

P L A N N I N G   F O R   S U N D E R L A N D

SUNDERLAND, MASSACHUSETTS  
Sunderland Planning Board

THE SUNDERLAND MASTER PLAN

Prepared by

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### INTRODUCTION Sunderland Planning Board June 10, 1974

This volume is a compilation of reports produced over the past three years in a comprehensive planning program for Sunderland, with the reports recently reorganized and revised. This isn't a "Master Plan" in the sense that all decisions about future development are made in this one volume. Instead it is the outline and supporting background for a planning strategy, outlining specific steps to be taken now in the light of what may happen in a future none of us can foretell with any certainty.

Although it didn't really begin that way, this planning effort is largely citizen-based. Especially over the past year and a half, there has been a systematic effort to engage residents in the job of planning for the future of their own town, and the policies (or policy dilemmas) underlying the specific proposals (or non-proposals) of the plan are those of residents, not those of outside professionals.

During the first two years of this program, the work was chiefly technical, researching land use and population and town facilities and familiarizing the consultant with the town and its political processes. The work wasn't purely technical, however, as a number of proposals were made and acted on during that period, including town adoption in 1972 of a sharp reduction in the allowable density for apartments in the R-12 and R-20 districts, establishment in 1973 of a Historic District Study Committee, and rejection in 1973 of an early cluster development proposal.

In the past year, there has been even more action. A multi-family housing moratorium was drafted and adopted, and is still in effect. Wholly new subdivision regulations were drafted and adopted and are in effect. Perhaps equally important, a wholly new way of working with residents was instituted.

Hearings on the earlier Cluster Zoning made clear that the Planning Board and consultants needed a better way of hearing from all sorts of citizens while preparing proposals, not just when proposals are ready for adoption. Accordingly, six advisory groups of about six members each were formed:

- Lifelong residents under 25 years old
- Other lifelong residents
- Homeowners resident under 15 years

Renters  
Large landowners (farmers)  
Businessmen

Each of those six groups were given base data and maps. They then met over a period of several months, preparing and mapping their group's views on:

- A. Assets of the town
- B. Liabilities of the town
- C. An ideal future Sunderland
- D. Steps the town really should take now

Out of the technical studies, out of conventional political channels, and most important out of the advisory group's suggestions, evolved an approach to guiding Sunderland's growth. It involves not only conventional zoning, but some unconventional zoning plus unconventional subdivision regulations plus bending town policy on investments in road improvements, sewerage, and water extensions to also serve a coordinated set of town goals.

Shortly after printing of this report the town will act on the proposed zoning. Whether it is adopted or not, substantial work will remain to translate the approaches suggested in this report into actions and to refine them over time.

## SUMMARY OF DEVELOPMENT GOALS, STRATEGY AND IMPLEMENTATION

### BACKGROUND

Most of Sunderland's future will be shaped by its geography: its location, its ties to the regional economy, its basic geologic structure.

Sunderland's location places it in a valley of rich soil but declining agricultural activity; in a region of stability except for the past dynamic growth of educational institutions in Amherst; near but not on major north-south access routes; far from major east-west access routes, inaccessible by rail.

Abutting Amherst, but ten miles from Greenfield or Northampton and thirty miles from Springfield, Sunderland's future depends to an enormous degree on the future of U. Mass at Amherst, and on the long-prophesied but slow to materialize northward surge of urbanization up the Connecticut Valley. Sunderland grew rapidly between 1960 and 1970, increasing from 1,300 to 2,200 residents. Since 1970, growth has continued despite increasing restrictions, until current population is near 3,000 persons. Such growth is remarkable in a generally slow-growth region, and more remarkable because of its qualities. Nearly all of the growth has been accommodated in multi-family dwellings, nearly all oriented to the University of Massachusetts, almost devoid of school-age population.

Because of its peculiar characteristics, that population growth had peculiar effect on the town's public finances. The apartments added tax base but few school demands, with the result that Sunderland's tax rate has been unusually stable, despite inflation, statewide trends, and truisms about the cost of growth. The current tax rate is about the same as that of a decade ago.

Sunderland's land has given shape to that growth. Sunderland is a town of striking geologic contrast, with the flat alluvial plain sharply juxtaposed against the steep slopes around Mount Toby. The flat land is quite distinctly divided between village and farm, with the differentiation not only in current use, but also in services available, such as sewerage. Growth has sought the flat, serviced land, of which there has been plenty, threatening the town's currently clear character with transformation into formless suburbia.

