

A NEW CHURCH  
FOR  
THE PLEASANT STREET CONGREGATION  
OF  
ARLINGTON, MASSACHUSETTS

by

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Signature of Author . . . . .

School of Architecture and Planning, August 31, 1950

Certified by . . . . .

Thesis Supervisor


✓

August 20, 1950

Professor L. B. Anderson, Acting Head  
School of Architecture and Planning  
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Cambridge 39, Massachusetts

Dear Professor Anderson:

In partial fulfillment of the requirements for the degree of Master of Architecture, I herewith submit to you this thesis entitled: "A NEW CHURCH FOR THE PLEASANT STREET CONGREGATION OF ARLINGTON, MASSACHUSETTS".

Very truly yours, 

Warren H. Smith

#### ACKNOWLEDGEMENTS

I wish to acknowledge the very helpful assistance and cooperation which Rev. David G. Colwell has given me in the formulation of this report, and to thank him for the generous use which I have made of his library.

I also wish to acknowledge the pleasant aid of my wife in the editing of this report and to thank her for typing this manuscript in its present form.

## The Program

The Pleasant Street Congregational Church of Arlington, Massachusetts is planning for a new church group. This new church group is to occupy the site of the present church and is to accommodate the church auditorium for the congregation, the church school, the church social activities, and all related facilities. In addition, provision is to be made for the minister's home on the site.

The solution of the program shall attempt to solve the following four objectives:

- (1) Investigation of the historic background of American Congregationalism in general, and the Arlington Church in particular, to insure that the solution shall be in sympathy with Congregational traditions and practices.
- (2) Analysis of the town of Arlington, its present city pattern, social composition, economic composition, and its relation to metropolitan Boston and the relations of the church site to these trends to determine to what degree the site will continue to retain its present focal relation to the town in the future.
- (3) Analysis of the site and its relation to the congregation to determine to what degree it can in the future be expected to remain adequate to the needs of the congregation.
- (4) Analysis of the architectural requirements of the church, size of future congregations, determination of necessary facilities and analysis of their various activities, determination of building schedule and of site-building relationships, and analysis of the various acoustic, heating, and lighting problems.

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HISTORIC ANALYSIS

### First Congregational Beginnings

The religious struggles of the English people which began after King Henry VIII ended the authority of the Roman Catholic Church c. 1536 generated many differing and conflicting church groups. Although King Henry recognized the church of England as the religion of his kingdom, many of his subjects felt that they as well as their king should have the right of personal religious expression. These nascent groups were persecuted and repressed by the State church, and the civil authorities as soon as they became sufficiently noticeable to intrude upon the established religious order. Some few of these groups were able to elude persecution and/or repression and became recognizable entities. One of these was the "Norwich Church" founded in 1581 by Robert Browne, and understood to be "the first regularly constituted Congregational Church on English Soil" (1) p.33.

The fundamental difference between Browne's congregation and the older Catholic and Angelican forms was that only those people who wished to would consciously gather into a unified and coherent group to express and evolve their own religion. This was in contrast to the overall grouping from cradle to grave which was practiced by the older forms of Christianity. "Browne had been led to conclude that 'the Kingdom of God was not to begin by whole parishes, but rather of the worthiest, were they ever so few'". (1) p. 33 This conscious group formation led to the necessity of a group agreement upon religious principle, which had to be preceded by the principles of covenant, agreement, and mutual consent. Later, the New England churches made the covenant the specific basis for their organization.

### Flight to Holland

As the various Separatist movements increased in strength and numbers, Queen Elizabeth passed "An Act to Retain the Queen's Subjects in Obedience" in 1586. The consequence of this was to make any type of non-conformity fatally dangerous and all group meetings impossible. Because of this, two congregations fled to Holland where it was possible for minority groups of many sorts to practice and retain their beliefs. The congregation which fled to Amsterdam made small progress in the furtherance of their



religion, due largely to the lack of agreement between pastors and leaders, and the subsequent disorganization of the laity.

The second congregation which fled to Leyden in 1609 was the nucleus of the Pilgrim movement which was to follow across the seas to the New World. This group had come from Scrooby Manor in Nottinghamshire, and its leaders had been earlier acquainted with the urban Separatist groups in and around London. William Brewster was the lay leader of the congregation. He had been a Cambridge undergraduate and in 1590 was appointed as "Master of the Posts" in the Scrooby region, a position of considerable responsibility and profit. John Robinson, the pastor of the group, had been a Fellow of Corpus Christi, Cambridge, and a former cleric in the Angelican Church. As he matured, he increasingly inclined toward "Separation" and after various persecutions by the established authorities and services with various congregations, came together with William Brewster At Scrooby Manor. Along with a Richard Clyfton, these two men "bourned the Pilgrim region with Separatism and .... without them there would have been no Pilgrim Fathers." (2) p. 48.

This congregation was composed of farming folk and in Holland they were in a new land, needing to learn a strange language and new occupations. They were near poverty due to the difficulty of escaping England and the plunderings and imprisonments which had been their accustomed lot. The 12 years in Leyden were hard and difficult, but when the congregation left Holland in 1620, they had acquired many new skills and trades which were to stand them in good stead in the New World.

#### To a New World

As the years in Holland passed by, the Leyden group saw their children begin to be assimilated into the Dutch culture, and saw their own group doing little more than holding its own. The shadow of fanatically intolerant Catholic Spain was creeping over Europe, and the Pilgrim group weighing the dangers possible in the New and the Old World believed "the Spaniard in Holland might prove as cruel as the savages in America; the famine and pestilence as sore, and our liberty less to look out for

remedy" (1) p. 57. Early negotiations with the Dutch for settlement in New Netherlands were not fruitful and as early as 1617, negotiations were in progress with the English king. In 1619 the Leyden Pilgrims and the First Virginia Company were chartered by King James as a joint stock enterprise for settlement and trade in the New World. The Pilgrims agreed that if a majority of their congregation could go to the New World, both Robinson and Brewster should go; but if only a minority could go, then only Brewster would accompany the Pilgrims to the New World. As the "Speedwell", the vessel which carried the group to England and the beginning of their adventure was so small, the group was under the aglis of William Bradford at Southampton. After various delays and false starts, 102 people set out aboard the Mayflower and after a trying two month's voyage, reached the shores of Cape Cod on November 11, 1620.

#### Ashore in a New World

As the name of the Virginia Company indicated, the Pilgrims were to land on those shores. However, what at the time must have seemed an unfortunate accident in coming to the much harsher northern shore of Massachusetts, historically seems to have been an act of Providence. The Puritan settlements in Angelican and Catholic Virginia and Maryland were continually harassed and persecuted and were finally eliminated, and it is reasonable to assume the same fate for the Pilgrims in those localities.

On November 11, 1620 the small band of Pilgrims aboard ship drew up the Mayflower Compact, which was the authority and rule of their secular organization. After a month of investigation about the shores of Cape Cod Bay to determine a site, the party decided to come ashore at Plymouth Bay and landed there about December 12, 1620. The first year was a desperate one, with half of the original group of 102 dying. However, by 1623, the settlement was stabilized and slowly growing. By 1632, there were two more Pilgrim settlements in what are now Duxbury and Marshfield.

The aforementioned absence of pastor John Robinson from Plymouth was a lamented but again probably a good thing from an historic view. His absence forced Elder Brewster and others into the performance of most of the ministerial duties and had an enduring effect upon Congregationalism.

as "It educated the membership increasing the sense of individual responsibility, proving that the vitality and efficiency of a church need not depend upon its minister." (4) p. 68.

#### Puritans Come to the New World

In contrast with Pilgrim beginnings which were manifested by a separation from the Church of England and thus earned the name "Separatist"; the Puritan approach was manifested by a change within factions of the state church, changes of religious emphasis. Two aspects of this were that the Puritan leaders were usually of the nobility contrasted to the university men which led the Pilgrims, and that since Puritanism formed within the approved church, was a numerically larger and a materially more powerful force than the separatist Pilgrims were. Thus the two groups who were destined to encounter each other in the New World were not particularly friendly toward each other.

Not until Charles Stuart succeeded James as King were the Puritans moved to civil action. Charles claimed divine right to rule and gained the support of the Church of England. As history tells us, this ended in the Cromwellian Puritan rebellion and the subsequent decapitation of King Charles. During the 1630's when Cromwell ruled England, the Massachusetts Bay Company was founded. Although the Pilgrims were the first white settlers in the area, the Bay Company became the Province and the Province became the Commonwealth of Massachusetts. In 1629 the Puritan Earl of Warwick obtained a charter grant of land between the Charles and Merrimac rivers, and extending indefinitely west. This project attracted Puritans of rank and resource and in 1630 a fleet bearing between 9 and 10 times the numbers of the original Pilgrim group reached New England in June. Along with the much larger size of this venture, the fact that the Puritans brought their charter and governing body with them was to have a great effect upon later Congregational development. Upon arrival, the Puritans scattered themselves through the Boston Bay area and these settlements are now metropolitan Boston and its environs. Other ships followed and by December of 1630, there were about 2000 settlers in the area. During this period, Puritan settlements were made from Maine through Massachusetts to Maryland and Virginia,

and hence down through the Bahamas and the Bermudas to the West Indies and the coast of South America. Some of these settlements prospered, while many others failed, due to either the already present natives or orthodox Angelicans or to both.

The Puritan ideal church was much closer to the Angelican than to the Pilgrim. This might be surmised from the prior statement that the landed gentry and the nobility were a large factor of Puritan power. This, and the temporary success of Cromwell's Commonwealth partially account for the large and diverse outpouring of Puritans to the New World. As in old England, the Puritan magistrates in New England would still enforce religion, but in New England, the religion would be Puritan. This continuing pattern of religious enforcement was later to create in the New World the very conditions of repressions, imprisonments, and torture from which the Puritans were escaping in England.

#### Fusion of Pilgrim and Puritan

The Puritan settlements were much larger and more numerous than the Pilgrim ones, and naturally were materially much stronger. The Puritans also practiced a much more fundamental religion and the result was "a church-state which John Calvin in Geneva would have envied" (1) p. 80. This was due primarily to the Puritan doctrine that life is only a journey toward God which is beset with evil and temptation at each step. Religion was the Puritan's only avocation and as they had an abundance of clergymen due to the persecutions in England, the clergy soon dominated all secular life as well.

The final rapprochement between Pilgrim and Puritan was a resolution of three forces: the "Separatist" Pilgrim movement from Plymouth, the semi-Presbyterian Puritans centered around Boston, and the mutually inherited conception of the right of the civil authority to order religion. In 1648, the Cambridge Synod fused these forces into one church government. The ultimate effect was a compromise system of checks and balances which Atkins and Fagby (1) feel to be the precedent for and germinal rudiment of our Constitution. A system of checks and balances was created whereby

the individual congregations remained Pilgrim in that they exercised full control over their local church and parish affairs, while the inter-congregational organization continued to follow the Puritan synodical form. This legal organization has continued basically unchanged down to this day.

### Intolerance and Persecution

The pattern of civil authority enforcing religious worship soon created in New England the very conditions from which the Congregationalists had fled in England. The hangings, burnings, whippings, fines and imprisonments which were the lot of Quakers, Baptists, and other non-conforming groups revealed the flaw of civil authority over religious worship. As responsible clergy and laymen courageously spoke out against these degrading indecencies, people began to retreat from their fanatic beliefs and practices. This, accompanied by the ever continuing migration of people to New England who had other forms of religion brought about the gradual dissociation of secular and religious authority until the present day pattern was reached.

### Expansion in Colonial New England

As the 17th century advanced to a close and the 18th began, new colonists and new denominations came to New England in ever larger numbers.

Due to the pressures of the frontier and the French to the north and west, the colonial society developed slowly and coherently. The general pattern of expansion followed the movement of young settlers still affiliated with their old church. With sufficient support they would found and consolidate a new church and community; an ever-repeating process. The general method of church support was by community taxation which could be tolerable only in a homogenous religious community. However, as new denominations entered, the Congregationalists withdrew from public tax support and took a freer and more flexible role in community life. During all the years of expansion, the very nature of the people and their society produced the most coherent and integrated society in this New World. The old towns of New England today are beautiful evidence of the integration of religion, life, and government as witnessed by their homogeneity of form and expression.

