brokers to ask their cooperation and have established a fee and schedule of payments in connection with services rendered.

For each apartment located by a broker, outside of our properties, and accepted by a tenant designated by the Port Authority, a fee of $150 will be paid the broker when the tenant takes occupancy. In addition a broker will have the option either of decorating the apartment for the tenant and receiving from the Port Authority $30 a room, up to $210 for doing the job, depending on the size and number of rooms, or if he prefers not to undertake the decorating, the Port Authority will directly perform the work at its own expenses.

For your convenience, we are enclosing a return postal card on which you may indicate whether or not you are interested in participating in our program. Should your answer be in the affirmative, the Port Authority will send you a letter Agreement for your acceptance and signature. The Agreement will be identical to that executed by many brokers who were most cooperative in assisting us in the relocating of some 600 families from the Port Authority Bus Terminal site at 41st St. and about 800 families from the approaches to the new Lincoln Tunnel Third Tube.

Would you kindly return the card at your earliest convenience.

Very truly yours,

Robert S. Curtiss

Robert S. Curtiss
Director of Real Estate

THE PORT OF NEW YORK AUTHORITY
DEPARTMENT OF REAL ESTATE
GEORGE WASHINGTON BRIDGE SECOND LEVEL
TENANT RELOCATION PROGRAM

( ) I am interested in assisting your tenant relocation program. Please send me form of Agreement for my signature.

( ) I am not interested in your tenant relocation program.

Brokerage Firm Name _____

Address _____

Tel. No. _____

Representative _____

AGREEMENT made this day of 195 , by and between whose principal place of business is , hereinafter referred to as the "Broker" and THE PORT OF NEW YORK AUTHORITY, a body corporate and politic created by Compact between the States of New York and New Jersey with the consent of the Congress of the United States, having its principal office at 111 Eighth Avenue in the Borough of Manhattan, City, County and State of New York, hereinafter referred to as the "Port Authority."

1. In connection with the relocation of present residential occupants of property required for the public use by the Port Authority, Broker hereby offers to obtain and arrange lettings of apartments of a type which will be satisfactory to the individual tenants designated by the Port Authority for such relocation and to the Director, Department of Real Estate of the Port Authority.

2. It is understood that Broker will receive, as compensation for his independent brokerage services, the sum of One Hundred Fifty ($150.00) Dollars for each apartment let to a tenant designated by the Port Authority. Such compensation is to be payable only in the event and on condition that the tenant designated by the Port Authority actually occupies the selected apartment unit and pays rent for one full month in advance to the landlord thereof. Unless such event occurs and such condition is fulfilled, no matter what the cause for their non-occurrence, no compensation will be paid hereunder, whether the failure be a fault on the part of the tenant, the Port Authority or any of its agents, or for any cause or reason whatsoever.

3. In cases in which there is both no obligation on the landlord, imposed by existing rent laws or otherwise, and in which it is necessary that the apartment furnished by the broker be redecorated, the Port Authority, at its own option, may either redecorate or pay to the broker up to Two Hundred Ten ($210.00) Dollars, towards the cost of redecoration.

4. Broker represents that he is a licensed real estate broker.

THE PORT OF NEW YORK AUTHORITY

By_____

Title_____

WITNESS:

_____ _____

BROKER

AGREEMENT made this day of ,195 , by and between

(whose principal office is) (who reside (s) at
hereinafter referred to as the "Owner", and THE PORT OF NEW YORK AUTHORITY, a body corporate and politic created by Compact between the States of New York and New Jersey with the consent of the Congress of the United States, having its principal office at 111 Eighth Avenue in the Borough of Manhattan, City, County and State of New York, hereinafter referred to as the "Port Authority".

1. Owner covenants, warrants and represents that Owner holds title in fee simple to premises known as and by the street address
in the Borough of , City and State of New York, hereinafter referred to as the "premises".

2. In connection with the relocation of present residential occupants of property acquired for the public use by the Port Authority, Owner hereby undertakes to make available apartments in the premises of a type which will be satisfactory to the individual tenants designated by the Port Authority for such relocation, and to the Director, Department of Real Estate of the Port Authority. Nothing herein contained shall, however, be deemed to grant an option to the Port Authority or to any prospective tenant to lease any available apartment on terms or conditions which the Owner could legally refuse to accept nor shall this agreement constitute a commitment by Owner not to lease any such apartment to other prospective tenants.