Left unguided, Sunderland would certainly grow, how much largely depending on decisions made by the University. Our projections suggest at least 5,700 residents by 1990, maybe over 9,000, more likely something between the two. Jobs within the town will grow in order to serve the increased population with schools, shopping, etc. Other job growth in "export" industries, such as manufacturing, to serve a broader region is less certain, and might well not occur at all. Sunderland has largely become a "bedroom" town, and seems likely to continue in that role. Left unguided or guided only as at present, development would continue to impinge on and displace agriculture. The social and visual character of the town would be transformed.

Opinion of community advisory teams, town officials, and other residents seems quite clear on the issues of growth and development, although there are some divergencies. Most people would like to see Sunderland's growth constrained and guided, but not stopped. They would like to see it "balanced", with job growth keeping pace with population growth (jobs grew at a higher rate than population 1960-70, but still are few compared with the local work force). Residents apparently feel strongly about protecting natural and cultural assets: Mount Toby, the riverfront, the historic town center, the practice of agriculture. Finally, there is a strong concern for fairness, concern that town actions have equitable impact on all residents, and not serve the interests of the many by unfairly imposing on a few.

The purpose of planning is to try to bend what would otherwise have happened so that the future better serves the goals of the town, such as those just discussed. Doing this also must take into account certain key contingencies. For Sunderland these seem to be whether or not the University really will stop growing once having been at its 25,000 student ceiling for a while; whether and in what form state or regional development controls will, as now seems likely, supplement or supplant local control; whether, as now seems likely, the state will substantially overhaul its fiscal system;

and what the future of Connecticut Valley agriculture is, if some way can be found of preserving an agricultural option for the best land.

### DEVELOPMENT STRATEGY

To move towards the town goals listed earlier, a strategy of actions has been designed, focusing on land and its servicing and regulation.

Sunderland has enough land so that the maximum growth forecast for 1980 can readily be accommodated without any further urbanization of the Mount Toby lands, or of prime agricultural land, or of land in the ecologically rich Whitmore Pond vicinity, or of land on the riverfront. It can be done by guiding growth, using innovative devices to channel development away from sensitive areas into the remaining land more suited to building. All of the following are elements in the strategy.

#### Guiding Town Services

Town roads, water, and especially sewerage are highly influential in directing growth. Road improvements, water system extension and improvement, and sewerage extensions should all be focused on those areas into which growth is being directed, and kept away from the sensitive areas from which growth is to be diverted. Doing this requires little revision to current plans, but in time may require strong commitment to this policy if short-term pressures aren't to distort it.

#### Transferring Development Rights

Town policy would protect agricultural land from urbanization, but fairness and legal precedent prevent simply zoning such land out of development. Instead, we suggest a system of inducing owners of prime agricultural and riverfront land to sell the town their rights to land development, thereby capitalizing on that development value without actually developing. The town's cost of acquiring those rights would, in turn, be compensated by others seeking to develop more suitable land at a higher density than the basic zoning would allow. For the rights to each dwelling unit not built on agricultural land, two extra units might be allowed on well-suited land, still resulting in densities no higher than those allowed just prior to the moratorium. This puts developer interest in apartments to work at preserving agricultural land rather than destroying it, compensates owners of agricultural land, and still lets the town accommodate a fair share of regional and statewide growth.

### Environmental Control

A far higher degree of environmental control than at present is necessary if full protection is to be gained. Both zoning and subdivision regulations are involved. Specific proposals have been drafted for:

- Cluster development, which allows flexible and sensitive design and development, subject to greater discretionary town control than conventional development.
- Critical resource zoning, a device which in designated areas delays development which is incompatible with town goals, giving the town a chance to purchase the land for some public purpose in cases where simply prohibiting that development would be an unfair taking of property rights.
- Erosion controls, critical to the protection of the slopes of Mount Toby.
- Design guidelines for subdivision development, keyed to the varying nature of various parts of the town. The guidelines have the effect of rewarding development which is sensitive to the qualities of the land.

### Business Development and Control

There is sharp divergence among residents on the merits of several alternative commercial patterns: overall commercial pattern is still an unresolved issue. For now, only those things most people can agree upon are being proposed:

- Commercial development in depth, not length, being encouraged by reshaping commercial zones into greater depth.
- Control over parking, the key element in contemporary commercial development, dealing not only with the number of spaces required but also with patterns of egress, trees and landscaping, and water runoff.
- Channelling more uses through the Board of Appeals, which means public hearings and the possibility of refusing unsuitable proposals or improving them through attached conditions.

### Historic Area Protection

The village center has a rich mixture of historic styles which deserve sympathetic treatment by any new neighbors to be built. It is proposed that an Historic District be created for that area, which would give the town, through an appointed Commission, a mechanism to guide the appearance of any exterior alterations or new construction within the area.