The focal point of these towns was and is the church and town hall.

At the time of the revolution, New England was still staunchly Congregational. It is estimated that there were 530 churches in 1760 which would have meant that about 80% of the church-going colonists were Congregational.

### Unitarian Schism

As Congregationalism by its very nature and organization allowed for quite large variations in orthodoxy between congregations, an almost inevitable result was that an organized schism would develop. In the post Revolutionary period the church began to develop a more liberal group. By 1820 this movement was so clearly defined that its members could meet and organize, which they did that May in Boston. A "Unitarian Book Society" and "The Christian Register" followed in the next few years until the formal break came in 1825 with the organization of the "American Unitarian Association."

A peculiar feature of Congregational parish organization had been that the church was not distinct from the parish and did not own its physical and legal structures. Now, with the schism, this was to have harsh consequences for many Congregational parishes. "Under the decision of Chief Justice Parker, that a church has no legal status apart from the parish, 81 churches in Massachusetts lost their houses of worship, their records, and their very names. Thus, 1,300 Unitarians dispossessed 3,900 Orthodox Congregationalists of (church) property to the value of \$600,000" (4) p. 119. This was a tremendous blow to Congregationalism as 125 churches went over to the new group. 20 of the first 25 churches, and 10 of Boston's 11 churches seceded to the new denomination. From henceforward Congregationalism and Unitarianism were to run their separate but rather parallel courses.

### Local History of the Pleasant Street Church

The Pleasant Street Congregational Church, originally rather defensively named "The Orthodox Congregational Church of Arlington," was organized in

1842 to continue the tradition and religion of the Old Parish Church of Arlington, which after 90 years of orthodoxy (1739 to 1828).....became Unitarian in 1828" (5) p. 3. During the 14 years between the disinherittance of the old church and the formation of the present one, Miss Anna Bradshaw was the motivating force in the formation. She owned two acres of land and lived on a homestead approximately where the present church now stands. Although she was desperately poor, living on a cash income of \$30 per year from land rental and whatever she made by boarding school teachers and raising silkworms, she gave the site of her homestead to the church when it was built in 1842, in return for a small annuity to enable her to continue her support. When she died in 1869 in her 80's, she bequeathed her remaining land and house to the church. This land was divided into five lots and a path which later became Maple Street. Four of these plots were sold and the proceeds used to build the present parsonage.

In Miss Bradshaw's house, many casual religious meetings were held and by 1842, meetings were being held with ministers and members of churches in the West Cambridge area which resulted in the formation of the present church.

At this time, the Baptist Society of Arlington offered the use of their church to the newly formed congregation. Within two years, their own church was dedicated on November 29, 1844, the structure costing about \$6000. Within the 108 year history of the church, only eight men have served as pastor. The membership has always been small, beginning with 34 in 1842, and today being 460.

The present structure was remodeled in 1857 and a steeple was added which blew down in the 1871 hurricane. It was replaced with another which lasted till the 1938 hurricane. The church was enlarged in the 1880's and stained glass windows were installed. A new organ was installed in 1899 which is still in excellent condition today. In 1909 the original pulpit was restored and has remained in use to the present; and all but one of the stained glass windows were removed because of the opulant effect which they gave. In 1944, Miss Josephine Whititaker willed the church \$42,380 which was set up under the trusteeship of Rev. L. L. Barker as the Josephine W.

Whitaker Trust Fund. As the fund can be used at the discretion of the present trustee, it is reasonable to assume this to be the main component of the church building fund. The Rev. Barber retired in December, 1944 and Rev. David Colwell became the present pastor in early 1945.

#### A Congregational Declaration

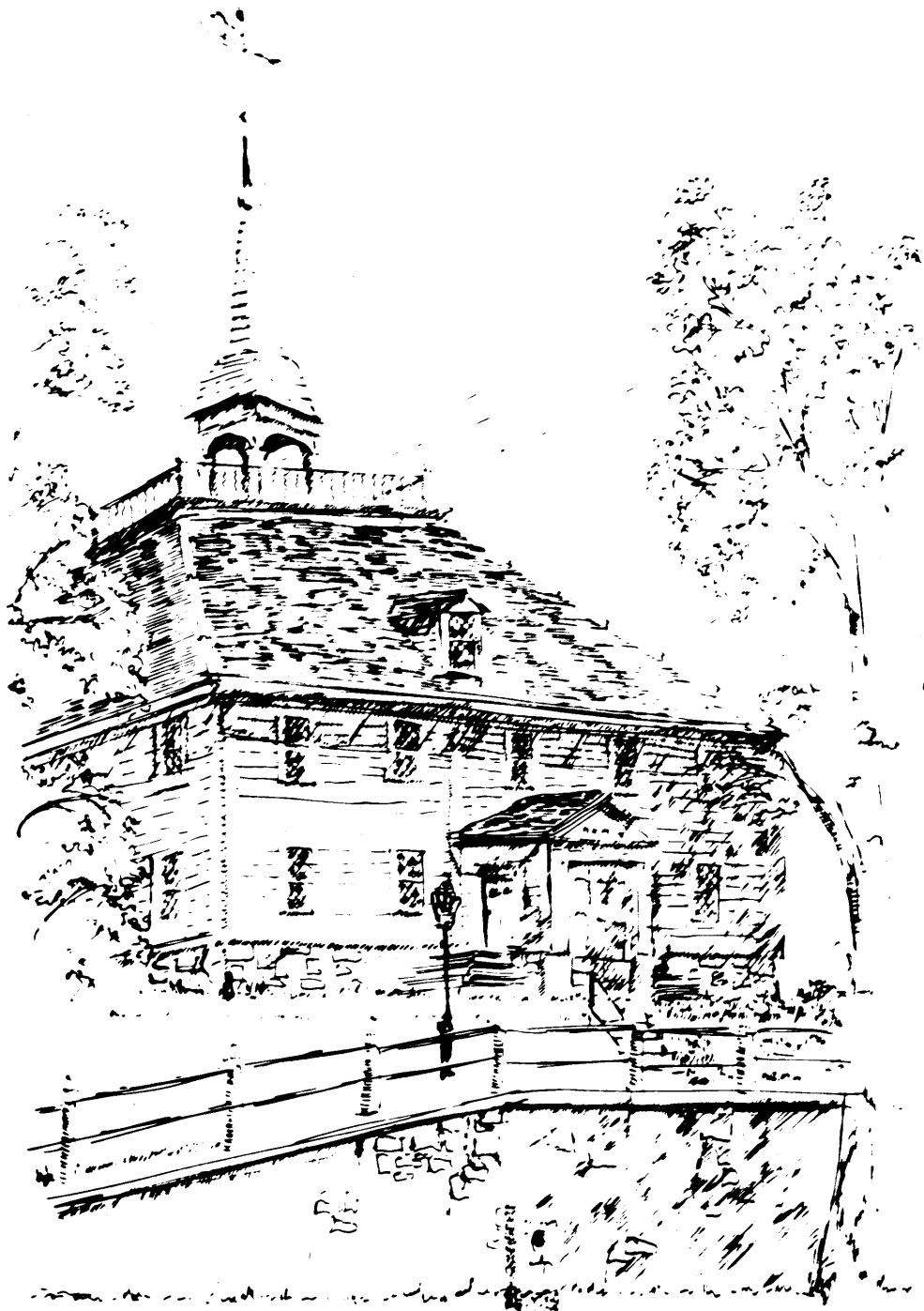
"Congregationalism is a Christian democracy, protestant in spirit evangelical in faith. Like other Protestants, we hold Christ to be the supreme and only Head of the church, and admit the authority of no mandate but that of God's Word.

The doctrine of the church is our distinctive tenet, the essence of which is that a church consists of a company of regenerate persons, publicly covenanting, worshiping, and laboring together, with an equality of rank and of rights, regulating their own membership, electing their own pastor and deacons, managing their own affairs, exchanging fellowship and counsel with other churches, but submitting to no dictation or control from any human source, whatever, and recognizing no ecclesiastical offices but those of the local church." (4) p. 1 and 2.

#### A Congregational Creed

"Seven significant words denote the essential attributes of Congregationalism: biblical, Christial, evangelical, spiritual, Calvinistic, democratic, and practical. It claims no exclusive possession of any of these attributes, but combines them in certain proportions and expresses them through certain methods characteristic of itself. It sets a high value upon truth, and upon clear statements and expositions of the truth...yet it has never attempted the formulation of a distinctively and authoritatively Congregational creed, and could not do so without ceasing to be itself." (4) p. 182.





1681  
The Old Ship Hingham  
Built by ship's carpenters. - hence the nick-  
name for the First Parish Meetinghouse. The  
oldest church in continuous use in America.



1729

Old South Meetinghouse, Boston  
Scene of many historic moments. Almost  
destroyed in Boston fire of 1872. Restored, it  
became an historic monument in 1876.



1828

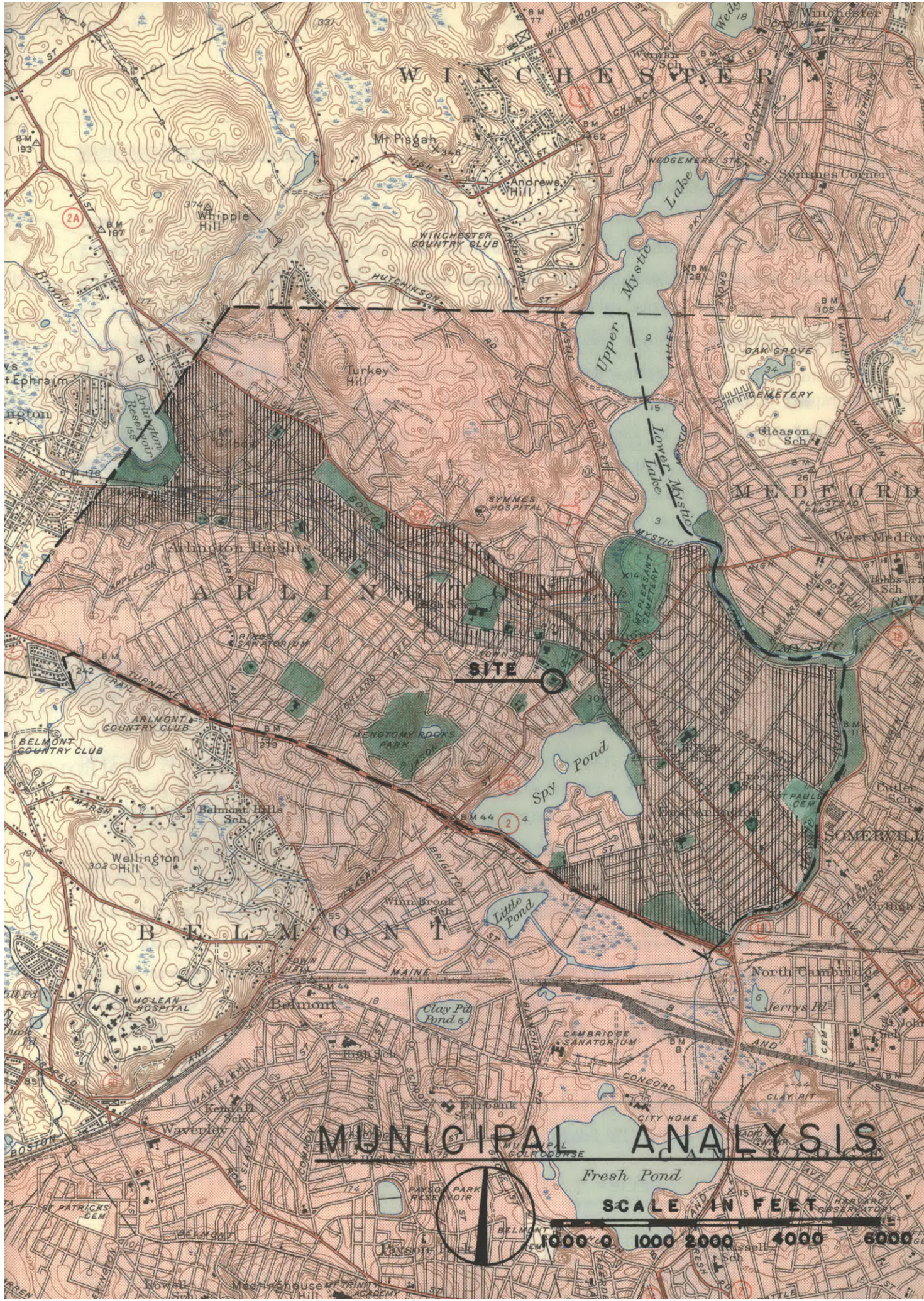
The Eliot Church, South Katich

"Built in memory of John Eliot on the site of his meeting house where he preached to the Indians in their native tongue"

