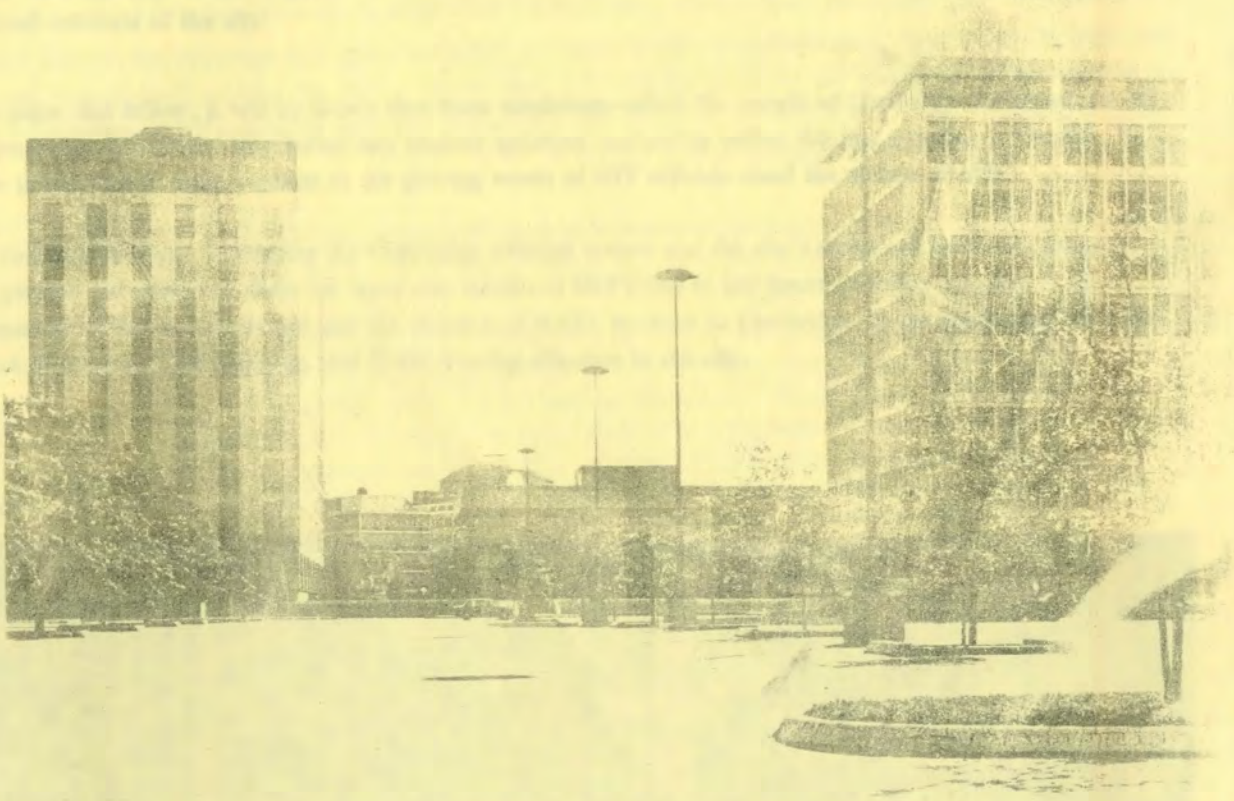
TWO, THREE, MANY TECH SQUARES:



MIT'S ROLE IN THE TRANSFORMATION OF CAMBRIDGE

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Preface

In 1966, MIT President Howard W. Johnson told an annual meeting of the Cambridge Chamber of Commerce:

> **...the pace of change in Cambridge in the coming years is going to be swift. The primary challenge..will be to maximize the benefits it can bring to the whole of our city. The opportunities are immense if we will reach out to seize them and find the means to exploit them for the common good.**

Johnson painted a glowing picture: MIT and Cambridge businessmen going forward together, "exploiting" opportunities for the common good. But many people in Cambridge feel that opportunities are not all that are being "exploited," and that the "common good" of MIT and Cambridge business interests is not the common good of the traditional residents of the city.

In the pages that follow, it will be shown that these suspicions—which the people of Cambridge developed out of their every-day experiences long before any student agitation—accurately reflect the real situation in the city. It will be shown that in sharp contrast to the glowing words of MIT officials stand the actions of MIT.

After two brief sections introducing the Cambridge political system and the city's social and economic characteristics, present and projected, there are three case studies of MIT's role in key issues affecting the city: 1) the development of Technology Square and the decision of NASA to come to Cambridge, 2) the controversy over the location of the Inner Belt highway, and 3) the housing situation in the city.

Photo by Mike Evans

INTRODUCTION 1:

THE CAMBRIDGE POLITICAL SYSTEM

Formally, Cambridge is governed by a collaboration of an elected Council and a professional City Manager. Under this system, called in Massachusetts the Plan E Charter, a council of nine is elected at large every two years on a non-partisan ballot. It in turn elects a Mayor from among its members and hires a Manager who is responsible for administering the city. The effect of the city manager system is that city finances are handled conservatively. (39, pp. 33-37)

Cambridge is the only city in the United States that elects a council by a system called proportional representation. * The effect of proportional representation on city government is that well organized minorities are strongly represented; furthermore, no councillor can afford to alienate very many people. Thus, the original battle for the Plan E Charter back before World War II was led by upper-class citizens of Cambridge including the prosperous members of the Cambridge Taxpayers Association and the League of Women Voters.

As in most cities, the formal governmental structure sheds little light on the way the city is actually governed. In Cambridge the following organizations can be singled out as having shared considerable power with the City Manager and the City Council in recent years:

Cambridge Redevelopment Authority: an official city agency charged with implementing urban renewal. It consists of five appointed members in addition to staff.

Cambridge Planning Board: also an official city agency. It is made up of about half a dozen appointed members and a staff whose job it is to chart a course for the city's development.

Citizens Advisory Committee for Cambridge: a group of private citizens selected by the Mayor to advise on city redevelopment and urban renewal problems. Originally fifteen members, it was privately financed by MIT and Harvard. In the last few years a new group called the Cambridge Advisory Committee (still abbreviated CAC) has been formed with the same purposes, although now it is tax-supported and consists of thirty-six persons chosen by the councilmen and the City Manager. In addition, over one hundred people are members of the group's various task forces. Both the old and the new committee were formed to comply with Federal requirements for citizen participation in urban renewal. (87)

Cambridge Civic Association: an organization that grew out of the campaign to get Plan E. It regularly endorses candidates for the City Council and School Committee in the name of non-partisan 'good government'. Generally, four of the nine elected councilmen have had CCA backing.

Cambridge Chamber of Commerce: a grouping of the city's businessmen, non-partisan, but taking positions on many issues of concern to the city.

Cambridge Housing Authority: an official city agency. Its urban renewal role has been taken over by the Redevelopment Authority, leaving as its function the coordination of the city's housing effort.

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*One civic organization has explained this incredibly complex process as follows:

> You choose candidates on each ballot in the order of your preference by marking a '1' beside the name of your first choice, a '2' beside your second choice, a '3' beside your third choice and so on down the entire ballot.... When the total number of votes is known, 'quotas' or the minimum number of votes necessary for election are established. For example, the City Council has nine members, hence the quota is one tenth of all votes cast plus one.... The election clerks who count the ballots sort them in piles according to first-choice votes; that is, every candidate who wins a first-choice vote gets a little pile of his own. If, after the first counting, one or more candidates have reached their quotas, these candidates are declared elected and any ballots they have received in excess of their quotas are placed on the piles of the candidates marked as 'Number 2' on the surplus ballots. The quota ballots of an *elected* candidate are retired and not distributed again. [The division of ballots for a candidate into 'quota' and 'surplus' is done randomly, throwing a great deal of chance into the election.] At the next count the candidate with the fewest ballots is declared defeated, and his ballots are redistributed to the second-choice candidates indicated on them. This redistribution, of course, results in a new vote total for the remaining candidates, and if one of them should then reach his quota, he, too, is declared elected. The process of elimination continues until finally there are only as many candidates remaining as there are offices to fill. (39, pp. 35-37)

This description appears after the statement that " proportional representation means exactly what it says."

Cambridge Corporation: a non-profit organization set up in March 1966 by Harvard University and MIT, although nominally independent of them. Essentially its purpose is to assist Cambridge in building housing, and in other development projects.*

In addition to these organizations, other important forces in Cambridge politics include the major banks and industries (Harvard Trust Co., Cambridgeport Savings Bank, Cambridge Trust Co., Polaroid Corporation, Arthur D. Little, Simplex Wire and Cable Co., etc.), and the universities, Harvard and MIT.

The above would tend to indicate that there is a great distribution of power in Cambridge. An analysis of the personnel involved in each of these organizations, however, reveals an extensive overlapping among the members of all the different groups; further, one finds that most of these people are among the more economically prominent citizens of Cambridge. These conclusions are illustrated in Appendix A.

As will be seen in the sections that follow, these organizations, along with the formal City Government, play a major role in the running of Cambridge. Those indifferent to the workings of the real world can speak of "countervailing forces" and "pluralism". A Marxist would use the term "ruling class".

INTRODUCTION 2:

SOCIO--ECONOMIC CAMBRIDGE

Unfortunately, any statistical description of Cambridge must rely heavily on 1960 data: more up-to-date figures will not exist until the 1970 census is taken. The statistics given here are the most recent ones available.

The population of Cambridge has been steadily declining since 1950, when there were 120,740 residents. The 1960 figure was 107,716, and the estimated figure for 1970 is 101,000. (8; 21) The decline between 1950 and 1960 was much greater east of Harvard Square than west. The population dropped in East Cambridge by 19%; the Roberts-Harrington-Fletcher section by 17%; Cambridgeport-Riverside by 15%; Mid-Cambridge East by 12%; and Northwest and Mid-Cambridge West by only 4%. The census tract showing the greatest decline was Tract 4 (excluding the two housing projects built well before 1950) which showed a fifty percent drop in population. This is the area where the Rogers Block tenements were destroyed and Technology Square built. (8; 7, p. 37) Thus the areas showing the greatest decline are the traditionally working class areas of the city.

In 1960, 93.7% of the Cambridge population was white, 5.3% black, and the remaining 1.0% were other races. About 44% where of foreign stock, with 18.2% foreign-born. (21)

The median annual family income for 1960 was $5,923, which is $764 lower than the median for the Boston Metropolitan Area. Fifteen percent of Cambridge families earned less than $3,000 a year. The breakdown was as follows: (21)

INCOME	PERCENT OF CAMBRIDGE POPULATION
Under $3,000	15.3
$3,000 to $5,999	35.8
$6,000 to $9,999	31.6
Over $10,000	17.3

In 1968, a Cambridge Economic Opportunities Council study found five eighths of the elderly residents of Cambridge with incomes of less than $1,500 a year. (51, appendix A)

***The last two named groups have done next to nothing with regard to providing housing for low-income residents of Cambridge, the group most in need of housing. But *not* constructing housing is as much a political decision as doing so.**

The median amount of education received by Cambridge residents twenty five years old and above was 12.0 years in 1960. Six and two-tenths percent of these residents had completed less than 5 grades, while more than fifty percent failed to complete high school. (21)

While the population of Cambridge has declined some 15% since the early 1950's, the number of people working in the city has increased by at least 28%. According to a 1964 study, 41% of the jobs in Cambridge were filled by non-Cambridge residents. (*Cambridge Chronicle*, 7/9/64) In a report on Cambridge employment published by the Planning Board in 1968, the following table is given showing the estimated breakdown by employer: (10)

TYPE	Thousands							
	1950		1960		1963		1966	
	No.	%	No.	%	No.	%	No.	%
Total	74	100	81	100	86	100	95	100
Manufacturing	25	34	25	31	25	29	25	26
Wholesale and retail	16	22	16	20	16	19	17	18
Private colleges and schools	9	12	12	15	15	17	21	22
Service industries	4	5	7	9	8	9	9	10
Other	20	27	21	26	22	26	23	24

Of particular significance is the tremendous growth of the college and university sector. A 1964 study revealed that the decline in the manufacturing sector was not uniform: the drop was most pronounced in foods, chemicals rubber and plastics, and non-electrical machinery, that is, mostly in the areas requiring less technologically-advanced skills. (*Cambridge Chronicle*, 7/9/64) The occupational breakdown for the city in 1960 was as follows: (21)

GROUP	%
Professional, technical, and kindred workers	21.3
Managers, officials, and proprietors	4.7
Clerical and kindred workers	20.1
Sales workers	4.5
Craftsmen, foremen, and kindred workers	8.8
Operatives and kindred workers	17.2
Private household workers	1.9
Service workers	9.9

The following national employment figures show that while the category "professional, technical, and kindred workers" has been growing throughout the country, it has not approached the proportion of the work force that it has in Cambridge:*

YEAR	PERCENT U.S. EMPLOYMENT IN PROFESSIONAL, TECHNICAL & KINDRED
1960	11
1965	12
1967	13
1968	14

Cambridge also outstrips New England as a whole and even the Pacific region, the region with the largest concentration of this category of workers: (56, p. 51)

YEAR	PERCENT U.S. EMPLOYMENT IN PROFESSIONAL, TECHNICAL & KINDRED	
	NEW ENGLAND	PACIFIC
1950	9.7	10.7
1960	12.8	14.0

The transformation of Cambridge into a city increasingly revolving around the universities and technical jobs can be seen especially clearly in the section around MIT. Here the older manufacturing industries, most of which were attracted to the area around the turn of the century, have begun to leave. In the last ten years Lever Brothers, the Daggett Co., and many others employing thousands of people have left the city. Just a few months ago Simplex Wire and Cable Co. announced that it will close down its Cambridge factory with 900 workers. While these firms move out, the research and development firms have been moving in. An entire "research row" was

*Derived from U.S. Bureau of the Census, *Statistical Abstract of the U.S. 1968* (Washington D.C., 1968), p. 225. The years are not strictly comparable: 1960 and 1965 are for people 14 years old and over, 1967 and 1968 are for 16 year olds and over.

built up, including the National Research Corp. and the Cabot Corporation. The Polaroid Corp., employing over 6,000 people (58), now occupies a great number of buildings. Technology Square has brought many more such companies to Cambridge. Thus the *Cambridge Chronicle* was able to boast that "this University City is the nerve center of the nation's research and development program." (7/9/64, p. 10)

Much of the research and development done in Cambridge is for the Department of Defense or NASA. In fiscal 1967, seventeen of the top 500 Defense contractors for research, development, testing and evaluation did their military work entirely or in part in Cambridge. (15)

Certainly one of the major factors in this build-up of research and development industries has been the presence of MIT. This is a fact of which MIT spokesmen have been proud. President James R. Killian, Jr. said in 1957 that the universities in Cambridge have,

> helped to make our environment an exceedingly favorable one for industrial research activities. We have only to look at the lexicon of corporate names in this area to see the impact of scientific and technological research: High Voltage Engineering Corp., Polaroid Corp., Ionic Inc., Arthur D. Little, Inc., National Research Corp. and many more. (52)

Nine years later MIT President Howard Johnson said,

> there has developed a long history of close and fruitful relationships between MIT and business and industry, including many corporations here in Cambridge and Boston. (49)

Accompanying the increases in university and R & D employment has been the beginning of a significant shift in the population. As the demand for Cambridge housing increases, due to the influx of R & D and university personnel (including students) into the area, and the housing stock remains pretty much unchanged, rents have been skyrocketing. In 1950 the median rent in the city was $35.90. In 1960 it was double that and by 1968

Biltrite Rubber Co., Rumored to be Leaving City

it was nearly double again. (3; 7, p. 21; 21; 68, p. 2; 44; 51, appendix E, p. 2) The traditional residents of Cambridge (especially in the area around MIT) are being forced to leave because of the rapid rent increases and the moving away of the factories in which they work. Taking their places are people associated with the universities and with the R & D firms. According to an MIT Planning Office Report, 20% of MIT's academic support, research, and administrative staff live in Cambridge, occupying 1,148 units. An additional 1,225 MIT students are living off-campus in Cambridge, occupying about 766 dwelling units. (51, appendix E, p. 2) The number of Harvard students living in Cambridge out of dormitories has increased by 1,000 in the last 8 years, and Boston University has 800 students living in Cambridge. (68, p. 3)

The city's contribution to the amelioration of the housing problem has been the construction of a mere 88 units of low-rent public housing in the last fifteen years.* Almost all of the new units privately built in the city have been renting for $200-$400 a month (68, p. 3) – rents that only professionals or groups of students can afford.