### Growth Rate Regulation

All of the above steps taken together, along with following the phased program of building town facilities suggested in the Capital Improvements Program element of this study, should result in a rate of residential growth more manageable than that of the past decade and a half. If development after adopting these controls suggests that this won't be the case, a method of directly regulating the rate of town growth has been designed for possible application, rather than resorting to the traditional and wasteful devices of ever-larger lot sizes and ever-more demanding improvement requirements, both intended to make development unprofitable and therefore slow. Greenfield has adopted rate regulation, and will have tested it legally and administratively by the time that the necessity of its use in Sunderland has become clearer. The system works by requiring large developments to follow a phasing schedule, which is keyed to a specific guideline on how many dwelling units per year the town seeks to accommodate.

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### **DEVELOPMENT GOALS AND STRATEGY**

Sunderland Planning Board

October 6, 1973

This report briefly outlines a development strategy for Sunderland, starting with the basic community goals being sought, then discussing the broad plan developed to meet those goals, and finally outlining the steps to be taken to implement that plan.

#### **COMMUNITY GOALS**

Teams of community advisors, working with the Planning Board, have studied Sunderland's assets, liabilities, and possible future. Recent town meetings have acted decisively on issues of town growth. Town officials have voiced positions at various meetings and hearings. Based on all of these, an outline of town development goals is becoming clear.

There is deep concern over population growth, and a desire to avoid its extremes. Extremely rapid increase is seen as placing unsupportable demands upon the town's natural resources, and threatening the quality of life which makes Sunderland attractive to its residents. On the other hand, foreclosing growth altogether is commonly seen as leading to stagnation, aborting opportunities, damaging to the municipal economy, and unresponsive to responsibilities the town has to its region. Although a few support either unbridled growth or zero growth, most appear to agree that the best future for the town lies in a moderate and carefully managed pattern of population growth.

There is virtually complete agreement on the importance of protecting Sunderland's natural assets, and widespread concurrence on what the most valued assets are: Mount Toby and associated hills; the Connecticut riverfront, the finest agricultural land; a complex of features in the northwest corner of Sunderland, loosely described as the Whitmore Pond area but encompassing much more. Differences arise only in how to accomplish their protection.

The town also has cultural assets which residents value and would preserve. There are historic environs to be protected, especially along Main Street for a half-mile north and south of Route 116. The "Village Center" quality should be protected and enhanced. There is the practice of agriculture, which requires concern irrespective of what is done to protect the land on which the practice is carried out. There is the social cohesiveness of the town, or as much cohesiveness as has survived the past decade of explosive growth.

As everywhere, there is concern over taxes, with the goal of continuing the relatively favorable experience of the recent past, when taxes went up little. Each measure the town might take is tested by residents against a "tax consequence" standard.

Finally, there is widespread feeling that whatever steps the town takes should be equitable in impact on all residents, and not callously serve the interests of the many by unfairly imposing on a few.

In short, people would like to see Sunderland's growth constrained and guided, but not stopped. They would like to see natural and cultural assets protected. They would like to see those things accomplished without damage to either the tax rate or to private interests.

#### AN UNCERTAIN FUTURE

In planning for Sunderland or anywhere else in 1973, it must be accepted that some critical factors bearing on the town cannot be forecast, so uncertainty must be accepted and worked around.

First, growth in Sunderland has been shown to be related almost exclusively to the growth of the University of Massachusetts at Amherst (see memo "Economy and Population", Herr Associates, March 13, 1972). However, that growth cannot really be predicted. Present growth ceilings at the University may last no longer than present state or school administrations, which in turn may be short compared with the dimension of this plan. What Sunderland needs, then, is a device or set of devices to ensure that a contingent future (renewed U. Mass expansion) won't mean renewed explosive growth in Sunderland.



Second, planning for protection of Sunderland's natural and cultural assets is conditioned by the strong possibility of development controls adopted and administered at the federal, state, or regional level. Each of those government levels are working on an interrelated set of devices to provide protection to critical areas, such as Mt. Toby. If and when they enact such controls, the kind of local control which is appropriate also needs to be reconsidered.

In planning for protection of the practice of agriculture, there is great uncertainty about its future in this region, irrespective of local actions. Even if taxes can be relieved and land can be protected, agriculture in this area may in time be in trouble because of labor considerations, transportation, and lack of interested entrepreneurs. On the other hand, increasing pressures for agricultural output may reverse trends of recent decades. No reliable forecast can be made. Planning must accept either possibility.

In planning to protect the town's tax fortunes, the uncertainties of the state's tax structure need to be taken into account. Actions which are fiscally "profitable" given the present tax structure might not continue to be so, given a tax structure revised along the lines of the Master Tax Plan Commission's proposals, or as advocated by some school groups. Small changes in structure are almost annual events. Within a decade, major change seems almost certain, but its form and timing are as unpredictable as they are crucial.