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# WINCHESTER

# ARLINGTON

# BELMONT

# MEDFORD

# SOMERVILLE

## MUNICIPAL ANALYSIS

SCALE IN FEET

1000 0 1000 2000 4000 6000



### Municipal Organization

Arlington is the second largest town in Massachusetts using the town meeting form of government. This is a direct holdover from the colonial times when the town meeting was the instrument of the joint church-municipal government. The location of the Town Hall and the original Old Parish Church on the village square still bear physical testimony to this. As there are over 300 elected town officials, 240 of whom are town meeting members, Arlington literally has representative government. However, the community at present is debating the change to a town manager form of government. The obvious efficiency of this change is opposed by the feel of real participation of government which is engendered by the town meeting. Although all political forecasts are rather in the nature of a guess, all trends point toward the eventual adoption of a town manager plan, but only if a working compromise with the town meeting can be effected.

### Population Composition

In 1940, Arlington had a population of 40,013 of which more than 50% were female. Nearly 33,000 were of native white stock while over 7000 were of foreign white stock. There were also 35 Negroes. Approximately 30% of the population was under 21, while less than 10% was over 65. The largest portion of foreign born come from Canada, Eire, Italy, Sweden, England, and Scotland, in that order. In 1947, Arlington's birth rate per 1000 of population was 18.7 and there were 194 births per 100 deaths.

Present estimates place the population at 46,600. The past ten years have shown a gradual diminishment of foreign born, proportionally, and possibly numerically. The increase has been almost completely of native born white stock, and a slight increase of negroes. Percentagewise, the older age groups are growing, and the younger groups are losing. Accurate forecasts until the 1950 census results are available are quite difficult, due largely to the movement in and out of Arlington from neighboring towns.

### Economic Composition

As the town seal indicates, the people of Arlington originally engaged primarily in agriculture. Today, the principal types of manufacture

are dairy products, lumber and other building materials, machinery, and cabinet work. These do not constitute the major source of economic stability for the present-day town. Today Arlington is one of Boston's residential suburbs and derives its major economic stability from Boston. It is to a large degree a "bedroom town". However, it is more fortunate than the towns lying nearer to Boston because its increased distance does allow the town merchants, professional people, and small industries the chance to supply a fair part of local needs and services.

#### Location

As the proximity of Boston affects the economic life of the town, so it also dynamically affects the physical structure, population, and social composition of Arlington. "On the Boston side of Arlington are Somerville and Cambridge with their Boston-like conditions of sordid crowdedness (and industrial activity) while to the north and west are Winchester, Lexington, and Belmont, all well-to-do residential suburbs with plenty of room for expansion. Arlington thus finds itself in the dubious position of warding off invasion from the aggressive and crowded southeast, while trying to reinforce its original position of being more like its neighbors to the north and west. Perhaps this fact, as much as any other, can account for the retrenchment so evident in Arlington's thoughts and actions, although such behavior may not be always consciously directed. The outcome of this struggle surely will determine to a very large degree the town's future". (1) p. 6. An indication of this conflict can be seen in real estate fluctuations. In 1940, Arlington real estate values were only slightly lower than those of Lexington and Winchester. The average cost of one-family units according to building permits in 1948 was \$8200; certainly a lower median than eight years previously. "The median figure is not available, but a tour of the town will indicate to one that post war building reflects to a considerable degree....the conflict noted earlier that is ensuing between Arlington and her neighbors to the south and east. Many homes are low and medium in cost, something new for Arlington". (1) p. 8.

The zoning map shown in Plate #1 gives a graphic indication of the aforementioned trends. All areas which border the towns of Somerville, Cambridge, and lower Medford are zoned as "Residence B" districts (3). With the

exception of a small development of medium priced homes on the east shore of Spy Pond, this has condemned East Arlington to a secondary status as a residential area. Conversely, those portions of the town which border upon Belmont, Lexington, and Winchester are all "Residence A" districts (3). The exception in this case is the old area along Massachusetts Avenue which was created by the extension of the streetcar line to Arlington Heights.

#### Future Development

As Arlington becomes evermore a part of metropolitan Boston, it has to shoulder a proportionally larger share of metropolitan problems.

The most general problem, and therefore most difficult to assess, is that of the dispersal of the population out from Boston. This can be expected to affect Arlington directly. Plans now under consideration for the extension of the subway to North (west) Cambridge will bring at least East Arlington into time completion with all of the inner ring of Boston suburbs regarding commuting. The added advantage of a comparatively open and unspoiled town will be too much to overlook. Thus it is a reasonably sure forecast that East (and to a lesser degree all) Arlington will experience a population growth due to improved commuting facilities. This should considerably affect the rate of encroachment of Somerville and Cambridge conditions of crowdedness.

One slightly alleviating feature is the distinct boundary features which Arlington presents on its Boston side. Thus, although East Arlington may resemble Somerville and Cambridge more and more in future years, it will still retain its identity. Mystic River and Alewife Brook with their attendant Parkways will insure that, as they allow but three entry streets along the entire eastern town line.

There is further reason to believe that future East Arlington conditions can be to a large degree localized. The location of Spy Pond to the south and Mt. Pleasant Cemetary and attendant park and school areas to the north of the Town Center leave but a 700 ft. corridor connection between East Arlington and the balance of the town. Since these areas are as nearly permanent as urban features can be, there seems to exist a permanent belt which will do much to prevent the extension of lower class residential districts.



The remaining "Residence B" districts border Massachusetts and Summer Avenues with the industrial belt between them (3). In relation to the aforementioned conditions, it seems reasonable to conclude a steady expansion of "Residence B" districts at the expense of the "Residence A" districts to the north and south.

The overall future picture of Arlington appears to indicate a town with four distinct elements, all coming into contact with each other in the vicinity of the present Town Center. These four areas appear to be:

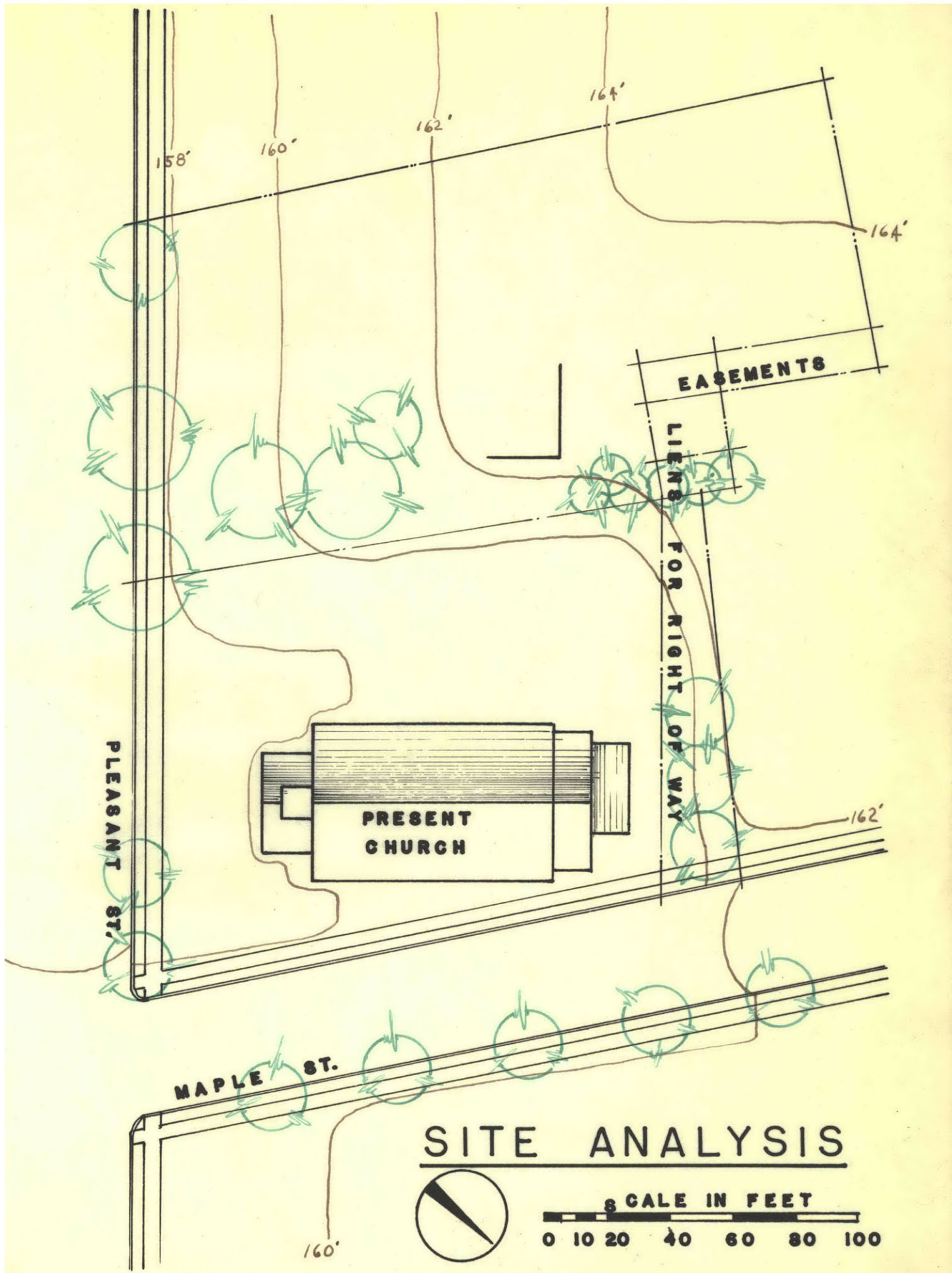
- (1) A "Residence B" district running the length of the town on an east-west axis, pinched to a mere 700' width near the town center.
- (2) A "Green-belt" district on a north-south axis, passing through the Town Center.
- (3) Two large "Residence A" districts lying west of the Town Center and north and south respectively of the Massachusetts Avenue traffic artery; the one to the north limited by Mystic Lakes but having a free border with Winchester; the one to the south limited by the Concord Turnpike but having a free border with Lexington.

#### Conclusion

In the light of the above analysis, the Town Center seems likely to retain its position as the town's center for the predictable future. All local traffic arteries cross here, as do highways 2A and 3 and Route 60 running east-west, and north-south respectively, further insuring this point as the focus of Arlington. This analysis of the town of Arlington indicates that the location of the Pleasant Street Congregational Church will continue to be in a focal position in relation to the town. It remains to be seen whether a Site Analysis will confirm this position in relation to a dynamically changing congregation.

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Town Engineer



PLEASANT ST.

MAPLE ST.

PRESENT CHURCH

EASEMENTS

LIENS FOR RIGHT OF WAY

# SITE ANALYSIS



SCALE IN FEET  
0 10 20 40 60 80 100

Inspection of Site

The foregoing Municipal Analysis determined that the present selected site would continue to occupy a focal position in relation to the town. It now remains to be seen whether it will do so for the present congregation, and for further congregations, so far as they can be determined.