Wither Cambridge

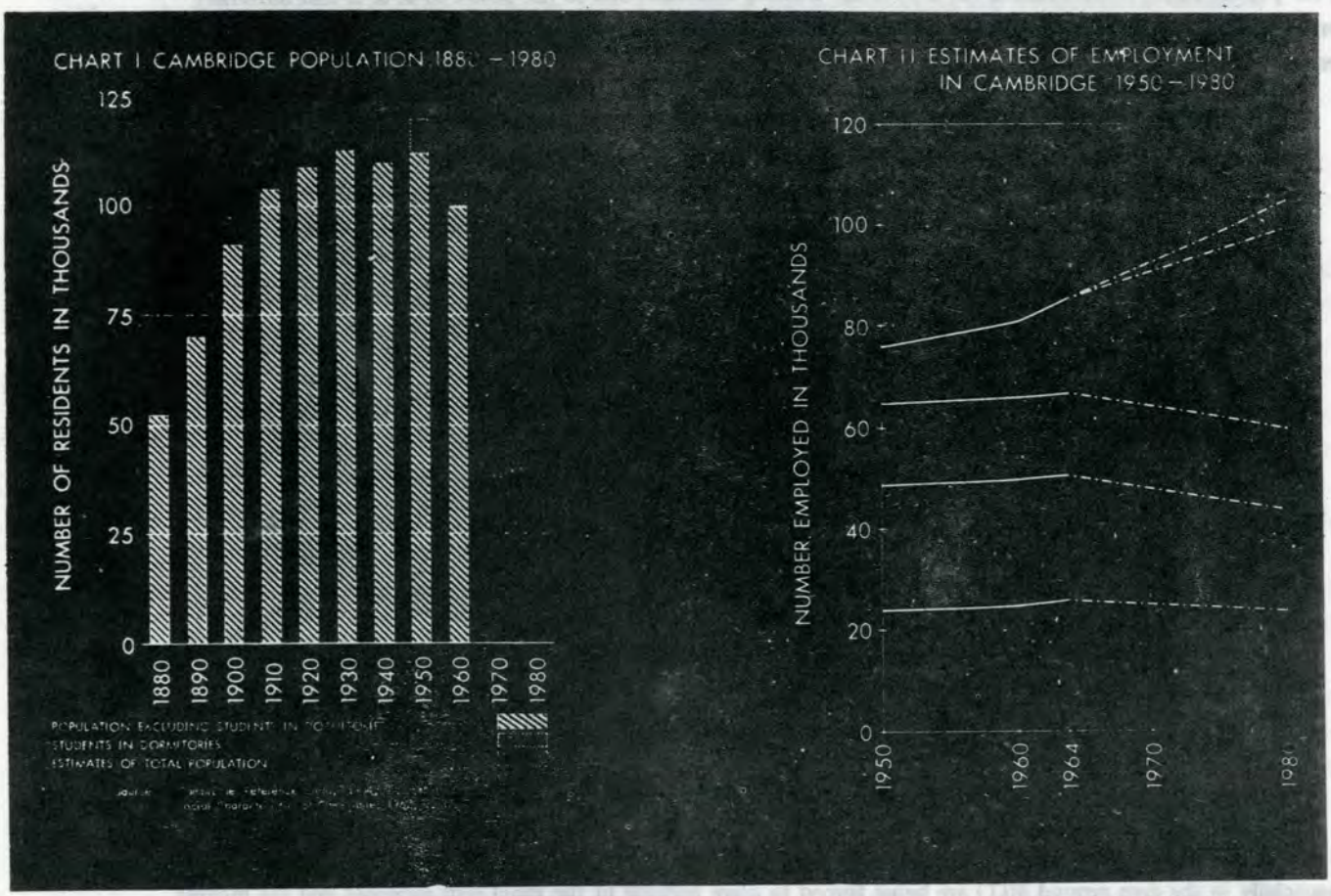
The outlook for the future is a continuation of the present trend at an accelerated rate. In 1965, the Cambridge Planning Board offered the employment and population projections shown in the accompanying chart. (8, p. 2) (It should be noted that the actual employment figures for 1966 are even higher than those predicted on the chart, so the change is taking place even more rapidly than is predicted.) The Planning Board stated that:

> **It is expected that employment by Harvard and MIT will continue to increase in the next twenty years and that with the coming of NASA employment in government and private research and development will also increase significantly. (8, p. 8)**

Three years later, the Planning Board spelled out the implications of the developing trend:

> **In the current context of more persons wanting to live in Cambridge than there are housing units available for them, somebody is going to have to live in other cities and other towns. If current trends continue, the people locating in other towns will be largely former Cambridge residents, particularly low and moderate income families and the elderly. (11)**

Others, too, expect the trend to continue. James Killian of MIT said in the course of the remarks already cited, "there is every reason to believe that the relationship between the universities and industry in the field of research will continue to bring new industrial research activities to our area." (52) And Howard Johnson concluded his



praise of the university-industry ties: "We intend that these relationships shall continue and flourish." (49) The Cambridge Civic Association has suggested that the trend be given another boost: one of the low-income housing projects (built over 25 years ago) is, in the CCA's words, "wonderfully convenient to Tech Square and the contemplated NASA site." Why not, it suggests, " relocate the present residents in smaller units, and sell the Project to a private investor who would upgrade its facilities and landscaping to make it attractive to those who will be employed in the area and who want to walk to work?" (39, p. 106)

***Another 67 units for the elderly are due this year.** *Cambridge Chronicle,* **8/28/69.**

Tech Square & NASA

> " It is not by accident that the metropolitan area of Boston, and, to a remarkable extent, Cambridge itself, constitute one of the world's outstanding centers for research."
> —James R. Killian, Jr. (quoted in the *Boston Herald*, 12/23/59)

Writing about the section of Cambridge behind MIT, one professor of city planning observed that

> Parking lots and industry symbolize the end of the residential area. NASA, Tech Square, and new buildings symbolize rapid change and the end of jobs for [the neighborhood's] residents, who will have to leave the area. (46, p. 2)

While market forces have no doubt played their part in this process, the development of Tech Square and the NASA Electronic Research Center have—as this case study will show—been pursued as a matter of conscious policy.

The story of Technology Square begins as far back as June 1950 (see 82, 83). At that time the City Council authorized the Cambridge Housing Authority to apply for Federal funds for preliminary surveys for redevelopment projects. On December 20, 1950, the appropriate Federal agencies allocated $23,650 for this purpose. One of the redevelopment projects contemplated was for the so-called Rogers Block—a five-acre lot housing two hundred families. In June 1952 application was made for Federal planning funds for the Rogers site and four months later was approved.

Urban renewal projects throughout the country were held up until the Supreme Court declared the process constitutional in 1954 in *Berman v. Parker.* In this decision, the court held that private property could be taken by the government and then resold to another private party.

By the beginning of 1956 the city had drawn up a plan for the Rogers Block and in December of that year the Federal government gave the go-ahead signal.

D–DAY

A Citizens Advisory Committee for Cambridge—a group of 15 prominent citizens—was appointed to promote urban renewal. Privately financed by MIT and Harvard, the CAC included James R. Killian, Jr., then president of MIT. This organization was instrumental in having a Cambridge Redevelopment Authority appointed, which in March 1957 took over the Rogers project and all other urban renewal activities from the Housing Authority. In November 1957 the CAC arranged a spectacular demonstration—called D-Day, the D, appropriately enough, for demolition—when a six-family house was leveled on the Rogers site. At this time only 57 families remained on the block. In the subsequent five months they were rehoused—in private and public housing in and out of Cambridge. All the families had to pay considerably higher rents in their new locations than the average of $20 a month in the Rogers Block.*

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* These figures understate the relocation problem for, as Chester W. Hartman has noted about such data in general

> we have no information on those who leave impacted areas after announcement of renewal plans, but before actual landtaking. We know from experience that the number of such families can be considerable, [in this case, 143 out of 200] and that their dusplacement, although technically ' voluntary,' is nonetheless the result of renewal activities. Where do they move, what kinds of housing do they secure, and how much are they paying for their housing?

" A Rejoinder: Omissions in Evaluating Relocation Effectiveness Cited," reprinted in Jewel Bellush and Murray Hauskhecht, *Urban Renewal: People, Politics and Planning,* (Garden City, New York: Anchor Books, 1967), p. 361.

By June 1958, the entire area had been cleared, yet well into 1959 no developer had come forward to buy the land. In 1959 the situation was altered when Lever Brothers decided to end their Cambridge operations, thus adding nine acres, adjacent to the Rogers site, to the market. At this point, MIT entered the picture directly.

MIT's interest in developing an industrial research center on these fourteen acres was expressed by James Killian

> Such a proposal seemed a natural and it was especially attractive to us at MIT because the area was close to our campus and because we believe that enlarging the professional scientific and engineering community here would strengthen the universities and the industries in the area. (78, p. 5)

Killian added,

> Each new center of research and advanced technology interacts with the others, stimulating all the others and making this community more attractive to professional people in these fields.

In short, MIT wanted "to provide the physical facilities for research oriented companies" that would "further augment its program of industrial cooperation." MIT "in its broad expansion plans" was eager to embark upon "creating an adjunct to the campus for modern industry."*

In August 1959, Killian had met with Gerald Blakely, president of Cabot, Cabot, and Forbes Co., at which time they discussed the possibility of developing an industrial center on the fourteen acres. (78, p. 4; 47, p. 5)

Cabot, Cabot, and Forbes, a real estate development company, claims to have helped establish more than helf the research and development companies on Route 128. Blakely himself is considered to have been the main initiator of industrial parks in the Boston region and has also been operating on a national scale.**(62, pp. 8-9)

Photo by Mike Evans

Tech Square Rises Over Low-Income Housing Project

*Quoted from material prepared by Cabot, Cabot, and Forbes for the *Boston Herald,* 9/8/60.

**In addition, Blakely is President of the Greater Boston Real Estate Board, a group that has been fighting against rent control.

In December of 1959, MIT and Cabot, Cabot, and Forbes announced their intention of jointly constructing a research center on the Rogers-Lever Brothers site. The plans called for four high rise buildings providing a total of over half a million square feet. The collaboration of a private company and a non-profit institution for the purpose of engaging in a profit-making venture was called "unprecedented" by Killian.* As a financial undertaking, the project was quite successful. "Today the return on the investment pleases even the Treasurer of the Institute" wrote a high Cabot, Cabot, and Forbes official in 1965. (47, p. 6) But monetary reward was not MIT's sole objective. Killian explained

> I felt that my institution as well as I had an overriding responsibility to encourage new business and industry in our home city. (78, p. 4)

The guiding policy that Killian had begun with was that "the proposed project should be planned to attract corporate activities." It should create "a center which would attract first rate industry" and "compete with development in areas like the Route 128 area. It would seek to capitalize on some of the very real advantages of being close in and of taking advantage of [sic] the in-town resources and attractions of Cambridge and Boston." (78, pp. 5-6)

Killian elaborated on these advantages:

> The weapons research of the war, a great concentration of which was here in Cambridge, demonstrated how rapidly basic and applied research could be translated into useful industrial products and services. There has been a marked reduction in the time lag between discovery and the successful marketing of a product based on that discovery. This, together with the education of exceptional talent in science and technology, has resulted in the basic research of our universities steadily assuming increased and more immediate importance to industrial advance. Industry more and more has been generated by scientific discovery and industry more and more came to rely upon advanced technology and upon men so educated that they knew and could put to work advanced technology that frequently men not recently educated hardly knew about or understood. Our university centers were in a strategic position to affect profoundly the creation of new industries, new products, and new services, and they constituted a major resource for this community and region in the stimulation and development of industry based upon science and advanced technology. (78, p. 2)

Thus, not just any industry was to be attracted to what MIT and Cabot,Cabot, and Forbes called Technology Square. "We expect mixed uses with a heavy weighting on the research activities related to MIT and the unique technical facilities in the Boston area."** Tech Square, the Cambridge Redevelopment Authority commented, was meant to begin an "intown trend." It was hoped that scientific concerns, wanting to be near the universities, and especially MIT, would fill Tech Square and the surrounding area, thus counteracting the drift of business from the core city. Tech Square would likely become the nucleus of Research Row, said Cabot, Cabot, and Forbes officials. (72,p.8)

"An Important New Member of the Free World's Technological Battalion"

The ground breaking for the first building at Tech Square took place on October 9, 1961. Present at the ceremonies was Herbert W. Robinson, the president of the building's first tenant: C-E-I-R, a research firm using the biggest computer of its day to solve the problems of large organizations including the Department of Defense and major oil companies. (85) Dr. Robinson delivered a speech to the assembled officials of MIT, CC&F, and Cambridge:

On the Destiny of Nations

> In the Middle Ages, the destiny of nations was often decided by the clash of armies representing only a small fraction of the total population. Territories changed hands and people were enslaved through the pitting together of perhaps less than 20,000 men on each side.
>
> By 1914, war had become almost total war and we saw for years millions of men locked in mortal combat in the trenches of France. In World War II, war was indeed total, involving civilian populations as combatants and victims. However, a new factor had emerged—science. Mr. Winston Churchill pointed out in 1940 in his tribute to the Royal Air Force that—"Never in the field of human conflict was so much owed by so

*The *Boston Sunday Herald* remarked

> This is the first time in real estate history that an academic institution is participating in a real estate venture with private industrial developers. 12/4/60.

**The *Cambridge Chronicle* stated editorially that the Tech Square complex was "specifically designed to attract new industry to Cambridge and to further the development of the city as a fine environment for science-based industry and related activity." 6/3/65.

many to so few," since the fate of Britain turned on perhaps a few thousand fighter pilots. Even more dramatically to the point, it might be said that the fate of Britain depended on one man—the man who designed the "Spitfire" fighting plane.

Today, the wheel of history has come full circle and the fate of our great country, the United States, depends upon another type of "few". The rapid advance of technology in the generation since the battle of Britain means that the outcome of any new war with its emphasis on missiles and space depends on the superiority of our technical "state-of-the-art" compared with that of the Soviet bloc. *Once again the fate of millions depends on perhaps 20,000 individuals*—the best of the technologists—*on each side of the Iron Curtain.*

It is extremely fitting, therefore, that in Cambridge today we are participating in the ground-breaking for a new center of advanced technology second to none in the world, and we in C-E-I-R are extremely proud to be one of the first tenants in the first building. Even more importantly, we are proud that our company, which is, in brief, intellect plus the multipliers of intellect, the electronic computers, will serve this center and the nation. Because of the vital importance of this small group of technologists, these electronic multipliers of intellect become of tremendous significance, and it is with this in mind that C-E-I-R will install at Technology Square the largest assembly of computing equipment in the world, including the fabulous IBM STRETCH computer, which brings to our technologists new capabilities in computing and analysis far ahead of any now available in existing equipment.