### COMMUNITY PATTERN

Geology sharply divides Sunderland into two types of area, mountain and plain. Closer consideration of the "plain" suggests it to be made up from sub-types: the serviced and developed village area, the prime agricultural land, the Whitmore area complex, and the rest. Proposals for town development guidance can probably best be discussed by considering each of these areas separately.

Table 1 Land Use by Subarea, 1971 (in acres)

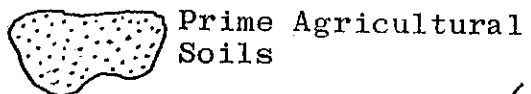
	Whitmore Pond Area	Village Area	Mountain Area	Prime Agricultural Soils <sup>1</sup>	The Rest	Town Total
Public	12	23	771	48	115	932
Agricultural Use	111	144	128	1420	435	2050
Other committed <sup>2</sup>	50	318	65	348	157	676
Total committed	173	485	964	1816	707	3658
Uncommitted Land	499	113	3360	284	1466	5532
Total Area	672	598	4324	2100	2173	9190

<sup>1</sup>Includes 677 acres in Whitmore Pond, Village, and Mountain Areas.

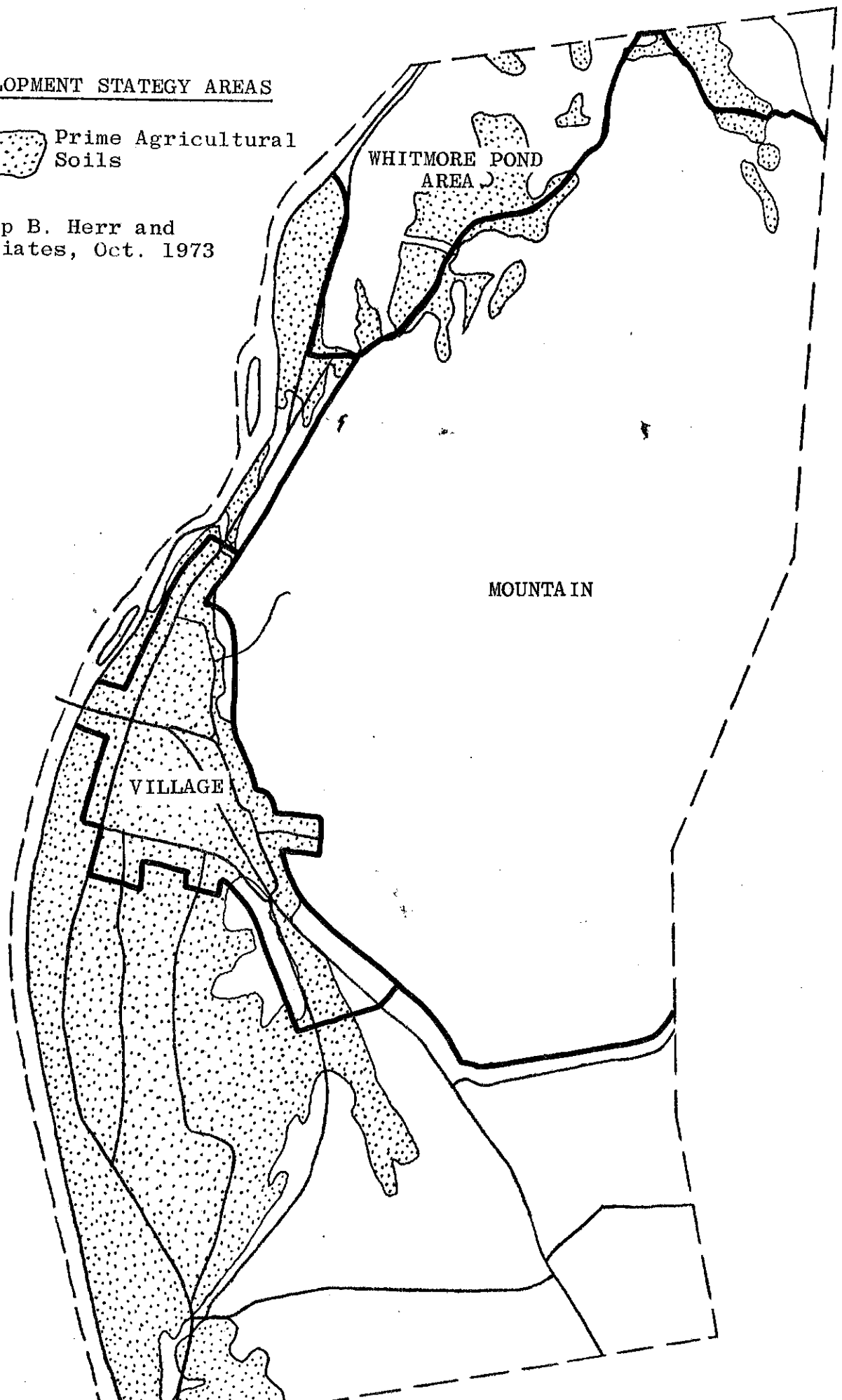
<sup>2</sup>Used for residences, industry, commerce, utilities, etc.