Inspection of the town map on Plate 1 indicates several important facts. Primarily, not only the Pleasant St. Congregational Church is located adjacent to the Town Center, but the Episcopal, the Unitarian, the Universalist, and the Baptist churches as well. These five constitute the traditional New England churches of Protestant faith, and all five have given more than 100 years of service to Arlington. These church's proximity to one another indicates that they have great overlapping of parishes. This would probably be a more important factor if it were not for the strong denominationalism which has always existed in New England.

Inspection of the town map indicates that the present site is located in the center of the congregation. This is verified by the following table which was compiled from data noted on the map.

Radius	Percentage Congregation	Cumulative Percentage
1/2 mile	50%	50%
1 mile	36%	86%
1 1/2 miles	10%	96%
2 miles	4%	100%

This is probably due both to the fact that in the past, all population was centered near the Town Center and thus the site served its parish admirably and as time passed, new members in that neighborhood attended the church as a matter of convenience, among other factors.

Inspection indicates that the site is in the only "Residence D" district in town. This district covering an area only six blocks along both sides of Pleasant Street was created in 1948 to allow for an orderly

and planned development of the old mansions which now line this street. Since the zone includes all the larger old mansions of the area and the district is surrounded by smaller homes of the "Residence A" district, there is small possibility that this apartment district will ever be extended. The primary purpose of the zoning area was to preserve the outward appearance of the mansions which line this most pleasant of Arlington's streets by allowing their conversion to apartment usage. In the future, new apartments of a good quality are expected to replace some of the present older mansions (3). Also, since the "Residence D" district is framed as an adjunct of the "Residence A" zone, the Pleasant street neighborhood can definitely be expected to retain its homogeneity.

The actual building site, located on the southwest corner of Pleasant and Maple streets, is of roughly rectangular form. It consists of two plots, the existing church site on the corner, and the recently purchased Brackett property to the southwest. Together, these two plots comprise an area of 49,416 square feet of which 35% (1) or 17,295 square feet may be covered by a building. It is thus an ample site for the location of a church group of the relatively modest proportions needed by the Pleasant St. Congregation. Zoning laws require a 35 foot setback in the front, and a 25 foot setback in the side and rear yards. The area occupied by leins and easements can be regarded by law as part of the setback areas which are required. The site has a rise of about 5 feet on the western corner, with a very gentle slope toward the streets. As the photographs of Plate 1 show, there are many magnificent trees now standing on the land.

#### Location of Future Congregations

Unfortunately, the church does not possess any data on the date each member entered the church. Therefore, membership trends cannot be plotted and it is necessary to depend upon the trends as observed by the minister, Rev. David G. Colwell, and the church Historian, Mrs. George Rugg, and to correlate them with such indications as can be deduced from the zoning map of Plate 1.

We have previously noted the various percentages of the congregation living within the various half mile zones of the church. Of that membership,

30% live in "Residence B" zones and 70% live in "Residence A" zones. If we follow the general assumption that "A" districts are the most stable type of residential zone, we assume the church membership to be very stable, as the church records verify (5). Church membership stability has been tending to decrease, and more members have been tending to live in "B" residential zones. As the "B" zones will probably show a steady but slow future increase, we can expect a comparative decrease of membership stability.

Another contributing factor will be the "Residence D" belt along Pleasant Street. Thus, what is now the most stable portion of the church membership will evolve into the most unstable portion, as the older members of the church who live in this area retire from church life. Although Rev. Colwell expects his church to benefit in attendance from <sup>this</sup> evolution, he believes that the transient nature of apartment dwelling as contrasted to home ownership (which is the general case of the neighboring "Residence A" zone) will not encourage a significant portion of this increased attendance to become church members or otherwise contribute to the church. As in the past, the bulk of church membership will continue to come from the "Residence A" districts, and possibly even to a greater degree as East Arlington becomes increasingly Catholic due to population increases from the towns east of Arlington. In that case, membership will possibly slowly grow away from the church site, as the "A" zones now are building toward Lexington and Winchester. However, this movement should not seriously affect the validity of the existing site for at least three reasons. One, past experience concerning members moving away from Arlington Center indicates that the people who move out of the city rarely continue their church membership, while those who move to other sections of Arlington do continue their participation rather than joining a nearer church. This latter is due to the strong denominational sense which has previously been mentioned and to the focal position the present site occupies in relation to transportation, and of course the desire to remain within a well-known and well-liked group. Second, no part of Arlington is more than two miles from the present site, which, coupled with the factor of transportation means that the present site is in a focal position for any section of town. This latter factor was borne out in the previous analysis of the town.

The future picture seems to indicate church membership located in the same three zones as at present, but in different proportions and locations.

(1) The southwest "A" district will continue to hold the bulk of the congregation but with a westward focal shift.

(2) The northwest "A" district can be expected to gain in membership, as more of this now relatively uninhabited area is occupied.

(3) East Arlington can be expected to become increasingly Catholic as people crowd into the area from the east so the present number of church members can expect to do little more than hold their own.

The two "Residence A" districts which will hold the bulk of the future congregation are separated by a quarter-mile wide business and industrial belt along Massachusetts Avenue and Summer Streets. This belt is pierced with main traffic arteries only at Arlington Center and Arlington Heights, and has but four minor connecting streets between. Since the bulk of the congregation is slowly moving westward from the Center, it will be many years before the center of membership can fall nearer Arlington Heights than the Center. The minor connecting streets do not offer particularly focal locations, even were land on them available, which it is not.

#### Other Determining Factors

Even if the present site were not adequate in the light of the foregoing analyses, further considerations weight in its favor. Upon inspection of building sites in Arlington, it is readily apparent that there are none which are more focally located than the present one. The southwest "A" zone which logically would be the secondary choice is almost completely built up except for scattered areas on the periphery and a few plots on relatively inaccessible land nearer the Center.

In addition, the beauty and the historic association of the present site cannot be approached by any other plot of land, as can its very good relation to the Town Center.

Conclusion

Therefore, I conclude that an analysis of the site indicates that the location of the Pleasant Street Congregational Church will continue to be in a focal position in relation to its congregation for many years to come.



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Committee Reports 1945 - 1948, inclusive.
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# ARCHITECTURAL ANALYSIS

### What is a Church?

Contemporary religious architecture is searching for a form or approach to church design which will express the role of religion in present day life. Past traditions of religious architecture are dead or dying and nothing new has as yet succeeded to their position. This possibly is due to the inability to assess the position and importance of religion in contemporary life. Certainly the older and still accepted categories are not sufficiently adequate. During this period of uncertainty, church membership has grown from 19% of our country's population in 1890, to 56% today. (9) Thus, the problem of contemporary architectural religious expression is a real and growing problem which deserves attention. Before any satisfactory architectural expression of Protestant Christianity can be evolved, it first is necessary to define it. John R. Scotford, a respected Congregational theological author says, "A church represents the attempt of a particular group of people to express their religious ideals. Usually these ideals are the products of the years, in the course of which they have acquired certain associations and traditions...A church also represents a particular span of time. It combines inherited traditions on the one hand and hopes for the future on the other. The church is a conservative institution which consistently builds for the future. It should incarnate the best of the present. It should seek to embody the genius of its own day. Although time will continue and the tastes of men will change, a church which represents the best of its day need not fear the future." (10) p. 150.

The December 1949 Architectural Forum (9) stated that the distinguishing feature of all the great church architecture of the past has been knowledge of the churches' function, obedience to that function in the architectural solution, and its realization utilizing the best of then contemporary artistic, and structural abilities. I know of no better points of departure. In the following sections, I shall investigate the particular phases of these general observations to determine the final scope and shape of "A New Congregational Church for Arlington, Massachusetts".

Analysis of Growth

Historically, the general increase of the Pleasant Street church has paralleled that of the town of Arlington. Church records (1) give an accurate tabulation covering the present century and along with the information given in the Municipal and Site Analysis, offer sufficient basis upon which to estimate future fluctuations which may be expected to occur during the span of the new church building.

Year	Church	Church School	Average Attendance
1900	259	312	
1905	270	283	
1910	297	236	
1915	337	170	
1920	358	194	
1925	426	301	
1930	483	290	
1935	661	309	
1940	776	256	
1945	675	99	127
1949	460	160	186

The growth and decline of the last 15 years is largely due to a change of recording. The present minister, Rev. David G. Colwell, has cut the church rolls back to participating membership with a corresponding increase of statistical accuracy. The average attendance is rising, which is the significant quantity designwise. Today, the average attendance of 185 from a congregation of 460 falls close to the general rule of 40% average attendance of church membership. (9) p. 67. The church membership has nearly doubled since 1900, which closely approximates the rate of population increase for the town. Assuming as I did in the Site Analysis that the bulk of the congregation will continue to come from stable Arlington neighborhoods, and that Arlington itself will continue to grow steadily, but at a diminishing rate, I assume that the congregation will grow steadily but slowly. The congregation has grown 80% in 50 years; with slower rates of growth as indicated, a 50% growth is possible within this century. Applying my assumptions: 460 present congregation + 50% future growth = 670 probable future congregation x 40% average attendance = 268 probable future

average attendance. Again, this checks rather closely with the general rule of 60% of present membership for future average attendance (9) p. 67,  $460 \times 60\% = 276$ . On the basis of these two criteria, I shall size the church facilities to accommodate a future congregation of about 675, with an average attendance of about 280.

The previous table indicates but slight relation between the church and the church school. Upon consideration of regional and national population trends, however, these tabulations are readily explained and also offer a powerful indication of future church school enrollment and its dynamics. The large church school of the early century was due to the then rural aspect of the town, characterized by larger families and more devout and strict church-going. World War I caused the low 1920 enrollment, due to deferred marriages and general social upheaval. It also caused the 1925 high enrollment as the war and post-war marriage babies grew to church school age. The enrollment decreased through the depression years as fewer children entered, due to the depressed economic conditions which generally resulted in smaller families for the middle class. The extremely low 1945 figure is the nadir of this trend, and it also marks the initiation of conditions similar to World War I. The present 1949 enrollment marks the height of this increase which now can be expected to grow through the church school. General patterns of behavior will indicate a slow increase as more families join the church and send their children to church school. At some unpredicted future period one may possibly expect another cycle of war growth. An increase in church school attendance proportional to church attendance can be forecast for the future as Arlington has now made the change to a suburban town with its corresponding effect upon family size. As families grow smaller, and accounting for the present swollen "war-baby" enrollment, a forecast of a 40% increase seems adequate indeed. This would provide facilities for about 220 children.

More useful is an analysis of the various sizes of each department.

Nursery Department, ages 2 and 3

Twenty children last year, with the "war baby" growth past. One may expect a slow steady increase to 25-30 children in the future.

Kindergarten Department, ages 4 and 5

25 children last year with the "war baby" growth past. Like the

Nursery Department, a slow steady increase to 30-35 in the future.

Primary Department, Grades 1, 2 and 3

45 children last year, which represented the zenith of the "war baby" growth. We can expect a sharp decline followed by steady growth to a future enrollment of 40-45.

Junior Department, Grades 4, 5 and 6

45 children last year with the "war babies" now entering. We can in a few years expect a repetition of the pattern in the Primary Department, with a probable future enrollment of 60 at the most.

Junior High School Department

25 last year, with the "war babies" three or more years away. One can predict a swollen enrollment for a few years followed by a decline and then a steady increase to 35 or 40.

Senior High School School Department

20 last year, with the same future trends as the Junior High group. Probable future of 30 pupils.

Economic Analysis

As do most small church groups, the Pleasant Street Congregation has a modest financial plan but large and varied space requirements. Since the amount allowable for new construction has been tentatively set at \$150,000 (2), it is obvious that compromises must be made. Probably the most striking fact about church architecture today is that so many specialized spaces are required for very limited periods of time. This factor I believe to be largely responsible for the present generally high cost of church construction, and consequently I feel that great reductions of cost are possible by planning church areas for more intensive use for longer periods of time.