We wish Technology Square well and hope we may play our role in supporting an important new member of the free world's technological battalion. (86)

Slowly, other tenants filled the first building and then the second. By 1965 Tech Square had thirty-six occupants. While 21 were commercial and 15 technical, the former took up only 10 percent of the space and the latter the remaining 90 percent. For example, in the first building there were thirteen tenants: 6 electronics research, 1 non-electronic research, and six other commercial tenants. Of the total nine floors four were taken by IBM, two by a computer service company, and a computer research project took another. Today Tech Square counts among its major tenants NASA, Polaroid, IBM, MIT's Project MAC, and the Computer Corporation of America.*

The Redevelopment Authority pointed out that Tech Square would provide three times the number of jobs that the old Lever Brothers plant did. But obviously the type of work done by these highly technical firms was not the kind that could be done by old Lever Brothers employees.**

NASA

The filling up of the Tech Square buildings was not quite as smooth as this account has indicated, however. At one time there was even the possibility that not all of Tech Square's space would be rented. But the decision of NASA to locate its Electronic Research Center nearby gave Tech Square the boost it needed to become a successful enterprise.

To understand this decision it is necessary to go back to the formation of the National Aeronautics and Space Administration. On October 4, 1957, the Soviet Union successfully orbited *Sputnik I,* and on November 5, *Sputnik II* followed. In response to these events, President Dwight D. Eisenhower announced two days later that American defenses were sound and that he was appointing MIT president Killian to a newly created position of Special Assistant to the President for Science and Technology. On March 5 of the following year Killian presented Eisenhower with a memorandum calling for the establishment of NASA. Legislation was hastily drafted and enacted. On July 29 the National Aeronautics and Space Act of 1958 was signed by the president (64, chapter 1).

The establishment of NASA was, of course, a great boon to research and development companies. Net NASA procurement awards were $ 213 million in fiscal 1959, $ 337 million in 1960 and $ 756 million in 1961. However, these procurements were not distributed evenly throughout the country. In fiscal 1961 California, Missouri, New York and

*Grumman, North American Aviation, and the CIA were tenants for a while.

**Lest it be thought that this project which took homes from one group of people and provided jobs for a very different group was an exceptional example of the urban renewal process, see Bellush and Hausknecht, *op. cit.,* and Charles Abrams, *The City is the Frontier,* (New York: Harper Colophon, 1967).

Tech Square: Industrial "Adjunct" of MIT

Alabama accounted for seventy two per cent of the total awards (64, p. 350). When Houston was chosen as the main center of Project Apollo, consternation in technological circles in the New England area increased. Rising to the occasion, MIT joined with NASA–along with much cooperation from the Greater Boston Chamber of Commerce, to sponsor a two–day New England Regional Space Conference. On November 13–14 "more than 500 leaders from business, industry, government, education and finance" gathered "by invitation" to discuss how they could "help enlarge and enrich the part New England plays" in the space program (73, pp. 1–2). "While MIT is a national institution and its talents and resources are dedicated to the national interest, the Institute is not unmindful of its responsibilities to New England," MIT President Julius A. Stratton said.

The "Triple Play"

Dr. Killian opened the conference by talking about the resources of New England. He referred to a "triple–play combination–mentioning Tinker to Evers to Chance and government to education to business." He also spoke about " 'New England's Common Market' namely the 'symbiosis' of education and business here " (62, p. 51; 66, p. 23). The conference including the suggestion by a Chamber of Commerce official and by vice–president of the MIT corporation Major–General James McCormack regarding the establishment of a regional organization to coordinate the efforts to bring NASA contracts to the area.

Meanwhile, a number of months earlier Robert C. Seamans Jr., Associate Administrator of NASA, had suggested that the agency strengthen its electronic capability. Seamans, the principal speaker at the MIT conference, had received his masters and doctoral degrees from MIT and had held various teaching and project management positions at the Institute. A subdivision of the Office of Advanced Research and Technology–the Office was headed by Raymond L. Bisplinghoff, on leave from MIT and now Dean of its School of Engineering–recommended in January, 1963, that a $ 50 million Electronics Research Center be constructed somewhere in the Boston area, because of the abundant university and industrial electronic resources there (64, pp. 252–53).

An official NASA history provides the following information regarding the choice of location:

> Members of the House Astronautics Committee questioned both the need for the Center and its proposed location. NASA was somewhat vulnerable to criticism because it had not used a formal site selection procedure, probably because it felt the selection of the Boston area had overwhelming merit. NASA was accused of selecting Boston for political reasons, and in view of the limited documentation on why other sites were rejected the charge was difficult to refute (64, p. 253).

It should be noted that in the selection of Houston for the Manned Spacecraft Center, NASA used a formal site selection procedure.

The Pentagon correspondent for the *New York Times* has written:

> Senator Edward M. (Ted) Kennedy's campaign for the Senate in 1962 was pegged to the slogan, 'He can do more for Massachusetts.' The slogan, which aroused ire and scorn even from some who were well disposed toward his candidacy, was directed to the candidate's relationship to the President, his brother, as a means of securing government contracts...Not long afterward young Senator Kennedy did 'do more'–he got a $ 50 million National Aeronautics and Space Administration center for the Boston vicinity (63, p. 220).

Members of Congress, however, wanting the electronics installation for their own districts, were not so easily satisfied: in September, 1963, they required that NASA present a formal location study. In mid-October a five–man Area Survey Committee was set up, one of whose members was an MIT alumnus.

The General's Advice to NASA

To help assure that the committee would recommend the area that NASA had already suggested, in December, 1963, Major–General James McCormack–at this time president of the Greater Boston Chamber of Commerce as well as vice–president of the MIT corporation–wrote the committee a letter inviting NASA to eastern Massachusetts. In addition, on December 19, General McCormack and other members of the Chamber of Commerce made an oral presentation to the committee stressing the advantages of locating in the Boston area. The firms represented at this presentation–aside from MIT–were Edgerton, Germeshausen and Greer (an MIT spin–off), First National Bank of Boston, Raytheon and the Boston Edison Co. Finally, to make sure that his opinion would not be overlooked, General McCormack sent another letter to the committee on December 26, 1963, summarizing reasons for locating the NASA Center in his area (26).

On January 21, 1964–after just three months of work–the committee reported and NASA recommended the Boston area, surprising no one.* In March of 1964, NASA established another committee, this time to examine and evaluate 160 sites in the Boston metropolitan area.

The City of Cambridge, meanwhile, was not sleeping. Councilman Andrew T. Trodden asked Mayor Crane to choose three council members to constitute a NASA subcommittee to confer with officials of the space agency in an attempt to get the Electronics Research Center to locate in Cambridge. Trodden indicated that he was well aware that land was at a premium in Cambridge, but thought maybe the Transit Authority's dump area would be suitable. Crane appointed Trodden, Daniel Hayes, and T. D. H. Mahoney, who was also an MIT professor (*Cambridge Chronicle*, Feb. 13, 1964).

*An indication of the care with which the area survey was done is the fact that in Table P.1 , the column "part-time or evening programs" frequently has the entry "no indication." Thus, if the committee was unable to find something in the university catalogue, they looked no further.

Three city planners–all on leave from the Boston Redevelopment Authority and past students at MIT–drew up a proposal for urban renewing the Kendall Square area of Cambridge, right behind MIT. The plan was to remove approximately ninety business firms employing some three thousand people from the area, give about 28 acres to NASA and use another 14 acres* for private development. Robert Rowland, the leader of the trio, took his plan to James Killian of MIT, at that time also chairman of the Citizens Advisory Committee. Killian liked the plan and showed it to the executive committee of CAC. They in turn favored it and it was shown to the whole advisory committee. Killian then requested a special meeting of the City Council to consider the proposal (*Cambridge Chronicle,* May 28, June 4, 1964: 91; 95; 96).

Although Killian had here acted in his capacity as CAC chairman, one might question whether he forgot his position as chairman of the MIT corporation.

ONE, TWO, MANY TECH SQUARES

In June, 1964, the City Council voted six to two to welcome NASA to Cambridge. One of the dissenting councilmen termed the welcome "the most stupid resolution I ever saw, " complaining–correctly–that the NASA subcommittee of the council had not yet reported (*Cambridge Chronicle,* June 11, 1964). The six who voted affirmatively were very clear about why they wanted NASA to come to the city. Councilman Trodden likened Cambridge with the space agency to Cape Kennedy. Councilman Mahoney said the city might have another "one, two or three Tech Squares going up to support the NASA center." And Mayor Crane declared that

> It is certain that just about every national company in the space effort would require an office in or near the NASA location (*Cambridge Chronicle,* 6/4/64, 7/9/64).

When the council's NASA subcommittee finally did report, on July 27, 1964, it recommended that Cambridge formally offer the Kendall Square site to the space agency. "We have information, " the subcommittee said, "that 400 firms have already evidenced an intention of location in Cambridge to be close to NASA" (27, vol. 6, pp. 703–704). City urban renewal authorities gave impetus to the plan to offer NASA Kendall Square when they indicated that Cambridge could take the land provided that it could show at least one half the buildings in the area to be industrially blighted (*Harvard Crimson,* 7/28/64). And, on July 30, the Council voted six to two to make the offer. Councilman Trodden, of the NASA subcommittee, when asked about plans for relocation of the 90–odd companies and three thousand jobs, replied that such plans were, at that point, "pure conjecture " (*Cambridge Chronicle,* 7/30/64). Mayor Crane, seemingly oblivious to such considerations, rushed off a letter to NASA administrator James Webb, offering him Kendall Square.

During these months, a great number of discussions were taking place involving, among others, the City Planning Board, Cambridge Redevelopment Authority, the Chamber of Commerce, the City Council NASA subcommittee, MIT, and NASA. Robert Rowland spoke to O. Robert Simha, MIT Planning Officer who also sat on the City Planning Board at the time. Simha reportedly said "why not?" to the suggestion that NASA occupy Kendall Square (96).

One member of the City Council who had voted against the NASA invitation said, "There's some kind of a deal between NASA, MIT, and urban renewal people. The natives of Cambridge suspect collusion and conspiracy and maybe even some empire building" (71, pp. 84–86). Killian replied that talk of a "conspiracy" was "ridiculous and irresponsible." He conceded that he and NASA Administrator James Webb had conferred, but insisted that Webb wanted only "to make sure that MIT had no objections to NASA's locating here " (71, pp. 84–86; 91).

Walk to MIT, Ride to Harvard

NASA made no secret of the fact that they wanted a site within walking distance of MIT. Indeed, NASA spokesmen said it so often that one Congressman was moved to ask, somewhat indignantly, why "it is all right to ride to Harvard,

*Sources vary on the exact dimensions. The NASA site has been estimated from 28 to 29.3 acres; the golden triangle from 14 to 15 acres.

but you have to be able to walk to MIT?" (27, vol. 6, p. 675). NASA never answered this question but one high agency official did explain the advantage of locating near universities in general:

> centers which are in close proximity to a university that can offer graduate work have been the ones that have had the most vitality insofar as research is concerned...The most productive period of a man's life is about the first seven to ten years after he gets out, and the best people are the ones that want to get their master's or doctor's degree. If we can provide this interaction, I think we have a much more vital situation than we could otherwise.

The man offering this explanation was himself a model example of NASA-university cooperation, having held high positions in both the space agency and MIT (27, vol. 6, p. 665). Congressman Ryan of New York, however, viewed

Part of the NASA Site

NASA–MIT collaboration in a less favorable light: "basically what you are doing, it seems to me, is building an adjunct to MIT..." (27, vol. 6, p. 690). NASA did not reply to this charge, evidently not considering it a criticism. And on August 19, 1964 NASA announced—again, as everyone expected—that they had chosen the Kendall Square site. NASA's James Webb sent a letter to Cambridge's Mayor Crane accepting the location and indicating that NASA looked forward "to working with MIT and the city in this undertaking." (27, vol. 6, p. 708)

The reaction of official Cambridge was immediate: Mayor Crane "talked glowingly of new high-rise apartments along Cambridge Parkway and new offices of major aeronautics and space firms that will be attracted to the NASA center

like satellites to the sun. 'Some of the larger aircraft companies--like Douglas and Grumman--have already indicated such plans.' " Councilman Hayes proclaimed that

> This city has always been known as the 'University City.' Now it will be known as the electronics capital of the world. The future of the electronics field will come from Cambridge.

President Julius Stratton and James Killian issued a joint statement praising the NASA decision. (*Boston Herald,* 8/21/64)

And the People?

Not everyone, however, shared their enthusiasm--in particular, the owners and employees of the 94 firms that were to be displaced. Especially irritating was the fact that NASA could have located at the Watertown Arsenal. Three miles from Cambridge, the arsenal was a 119-acre federally-owned installation that was being phased out. The cost to the Federal Government to clear this site for NASA was estimated at less than one million dollars, compared with the twenty million for Kendall Square. And the number of jobs that would be lost was zero beyond the phasing out compared to about 3,300 in Kendall Square.

It is often claimed that there were no costs incurred by the city of Cambridge from NASA since the city paid its share in urban renewal credits. (For example, *Cambridge Chronicle,* 5/28/64, 8/27/64.) However, had these credits not been used on Kendall Square, they could have been counted toward the construction of low-cost housing or some other pressing Cambridge need. Whether the city would have used the credits in this way is another question entirely.

Others have claimed that NASA causes the city a tax loss since it does not pay taxes while the displaced firms did. The area allotted for private development, however, is expected to pay more taxes that the *entire* area did before. Again, whether this will result in any betterment in the general welfare of the people of Cambridge is highly questionable, given that the city has only seen fit to build 88 units of low-cost housing in the last fifteen years. After the increased revenues that the city received from the growth of Tech Square, no corresponding outlay in funds for the people of Cambridge was seen.

It was well known that the NASA facility would not provide jobs for the displaced workers. The Redevelopment Authority calculated that the electronics center would eventually need 700 professional personnel who would be "recruited on a nation-wide basis and consequently their employment will result in a substantial in-migration into the area." In addition, there would be 1,400 administrative and technical support people, locally recruited, but needing skills probably lacking in the displaced workers. (14, p. 4)

The plans for Kendall Square, besides the twenty-nine acres for NASA, included another area--just less than half ~~that~~ that size--for private development. By a vote of five to four, the city council declined to give priority on this land to the displaced firms. (The firms were to be displaced from both the NASA site and the private development area.) Paul J. Frank of the Redevelopment Authority testified that while the CRA was very much concerned with the problem of relocation, urban renewal law dictated a policy of the "highest and best" use of the land without deviation. (*Cambridge Chronicle,* 11/19/64) Thus, the displaced workers would not be able to find work here either, since only highly technical, NASA-related concerns would move to the area.

Many of the businesses affected by the urban renewal program banded together to try to prevent their land from being taken. All of their legal manuevers, however, were ineffectual. As one NASA official testified before a House committee

> The Urban Renewal Authority has told us that in all cases of urban renewal throughout the country, no lawsuit has ever been lost by the Urban Renewal Authority. (27, vol. 6, p. 709)

Studies on the effects of relocation on the businesses and the employees are presently in progress: some of the firms have still not been moved out. Tentatively it can be said, however, that the relocation efforts have been far from perfect. About half the displaced firms have moved out of Cambridge, and between ten and twenty per cent have moved out of the Cambridge labor market area. (96)

The Golden Triangle

The area allotted for private development has become known as the "golden triangle," referring to its development prospects. This optimism was not always present. Indeed, when the Kendall Square urban renewal plan was first being considered, MIT and Cabot, Cabot, and Forbes gave the city insurance by agreeing to undertake the development if no one else came forward. (96) But the golden triangle has since attracted the interest of a number of real estate firms. Much of the interest comes from the optimal location of the triangle. In addition to bordering the NASA Center, Tech Square and MIT

> Within the regional highway network, the Kendall Square area adjoins Route 2, which provides a direct connection to industrial parks along Route 128, and to Hanscom Field located at Bedford, Mass., and its complex of research and development facilities, including the MIT Lincoln Laboratory, the MIT Instrumentation Laboratory, the MITRE Corporation, the Air Force (ADC) Command Control Defense Systems, the Air Force Cambridge Research Laboratories, and the Air Force Electronic Systems Division...(15, p. 2)

As should be clear, the golden triangle is envisaged as a site for technological and science-oriented firms. Among the many developers presently interested in the triangle is Cabot, Cabot, and Forbes in conjunction with MIT. (96; 91; 92) Who will finally be selected as the developer–the decision will be made in early 1970—is anybody's guess, but no one will be greatly surprised if it should be the CC&F-MIT consortium.