Source: PBH&A Survey, 1971.

DEVELOPMENT STRATEGY AREAS



Philip B. Herr and  
Associates, Oct. 1973



## THE MOUNTAIN

The mountain is steep, much of it having slopes of over 25%, wooded, with only a thin and fragile soil cover. It is laced by small streams and by dirt roads, some public, some private. Only a small fraction of the mountain area is publicly owned, despite public impressions to the contrary.

Intensive development on the mountain would be an ecological disaster to both the mountain and the lands below it, through dangers of erosion, increased streamflows, and interruption of natural habitats. Fortunately, the difficulties of developing there have protected the mountain in the past, and only modest change in controls are necessary to protect its future.

The likeliest location of future development on the mountain is along existing roads. A simple revision in the Planning Board's subdivision regulations can ensure that private dirt roads will not suffice to legitimize development, but rather that roads at a higher standard are required. Further requirements can control runoff and erosion within tolerable limits.

Zoning can be revised to control development on steep slopes, to allow clustering development on the less steep parts, to provide stream protection, and to add further erosion control.

Taken together, all of these actions are likely to result in very little development taking place on the mountain, and with that little development being environmentally sound. Extensive public land acquisition on the mountain should, therefore, only be necessary where public access is sought, and not just to preclude development.

## WHITMORE AREA COMPLEX

In this area of North Sunderland, roughly between Falls Road and Route 47, there is a vast array of resources: Whitmore's Pond, Chard Pond, Gunn Brook Falls, Whitmore's Ferry (falls, fossils), an exceptional pine stand, an abundance of sugar maples, and a matrix of land uses and vegetative cover supporting an outstanding variety of plant and animal life. Carefully guided development need not destroy the area, but if either extensive or insensitive, development could irretrievably upset the area's ecological and environmental balance.

Since much of this area is quite easily developed, a different approach from that for the Mountain is required. Here town purchase may in many cases be the logical alternative to development, since public access is desirable for many of the area's features. Immediate purchase is neither necessary nor desirable. What is needed is the capability to purchase strategic parcels at the point that owners seek to sell, whether to developers or to the town.

That capability can be achieved through two actions. First, a strong Conservation Fund is needed, to enable substantial funds to be expended other than at the annual town meeting. Second, a "holding zone" is needed, within which land owners would be obliged to give the town several months' notice prior to taking any developmental action which is inconsistent with the intent of preserving the features of that area, during which time the town could decide to purchase the property rather than see it developed. This idea has been explored in an earlier memo (see Herr Associates, "Conservation and Recreation", February, 1973).

#### PRIME AGRICULTURAL LAND

Studies by the Soil Conservation Service classify about 1015 acres of Sunderland's land as having "Class I" agricultural capability, the finest anywhere, and another 1085 acres as having "Class II" capability, also excellent. Residents confirm the accuracy of the estimates. This alluvial land is flat, and has a high water table. For development, it is dull and difficult because of the water table and has a poor microclimate for homes. Until recently only scattered homes had cut into that land, but recent years have seen loss of Class I acreage to apartments. Nearly 400 acres of Class I and Class II land had been turned to urban uses by 1971.

Ideally the town would like to see this land remain in agricultural use indefinitely. However, there is no way of assuring the continuous viability of the agricultural industry here. Further, many owners of agricultural land have long planned to retire on the sale of their land for development. That development value may be their primary or only wealth, the basis for not only retirement but also for borrowed liquidity for current farm operations.

The ideal could perhaps be accomplished, or at least made possible, if owners of the best farm land were able to sell off their development rights for utilization somewhere else, but not on the agricultural land. In that way, the development value of the land

would be converted into cash for the farmland owner, but the farmland wouldn't be converted for development. Devices to accomplish this have been talked about, but to the best of our knowledge not yet employed elsewhere. Implementation will require a new invention.

### THE VILLAGE

The "developed" village is far from that. Open land surrounds the thin ribbons of development. The area is already fully serviced by roads, water, and sewer. More development is inevitable on much of the 250 or so acres of agricultural or vacant land within the Village Area.