The most direct way of achieving more intensive use is by split or shift scheduling (7) p. 106. For example, the present Arlington church has a capacity of 400 people. This capacity is fully utilized only on Easter and Christmas services, each of about one and one half hours duration. Thus one has the example of a church auditorium being used to capacity only three hours of each year. Far better to have a church auditorium which allows room for average attendance plus expected growth, and then schedule a series of services

on special religious days. This principle can also be applied to the Church School. The present church has a Nursery, a Kindergarten, a Primary, and a Junior Department which all seem to require specific areas. Since Nursery and Kindergarten children generally must be brought to Church School by their parents, it seems reasonable to have this done at the same time the parents come to church. (If the parents don't attend church, they would probably welcome the extra hour of Sunday morning sleep which such a schedule would give them.) The Nursery and Kindergarten could thus be held during church hours in the Junior and the Primary Departments: which would be then utilized both before church for the Church School, and during church for the semi-baby-sitting functions. Again, as the high school groups are mature enough not to need specialized church school areas, such other facilities as the Chapel, Choir Room, Church Office, Pastor's Study, Social Hall, or any other areas could get more intensive use by doubling as Church School areas. Generally, the principle of split scheduling will demand more storage area in the various facilities and periods of conversion. Neither of these problems would seem particularly difficult to solve.

The stringent budget will also demand a straight-forward use of space and material conforming to the best practices of contemporary architecture. Money simply is not available for the indulgence of the desire for traditional and now meaningless church forms. However, the church is located in an historic old neighborhood so any solution must not only use modern materials in the most functional manner, but also must embody the spiritual feeling which good church architecture does express and finally, must be in proper relation to and sympathy with its surroundings.

The monetary program is quite direct. The site is purchased and paid for. As already mentioned in the Historic Analysis, the Josephine Whittaker Fund can largely be considered as the building fund as about \$35,000 will be available. There is another \$5000 cash on hand. Thus, at present, the Arlington church has a site paid for and \$40,000 toward a \$150,000 building fund. The balance will be raised in two ways. The Congregational Church Building Society will be asked to loan as much as they can or will loan. Conditions which the Society attaches to such a loan are:

- (a) A legally incorporated Congregational Church.
- (b) A clear title to the building site.
- (c) A display of absolute need.
- (d) A display of utmost aid being given by parish members.
- (e) All building plans must be approved by the Society.
- (f) All loans to be quickly amortized in from 10 to 15 years, with the payments increasing each year from the initial small payment through to debt retirement.

The method which the Church Building Fund Committee will use to raise the balance of their funds is by the pledge of units of \$75 each. These pledges are to be paid over a period of three years. It is expected and hoped that these two methods will yield enough to reach the total of \$150,000 which the Pleasant Street Congregational Church Building Fund Committee feels is the maximum amount which the congregation can put at the disposal of their selected architect.

Meaningful figures on cubage or square footage costs for contemporary churches are difficult to obtain. This is because of the dearth of good contemporary church architecture in the New England area which would offer a basis for cost estimation and comparison. It thus is necessary to find other less accurate comparisons. As has been noted, this church is sited in a residential area, and its spatial needs and facilities are similar to contemporary residential architecture, with the exception of the church auditorium which of course has no counterpart. Also, due to the generally greater height of religious structures as compared to residences, the more accurate method of comparable cost estimation would seem to be based upon cubage. Therefore, I propose to utilize Carl Koch's cubage costs on his residential development at Kendall Common, Weston, as a basis for my own cost estimates. Again, due to the larger size and consequently more expensive structural work in the church, I propose to increase Mr. Koch's cubage estimates about 10%. His costs have been ranging between 83 1/2 cents and 95 cents per cubic foot. Averaging his costs and adding 10% gives an estimate of \$1.00 per cubic foot. At the present budgetary allowance, this will allow up to 150,000 cubic feet. This cubage would therefore seem to stand as a general limit for any design which truly attempted to meet the financial limitations of the problem.



## Analysis of Facilities

As enumerated in the program, provision is to be made for four general facilities; the church, the church-school, social facilities, and the minister's home.

### 1. The Church

This is the principal feature of the entire group and all other functions are tributary to it. The architectural solution must recognize this fact and give the church physical expression in key with its importance and function. The number of people accommodated has previously been found to be 280. This is 100 more than the present average attendance of 186, but it is still 200 less than the 480 people who generally attend Christmas and Easter services. In the foregoing Economic Analysis, I advocated several services on particularly popular religious days. This has traditionally been a practice of the Arlington church, and I now propose to utilize that practice to accommodate overflow crowds on special religious days.

The interior of the church auditorium is the climax of the group, and reason and economy demand that all materials be used honestly and purposefully to create an interior which will be conducive to religious services and mediation. Historically, the use of light has played a powerful role in the creation of church interiors and I plan to emphasize its use in the current solution.

Historically, most churches have used a center aisle which was used both for circulation and a processional. In many contemporary and traditional buildings, the center aisle has been retained with what I feel to be slight justification. The Congregational Church has no processional ritual, consequently circulation is the sole purpose of a center aisle. There are several objections against it. The space occupied by it is the best viewing area in the church and it forces seats to the side walls which are the poorest viewing areas. I plan to reverse this by using two side aisles and concentrate the seating between them. Seating standards recommend no more than seven seats from an aisle, so a block of seating 14 seats wide and 20 seats deep will accommodate the required 280 people. This concentration of the congregation is expected to increase their sense of community and participation in services, and will be a boon to the minister as he will be aware of one compact group as he faces them. The only use of a processional

is in the wedding ceremony. As it is rarely that any wedding party will exceed the capacity of the chapel, it is planned to so accommodate them there with a center aisle and eliminate the side ones.

The chancel is the focal point of religious services, and usage and tradition have concentrated all formal elements of worship there. The choir often faces the congregation. However in effect they are usually in such a dominant visual position that one expects the service to center on them. When the service does not, a feeling of confusion results. I propose to treat the choir much as the organ in that each is a part of the service but not an unduly dominant one. One scheme is to place both choir and organ at the sides of the chancel, thus providing a visual stop for the side aisles of the church, and leaving the congregation a clear and unobstructed view of the altar motif. The minister, as he reads from the lecturn or preaches from the pulpit, is the central human figure in religious services. The positions of the pulpit and lecturn should verify this and should occupy conspicuous positions at the sides of the chancel. In many Congregational churches, the Communion Table occupies a focal position in the altar motif (15) p. 44. This is logical as Holy Communion is the primary ritual service of Congregationalism. Placement of the table at the fore end of the chancel and incorporation of it in the central religious motif of the church seems both logical and desirable. Many Congregational churches, including the present Arlington church do not have an altar. I plan to continue this tradition in my solution and to utilize the Communion Table and the cross as a symbolic form against the natural materials of the church in the creation of an altar motif. As mentioned previously, I will also attempt to integrate the use of light into the design of the church interior in general, and into the altar motif in particular.

Tributary to the church are the Pastor's Study, the Church Office, and the Choir Room. The Pastor's Study must be near the church for his easy and unobtrusive entry, but it must also be related to the general circulation scheme of the church group. People can be expected to confer with the pastor in his study so it must be readily accessible from all entry points. The Church Office is needed to transact all church business and to keep all church records in addition to printing and circularizing the numerous church

bulletins. It should be closely related to the Pastor's Study and share toilet and a washroom with the study. The office will also be used as a church school class room by the high school groups. The Choir Room must provide facilities for choir robing and music storage. Choir practice can be expected to be held in the church.

The Narthex is the focal circulation and entry area of the church group. It should open toward all access points to the site and provide the foyer areas for both church and chapel. Consequently, it must be large enough to accommodate most of the congregation on days when the Minister cannot meet them out-of-doors. Toilet rooms and coat storage are necessary and should be so located as to be visible from the Narthex yet not open directly on it.

The Chapel is necessary for smaller and more intimate ceremonies than the church, and also to act as an adjunct to the church school program. As previously mentioned, almost if not all the church weddings will be held here and consequently a center aisle is necessary. The Chapel would also probably be open at all times for personal meditation and prayer. A seating capacity of 80 will accommodate the largest church school groups and most weddings. A small chancel with provision for pulpit, music, and altar motif will be necessary.

The congregation has a bell which has outlasted two bell towers on the existing church. They regard a church bell as a necessary feature of their new church and specify that any new building scheme shall accommodate it (12) p. 2. A bell tower can be a powerful feature of the overall church group composition and it would seem that wherever it is located on the site, its mass should be most apparent as one goes up or down Pleasant Street.

## 2. The Church School

The church school facilities are probably the least used of any of the four general groups. At the same time, their particular activities are such that specifically designed areas must be allocated to at least the younger children. To realistically conform to the economic limitations of the problem, it became desirable to plan for multi-use functions as discussed in the Economic Analysis. Examination will show where this can be done.

The Nursery and Kindergarten are now operated during church hours while the balance of the church school is operated one hour earlier. All groups except the high school groups will need their own relatively defined areas. I propose to design two areas, one for the contiguous Kindergarten-Primary age groups, and the other for the Nursery-Junior groups.

The Kindergarten-Primary group would accommodate children of ages four and five, and grades one, two, and three, respectively. Small scaled furniture could be used by these two groups and the church school functions would become progressively more complex over the age range. Considerable storage facilities will be necessary to accommodate work and equipment, and especial provision must be made to store work of each group which carries over from week to week. As the Primary class is larger than the Kindergarten, the Primary group will determine spatial area. This will also mean that the unused primary space can be used for "set-up" storage during kindergarten periods. The Church School program calls for an assembly period in each department followed by group work in smaller units. A large room which can be easily sub-divided for small group use seems the logical conclusion.

The Nursery-Junior group must accommodate children aged two and three, and grades four, five, and six. The overall area must be large enough for 60 Juniors, which is about three times the Nursery requirements. Similar conditions to the Kindergarten-Primary group will apply, except on a larger scale. Since the Nursery is so small in relation to the Junior Department, "setups" which the Juniors work on can be left in one or two of the partitioned areas and the Nursery can utilize an area nearer the entrance. The Nursery can be expected to have large storage requirements due to its more specialized necessary equipment.

The Junior and Senior High School Groups can utilize other facilities for church school. They also follow the pattern of assembly and class period, but their periods are discussion periods rather than more active functions. The Chapel is used as assembly room and the Church Office and Pastor's Study for discussions by both high school groups on a split-shift basis.

This schedule more exactly explains how the split schedule operates in the Church School.

Church-School Schedule

9:30 AM Primary assembly in Primary Dept.  
Junior Assembly in Junior Dept.  
Jr. High Assembly in Chapel  
Sr. High discussions in Church Office and Pastor's Study

10:00 AM Primary groups in Primary Dept.  
Junior groups in Junior Dept.  
Jr. High groups in Church Office and Pastor's Study  
Sr. High Assembly in Chapel

10:30 AM Church School dismissed.

10:40 AM Nursery in Junior Dept.  
Kindergarten in Primary Dept.

10:45 AM Church begins

12:00 AM Church, Nursery, and Kindergarten dismissed.

3. Social Facilities

The Pleasant Street Church has always carried out a social program which attempted to offer some activity to each segment of its congregation. These activities have never been offered in competition with any secular or Protestant activities in Arlington, but rather as a co-ordinated supplement and addition to them. A recent example of this was the series of weekly Junior High School dances sponsored by all the Protestant Churches of Arlington Center. This philosophy in action over the last number of years has produced certain permanent social groups and indicated the need of others. In determining the necessary requirements of the social facilities, one must review the various group functions to determine what is needed.

The Anna Bradshaw Guild is composed of church women. It holds monthly meetings which are social in nature and sponsors numerous teas, lectures, bridge parties, and such other social activities as comfortably married women enjoy. The Guild membership is stabilized at around 50.

The Young Couple's Club consists of church couples in their 20's and 30's. A monthly dinner meeting is held at the church followed by square dancing, motion pictures, discussions, or other activity. An average of 20 couples attend the meetings.