Tech Square, NASA, and the golden triangle are part of the new Cambridge: a Cambridge that is increasingly providing jobs and resources for highly skilled, science-oriented people while at the same time its supply of houses and jobs suitable for the traditional residents of the city is disappearing. Disappearing or being destroyed—as were homes at Tech Square and jobs at Kendall Square. Furthermore, Tech Square and the NASA center have been planned with the conscious intention of starting an "in-town trend," of getting industry to come to Cambridge. Not just any industry, but that which is oriented towards MIT and NASA—which will serve to further accelerate the growth of technical jobs while displacing the population of Cambridge without the necessary technological skills.

MIT has been a prime mover in bringing this change to Cambridge. It certainly did not act alone—the city council, the Redevelopment Authority, the Citizens Advisory Committee, the Chamber of Commerce, all were party to the transformation of the city. But as this case study has attempted to show, MIT must bear a major share of the responsibility.

Tech Square

The Inner Belt

In 1948, Charles A. Maguire and Associates drew up a Master Plan for a network of high-speed highways in and around Boston for the Massachusetts Department of Public Works. The Plan called for an "outer belt" around the city, which became Route 128, and a series of radial highways going into the core of the city, connected by an "Inner Belt" to pass through Boston, Somerville, Cambridge, and several other communities. The route of the Inner Belt through Cambridge recommended at the time was an alignment along Lee Street, several blocks west of Central Square.

The Cambridge City Government was dissatisfied with the suggested route and therefore had the Planning Board do a study of various routes in 1951. The Board recommended a route along Brookline Street and rejected routes west of Central Square, along Memorial Drive, and along the Grand Junction railroad between Albany and Vassar Streets. The Brookline Street route was recommended because it "conformed the best to land use patterns and the city's plans for redevelopment." That is, it would, according to the Planning Board, serve as a "buffer" between industrial areas to the east and residential areas to the west.

In 1957, Bruce Campbell and Associates did a more detailed *Study of the Belt Expressway thru Cambridge* for the Planning Board, elaborating on much of the reasoning of the 1951 study. They fit the Inner Belt into a general plan for the development of Cambridge, speaking of the Belt as "a positive force in reshaping the future of Cambridge." In their report they recommended a route on the west side of Brookline Street (which will be referred to as the Brookline-Elm route), because "it [takes] low-grade properties" and will divide industrial and residential uses. As for the area taken by the route, containing up to 1,600 homes, it was scheduled for redevelopment anyway, said the report. Of course, by no means everything east of therroute was (or is) industrial. There were thousands of people in Cambridge living east of the route, even excluding people in MIT dormitories. Regarding these people, the report continued

> the Expressway must be made to work for Cambridge as a determinant of land use and as a major force in shaping the character and physical limits of those land uses

and thus the residential areas, referred to as mere "pockets," "will undoubtedly be forced into an industrial category."

In their revised report in March 1959, Campbell and Associates gave further reasons for recommending the Brookline-Elm route.

> It provides tremendous economic advantage to the industrial and commercial areas of eastern Cambridge and consequently to the City's deteriorating tax base.

In addition, not only is the effect on the area taken by the route not viewed as negative, it becomes a positive reason for its recommendation: "[the route] passes directly through blighted and deteriorated areas in need of urban renewal and redevelopment."

Campbell and Associates studied other routes than the Brookline-Elm, but rejected them because they did not have these "advantages." Specifically they rejected the Lee Street route and the railroad route, the latter because it "clearly does not serve any of the planning objectives discussed," and also because it would require the abandoning of the railroad, which at that time was seen as crucial for industry.

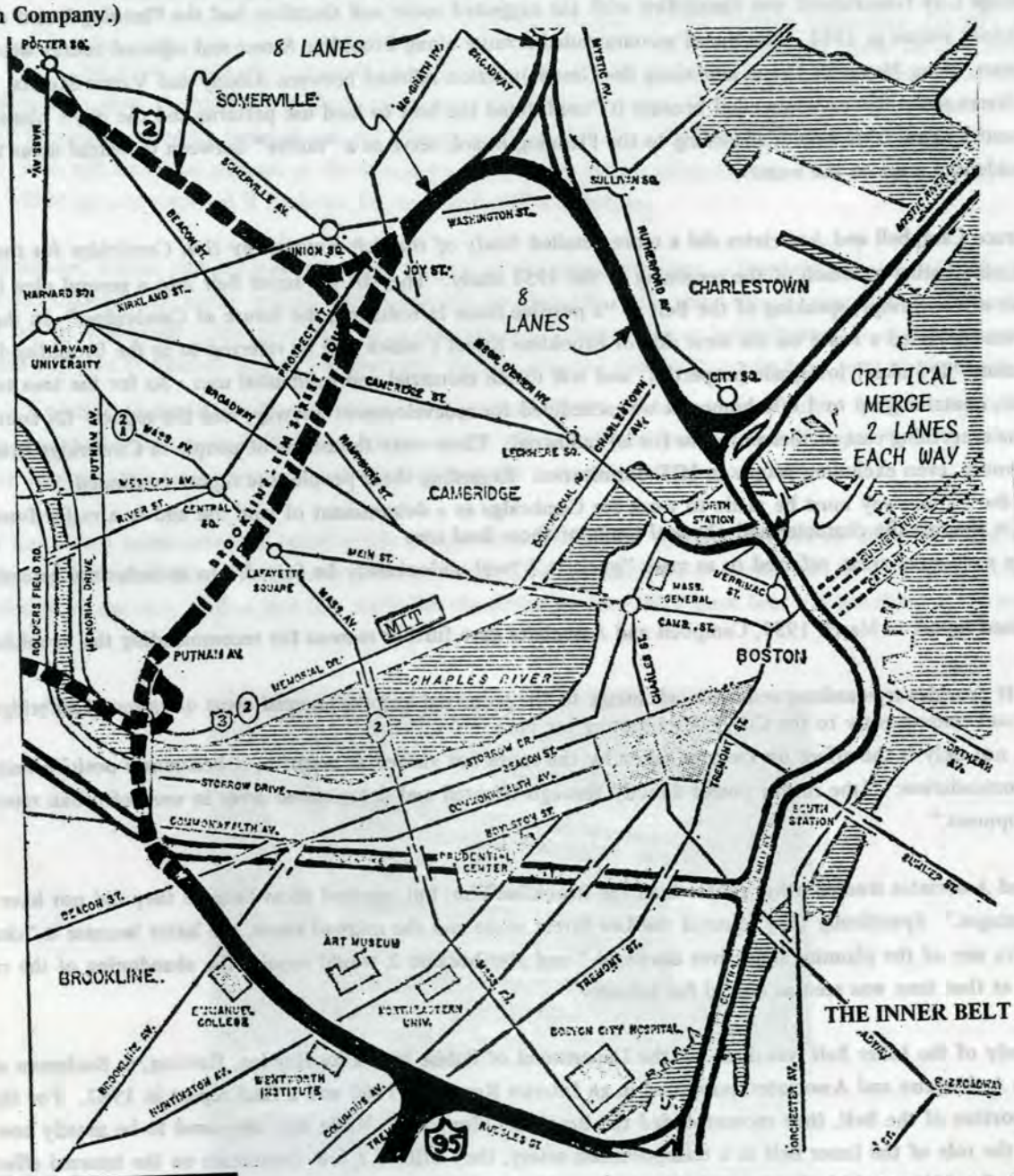
The next study of the Inner Belt was done for the Department of Public Works by Hayden, Harding, & Buchanan along with Charles A. Maguire and Associates, published in an Interim Report in 1960 and a final report in 1962. For the Cambridge portion of the Belt, they recommended the Brookline-Elm route. While they appeared to be mostly concerned with the role of the Inner Belt as a transportation artery, they offered a few comments on the internal effects of the Belt in Cambridge, which they considered to be positive. They expected highway construction to result in a net addition to the city of Cambridge of 1,600 residents and about 13,000 employees.

> The large employment increase occurs primarily in the research and development industries and is based on the assumption that Cambridge will carry on a vigorous program of industrial redevelopment.

(It is important to note that this mention of the Belt's impact on research and development industries comes just at

the time when Technology Square was expected to start an "intown trend" of such industries. This is discussed in detail in an earlier section.) Although they expected 1,541 households and 945 jobs to be displaced, they indicated that more than half of these (households) below Massachusetts Avenue would have been displaced by future urban renewal anyway, and families will be able to find other places to live.*

By 1962, however, public opposition to the Inner Belt in Cambridge (because of the destruction of homes and jobs caused by the Brookline-Elm route favored by the DPW) and in other cities and towns along the Inner Belt had grown to such a point that state legislators from these communities joined forces to pass a law giving cities veto power over expressways passing through them. This power was lost in 1965 when John A. Volpe became Governor and quickly repealed it. Volpe, a former Head DPW Commisioner and a strong advocate of the Belt, immediately set about to get the expressways under construction. (Volpe and his brother have been major stockholders in John A. Volpe Construction Company.)



*Oddly, Hayden et al. predicted that the Inner Belt and the rest of the highway system would be obsolete by 1975. But, "characteristically, this warning has not deterred the DPW from pressing vigorously with its Master Highway Plan for Metropolitan Boston essentially unchanged," commented Mark E. Connelly in *The Metropolitan Boston Transportation Problem* (MIT Electronic Systems Laboratory, March 1969), p. 95. An attempt was made by MIT to suppress Connelly's report because it advocated use of the railroad route for the Inner Belt, which as we show in great detail later MIT vigorously opposed.

By this time, the Inner Belt was so unpopular in Cambridge that all elected officials had gone on record as opposing the highway. Even the Cambridge Civic Association had felt it necessary to give token opposition to the Belt by urging the City Manager to announce that he would never approve an Inner Belt through Cambridge without relocation assistance. (*Cambridge Chronicle,* 1/10/63)

In 1965, the DPW had another study done of the various routes, this time by the consulting firm of Goodkind and O'Dea. Their report examined routes on the west and east sides of Brookline Street, along Albany Street, and along the Grand Junction railroad tracks. It concluded, unlike previous reports, that the best route would be the one east of Brookline Street (i.e. between Brookline and Sidney Streets). It showed that the family displacements on this route were "only" 1,181 as compared with Brookline-Elm's 1,473.

The Inner Belt controversy finally came to a head in February of 1966. The DPW was scheduled to announce its preferred route through Cambridge on March 15 and Cambridge was offered the possibility of presenting its own route beforehand. The Chicago consulting firm of Barton-Aschman was hired by the City to do still another study. (33) The result of this study was a recommended route along the Grand Junction railroad and an Alternate route along Portland and Albany Streets. It was due to this recommendation that MIT first publicly entered the Inner Belt controversy in a major way.

Prior to 1966, MIT's involvement in determinations concerning the Inner Belt was ostensibly of a completely peripheral nature. There were various rumors and allegations, none of which could be proved or disproved conclusively. In 1962 City Councillor John J. Toomey made a series of charges, most of which were denied by MIT. Toomey claimed that a secret conference between MIT President Stratton and Harvard President Pusey took place in 1959 concerning the Inner Belt, at which

> the educators insisted that dislocating upward to 3,000 persons in Cambridge and Somerville was preferable to running a super-highway over railraod tracks passing MIT or reconstructing Memorial Drive which fronts both institutions. (*Boston Herald,* 1/21/62)

He further charged that Stratton had boasted that the Inner Belt would go where MIT wanted it to go. Later, Toomey claimed that the railroad route was by far the most desirable route but that MIT's "attitude destroys any possible chance that it will be recommended" because it "would affect the plans of MIT for expansion," (*Post Gazette,* 8/24/62).

In response to the 1962 report of Hayden et al., which gave as its Alternate route an alignment along the railroad tracks, MIT asked the engineering consultants Jackson & Moreland Inc. to determine the impact of the railroad route on MIT. (22) Jackson & Moreland concluded in their rather short and sketchy report that the route would be very destructive to MIT. They estimated that it would require over ten million dollars to replace MIT buildings and land taken by the route and that the route would have several other serious consequences to MIT.

Apparantly, the first MIT statement on the Inner Belt was made in October of 1964. At that time, General James McCormack, an MIT Corporation Vice-President, reportedly expressed to state DPW Commissioner J. D. Fitzgerald dissatisfaction with the Memorial Drive route. (*Cambridge Chronicle,* 10/29/64)

The only other MIT statement on the Inner Belt before February 1966 that could be found was made in January of 1965, when MIT purchased a strip of land along the railroad right-of-way. On that occasion MIT officials said that the purchase had no relation to proposals that the railroad route be used for an Inner Belt:

> MIT's position is one of opposition to use of the railroad route for the Inner Belt, but its purchase has no bearing upon the issue of the ultimate highway plans. (*Cambridge Chronicle,* 1/7/65)

If such a route was followed, the officials said, it would destroy MIT buildings and tighten the boundaries of the Institute.

Aside from these two public statements, no verifiable evidence has been found of MIT involvement in the Inner Belt controversy before 1966. In that month the Barton-Aschman study recommending an alignment along the Grand Junction railroad was published. According to the MIT Planning Officer O. Robert Simha, the Institute learned of the Barton-Aschman report about a week before it was made public. It then had Jackson & Moreland do a study of three of the routes discussed in the Barton-Aschman report: the elevated railroad route of Hayden et al., shown in figure 1 ; the depressed railroad route recommended by Barton-Aschman, which is somewhat different from the Hayden route, shown in figure 2 ; and the Portland-Albany Alternate of Barton-Aschman, shown in figure 3 .

Bombs, Bullets, and Bullshit

On February 20, five days after the Barton-Aschman report was published, MIT put forward its objections to these routes in a very strong manner at a public hearing on the Inner Belt in Cambridge, and at an elaborate press conference. At the hearing Atty. Edward B. Hanify, counsel for MIT,* read a statement giving MIT's position. This statement is already infamous, having been quoted to death both in the establishment and left-wing press, and almost all MIT officials advise ignoring it. It will therefore be discussed only briefly. Hanify's argument was basically that MIT was making important contributions to the welfare of Cambridge and the "Free World" as a whole. He made it sound as if the "Free World's" survival was dependent on the Inner Belt not passing near MIT. A few quotes will give the flavor of his remarks:

> The laboratories and research facilities which this so-called recommended route will destroy or cripple constitute a primary scientific arsenal of democracy in this grueling struggle to maintain the balance of scientific power in the service of free man.
>
> Throughout Europe, the outlines of the great roads of ancient Rome are still visible, sad remnants of a civilization that has vanished, overrun by the tough invaders of its time. Will a traveller, centuries hance, trace the vestiges of the Inner Belt and sadly note that it was built at the cost of demolishing scientific facilities that might have countered the blow that 'buried' us, to use Krushchev's warning phrase?
>
> [MIT] is a scientific arsenal of democracy. From its halls and laboratories come the knowledge and technique, the brainpower andtthe resources which contribute to our national security in an era where the laboratories and technicians of our enemies work sleeplessly to out-distance us in the race to harness the latent secrets of nature as tools of their supremacy.

and finally,

> We ask only that you see in our teaching and research facilities and defense-dedicated laboratories their meaning to humanity—their meaning to homes and to people in Cambridge and the nation—their essential role in protecting our homes and our people from the awful consequences of the scientific superiority of implacable foes. (*Boston Herald,* 2/21/66)

*Hanify is no small-time lawyer: he is a Director of A.T.&T., John Hancock Mutual Life Insurance Co., State St. Bank and Trust Co., a Director and a Member of the Executive Committee of Boston Edison Co., a Trustee of the Provident Institution for Savings, and Secretary, Director, and Trustee of the JFK Library.