Most support the view that this area should provide the primary service center for the whole town: school, town services, churches, and commerce. To continue to serve that role without destroying the character of the Village will require careful design guidance. Building relationships to other buildings is critical. Ordinary use zoning can't accomplish this. Needed is a device which can guide design on a building by building basis, such as is done in Historic Districts. Now being studied by a committee established at the last town meeting, implementation of an Historic District may be the single most critical action to be taken for the center of town. If created by town meeting, an Historic District Commission would issue or withhold "certificates of appropriateness" (and thus building permission) for new construction or exterior alterations within the established Historic District. (For further comment, see Herr Associates memo "Historic Districts", November, 1972). Given this guidance, further development of the Village area can serve the town well.

### THE REST

Areas included in none of the above types lie chiefly in the southeastern quadrant of town, and also in scattered locations elsewhere. They total over 2,000 acres, about the same as the prime agricultural area. These areas require only normal care in guiding development. They, along with the Village area, are those locations best suited to extensive building development, so are the logical receiving areas for development rights transferred from the prime agricultural land.

In order to be capable of serving relatively intensive development, these areas should have priority in receiving service improvements: recreation facilities, road improvements, water service improvements and extensions, sewerage extensions, and drainage improvements.

### COMMERCIAL PATTERN

Commerce clearly does not belong generally in the Mountain area, Whitmore complex area, or prime agricultural area. It clearly does belong in the Village area. Opinions differ on the extent to which it belongs elsewhere. In particular, two alternative commercial patterns have their advocates. One proposed pattern is substantially that permitted by current zoning, which largely focuses commerce in the Village, helping to give a strong sense of town center, and avoiding the visual and traffic problems of commercial sprawl. The second proposed pattern is one of commercial development taking place essentially the full length of Route 116. Arguments favoring that pattern include that it is equitable, treating all properties fronting on that road in the same way; and that it is the best way to get the maximum amount of commerce and commercial taxes for the town.

Given the sharp division of opinion on the issue, it has been left unresolved, with no change in the length of commercial zoning districts proposed.

There was, however, broad agreement that commercial districts should be deeper than they are, to allow better site design. There was agreement that careful design control is important, governing egress from commercial areas, planting of buffer strips, and where feasible, architectural control.

### INDUSTRIAL DEVELOPMENT.

Manufacturing and similar uses such as warehousing are a minor part of the town's present development, and few anticipate much of it in the future. Present zoning allows it only if given a permit by the Board of Appeals, which permit may be applied for within any Commercial or R-32 district, which encompasses much of the town. Only one advisory group made industrial development suggestions. It is an issue deserving further study, since the present zoning neither gives clear protection to residential areas nor gives a clear indication to potential industries that they will be allowed.

## LAND AVAILABILITY

Sunderland has 9,190 acres of land, plenty for the 9,200 maximum population projected for 1990. However, when desired limitations on land use are considered, the picture changes substantially. As table 2 indicates, each 1000 population in Sunderland has used 302 acres of land for "urban" uses. At that rate, the town needs a total of 2780 acres to service the maximum projected 1990 population. The town has more than twice that acreage in vacant or agricultural land.

However, the approach discussed above suggests diverting development away from the Mountain, away from Whitmore's Pond area, and away from prime agricultural soils. Deducting from the 5530 or so acres of vacant land (not in urban, public or agricultural use) the unused land in the Whitmore Pond area, the unused land in the Mountain area, and the unused prime agricultural land leaves about 1390 acres of unused land not proposed for some restriction on development. That is just 200 acres per additional thousand residents, or about two-thirds the present rate of land consumption.

The policy implications are clear. If the town wishes to preserve all the land indicated above, it probably should do all of the following:

1. Adopt policies and measures which will tend to prevent population from growing at the maximum projected rate.
2. Accept that some portion of development will take place within areas grossly outlined above for preservation, and see to it that such development is both limited in extent and carefully guided and controlled.
3. Maintain reasonable density controls. Extensive large lot development will simply consume the available land more rapidly. Rate constraints not employing low density as an artificial barrier are preferable to large lot zoning.



Table 2 Land Use, by Subcategory, 1971

	Acres	Acres/1000 Population
Residential	356	159
Commercial	32	14
Industrial	84	38
Transportation, Utilities	59	26
Institutions	2	1
Roads	143	64
<hr/>		
Subtotal urban uses	676	302
Agriculture	2050	
Public Land	932	
<hr/>		
Total committed	3658	
Uncommitted	5532	
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Total land	9190	
Water	270	
<hr/>		
Total town area	9460	
<hr/>		
(Population 2236)		

### IMPLEMENTING ACTIONS

A large array of implementing actions have been suggested by the community advisor and Planning Board studies. These are listed below organized by type of action, rather than type of area. These are only the large-scale measures. A far longer list of more detailed suggestions has also been made, and will be incorporated in other reports.