Both the Senior and the Junior High School groups have Sunday evening meetings with occasional dances or other social activity. These groups do not now meet concurrently and probably would not do so in the new church building.

Arlington Boy Scout Troop #8 meets each Monday evening at the church. They hold drill sessions, patrol meetings, merit badge classes and scout games. During the year the Troop sponsors several social activities at the church also.

One of two projected groups is for post-high school people. This is planned as a supplemental feature to municipal activity as now this age group has no facilities for itself in Arlington Center. The temporarily defunct Men's Club is expected to eventually revive. If it does, it would certainly plan to use church facilities. In the past, various secular municipal groups have occasionally rented the church social facilities for an evening and this practice can be expected to continue.

The church also holds certain all-church functions such as bazaars, auctions, church dinners, or dances for various church and municipal age groups. The largest spatial requirement is for the seating of 150 at tables for church dinners.

The functions of these groups begin to define the necessary characteristics of the social area. A large floor area clear of columns is necessary for church dinners, dances, assemblies, and Scout Troop meetings. This area should be capable of being furnished as a lounge and portions of it screened off for the use of groups which do not require a particularly large area. Some provision for a stage for movies and for plays and other visual presentations is necessary. However, this stage does not need to be very elaborate as too often stage facilities in churches are only scantily used (10)p. 109. Generous storage facilities should be available for the storage of lounge furniture, dining tables, folding chairs, and such other equipment as will compliment the function of the Church Hall. Access from the Narthex is necessary and also an access directly outside is highly desirable. As a fully equipped kitchen will be necessary, a service entry to the kitchen and also to the storage area is necessary. Coat storage adjacent to the Church Hall is desirable. The room should be easily able to accommodate itself to these activities and be capable of sustaining hard

usage as it will in all probability be subjected to the most intensive and diversified uses of any church facility.

#### 4. The Minister's Home

The minister's home offers particular planning requirements. Within one shelter, provision must be made to comfortably house any minister and his family which will serve the church in the future. The house must have its own surrounding yard areas distinct from those of the church and must be so sited as to be an integral part of the church group and still give the minister and his family that sense of privacy and separation which they have a right to demand. All of the duties of the minister should be performed at the church and not in his home. Thus, he will have no office or study in his home. However, the office in the church should be so located as to allow the minister easy access between it and his home. Since a minister does a certain amount of entertaining, generous living, dining, and kitchen facilities are necessary. Bedroom areas should have a great deal of flexibility in order to accommodate varying family sizes and occasional guests as well. In such a busy household, the kitchen should be in a position to control all of the house interior and the outdoor service and play areas as well.

#### Outdoor Areas and Site Relations

All work done on the site must be in accord with the general character of the site and attempt to utilize such present natural features as are desirable. There are many magnificent trees on the site, including four great elm trees. It would seem highly desirable to retain as many of these trees as possible, due both to the difficulty of obtaining any new plantings of comparable size and beauty, and also to enable the new church to integrate itself more completely into the existing features of the neighborhood.

Buildings on or near the site also indicate certain relationships. As there is an Episcopal Church of no particular beauty on the south-east corner of Pleasant and Maple streets, the location of the new Congregational Church should seem to be as far removed from that corner as is necessary to create as pleasing a visual relationship between the churches as is possible. Also, toward the southwest corner of the site, the land rises to a point.

which would enhance the prominence of the church, were it placed there. To the south of the site, there is but one residential plot remaining on the block, separated from the church site by a tall hedge. Over the years, this hedge has grown to such proportions as to very positively limit the visual extension of the site in that direction, thereby insuring that the church and the house would not visually impinge upon one another.

The location of the existing buildings on the site and church requirements again indicate a clear pattern of building. Continuous church services during construction are considered a necessity by the minister. Again, location of the new church on the southern portion of the site would allow use of the old church until completion. However, before the new church could be built, the old Brackett house must be razed. Since it now serves as the minister's home, new quarters must be created for the minister and his family. The shape of the site and its surroundings indicate that the southwest projection of the site provides an adequate home site well related to the other homes on the block and allowing the possibility of a completely private yard for the minister's home as well. A building schedule now can be drawn up:

- (1) Construction of minister's home on southwest projection of site.
- (2) Demolition of Brackett House (present minister's home).
- (3) Construction of new church on the general site of the Brackett house, extending toward Maple Street and the old church building.
- (4) Demolition of existing church.

Upon completion of the building schedule, the congregation has a new church and minister's home on their old site, with as many of the fine trees still standing as possible. They also have an old church excavation. Due to its location on the land, this excavation can become an integral part of the new development. Church auction sales, bazaars, and picnics call for a fairly large well-defined outdoor area. Also, with the church built on the high portion of the site, its extension toward Maple Street creates a floor level ever higher ever higher from the ground. Extension of the level of the existing church excavation would allow for the provision of a downstairs area of the church building on the level of the excavation. It would thus seem highly feasible to utilize the excavation



as a picnic yard and relate it to the social area of the church which could be downstairs from the church proper, but on the same level as the excavation.

Placement of the church parallel to Pleasant Street creates a southeast exposure toward the street. Since the morning sun will place this elevation in direct sunlight this fact must be considered in relation to the church activities fronting on that side of the building. This would mean that morning functions such as the church school either should be located so as not to receive the sun's direct rays, or should be protected from them. As previously discussed, the play of light in the church auditorium can be a powerful part of the church interior. Again, a placement parallel to Pleasant Street would allow the possibility of using direct sun rays at right angles to the axis of the church auditorium which traditionally has been an extremely successful method of utilizing light.

The landscaping of the site embraces three general areas, each with its own particular requirements. The minister's yard must allow for private family use while remaining an integral part of the overall landscape scheme. The sunken picnic yard is the dominant ground configuration of the site and as such must intimately relate to both the architecture and the landscape treatment so as not to become a jarring and discordant portion of the scheme. Finally, the area facing Pleasant Street which comprises the major portion of the site must be depended upon to relate the church group to its neighborhood, and to provide the entry facilities and outdoor after-church meeting areas which are functionally required.

Service areas to the site can logically be expected to open to Maple Street and to utilize the areas of the site restricted by the liens covering rights of way. As the church is located in a newly zoned apartment district, curb parking can in the future be expected to become more difficult. It therefore is desirable to provide as much on-site parking as can be accommodated.

#### Acoustic Analysis

The particular acoustic requirements of a typical small church, if carefully met, can be expected to modify the physical characteristics of the

structure. A church auditorium must be acoustically designed for a tremendous frequency range, due to the range of organ music, and to the human voice as used both in singing and in speaking. Another complicating factor is the variability of attendance, which will affect the various reverberation times required by the music and speech functions of the service. In a small church, such problems as normal room modes and flutter echo and complete sound diffusion are problems whose solution will often affect the shape of the room. It will be necessary to investigate these various acoustic problems and to determine their modifying influences upon the design.

"The acoustical requirements of a modern church are not essentially different from those of any auditorium designed for both music and speech. The success with which these requirements can be met depends to some degree, however, on the size and architectural design of the building and on the type of service. Frequently, the demands of good acoustical design are in serious contradiction to those of traditional architectural forms, so that the best possible compromise has to be worked out. The small church having a moderate ceiling height and a simple rectangular floor plan which is not excessively long in comparison to the width is the best type of design from the acoustical standpoint. Due to the small size and regular shape of the room, the loudness of direct speech will be well distributed at ample volume to all parts of the room" (11) p. 56.

"The choice of the acceptable reverberation time for a church must be carefully made, and must take into consideration the size of the church, the type of service, the average and minimum attendance, and the effect of changes in audience size on the reverberation time. Through tradition, organ and choral music, particularly of the liturgical type, has become associated with longer reverberation times than have other types of music; therefore, the reverberation time must not be shortened to the point where this characteristic quality of the music is adversely affected. At the same time, of course, it is vitally important in any modern church that speech be easily understood for all sizes of audience. As a general rule, for churches of less than approximately 200,000 cubic feet volume and having no speech amplifying system, an acceptable reverberation time selected from

the upper half of the range (of values of standard reverberation charts) will provide entirely satisfactory conditions for both speech and music. If the ceiling is high...the values chosen should lie near the top of the range, and for the opposite condition a time near the center should be selected".(11) p. 57.

As there are so many variables affecting reverberation time in churches, it would be well to eliminate any that can be eliminated. The easiest variable to eliminate is that of fluctuating audience. This is most effectively done by giving each seat in the audience the same sound absorption value empty which it has when occupied. This is easily done by having all pews fitted with a seat and back cushions, as the Pleasant St. church now has. This, along with methods already discussed, will insure a constant and adequate reverberation time.

Echos within the church auditorium must be eliminated. As any two sounds with are more than 1/17 of a second apart are distinct, any reflected sound which travels over 65 feet more than its original wave to reach a listener will be heard as an echo. The most common circumstance is sound reflected from the rear of a room back toward the speaker or other sound source. This rear-wall echo can be eliminated either by sound absorptive materials on the rear wall, or by slanting that rear wall to reflect the sound toward another part of the room. Parallel side walls offer the danger of flutter echo. It, too, can be eliminated by slanting the wall or by introducing sound directing baffles to reflect the sound elsewhere in the room.

There is the final danger of normal mode resonance in small and medium sized auditoriums. In this instance, rooms behave similarly to closed organ pipes in that each room has various resonances and one lowest one in particular.given by the formula  $f_{\min} = \frac{1120 \text{ ft per sec}}{2X \text{ max. room length}}$  . Using 20 cps as the lowest audible frequency and working through the formula gives one a room dimension of 56' above which one will hear no room resonance. Although each room has normal modes, they are inaudible in larger rooms. Again, as with flutter echo, normal modes can be eliminated by absorbing the sound from one wall, or by slanting or breaking up one wall surface. Where

conditions permit, the slanting of a wall plane offers the most integral and dramatic method of eliminating difficult acoustic conditions, and also greatly aids sound diffusion within a moderately sized room.

#### Heating and Ventilating Analysis

It has become an increasingly common practice to specify radiant heating for churches, regardless of whether it seems to meet particular church requirements or not. Radiant systems are slow to respond to changes in heating load. Church buildings are used intermittently and thus require many changes in heating load which necessitate a flexible and quickly responsive heating system. Connected steam or forced hot air are both very flexible systems. I personally favor connected steam because the small size of the steam lines as compared to hot air ducts allows a much neater and more flexible integration of the heating system into the structural frame of the building. This is in agreement with B. C. Wenner and J.T.H. Anderson who write (8) p. 91, "For a church containing a small sized nave, departmental and class rooms and fellowship hall, we suggest a steam or warm air system."

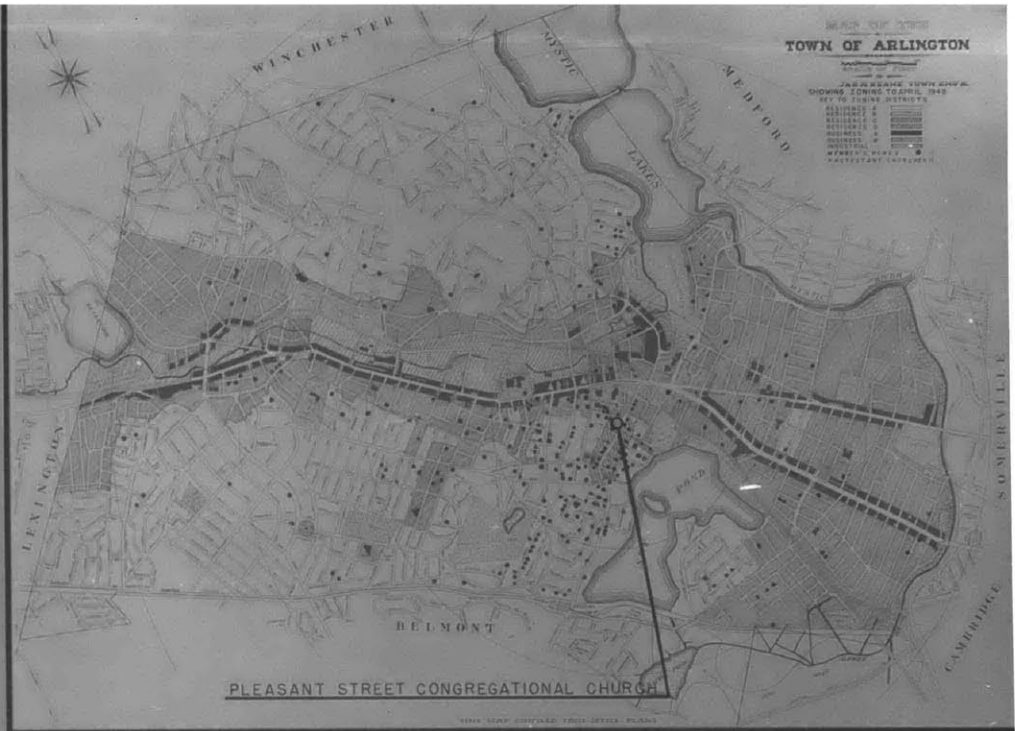
Ventilation can be accommodated by natural air movements except within the church auditorium where state law requires a positive exhaust system.