This is obviously a gross overstatement of the case. Surely no one could seriously imagine that the United States Government would allow vital defense research and development to be terminated by the Inner Belt. Obviously, provisions would be made to transfer this research to other buildings, with a minimum of time lost in the changeover. In addition if these routes would deal such a crippling blow to the nation's defenses, it would seem rather strange that the telegram sent to MIT by the Deputy Executive Director of the Air Force Office of Scientific Research expressed concern only over the possible damage done to the National Magnet Laboratory by the Inner Belt, without even mentioning the laboratories where missile research was then in progress. Thus, without even questioning the dubious notion that this research (or defense research in general) does in fact have anything to do with the welfare of the people of the United States or of the world, Hanify is clearly misrepresenting the effects of the Inner Belt routes near MIT.

Telling it Like it Ain't

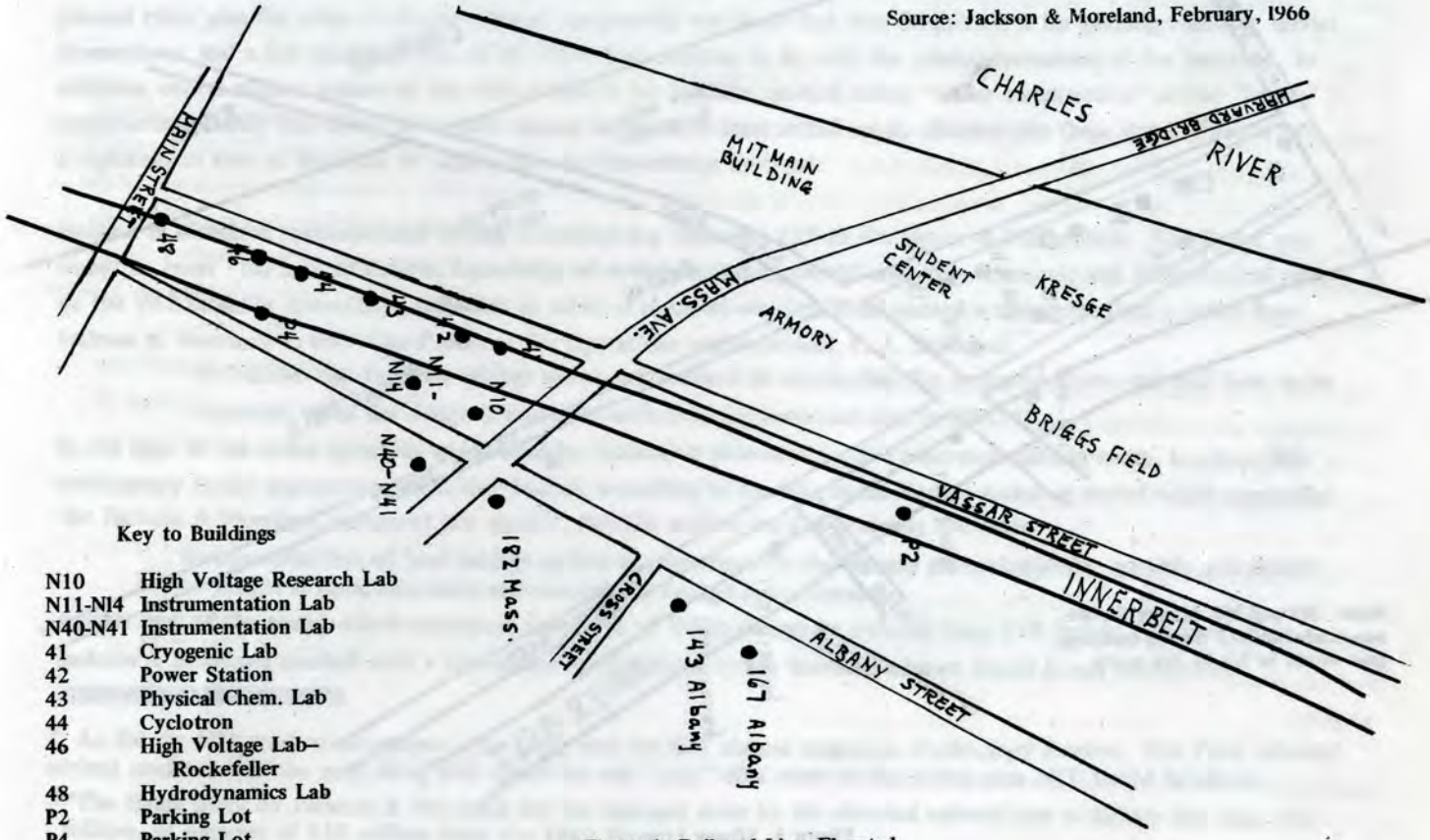
The press conference held by MIT consisted of a statement by James R. Killian, Jr., Chairman of the MIT Corporation, and a series of questions answered by Killian and President Stratton. According to MIT, Killian's statement was meant to fill a gap in the Barton-Aschman report. In that report the major criterion used to evaluate the desirability of the different alignments was the number of dwelling units destroyed, although many other criteria were used as well. However, Barton-Aschman stated that:

> Insofar as possible the expansion needs of MIT must be recognized and flexibility be retained in the design for these future needs. The effects of the alternate alignments on the present and projected needs of MIT were not a part of this study. However, these effects must be weighed prior to a committment being made on the line to be constructed.

In his statement, Killian omitted the first sentence of the above quotation. The significance of this should become clear later.

Killian stated that "in weighing such effects, MIT finds that the results would be catastrophic." (79) He then proceeded to present his case, in a skillful distortion and exaggeration of the effects on MIT of the three routes discussed in the Jackson & Moreland report. The main way in which this was accomplished was by never distinguishing among the three routes. Instead, they were all lumped together as one route without Killian ever informing anyone that this was what he was doing. In addition, Killian failed to distinguish between buildings definitely in the path of the Inner Belt,

Source: Jackson & Moreland, February, 1966



Key to Buildings

N10	High Voltage Research Lab
N11-N14	Instrumentation Lab
N40-N41	Instrumentation Lab
41	Cryogenic Lab
42	Power Station
43	Physical Chem. Lab
44	Cyclotron
46	High Voltage Lab–Rockefeller
48	Hydrodynamics Lab
P2	Parking Lot
P4	Parking Lot

Figure 1: Railroad Line–Elevated

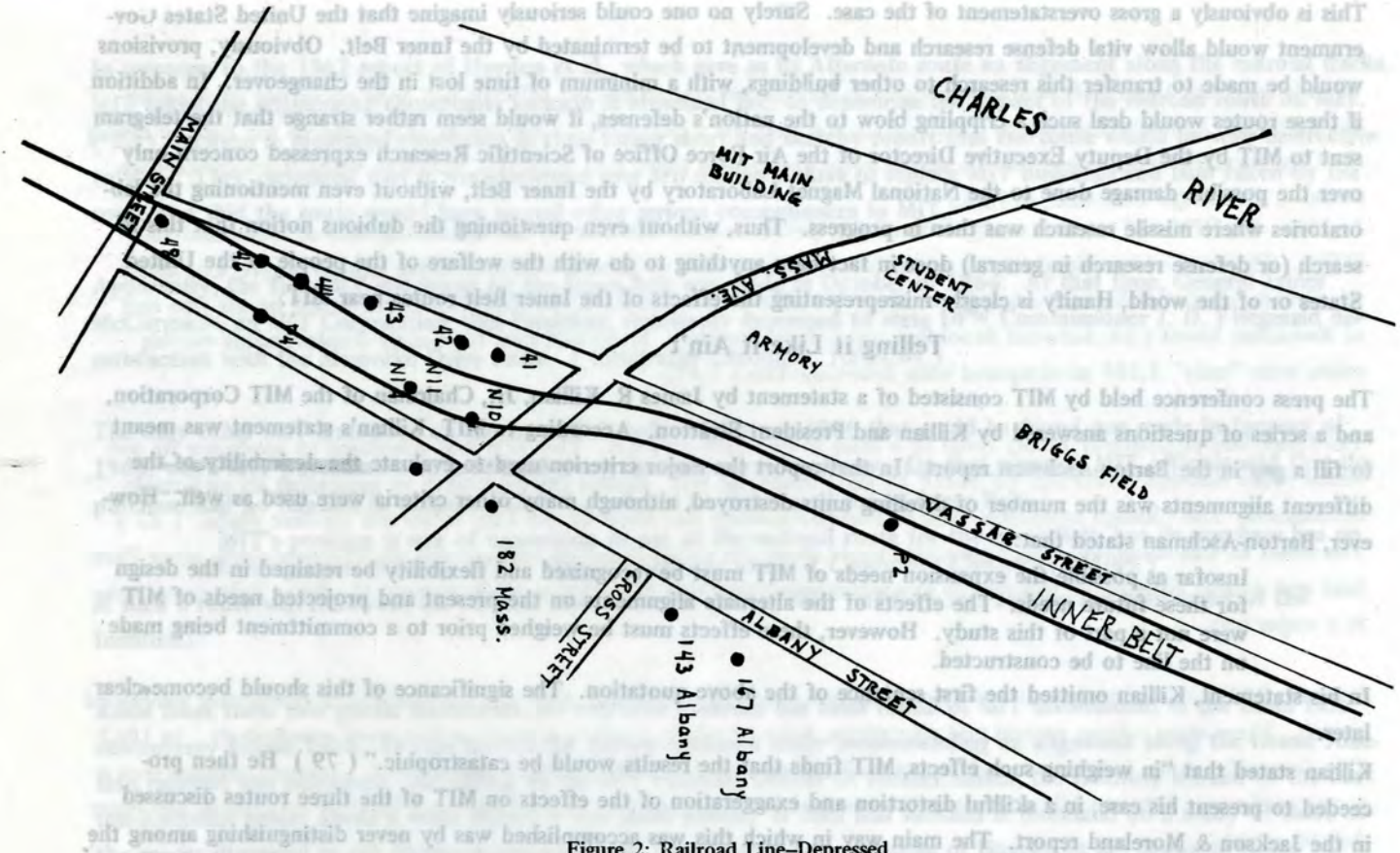
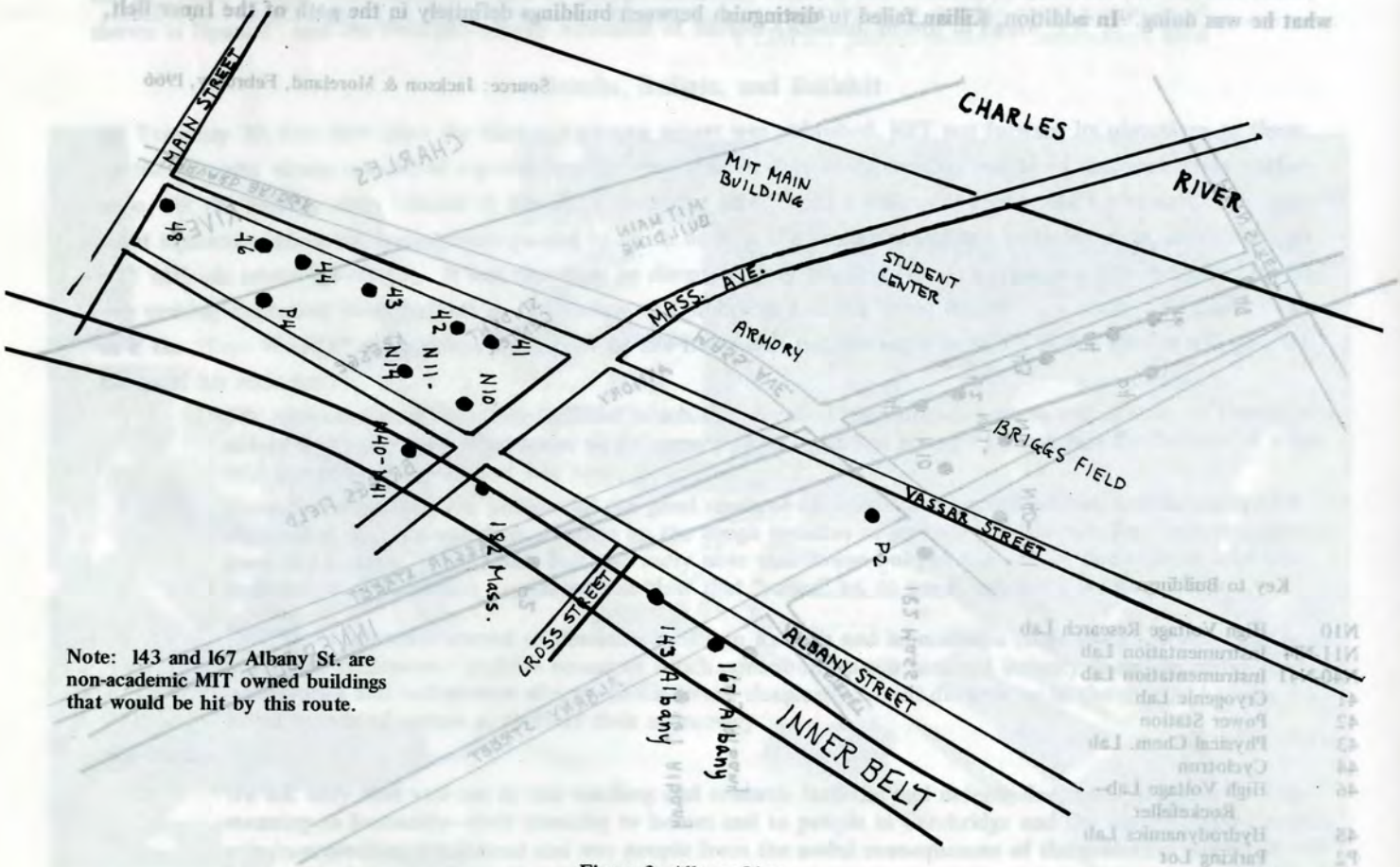


Figure 2: Railroad Line–Depressed



Note: 143 and 167 Albany St. are non-academic MIT owned buildings that would be hit by this route.

Figure 3: Albany Line

and buildings that *might* be destroyed *if* the path were wider than or somewhat different from the one intended by Barton-Aschman or buildings that *might* be adversely affected by such things as vibrations due to traffic on the highway. Thus, in describing the effect of the Inner Belt on MIT, he made it seem as if at least 15 buildings would be destroyed by any single route. Many of the newspapers reporting on the Inner Belt routes misunderstood this as Killian's statement intended them to. For example, the *Boston Herald*, 2/21/66 ran a sketch of the portion of MIT affected by the routes (provided by MIT) with the caption "MIT installations hit by the proposed Inner Belt route are..." A list of 17 buildings followed.*

If one looks at each route separately and makes distinctions between different effects, one finds a quite different picture. The elevated railroad route (not recommended by Barton-Aschman) requires the removal of the cryogenic laboratory, the power station, the physical chemistry laboratory, the cyclotron, the Rockefeller high voltage laboratory, the hydrodynamics laboratory, and two parking structures. The depressed railroad line recommended by Barton-Aschman requires (allowing, as Jackson & Moreland did in their report, a rather generous route width) the removal of the high voltage research laboratory, one instrumentation laboratory, the cyclotron, the Rockefeller high voltage laboratory, the hydrodynamics laboratory, and two parking structures. In contrast with these, the Portland-Albany line, recommended by Barton-Aschman as an Alternate, requires the removal of only one "academic" building: one of the instrumentation laboratories. Killian's statement, however, made it sound as if *all* of these buildings, plus the nuclear reactor, the National Magnet Lab, and a chilled water plant, would be destroyed by *any* of the Inner Belt routes in question.