3. The Port Authority will pay to the Owner the sum of $150.00 for each apartment let to a tenant designated by the Port Authority. Such compensation is to be payable only in the event and on condition that the tenant designated by the Port Authority actually occupies the selected apartment unit and pays rent for one full month in advance to the Owner. Payment is to be made within thirty days after the occurrence of such event and fulfillment of such condition. Unless such event occurs and such condition is fulfilled, no matter what the cause for their non-occurrence, no compensation will be paid hereunder, whether the failure be a fault on the part of the tenant, the Port Authority or any of its agents, or for any cause or reason whatsoever.

4. If, in the opinion of the Port Authority, it is necessary that the apartment furnished by the Owner be redecorated, the Port Authority, at its option, may either redecorate or pay to the Owner a sum, under no circumstances exceeding $210.00, computed on the basis of $30.00 per room up to a maximum of 5 rooms, $30.00 for a kitchen or $15.00 for one kitchenette, $15.00 for one bathroom and $15.00 for one hall or foyer (but not both hallway and foyer) respectively, payable after redecoration by Owner and inspection and approval thereof by the Port Authority.

5. In the event the Owner transfers title to the premises, this agreement shall terminate as of the date of such transfer. It is understood and agreed that this agreement is personal to the Owner and may be neither assigned, sold, conveyed, transferred, mortgaged nor pledged.

THE PORT OF NEW YORK AUTHORITY

By_____

Title_____

_____
(Corporate Owner)

By_____

Title_____

_____
(Individual Owner)

_____
(Individual Owner)

As you know, to permit construction of improvements to the George Washington Bridge the apartment house in which you live must be acquired and vacated. The Port Authority is prepared to help you relocate under the following plan:

IF YOU FIND AND MOVE INTO A NEW APARTMENT YOURSELF, the Port Authority will make a CASH PAYMENT of;

$200 if you move within four months of the date when the Port Authority takes title to the property.

$150 if you move after four months but not later than twelve months, from the date the Port Authority takes title to the property.

$100 if you move after twelve months from the date the Port Authority takes title to the property.

IN ADDITION, THE PORT AUTHORITY WILL PAY REDECORATING EXPENSE up to a total of not more than $210 at the rate of:

$30 for each room in the new apartment, up to a maximum of five rooms, plus

$15 for one bath,

$15 for one foyer, and

$30 for a kitchen, or

$15 for a kitchenette.

THE PORT AUTHORITY WILL ALSO PAY MOVING EXPENSES at the rate of:

$25 for each room in the apartment from which you are moving. Only a living room, dining room, kitchen and bedroom will be counted as a room for this purpose. No moving allowance will be made for a bathroom, kitchenette, hall, foyer or alcove.

IF YOU CANNOT FIND A NEW APARTMENT YOURSELF, THE PORT AUTHORITY WILL HELP YOU TO FIND ONE.

If you move into a new apartment found for you by the Port Authority or a real estate broker working for the Port Authority, then you will be given a cash payment of $100. You will also receive moving expenses as set forth above.

If the broker arranges to redecorate the new apartment, the allowance towards redecorating will be made to him. Otherwise, the allowance for redecorating expense will be paid to you or, if you prefer, the Port Authority will arrange to have the new apartment redecorated.

This schedule of payments has been established by the Board of Commissioners of the Port Authority as part of a voluntary program to help you relocate. There will be no changes in this schedule at any time during the entire residential tenant relocation program. Payments under this schedule cannot be made until title to the property passes to the Port Authority.

A RELOCATION OFFICE HAS BEEN OPENED AT 700 WEST 179TH STREET; TELEPHONE: SWINBURNE 5-4700. IF YOU HAVE ANY QUESTIONS REGARDING YOUR RELOCATION, PLEASE CALL MR. T. DOUGLAS TUOMEY, JR., MANAGER PROPERTIES DIVISION, OR MR. BERNARD J. SLOAN, PROPERTIES SUPERVISOR, WHO ARE THERE TO HELP YOU.

TENANT RELOCATION INSTRUCTIONS MANUAL

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PA 1588
7-57

TENANT RELOCATION DATA

TENANT'S NAME (LAST, FIRST, M.I.)			TENANT'S ADDRESS.				TEL. NO.
APT. NO.	NO. OF ROOMS	MO. RENTAL	RENTAL PERIOD FROM	RENTAL PERIOD TO	PERIOD FOR WHICH RENT LAST PAID FROM	PERIOD FOR WHICH RENT LAST PAID TO	NO. OF PERSONS LIVING IN APT.