#### Building Codes

Local building codes restrict the materials and methods of construction which may be used for religious buildings. "Buildings required to be Second Class Constructions. All buildings other than dwelling houses for not over two families"...(13) p. 25. Second Class building is then defined as "All buildings not of the First Class, the external and party walls of which are brick, stone, terra cotta, tile, steel, concrete, or other equally substantial and fireproof material" (13) p. 23.

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- (12) "The Proposed New Pleasant Street Congregational Church" pamphlet of future plans.
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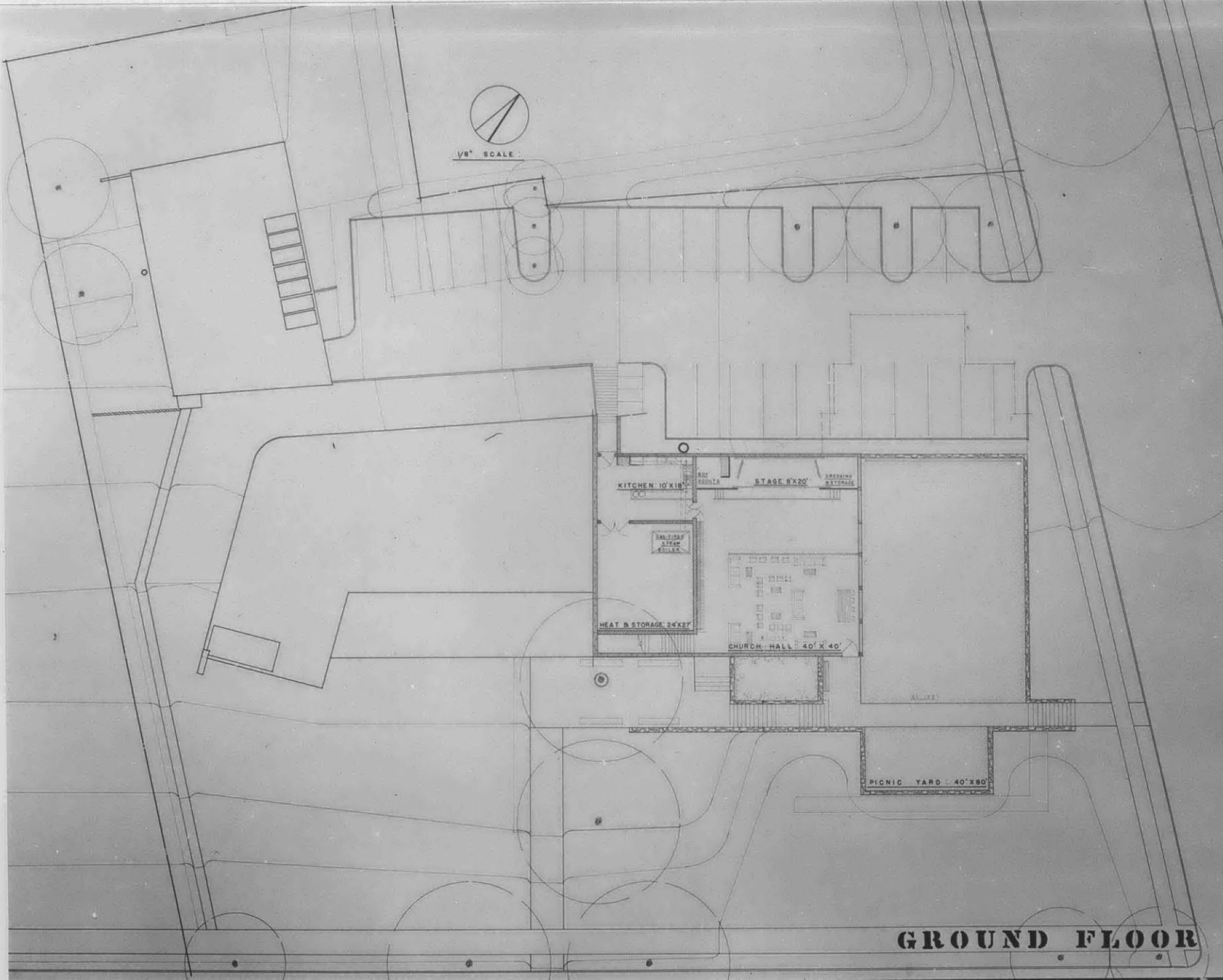
# A CHURCH FOR THE PLEASANT ST. CONGREGATION, OF ARLINGTON MASSACHUSETTS.

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN ARCHITECTURE, MIT.

*Warren H. Smith*  
 WARREN H. SMITH  
 SEPTEMBER 1, 1950

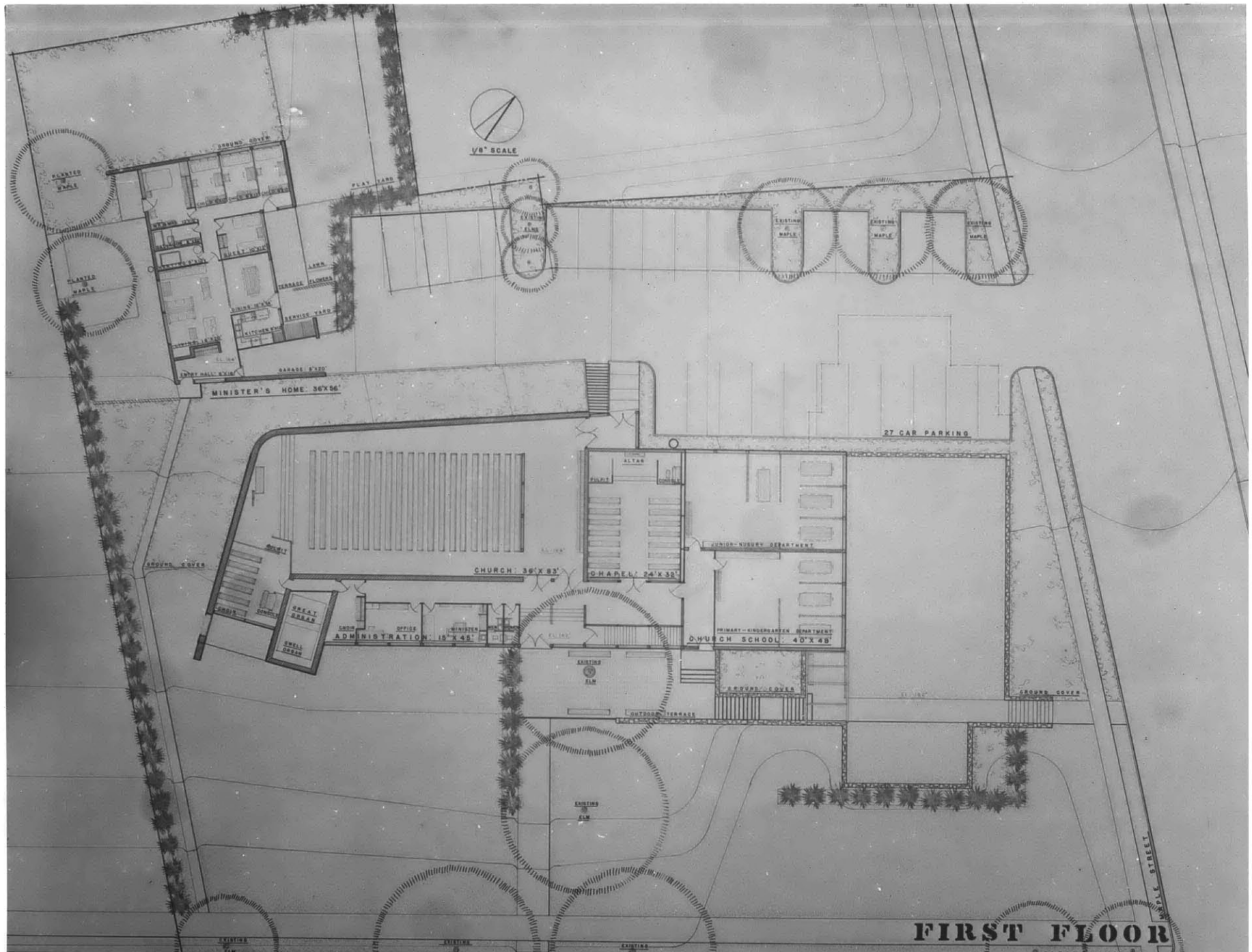
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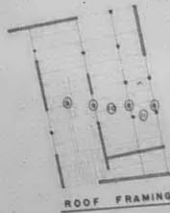
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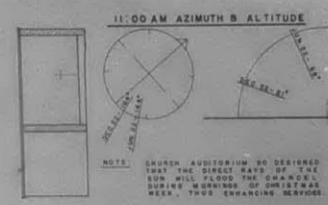
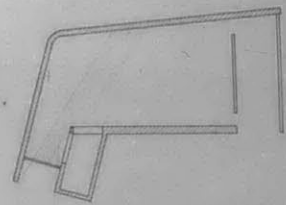


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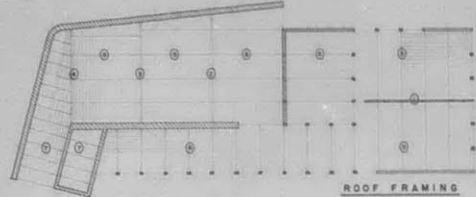




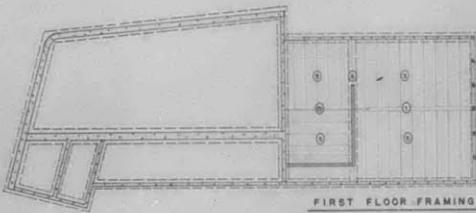
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2	WOODEN PLATE GIRDER	38'-0"
3	W STEEL GIRDER	38'-0"
4	"	38'-0"
5	"	38'-0"
6	WOOD OPEN WEB STEEL JOIST	24'-0"
7	"	14'-0"
8	"	14'-0"
9	WOODEN FILLER BEAM	3'-0" TO 14'-0"
10	WOODEN BEAM	12'-0"
11	WOODEN JOIST	18'-0"
12	"	12'-0"
13	"	12'-0"
14	"	8'-0"



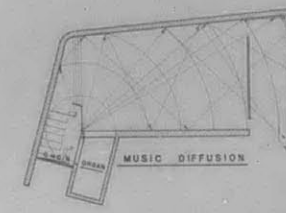
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SPEECH DIFFUSION