The Numbers Game

Killian estimated the damages of "the" Inner Belt route to MIT as "at least $80,000,000." (79, p. 5) This is a gross misrepresentation. The figure that Jackson & Moreland give for the depressed railroad line is $28 million, representing their judgment of the replacement cost of the land and facilities lost by MIT.** When this is broken down, it is seen that $18 million of this is for land and $10 million is for facilities. The first figure, however, assumes two things that are not necessarily true: first, that MIT would have to purchase *new* land, north of Albany Street, to relocate its facilities; and second, that the same amount of land as the facilities presently occupy is neede for relocation (i.e., that higher buildings could not be used). Looking at the $10 million for facilities (which is an increase of $4.2 million over the present value plus the value of the abandoned equipment) one finds that over $3 million is for parking facilities, service connections, and a few smaller items, all of which have nothing to do with the crucial operations of the Institute. In addition, over a million dollars of this $10 million is for facilities marked either "under construction" or for "future" construction, hardly fair things to include among damages, at least at full value. Subtracting these items, there is left a replacement cost of less than $6 million for the laboratories involved.

Jackson & Moreland recommended adding a contingency factor of 25% to the figure of $28 million. This factor was meant to cover "the lack of definite knowledge of actual landtaking limits" and "the economic and technological effect on the MIT facilities immediately adjacent to selected rights-of-way." Killian quoted a statement from a letter from Jackson & Moreland to MIT Vice-President for Operations and Personnel, P. A. Stoddard:

> We believe that the land takings shown are minimal to accomplish the proposed routes and will have to be expanded when the design is complete with resulting increased loss to MIT.***

In the light of the rather generous width used by Jackson & Moreland for the depressed railroad route, however, this contingency factor appears unreasonable. In fact, according to remarks in the Barton-Aschman report which contradict the Jackson & Moreland statement just quoted, the $28 million itself is probably too high:

> further reduction of land takings and/or improvements in the designs are undoubtedly possible and should be sought if these alternates are selected for further consideration,

and for part of the route, where necessary, the width of the route can be reduced from 138 feet to 128 feet. How Jackson & Moreland reached such a conclusion in opposition to the Barton-Aschman report is not mentioned.

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* As did the MIT student newspaper, *The Tech*, and the MIT alumni magazine, *Technology Review*. *The Tech* editorial advised students that the only thing they could do was "pray" that none of the routes near MIT would be chosen.

**The figure given by Jackson & Moreland for the damages done by the elevated railroad line is slightly less than $28 million, an increase of $18 million from the 1962 figure.

***This statement is *not* from the Jackson & Moreland report, as Killian says it is.

Thus, Jackson & Moreland's final figure of $35 million is clearly an exaggeration of the damages to MIT. But Killian goes on to add still another $45 million. Ten million are for "possible damages resulting from other phases of the public improvement such as access roads." Such huge damages are highly unlikely since the Barton-Aschman plans call for only three sets of ramps in Cambridge, certainly no more than two, and perhaps only one, of which would be at MIT. Killian then adds the monstrous figure of $35 million for severance damages: i.e. damages due to the effects of splitting MIT into two parts, aside from takings of buildings and land. Only a few MIT buildings would be on the west side of the Inner Belt route, and with a depressed route, the barrier to communication and transportation would not be substantial. When questioned about this $35 million, all that MIT Vice-President Stoddard was able to offer in justification of such a large figure was that it is a "rule-of-thumb" that severance damages are equal to replacement costs.

Apart from exaggerating the damages to MIT in dollars, Killian gave the impression that all of the research going on in the buildings to be removed would be lost. Scores of doctoral theses would be destroyed. The possibility for treatment for 40 to 50 cancer patients a day would be gone. In fact, however, not very much work would be destroyed since ample time would certainly be allowed before the DPW actually began tearing down buildings, and changeover periods could be minimized.

Killian's statement was strewn with other, less significant inaccuracies. For example, he claimed that the railroad route would eliminate 1,017 jobs at MIT. According to the Barton-Aschman report, however, this figure applies to the Hayden et al. elevated railroad route and not their own. The depressed railroad route displaces only 892 jobs. Nor is it fair to say that these jobs would be "eliminated" since MIT would have replaced any destroyed buildings.

In summary, the effects on MIT of the railroad route recommended by Barton-Aschman are highly exaggerated. In addition, by lumping together all the routes studied by Jackson & Moreland, Killian made it sound as if the Portland-Albany alignment would also have "catastrophic"effects on MIT. To this very day MIT officials continue to state that this route is very harmful to MIT (e.g. 92). However, the Jackson & Moreland report showed that from the viewpoint of effects on presently existing MIT facilities, the damages would be small. Only one "academic" building, an instrumentation laboratory valued at $175,000, would be destroyed. Replacement cost for this laboratory was given as only $7 million.

"Don't Press Me on That"

Following Killian's statement at the press conference, there were questions from the press answered by Killian and Stratton. During this portion of the conference, Stratton was "skeptical" about receiving federal aid for relocation: "The government's not going to bail us out." It seems rather unlikely that the government would not help MIT relocate these laboratories if the work going on in them is so crucial to "national security and public well being." (79) Killian and Stratton spoke pessimistically of the possibility of obtaining the 28 acres necessary for relocation (assuming no increase in building density). When asked about the 25 acres of athletic field that MIT owned, Stratton said: "Don't press me on that." (*Harvard Crimson*, 2/24/66)

After the press conference, many people appealed to MIT to use its resources to design another route that would avoid the hardships of the Brookline-Elm route. MIT refused to do so, claiming that an independent study was unnecessary given all of the DPW studies. (99) MIT was also asked to oppose the Brookline-Elm route. Characteristically, they refused to do this also, saying that it would not be proper for the Institute to interfere in such matters.

A Cambridge Committee on the Inner Belt consisting of planners and designers, including Robert Goodman, an MIT architect, then proposed an Alternate Portland-Albany route which did not hit *any* MIT buildings. This route was studied by Prof. Charles L. Miller of the MIT Civil Engineering Department for at most a few days and his conclusion was that the route was not feasible from a technical or engineering point of view. (92) This conclusion was contested by Goodman, but to no avail.

On March 15, DPW Commissioner Sargent announced the selection of the Brookline-Elm route.

The Effect of MIT's Stunt

It is extremely likely that the DPW would have selected the Brookline-Elm route even if MIT had remained silent. For several years the DPW had been thinking in terms of a route along Brookline Street. However, it cannot be denied that MIT's actions decisively excluded certain routes from serious consideration both at the time and later, when the Inner Belt routes have been studied and restudied.* MIT's actions made it impossible for any of the routes near MIT, including the various railroad and Portland-Albany routes, to be selected. After all, how could anyone inflict damages of at least $80 million on MIT, weaken the nation's defenses, and allow 10,000 cancer patients a year to forego treatment of their disease and hope of a cure? In addition, MIT, by refusing to either oppose the Brookline-Elm route or to find another route [illegible] objectionable to both MIT and the people of Cambridge, gave tacit support to the Brookline-Elm route, which was the only one they did not protest. Under these circumstances, the only route that could possibly have been chosen was the one along Brookline Street.

The question that must be asked is why MIT took the actions that it did. It has been shown that the damage caused by routes near MIT was highly exaggerated and that certainly MIT's refusal to oppose the Brookline-Elm alignment cannot be seen as part of MIT's general unwillingness to interfere in public affairs, in light of their interference with the other routes. Thus actually two questions must be asked: first, what is the real basis of MIT's opposition to the various routes; and second, is there any reason why MIT might want an Inner Belt along the Brookline-Elm Street corridor.

Regarding the first question, the different routes must be separated. While Killian and Hanify surely misrepresented the effects of the railroad routes on MIT, these routes do sufficient damages to MIT for it to be possible that MIT would be opposing them purely on this basis. Other reasons should not be ignored, however. For example, one of the major reasons that Goodkind & O'Dea did not recommend the Grand Junction railroad route was that

> this alignment might impose a severe limitation on the planned extention of the Massachusetts Institute of Technology. The Institute has been acquiring properties west of its present campus to permit the construction of new facilities which are essential to maintaining its foremost position in technological research and development. (32)

In their evaluation of the impact of the Inner Belt on MIT, Jackson & Moreland speak in similar terms:

> The consequences of interferences to effective Institute communication imposed by a highway barrier are presently unknown. However, the barrier, in the form of *any of the proposed highway schemes* will separate the main campus from existing outlying property and *will restrict expansion potential* on the north side of the campus. (emphasis added)

When we come to the Portland-Albany routes, this latter reason is the only conceivable explanation of MIT's vigorous opposition to this route and misrepresentation of its effects. It is difficult to believe that even MIT would sacrifice the homes of over 5,000 generally poor working people just to avoid the displacement of (at most) one "academic" building worth only $175,000. The conclusion of the *Harvard Crimson* reporter in an article entitled "MIT versus the Inner Belt" seems much more likely: "MIT did not differentiate between the Portland-Albany and railroad routes, because MIT wants to expand." (Robert Samuelson, 2/24/66)

Who Wants the Belt

Now let us consider the second question: namely, is there any reason why MIT might want an Inner Belt along the Brookline-Elm corridor? In order to answer this it is necessary to examine the effects of this route on Cambridge. There are five major effects. First, the route would displace, according to the Barton-Aschman study, 1,199 dwelling units and up to 1,230 jobs in Cambridge. In view of the present housing crisis in the city, the loss of about 4% of the existing dwelling units, most of which are low-cost, would be disastrous. (69) Not only would the predominantly low-income people displaced have difficulty finding comparable accomodations, but the decrease in dwelling units would serve to drive rents in the remaining units up due to increased demand. Second, contrary to what is frequently stated, the route would cut several closeknit, racially integrated, relatively stable

*After Governer Volpe approved the Brookline-Elm route, there was so much public protest against the decision that he found it expedient to announce, shortly before election day, that he would have another study done. The result of this study was, again, the recommendation of the Brookline-Elm route. But again there was so much disapproval of this choice that new studies of the various routes and even the need for an Inner Belt itself have been commissioned. If the Belt is built, however, there is little doubt where it will go (i.e. Brookline-Elm).

communities in half. Only 10 to 16% of the people displaced would be students, and the areas along the route are real communities, with 45% of the occupants having lived there for over 12 years. (69)

Third, the Belt would provide a convenient means for MIT, NASA, and R & D firm personnel to get from their homes in the suburbs to where they work. Fourth, the Inner Belt, in conjunction with the planned extension of Route 2 and the other radial arteries, would help to provide easy access back and forth between the MIT section of Cambridge and the research and development firms on Route 128, thus facilitating cross consulting

Photo by Mike Evans

Brookline-Elm Route Passes through Here

and joint efforts. While it is true that any Inner Belt route east of Central Square would also serve these last two functions, the only one of the affected groups that has publicly expressed an opinion on the matter, NASA, has stated its preference for the Brookline-Elm route. In August of 1964, right after NASA accepted the Cambridge City Council's invitation to build its Electronic Research Center in Kendall Square, the *Boston Herald* commented that this location was seen as a spur to approval of an Inner Belt route since NASA officials conferring with the DPW expressed interest in it. (*Boston Herald*, 8/21/64) In October of that year, State DPW Commissioner James D. Fitzgerald "said...they [NASA officials] were interested in having a road finished, but didn't want the road on top of them," meaning that they opposed the Grand Junction railroad route. Fitzgerald said that "they were perfectly satisfied with the Brookline-Elm route." (*Cambridge Chronicle*, 10/29/64)

Fifth, the effect of the route on the area east of it would probably be very similar to the one envisaged in the study done by Campbell and Associates in 1957. That is, all of the area east of Brookline Street would fall to uses associated with MIT and research and development industries, with perhaps a few manufacturing industries remaining (although the recent trend has been for the latter industries to leave Cambridge). This would be due to a combination of factors. Land close to the highway would be undesireable to live on. The traditional residents of the area would also tend to leave it because of its isolation from other residential areas in Cambridge. Finally, "some observers feel that the Inner Belt...would trigger a second expansion of the type which

characterized Route 128 in the 1950-1960 period." (53, p. 45) Research and development firms would find the area along the Belt a highly desirable place to locate, largely because of the third and fourth effects of the Belt mentioned earlier. These firms would buy much of the land presently devoted to housing and factories, tearing down these buildings to make way for their own installations.

From the point of view of the R & D companies (and MIT), Brookline Street is an excellent place to have this dividing line since it will provide all of the land necessary to meet their growth needs for the foreseeable future. The Portland-Albany and railroad routes, on the other hand, would leave very little land for this.

What are MIT's feelings regarding the Brookline-Elm route? On most occasions when MIT has been asked this question, the reply has been that no conclusion has been reached. (91; 92) However, the previous MIT statements and actions are clear indications of support for the Brookline-Elm route. What else can Killian's statement that an independent MIT study of possible Inner Belt routes is unnecessary given all of the DPW studies mean, when the DPW has favored a Brookline Street route for years? How else can the fact that MIT has opposed *all* of the routes under discussion in the last several years with the sole exception of the Brookline Street routes be interpreted? At least one high-ranking MIT official has provided a rationalization for the effects of the route on the people whose homes will be destroyed. Charles L. Miller has remarked that it is just a matter of time before these people are displaced even without the Belt by market forces. * Miller said that they are in a similar position to people in Lexington with farms: it is too expensive for them to stay, land values having been driven up because of Cambridge's position in the "core" of the city of Boston. The small low-cost houses will have to be replaced by higher density dwellings. But, behind all "market forces" there are concrete people and institutions whose actions determine these "market forces." MIT, in this case, is one of the major institutions involved, as will be shown in other sections. Thus, Miller's rationalization is not a real one.

Certainly the last three effects of the route that we mentioned make the Brookline-Elm route very desireable for MIT. If the route is built, MIT will be (eventually) surrounded by industrial research and development firms, many of them working closely with MIT personnel or sharing facilities, instead of lower-class neighborhoods and factories. The people living in the houses which are not torn down will be predominantly MIT students and professionals. MIT will have all the land it needs in order to expand as it feels it must. (As Charles Miller explained in an interview, intellectual growth naturally leads to and necessitates physical expansion, and, of course, we all want MIT to continue its intellectual growth.) These are all things that will probably happen to the part of Cambridge in question anyway, especially if MIT et al. continue in what appears to be a conscious planning effort to achieve this (see other sections of this paper for evidence). However, an Inner Belt along Brookline and Elm Streets will certainly accelerate the transformation by placing it more in the hands of strong "market forces" created by the Belt location itself.

Photo by Bill Saidel

One of the Many Reputable Establishments to be Displaced by the Brookline-Elm Route

*Miller is Head of the Department of Civil Engineering, Director of the Urban Systems Laboratory, and recently appointed Director of the Instrumentation Laboratories.

The Housing Crisis

The housing shortage in Cambridge has reached crisis proportions in the past few years. (68) Part of the problem, no doubt, stems from the mere presence of the universities. Rents were always artificially high due to the student populations of MIT and Harvard (7, p.17), and firms such as Polaroid that have torn down housing for parking lots insist on expanding in Cambridge rather than building their new facilities elsewhere because of their proximity to the universities. (36) Yet there are aspects of MIT's housing policies that have added to the crisis. Furthermore, MIT's announced future policies do not seem destined to alleviate the problem and, in fact, may contribute to it.

MIT proper owns a considerable amount of real estate in Cambridge that is not used for academic purposes. Some of the properties it owns include the Cabot Building, the Kendall Building, Metropolitan Storage Warehouse, and the Polaroid building on Memorial Drive. *
MIT owns residential property through the Northgate Community Corporation. Northgate is a Massachusetts non-profit corporation created by MIT in 1965 for the purpose of providing housing for MIT personnel while paying normal real estate taxes. Eight of its nine directors are officers or members of the faculty of MIT. (51, Appendix F, p. 7) Northgate handles 206 apartments in Cambridge: 165 owned, the rest leased. Sixty-two percent of them are occupied by MIT people. (44) MIT has announced as its goal the filling of two-thirds of the units with MIT people. (51, Appendix J, p. 1)

The manner in which this is supposed to operate is that Northgate buys or leases the property, without evicting any tenants. When tenants move out, however, the vacant places will only be rented to MIT personnel. While MIT claims that Northgate serves to take pressure off the housing market, it is not clear that this is the case. It is true that this procedure results in lower rents for the MIT personnel living in these units. However, the net effect is to increase the ratio of people looking for Cambridge housing to the number of dwelling units available. This serves to drive rents up in the units not managed by Northgate. (51, Appendix E, p. 6)

In addition, questions must be asked concerning the status of the Northgate housing units before Northgate purchased them. Were there cases in which previous owners evicted the tenants, renovated, and then sold the units to Northgate at an increased price? Were rents significantly increased in any of the units before they were sold to Northgate, thereby driving out low-income tenants? This will have to be investigated further: the answers are relevant to any final judgment of Northgate's efforts.