### ZONING BYLAW

1. Restructure districts to conform to area types (the Mountain, prime agricultural land, etc.).
2. Incorporate simple cluster zoning.
3. Incorporate controls over steep land development.
4. Incorporate "critical resource zoning" for Whitmore area complex.
5. Develop and incorporate development rights transfer from prime agricultural to selected other areas.
6. Create deeper commercial districts.
7. Incorporate egress and landscaping control over major projects.

### SUBDIVISION REGULATIONS

1. Restructure the regulations, with requirements differing for different area types (the Mountain, prime agricultural land, etc.).
2. Tighten requirements for "approval not required" lots not fronting on public ways (chiefly to protect the Mountain).

### OTHER ACTIONS

1. Establish Historic District Commission.
2. Develop recreation facility to serve Plum Tree Road area.
3. Program road and utility improvements to serve the southeastern sector.
4. Build a strong Conservation Fund.

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### FISCAL ANALYSIS

Sunderland Planning Board

December 17, 1971

The purpose of this report is to clarify and add perspective to Sunderland's current fiscal situation, a situation which affects almost all municipal policies and actions. For that purpose Sunderland has been compared to Massachusetts as a whole; its neighbors: Amherst, Deerfield, Hadley, Hatfield, Leverett, Montague and Whately; as well as to Sunderland's situation a decade ago.

#### TAX RATE

We have used "equalized" figures to make fiscal comparisons possible, that is, we have used estimated assessments and tax rates as they would have been if all property in all towns in all years were assessed at full value.\* In 1961 Sunderland's full value tax rate was \$34.60, exceeding the Massachusetts average by 6% and all of its neighbors except Amherst.\*\* By 1971 Sunderland's full value rate had dropped to only 54% of the Massachusetts average and has the lowest of its seven neighbors.

This is a remarkable reversal in the tax rate, contradicting the experience of most towns in Massachusetts which have seen steady and sometimes dramatic increases in the tax rate over the last decade. It is even more remarkable when it is noted that Sunderland experienced an 83.7% increase in its population over the same decade, 1961-71.\*\*\*

The tax rate results from the amount of local spending, minus certain non-property tax income such as state aid, divided by assessed valuation. The two big locally influencable items are spending and assessed valuation. The cause of tax rate abnormalities virtually always lies in one or the other or both of these.

\* See table 6, for basic data

\*\* See table 1

\*\*\* See table 5

## ASSESSED VALUATION

"Equalized" assessed valuations can be compared over time or between towns by dividing them by the number of residents. In 1961 Sunderland's per capita equalized assessed valuation was \$3227, approximately 73% of the state-wide average and next to the lowest of its 7 neighbors.\* In 1971 this situation had improved. Sunderland, by increasing its per capita assessed valuation between 1961 and 1971 by more than was average for its neighbors, had moved up to 90% of the statewide average and into sixth place among its neighbors.\*\*

This moderate increase in assessed valuation, although significant, does not fully explain the remarkable shift in Sunderland's tax rate relative to the state and the neighboring towns.

## PER CAPITA TAXES

Spending, as measured by the tax levy, like assessed valuation, can best be compared on a per capita basis. Sunderland from 1961 - 71 increased its spending per capita only \$43.25, the lowest increase in its region, resulting in a per capita tax of \$154.60 in 1971: the lowest per capita tax of any of its neighbors, and less than half (48%) of the statewide average\*\*\*.

This low spending pattern is the major reason for the decline and in recent years (1967 - 71) the stability of the Sunderland tax rate. Contributing to this has been a large apartment building boom, resulting in a large population increase, many of them University students or faculty, who have contributed more to the tax base than they have to the cost of services, particularly the school costs, usually the largest item in any municipal budget.

## MUCICIPAL AND DISTRICT DEBT

A brief analysis of municipal and district debt reveals that Sunderland has not kept the tax rate and spending down by borrowing heavily against the future. The municipal debt ratio (the ratio of debt to equalized assessed valuation) has increased from only 0.65% in 1961 to 1.42% in 1970\*\*\*\*. Even considering the district debt incurred, by participation in the Frontier Regional School District and the Sunderland Water District (a debt not shared by all residents in Sunderland, although considered that way in this analysis), the total debt ratio was only 3.06% in 1970

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\* See table 3

\*\* See table 2

\*\*\* The sharp decrease in per capita assessed valuation in 1969 appears to be due to the large increase in population more than offsetting the rise in assessed valuation.