PERSON INTERVIEWED	RELATION TO TENANT	CITIZENSHIP STATUS. INDICATE WHETHER U.S. CITIZEN	
		A. TENANT ( )YES ( )NO	B. SPOUSE ( )YES ( )NO

NATURE OF TENANCY — EXPIRATION DATE

RESIDENTS OF APARTMENT

(A) NAMES OF TENANT'S FAMILY (Last, First, M.I.)	(B) Ages of Children	(C) Sex M or F	(A) NAMES OF TENANT'S FAMILY, Continued	(B) Ages of Children	(C) Sex M or F
			ROOMER'S NAMES		
			TOTAL NUMBER OF CHILDREN		

SCHOOLS PRESENTLY ATTENDED

PREFERENCE IN NEW SCHOOL LOCATION — ARE YOU INTERESTED IN RELOCATING TO PUBLIC HOUSING? YES ( ) NO ( )

MILITARY STATUS ARE YOU OR ANY MEMBER OF YOUR FAMILY WHO LIVES WITH YOU

( ) NOW IN SERVICE

( ) NO SERVICE IN ARMED FORCES

	Korea	W.II	W.I
DISABLED VETERAN OR SERVICE MAN	( )	( )	( )
WIDOW OR DIVORCED WIFE OF DISABLED VET OR SERVICE MAN	( )	( )	( )
PARENTS OF A DECEASED, DISABLED VET OR SERVICEMAN	( )	( )	( )
NON-DISABLED VETERAN	( )	( )	( )

HOW MANY ROOMS DO YOU REQUIRE?	HOW MUCH RENT WILL YOU PAY?	WHICH BOROS OR AREAS WOULD YOU MOVE TO?

DO YOU OR ANY RESIDENTS OF YOUR APT. RECEIVE AID FROM (1) WELFARE DEP'T., (2) MILITARY ALLOTMENT, (3) SOCIAL SECURITY, (4) OTHER? ( )YES ( )NO

IF YES, PUT SOURCE

DO YOU OWN A REFRIGERATOR OR GAS RANGE?		A. REFRIGERATOR ( )YES ( )NO	CONDITION: ( )GOOD ( )POOR
NAME & CAPACITY OF REFRIGERATOR	NAME OF GAS RANGE	B. GAS RANGE ( )YES ( )NO	CONDITION ( )GOOD ( )POOR

REMARKS (ANY ADDITIONAL INFORMATION HELPFUL IN RELOCATING THIS TENANT)

DATE SIGNED	SIGNATURE OF INTERVIEWER

THE NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL is a private, nonprofit organization of scientists, dedicated to the furtherance of science and to its use for the general welfare. The ACADEMY itself was established in 1863 under a congressional charter signed by President Lincoln. Empowered to provide for all activities appropriate to academies of science, it was also required by its charter to act as an adviser to the federal government in scientific matters. This provision accounts for the close ties that have always existed between the ACADEMY and the government, although the ACADEMY is not a governmental agency.

The NATIONAL RESEARCH COUNCIL was established by the ACADEMY in 1916, at the request of President Wilson, to enable scientists generally to associate their efforts with those of the limited membership of the ACADEMY in service to the nation, to society, and to science at home and abroad. Members of the NATIONAL RESEARCH COUNCIL receive their appointments from the president of the ACADEMY. They include representatives nominated by the major scientific and technical societies, representatives of the federal government, and a number of members at large. In addition, several thousand scientists and engineers take part in the activities of the research council through membership on its various boards and committees.

Receiving funds from both public and private sources, by contribution, grant, or contract, the ACADEMY and its RESEARCH COUNCIL thus work to stimulate research and its applications, to survey the broad possibilities of science, to promote effective utilization of the scientific and technical resources of the country, to serve the government, and to further the general interests of science.

The HIGHWAY RESEARCH BOARD was organized November 11, 1920, as an agency of the Division of Engineering and Industrial Research, one of the eight functional divisions of the NATIONAL RESEARCH COUNCIL. The BOARD is a cooperative organization of the highway technologists of America operating under the auspices of the ACADEMY–COUNCIL and with the support of the several highway departments, the Bureau of Public Roads, and many other organizations interested in the development of highway transportation. The purposes of the BOARD are to encourage research and to provide a national clearinghouse and correlation service for research activities and information on highway administration and technology.