MIT (and Harvard) has kept a listing of Cambridge dwelling units available to its personnel in its Housing Office. These lists increasingly contain apartments from traditionally working class areas of Cambridge (51, Appendix E, p.2) , indicating that landlords have been raising the rents on their low-income tenants with the expectation of getting students or university personnel that can afford the higher rents. The existence of the lists facilitates the landlords' efforts by making it certain that people who can pay the increased rents will be aware of the apartments' availability. After much pressure, MIT has stated its intentions of discontinuing this listing this year. (77)

In April of 1969, MIT announced a program to build 1,600 units of low- and moderate-income housing in Cambridge. In an article in the *New York Times Magazine*, one author heralded MIT's contribution of $38 million to the city's housing needs. (67, pp.83-84) In fact it was nothing of the sort. The plans called for construction on five sites (75):

(1) 150 low-rent units for non-MIT families on Clarendon Avenue in North Cambridge.
(2) 200 low-rent units for families and the elderly with low incomes on Erie Street in Cambridgeport.
(3) 200 low-rent units for elderly on Gore Street in East Cambridge.
(4) 200 low-rent units for families and the elderly and 600 units at market prices largely for MIT personnel at Portland Street in East Cambridge.
(5) 250 units at market prices largely for MIT personnel on Mass. Ave. near Sullivan Square.

*A partial listing of MIT property appears in the City Assessor's office in Cambridge City Hall. When MIT assistant treasurer Watriss was asked for a complete listing he replied that none existed.

Thus, of the 1,600 units, 850 are to be for MIT personnel and others who can pay market values and 750 are for low-income families and the elderly.

Millions for Defense, Not a Penny for Housing

As for the financing of these projects:

> MIT has temporarily advanced over one million dollars and purchased, leased, or entered into agreements to make available land to support the housing program. It is prepared to help in the development of the proposed program on a no-loss, no-gain basis.* (75, p3)

In other words, the projects were not to cost MIT anything. Specifically, MIT hopes to obtain funding for the low-cost housing through either the "Turnkey" program or the Section 10 (c) Leasing Program of the United States Housing Act. Under "Turnkey," MIT will plan and construct the buildings and then turn them over to the CHA, with financing provided by the Department of Housing and Urban Development. The Section 10 (c) Leasing Program is similar except that MIT would *lease* the projects to the CHA for up to 40 years rather than turning over ownership. The housing at market prices is expected to be financed by commercial developers. (75) Whether these latter units-of which at least the Mass. Ave. development will be held on to by MIT - will result in no profit to the Institute is questionable.

The present status of financing is that MIT has made a Turnkey reservation for 400 units of the low-cost housing. This means that they have a funding committment by HUD if the money is available and if the projects conform to all of the requirements. (97) MIT provides the following estimated dates of occupancy: (89)

Clarendon St.	early fall 1971
Erie St.	late spring 1972
Gore St.	late spring 1972
Mass. Ave.	summer 1972
Portland St.	fall 1972

While the entire project is still in a very early stage of planning, many difficulties with it already come to mind when two crucial questions are asked: first, what are the possibilities of the plans being implemented?; and, second, what will be their consequences?

In answer to the first question, of course, a distinction must be made between the prospects for the completion of the low-income and the moderate-income units. There appears to be no problem for the development of the Mass. Ave. site: the area is already zoned for the planned development, and commercial funds are abundant.

Three of the low-income projects–Gore, Portland and Erie–are located within the Inner Belt Study area. This is a fact of which MIT is well aware, but their reaction, "we've been waiting 20 years on the Inner Belt and decided that it was not in the interest of the community to wait any longer," (*Boston Globe,* 4/10/69) is beside the point. The fact is that HUD, in a letter to the City of Cambridge, has declared its intention of holding up all funds in the study area until a Belt route is decided upon. The study is expected to last at least another year and a half. In addition, if the Brookline-Elm route, or (probably) the Portland-Albany route, is built, the Portland and Gore Street sites will be eliminated. MIT has indicated that it is willing to seek out other sites if this happens, but this is more easily said than done. Even if it is done, it will involve a delay of perhaps a couple of years.

There are other difficulties as well. The Portland site is in a Model Cities area, so in order to get Federal money, the project must be approved by the Model Cities Board. It is conceivable that this Board would not approve the placement of 600 units of middle-income housing in an area which is supposed to be for low-income families, even if they are getting 200 units of low-cost housing in return. Neighborhood objection might also be raised to the fact that the projects at Portland Street will of necessity be very high density, requiring high-rise buildings in an area where there is nothing higher than three stories. Aside from the perhaps undesirable aesthetic effect of this, extensive zoning changes will be required, changes the city will probably grant unless there is considerable vocal community opposition. These zoning changes could have drastic consequences, which will be discussed later.

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*In a discussion with a community representative in one of the gousing areas, an MIT official had a slightly different way of putting it: "If MIT will lose a dime, we won't do it."

Furthermore, one community group already has drawn up plans for the area that places the Portland site within an industrial section (because of its proximity to the railroad tracks).

In addition, it may not be possible to build as many units on the sites as MIT announced. For example, after considerable pressure from the CEOC Planning Team in Cambridgeport–the group with which MIT was conferring about the Erie Street project–MIT has agreed to no longer speak in terms of building 200 units on the site. This was perhaps an acknowledgment of the absurdity of building 200 units on 1½ acres.

Even if these difficulties are overcome, MIT might be unable to obtain Federal funds because of the prevailing inflation and generally tight money situation throughout the country, in large measure due to the Vietnam War. Furthermore, the whole "Turnkey" concept is about to be tested in court and could be declared unconstitutional in Massachusetts.

MIT says that it will attempt to obtain state or private foundation funding if it is unable to get Federal money. Foundations, however, do not customarily fund ordinary housing projects of the type that MIT has proposed. And some MIT officials recognize that it is unlikely that the projects can be built without Federal assistance. (92; 91) When questioned as to whether MIT would allow a private developer to build the projects if unable to obtain these funds, one official replied that this could not be answered at the present time. If this does happen, it is clear that the projects cannot be low-income.

The Effects

Assuming that all of the 5 projects are built as specified, what will be the net effect? Eight hundred and fifty of the units are not low-cost, but will rent at market value. This will do little to alleviate the housing crisis. Most of the people moving into these units will be persons not presently living in Cambridge. They will be new NASA or Golden Triangle personnel (the NASA site is just down the street from the 600 unit Portland Street project) or MIT and Tech Square personnel now living in the suburbs. In 1965 the Cambridge Redevelopment Authority said with reference to the Kendall Square

Photo by Mike Evans

area in which NASA's Electronic Research Center was locating:

> with regard to the local demand for rental units, it should be noted that while some demand can be anticipated from the personnel build-up of the E.R.C. and the continuing development of Technology Square, the development plans for MIT's campus includes the provisions for only 6,000 students and does not include provisions for faculty and staff members. [Some of these will be housed on the Simplex property. See below.] Therefore, residential units in the Kendall Square urban renewal area can be expected to find a satisfactory local market from the combination of the three facilities. (14, p. vi)

That same year, James Killian's special assistant wrote:

> Here at MIT, we know from a survey of our own faculty and staff that large numbers of them who now live in the suburbs (and most of our married faculty do) would prefer to live in Cambridge if housing existed within their means and was convenient to the Institute. (41, p. 8)

The Portland St. and Mass. Ave. sites seem perfect for this purpose. In addition, in the same transaction in which MIT acquired the Mass. Ave. location, it leased for 99 years the apartment buildings at 1010 and 1039 Mass. Ave. (97) As the regular tenants move out of these, rooms will be rented only to MIT people.

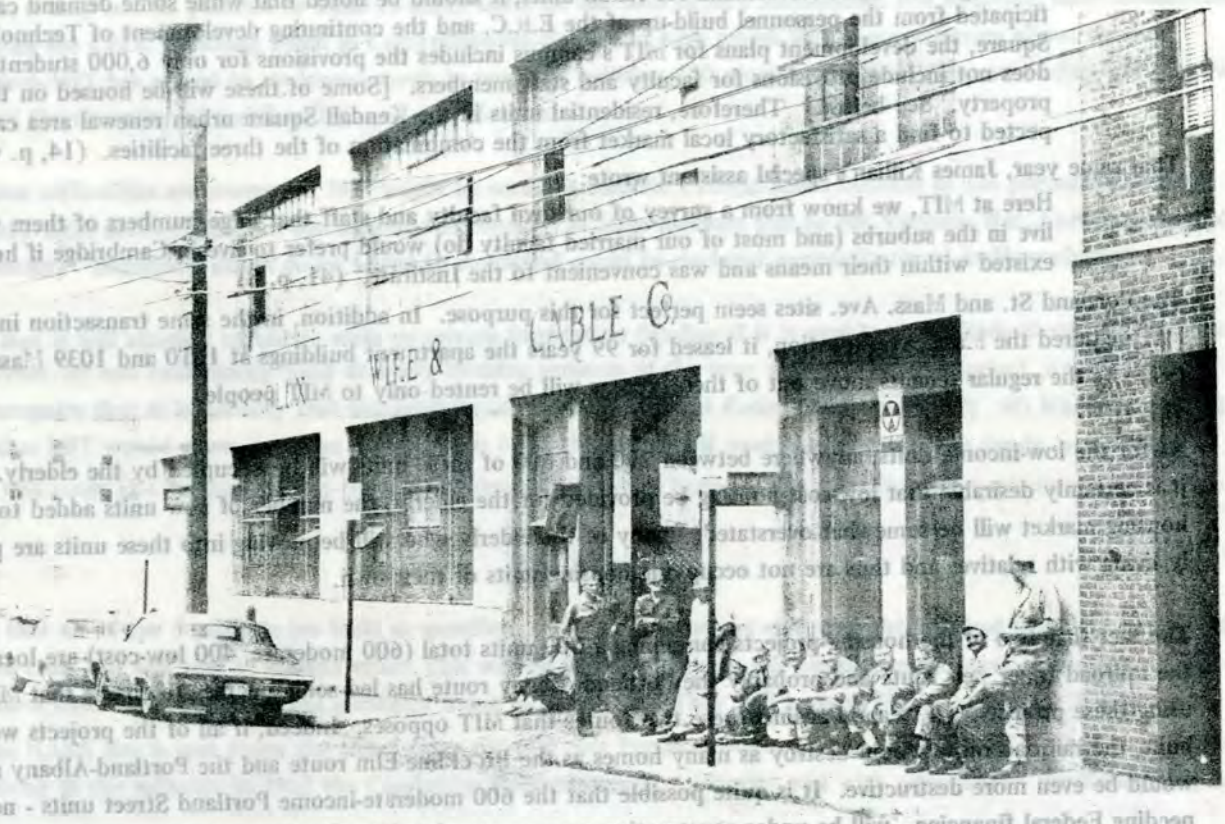
As for the low-income units, anywhere between 200 and 600 of these units will be occupied by the elderly. While it is certainly desirable that low-cost housing be provided for the elderly, the number of new units added to the housing market will be somewhat overstated: many of the elderly who will be moving into these units are presently living with relatives and thus are not occupying housing units of their own.

The fact that two of the housing projects containing 1,000 units total (600 moderate, 400 low-cost) are located on the railroad Inner Belt route and probably the Portland-Albany route has led some people to charge that MIT is using these projects as a weapon against these two routes that MIT opposes. Indeed, if all of the projects were built, the railroad route would destroy as many homes as the Brookline-Elm route and the Portland-Albany route would be even more destructive. It is quite possible that the 600 moderate-income Portland Street units - not needing Federal financing - will be under construction or even completed by the time a decision on the Belt is reached. The only thing that makes this charge seem unlikely, however, is that it is inconceivable that either of these routes would be used anyway, given the events described in the previous Case Study.

How will the various projects affect the communities in which they are being located? MIT says that it has been quite concerned about this, and thus has been meeting with groups in all the neighborhoods to discuss the planning of the projects. At least one of these groups, however, has serious doubts about the sincerity of MIT's concern. The CEOC Planning Team from Cambridgeport charges that MIT came to them to tell them what MIT had planned, rather than to actually ask them to join in the planning process. MIT has not been attempting to share any of the control of the project or responsibility for it with the neighborhood's people, the group claims. They feel that the only reason they were approached at all was for public relations purposes. Accordingly, the Planning Team has felt there was little purpose talking to MIT Real Estate Office representatives and there have been no meetings of the two for the last three weeks.

Those of the MIT housing projects which will be high density, definitely at Portland St. and perhaps at the others, will require zoning changes which can have serious consequences to the entire area. Once the area is rezoned to accomodate high-rise housing, it will become a "speculator's paradise." Speculators would buy houses in the area affected by the zoning change, tear down the older ones and build high rise apartments for the professionals who work or will work at NASA, MIT, Tech Square, the Golden Triangle, and the Cambridge Gateway. This could easily end up removing more low-rent housing from the area than are supposed to be built on the site. This would happen *whether or not the 200 low-cost units are built.* The 600 market-priced units alone will require zoning changes.

Thus, in sum, the only virtually certain result of the MIT Housing Package is the construction of some moderate-income housing with the consequences outlined above. MIT has made no definite commitment to build the low-cost housing : they have merely indicated a "willingness" to do so, "so far as possible." (75, p. 1) The way that a definite commitment could be made would be to declare its intention of using its own funds on the low-cost units if outside money is not available. (MIT's financial generosity is illustrated by an incident concerning the



city's Leased Housing Program. MIT offered 112 units to the city as part of this program, but they were refused because the rents were too high. When asked to lower them, O. Robert Simha, head of the Planning Office, replied, "Although Northgate is a non-profit corporation, we can't afford to lose money.")

Simplex

In July of 1969, MIT agreed to purchase the Cambridge property of the Simplex Wire and Cable Company. (It is perhaps of some significance that William F. Pounds, Dean of the Sloan School of Management, is a director of Simplex.) Simplex had evidently decided to discontinue its operations here. The site occupies more than two dozen acres and is in part immediately adjacent to the Institute. MIT intends to use a portion of the land to build housing exclusively for MIT personnel "with the expectation that this should help reduce pressure on existing housing in Cambridge." (76) But since the new housing will not be restricted to MIT personnel presently living in Cambridge (91, 97), it will do very little in this regard. Again, the main occupants will be MIT personnel presently living outside of the city. As for the remainder of the property, MIT expects to have commercial developments, but says it has no definite plans as yet. However, it is not difficult to see what will happen there. The land will be sold to a private developer, such as C.C.&F., who will construct buildings where R & D firms will locate. The area is almost ideal for such firms: the MIT Instrumentation Labs, National Magnet Lab, etc., are all only a few blocks away, and if the Brookline-Elm route is chosen, as seems likely, the Inner Belt will be conveniently right next to it. The likelihood of a factory that would employ the Simplex workers locating in this prime R & D area is minimal.

As it stands, the MIT projects described above are hardly the great steps to solving the Cambridge Housing crisis that they were made up to be. In fact, they may even help to accelerate the transformation of Cambridge into a city of professionals.