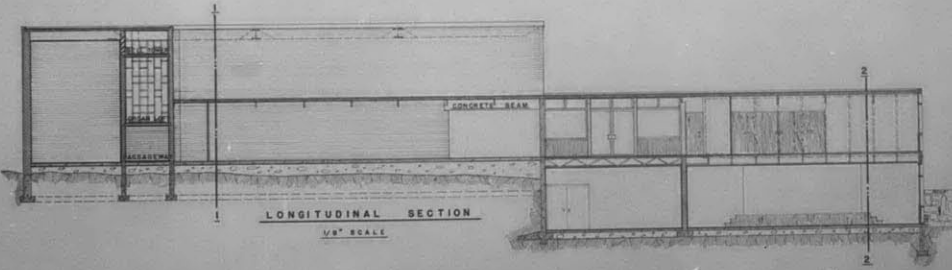
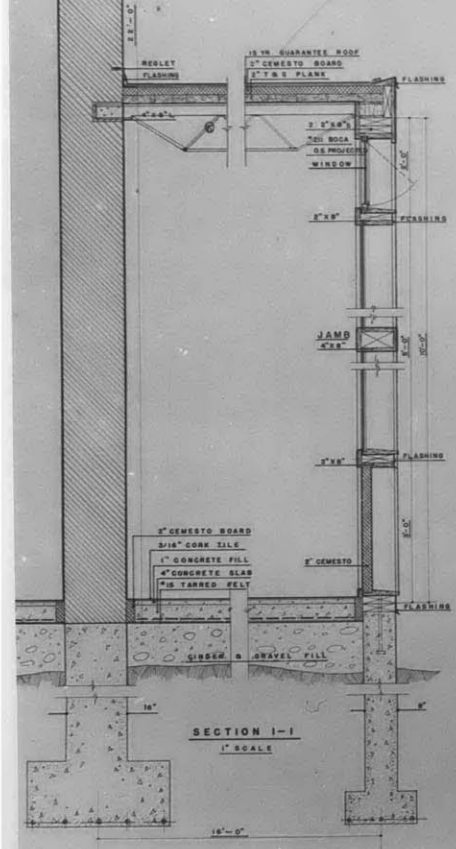
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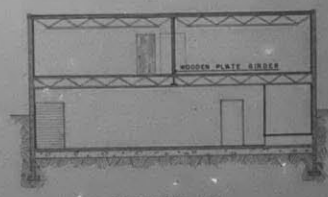
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STRUCTURAL STUDIES  
1/16" SCALE

ACOUSTIC STUDIES  
1/16" SCALE EACH AREA - 61 DEG + 11.2"



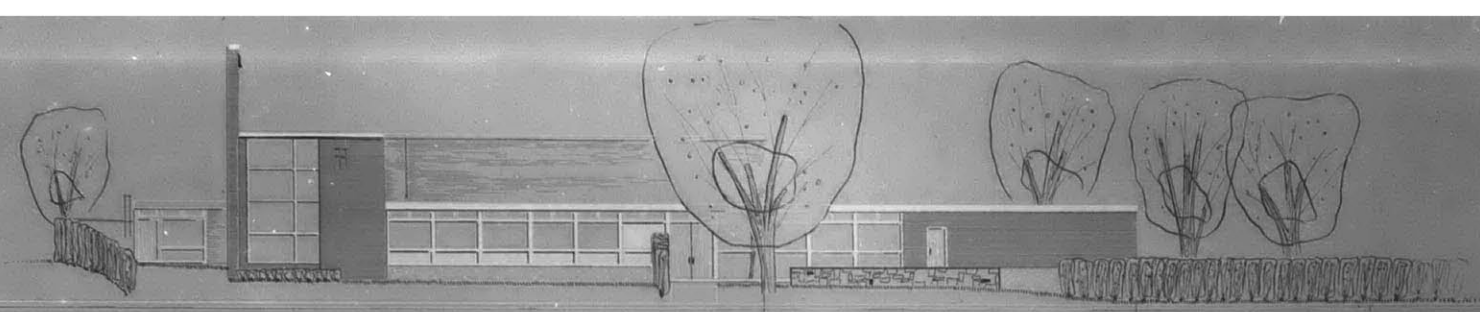
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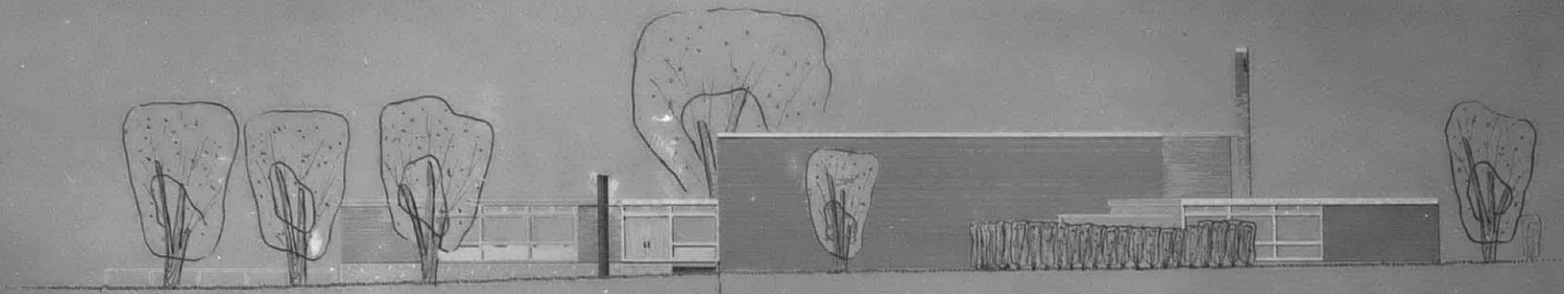
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SECTIONAL STUDIES

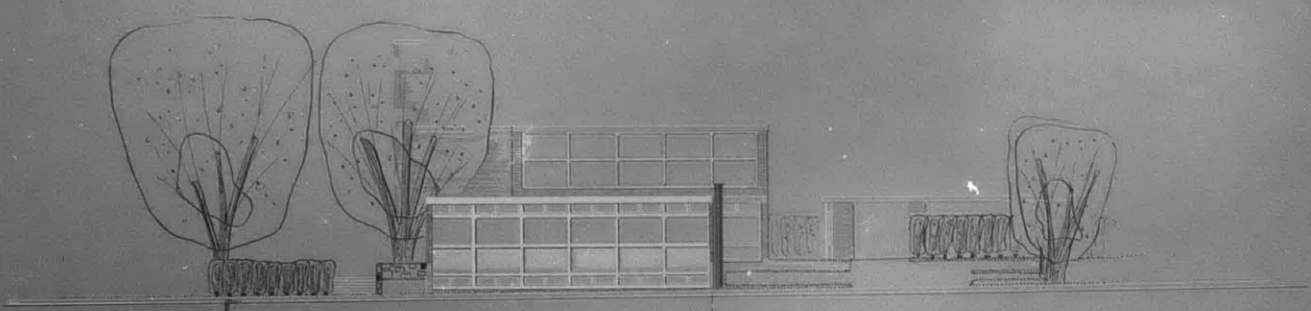
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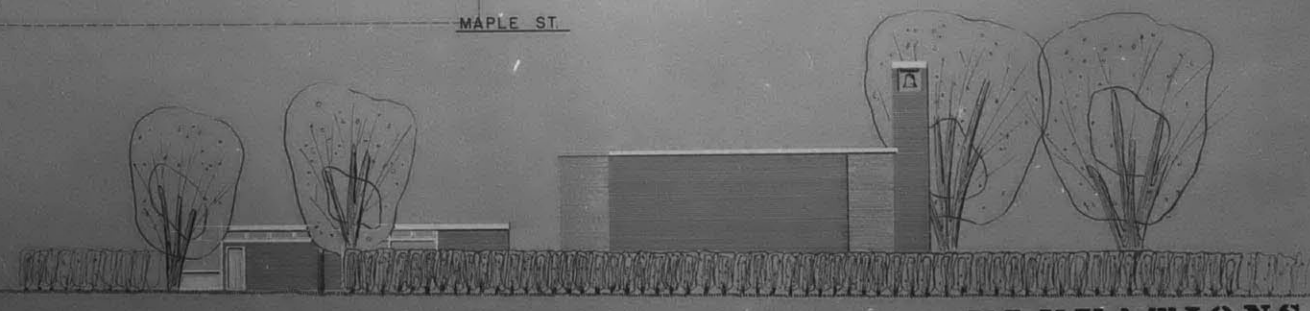
PLEASANT ST.



NORTHWEST

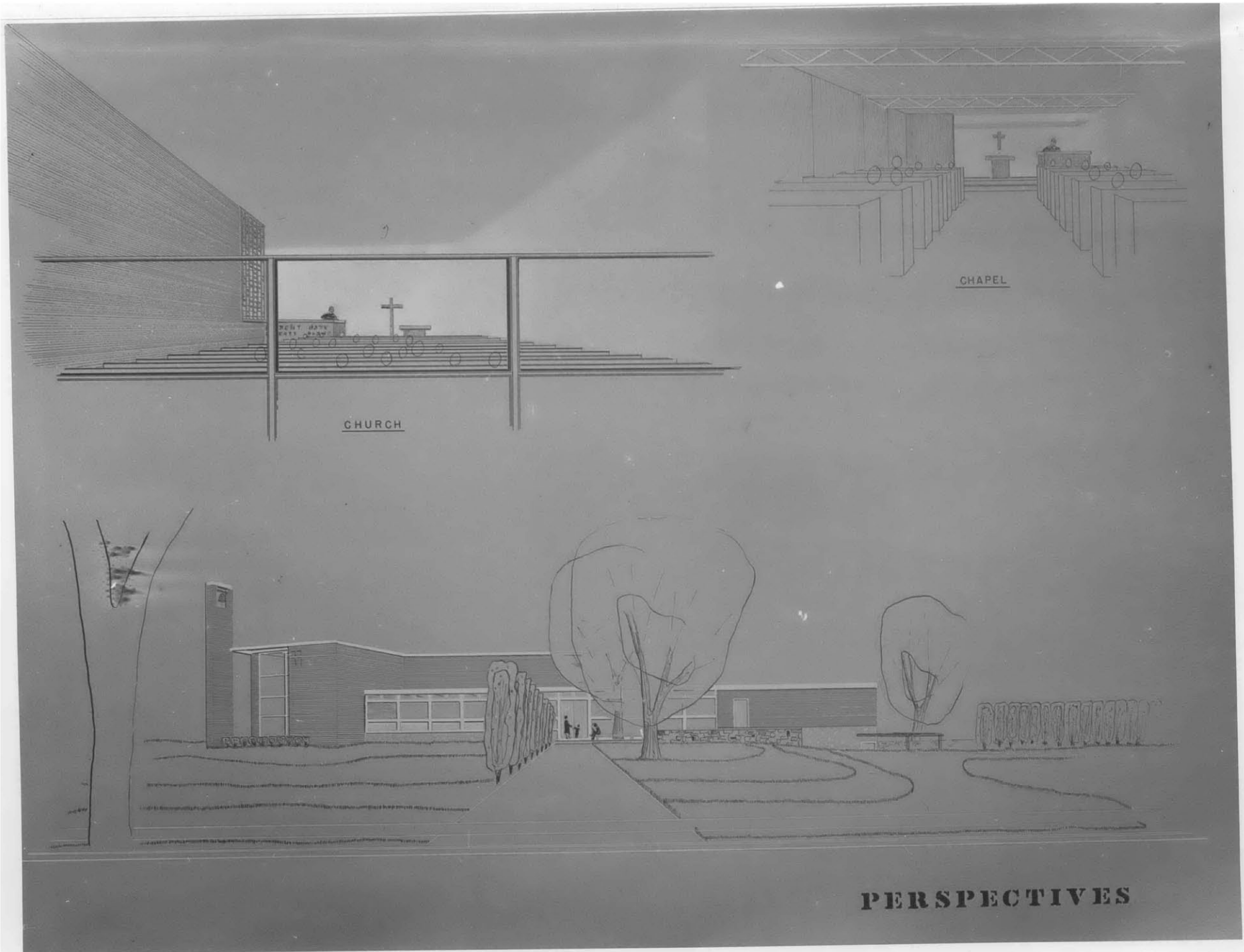


MAPLE ST.



SOUTHEAST

**ELEVATIONS**



CHURCH

CHAPEL

**PERSPECTIVES**