Gore St. Site
Portland St. Site
Mass. Ave. Site
Erie St. Site
BASIN
RIVER
CHARLES
MIT
SIMPLEX
BOSTON

CAMBRIDGE

Conclusion

When questioned as to MIT's vision of the future of Cambridge, the MIT Planning Officer O. Robert Simha pointed to the Cambridge Planning Board's pamphlet *Suggested Goals for a Cambridge City Plan* drawn up in 1965 and indicated his approval. (It would have been surprising if he did not, since he was a member of the Board at the time.) The pamphlet described a Cambridge with decreased population, an increased university and R&D sector, and an enlarged land area occupied by industry and the universities. (See the chart on page 8 .)

This transformation of Cambridge from a predominantly working class to a technologically oriented city has already begun. And to no small degree the transformation has been aided and accelerated by the conscious policy decisions of MIT, as has been shown in the case studies just presented.

Why has MIT done this? In the case studies, the actions of "MIT" have been seen largely as the actions of three men: James R. Killian Jr., Chairman of the MIT Corporation; Julius A. Stratton, past President of MIT; and Howard W. Johnson, present President; and their assistants. Why do these men seek to transform Cambridge? To understand this one must look at who these men are and why they are in these positions of power. Killian is a director of General Motors, Polaroid, the Cabot Corporation, and A.T.&T., the chairman of the board of trustees of the MITRE Corporation, and a trustee and member of the executive committee of the Institute for Defense Analyses. (Killian was instrumental in setting up IDA, and also served as Chairman of President Kennedy's Foreign Intelligence Advisory Board.) Johnson is a director of the Draper Corporation, Hitchimer Manufacturing Co., Federated Department Stores, Inc., and Lumber Mutual Fire Insurance Co., and a former Dean of MIT's Sloan School of Management. Stratton is a director of Westinghouse Electric Corp. and Standard Oil Co. of New Jersey, and chairman of the board of the Ford Foundation. Thus, Killian, Johnson, and Stratton all have executive positions in powerful corporations in the U.S., several of them significant defense contractors. This means that they are all members of a certain group of people (i.e. the class that controls the important economic and political institutions of this capitalist society and thus makes the crucial decisions), and consequently have a desire to strengthen capitalism, which they surely do not forget while they are making decisions at MIT. However, even if these men did not occupy the outside positions that they do, ultimate authority at MIT rests with the MIT Corporation, most of whose members have corporate credentials equally as impressive. Any MIT President or Corporation Chairman not making decisions as these men want would soon find his decisions overruled (and would probably be out of a job). In either case, the actions of MIT as an institution are thus taken with a view toward furthering the interests of U.S. capitalism in general and the interests of MIT.

Killian has stated in very clear terms what function MIT (and universities in general) has in the capitalist system:

> An important characteristic of our times, markedly evident in the New England region, is the growing interdependence of government, industry, and the institutions of higher learning in the fields of science and technology.
>
> The government, in its ever-increasing requirements for scientists and engineers and for the product of their exploration and ingenuity, becomes increasingly dependent on our highly technical industry and the universities. This new industry which has emerged primarily in response to the government's needs is consequently closely tied to gevernment programs and is, in turn, dependent on the product of university research, most importantly on the university's principal product: the new scientists and engineers. The universities, at their corner of the triangle, could not carry out their educational mission, expecially in the crucially important research component, without the assistance of government together with the vital help from industry which plays an essential role in maintaining their independence and enabling them to open new areas of knowledge as their own judgments may guide them.

> The great universities and medical schools of New England have throughout this century received nation-wide support in their leadership in serving the nation's educational needs. It is therefore useful to recall on occasion that the achievements of a society are in the sum of the achievements of its constituent parts and of a conscious interplay of these parts. In particular regard to the U.S. economy and the technology on which it rests, the various regions—New England not least among them—must each be mindful always of the need to do its best in developing and concerting its physical and human resources with other regions for most effective application to the general welfare. Our great strength here in New England is a common market of ideas and effort among all of our institutions and agencies, public and private. This is also true of the nation. (Quoted from the Introduction to the Research and Development Directory Compiled by the Greater Boston Chamber of Commerce, 1963-4)

In light of this, four reasons can be cited as to why MIT is consciously aiding the transformation of Cambridge to a technologically oriented city. First, MIT wants the "Free World" to be strong: it wants the U.S. to be in a favorable position vis-a-vis the arms race, and it wants the U.S. to be able to stop communist and other revolutionary movements in foreign countries that would interfere with U.S. corporation investments or prospects for future investments in these countries. As Killian stated on several occasions, the research and development which this entails can be done most efficiently and creatively in an area where many different universities and companies are brought together, as in Cambridge.

Second, as many of Killian's statements in the first case study made clear, the people who control MIT want MIT to serve industry. That is, they want to foster the rapid development of industrial applications of "basic" research at MIT, they want MIT to do a fair amount of research which will have specific industrial application, and they want industries to be able to use MIT personnel directly in an advisory or part-time capacity. This relationship is best facilitated by having many industries located near MIT.

Third, MIT wants to create an R&D center in Cambridge because it will help bring government contracts to MIT. And fourth, the rulers of MIT see this development as enhancing the "prestige" of MIT. These last two reasons are more reflections of MIT's desire to further its own interests than those of capitalism in general: it matters little to the system as a whole exactly who gets the most government contracts, or what the prestige of a certain institution is. However, the manner in which the rulers of MIT perceive the interests of MIT is colored by their view of MIT's relationship to capitalism. They want MIT to have more government contracts because they see such contracts as being good, and "prestige" in their minds is proportional to the degree to which MIT serves capitalism and the "Free World."

It is of little concern to these global calculations that the traditional residents and employees of Cambridge are being forced out of the city. Increasingly these people must leave because of rising rents, the tearing down of low-income housing, and the replacement of the manufacturing industries that employed them by R&D and university facilities. In addition, the victims of U.S. imperialism throughout the world are also suffering from this transformation: the new Cambridge is becoming a center for research and development on weapons and techniques for suppressing popular movements abroad.

What can and should be done? With regard to the detrimental effects of the transformation on the traditional residents of Cambridge, two things are crucial: low-income housing and rent control. Both are necessary. Low-income housing clearly must be built because there is presently a great shortage of such housing, which rent control cannot sufficiently alleviate. However, it would take a minimum of several years to build a reasonable amount (10,000 units) of low-income housing, and low-income residents are being forced out of Cambridge at a very fast rate. Thus a more short term measure must also be put into effect: rent control. Rent control would have the immediate effect of allowing many people to stay in Cambridge who would otherwise have to leave because of high rents (as well as, of course, improving the lot of those who must pay a large proportion of their income as rent). However, the long-term effect of rent control is

to destroy low-income housing. Landlords will find it relatively unprofitable to retain this housing if they are unable to raise rents as they normally do. Thus they will tend to keep the housing in even more ill-repair than at present, and eventually tear it down, replacing it with something that is more profitable, such as middle-income and upper-income housing for the R&D and university personnel. Thus rent control must be accompanied by a program of low-income housing.

Actually, even low-income housing and rent control together will not adequately solve the problem, because these measures can do nothing about one of the other reasons why workers are leaving Cambridge: the manufacturing industries which employ them are leaving the city, seeking higher profits elsewhere, where they can obtain cheaper labor and modernize their factories (e.g. Simplex moving to Maine). In addition, they know they can get a good price for their property from R&D firms wanting to come to Cambridge. And, of course, the R&D companies will not hire many of the displaced people because they lack the necessary skills. This cannot be stopped without stopping capitalism itself. As long as economic decisions in this country are made on the basis of the profit motive and are out of the control of the masses, industries will disregard the welfare of their employees.

Regarding imperialist research moving to Cambridge or expanding within it, the only measure that can be taken is to attempt to prevent it from being built, even if it is to be on a now empty lot, thus displacing directly no jobs or homes. If there is a considerable amount of trouble every time an imperialist research firm moves to or expands in Cambridge, other firms may find it less desirable to come to Cambridge. In this way, the efficiency of the research and development in Cambridge may be impaired, and aid given to the victims of U.S. oppression throughout the world. However, it must be recognized that imperialist research will exist as long as U.S. capitalism, and the imperialism it gives rise to, exist.

Short of overthrowing capitalism and replacing it with a system of popular ownership and control of the fundamental economic institutions of the society (socialism), there are things that can be worked for that can be won and will alleviate some of what is happening in Cambridge. In addition, fighting for them may help to build a movement that will someday be capable of achieving socialism. We make the following demands of MIT:

1. MIT MUST BUY NO MORE PROPERTY IN CAMBRIDGE.

2. MIT MUST GIVE UP THE SIMPLEX PROPERTY AND GUARANTEE FUNDING FOR THE CONSTRUCTION OF AT LEAST 5,000 LOW–INCOME HOUSING UNITS IN CAMBRIDGE.

3. MIT MUST PROVIDE SUFFICIENT HOUSING FOR ALL ITS STUDENTS AND PERSONNEL WISHING TO LIVE IN CAMBRIDGE.

Appendix

There have been five elections for nine City Council seats since 1959, or a total of forty-five positions. These have been held by seventeen different people, and eight people have held thirty-three of the positions. Of the seventeen, five are (or were) lawyers and two the wives of lawyers; one an MIT professor and one the wife of a Boston University professor. One was a banker and two own their own firms. Three others are pretty much full-time politicians. The remaining two were an insurance agent and a policeman.

The seventeen councillors included at least two directors of Harvard Trust Co., a director and a president (two people) of both the North Cambridge Cooperative Bank and University Trust, one director of Charlesbank Trust Co., one director of the Columbian Cooperative Bank, and a trustee of the Cambridgeport Savings Bank. In addition, there was a corporator of the Cambridge Savings Bank and the wife of a corporator. One of the councillors is a partner in a real estate company and one was appointed general counsel to the U S Treasury while serving a term on the council. Two of the councillors – Edward Crane, who has been Mayor for six of the last ten years, and Joseph A. DeGuglielmo, a past Mayor and more recently City Manager – are Harvard alumni, as is another recent City Manager, John J. Curry. One of the councilmen had been a past president of the Cambridge Civic Association, one a member of the Planning Board and chairman of the Cambridge Civic Unity Committee, two sat on the Redevelopment Authority, and one on the Housing Authority.

The five members of the Cambridge Redevelopment Authority in 1958, 1963, and 1968 consisted of a total of only seven different people. Thaddeus Beal, president of the Harvard Trust Co., was one of the members of the Agency in each of the years surveyed. A president of the C hamber of Commerce, Beal was also a member of the Citizens Advisory Committee in 1958, a trustee of Radcliffe College, Mount Auburn Hospital, and the Cambridge Savings Bank, an incorporator of Peter Bent Brigham Hospital, and a past president of the Massachusetts Bankers Association. Beal was recently named under-secretary of the Army.

Another man who was a member of the CRA in 1958, 1963, and 1968, was Paul R. Corcoran. President and owner of what was once Cambridge's principal department store ("Corcoran's Since 1881"), Corcoran was the chairman of the CRA when it began as well as having served on the Citizens Advisory Committee and having been chairman of a precursor committee to the CAC dealing with urban renewal. He also has been a director of Harvard Trust Co., the Columbian Cooperative Bank, and Cambridge Electric Co., and a trustee of the Cambridgeport Savings Bank as well as on its investment committee.

The other five men who served on the CRA in one of the three years were two Harvard professors, a member of the Boston Finance Committee, the vice-president of the Kendall Co. and past director of the Chamber of Commerce (also a director of the Bay State Corp. and on the auditing committee of the North Avenue Savings Bank), and the president of Tree–Land Inc. and the first chairman of the CAC– a post earned more by friendship with Mayor Edward Sullivan than anything else.

In 1954, 1963, and 1968 – a span of fourteen years – the Cambridge Board had a total of nineteen positions (not including staff) occupied by fourteen people. Aside from Councilman T.D.H. Mahoney, an MIT professor, the fourteen included the dean of MIT's department of architecture, two MIT professors, one of whom was also the treasurer of Ashley Myer and Associates, and the head of MIT's Planning Office. One was a vice-president of the Cambridgeport Savings Bank and chairman of the Cambridge Board of Assessors as well as an officer in an insurance company. There were two lawyers, the president of Ellery Garage Inc., the proprietor of Public Electric Service Co., and later managing director of the Massachusetts Electrical Contractors Association, a consulting engineer, and an architect. (Information was not available on the remaining two men.)

The first Citizen's Advisory Committee in 1956 consisted of fifteen members; the reformed committee ten years later had 36 members exclusive of specific task force personnel. Four of the people on the earlier group were put

on the reconstituted body in 1966: James R. Killian Jr., then president of MIT and now chairman of its corporation; Nathan Pusey, president of Harvard; Harding U. Greene, in 1956 vice-president of Cambridge Electric Light Co.; and Salvatore A. Percoco, the business representative of a rubber workers union, the commissioner of labor-industrial accidents, and, with his wife, the owner of Percoco's Variety Store. The 1956 group also had Raymond S. McLay, president of Tree–Land Inc., and, as already noted, vice-chairman of the CRA; Paul R. Corcoran, described above; Judge Francis J. Good of Superior Court; Mrs. Milfred McAfee Horton, former president of Wellesley College; Theodore L. Storer Jr., president of R.M. Bradley Inc., a large realty company, and director of Harvard Trust Co.; the vice-president of Simplex Wire and Cable Co.;the president of Arthur D. Little; Robert R. Duncan, then president of Harvard Trust; the vice-president of Eastern Gas and Fuel Co.; the executive vice-president of the North Avenue Savings Bank; and a lecturer and librarian at Harvard University.

The 1966 group was somewhat more representative than this. However, the fact that the group is so large tends to indicate that the hired executive director, Paul J. Frank, is the one who actually makes the decisions. Frank, in the past a director of the city's Redevelopment Authority, was the regional emergency information officer of the U.S. Office of Civil Defense in 1959 (not a particularly taxing post – but one requiring political pull to acquire) and in 1964 was elected director of public relations for the New England Council of the National Association of Housing and Redevelopment Officials.

Aside from the four members already named, the new CAC included seven lawyers – of whom three were past presidents of the Cambridge Civic Association, one had been a city councillor, and one a city solicitor, and one the president of the YMCA. There were seven presidents or high officials in large companies and the wife of such an official – one of these a past CCA president, one a director and one a president of the Chamber of Commerce, and one the head of the Cambridge War on Poverty in 1964. In addition, there were the presidents of MIT and Radcliffe, two clergymen, a museum director, and the owner of a funeral home.

The Cambridge Civic Association has a similarly high concentration of notables. In 1960 there were seven officers and 23 directors. Six of them were lawyers – one of these a city councillor – six were on university faculties or research staffs, one a Harvard Law School administrator, and one was a Somerville city official. Six were managers or proprietors and one the wife of a manager. Of these, one was a vice-president of the Chamber of Commerce and one a member of the CAC. The remaining members (except for three for which information was unavailable) were a bond analyst, an engineer, a fellow employed at Allston Labs, and the wives of a deputy sheriff, a doctor, an auditor, and an insurance agent.

The Chamber of Commerce, of course, is a businessmen's organization and most of its officers and directors are naturally businessmen. Other Chamber officials, however, have included two assistants to MIT's corporation chairman James Killian for community affairs, MIT's vice-president for operations, and the director of admissions. Harvard's community affairs representative, Charles Whitlock, is also tied to Cambridge business interests, being a trustee of the Cambridgeport Savings Bank.

An analysis of the personnel of the Housing Authority is omitted here due to the unavailability of data.

The governing board of the Cambridge Corporation consisted, at its founding, of eleven members, six of whom have already been referred to above: Killian of MIT, Pusey of Harvard, Robert Duncan of Harvard Trust, Hans Loeser, past president of the CCA, George Macomber, president and director of the Cambridge Trust Co., and Reverend Thomas Riley, the last two both on the new CAC. The other five members are Maurice Cohen, president of the Chamber of Commerce and of Lechmere Sales; chairman of the board of Arthur D. Little; the president of the East Cambridge Savings Bank; an attorney; and a clergyman.

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