\*\*\*\* See table 4

(Massachusetts law limits a town's municipal debt, exclusive of district debt, to 5% of equalized valuation, 10% of said valuation with approval of the loan by the Emergency Finance Board).

### CONCLUSIONS

The dynamics of the Sunderland tax situation, then, are fairly clear. The tax rate and amount of indebtedness have been kept low in spite of rapid growth because that growth has contributed more to the tax base than it has to municipal costs. This is the ideal situation, which almost every town in Massachusetts would like to achieve, but have found difficult to execute. The proximity and growth of the University of Massachusetts in Amherst has been a fiscal benefit to Sunderland. Whether this will continue into the future; whether services in areas other than school facilities will have to be expanded; or whether other negative aspects of growth, such as loss of a rural atmosphere, will outweigh fiscal benefits will be considered in other reports.

### DATA SOURCES

Most of the data used above is taken from a file of data maintained by Herr Associates for its client towns. Sources for that file are as follows:

1. 1970 Populations: U.S. Bureau of the Census, U.S. Census of Population: 1970 Number of Inhabitants Final Report PC(1)-A23 Massachusetts.
2. 1961-69, & 1971 Populations: PBN & A estimates based on Census and building permit data.
3. 1971 Tax Rates: Massachusetts Taxpayers Foundation, Inc., 1971 Tax Rates Actual & Full Value.
4. 1971 Assessed Valuations & Tax Levies: By telephone from the Massachusetts Bureau of Local Taxation.
5. 1971 Equalized Assessed Valuations: PBN & A computation using full value tax rates and assessed valuations.
6. 1964-1970 Tax Rates, Assessed Valuations, Equalized Assessed Valuations and Tax Levies: Boston Safe Deposit & Trust Company, Financial Statistics of Massachusetts; and PBN & A calculations using assessment ratio, also from above.
7. 1961-63 Tax Rates: Massachusetts Federation of Taxpayers Associations, Inc., Taxtalk.

8. 1961-63 Assessed Valuations & Tax Levies: Boston Safe Deposit & Trust Co., op. cit.
9. 1961-63 Equalized Assessed Valuations: PBH & A calculations based on full value tax rates from Taxtalk.
10. 1961-70 Municipal & District Debt: Boston Safe Deposit & Trust co., op. cit.

Table 1  
TAX RATE

Town	Equalized Tax Rate		
	1961	1971	\$Increase 1961-1971
Sunderland	34.63	32.93	- 2.30
Amherst	27.10	34.50	7.40
Deerfield	28.90	40.30	12.30
Hadley	20.40	33.90	12.60
Hatfield	20.70	32.90	11.30
Leverett	25.90	46.00	20.10
Montague	37.10	48.50	11.40
Whately	20.40	34.70	14.30
Average	26.77	37.62	10.35
Sunderland Rank	2/8	8/8	8/8

Table 2  
PER CAPITA TAX

Town	Per Capita Tax		
	1961	1971	\$ Increase 1961-1971
Sunderland	111.35	154.60	43.25
Amherst	80.93	170.03	89.10
Deerfield	105.07	186.82	81.75
Hadley	93.53	245.08	151.55
Hatfield	114.70	204.96	90.26
Leverett	119.98	274.44	154.46
Montague	127.77	217.62	89.85
Whately	86.80	210.85	124.05
Average	105.02	208.05	103.03
Sunderland Rank	4/8	8/8	8/8



Table 3  
ASSESSED VALUATION

Town	Equalized Assessed Valuation Per Capita		
	1961	1971	\$Increase 1961-1971
Sunderland	3,227	4,831	1,604
Amherst	2,961	4,928	1,967
Deerfield	3,723	4,636	913
Hadley	4,997	7,427	2,430
Hatfield	5,464	6,405	941
Leverett	4,698	5,966	1,268
Montague	3,404	4,487	1,083
Whately	4,644	6,076	1,432
Average	4,140	5,594	1,454
Sunderland Rank	7/C	6/C	3/C

Table 4  
MUNICIPAL AND DISTRICT DEBT

Debt	1961	1970
Municipal Debt	\$27,000	\$144,000
Debt Ratio (%)	0.65	1.42
District Debt (Sunderland share)		
Sunderland Water District	\$59,000	\$127,000
Frontier School District	<u>\$ 9,537</u>	<u>\$ 39,270</u>
Total District Debt	<u>\$68,537</u>	<u>\$166,270</u>
Total Debt	\$95,537	\$310,270
Total Debt Ratio (%)	2.31	3.06

Table 5  
BASIC COMMUNITY DATA

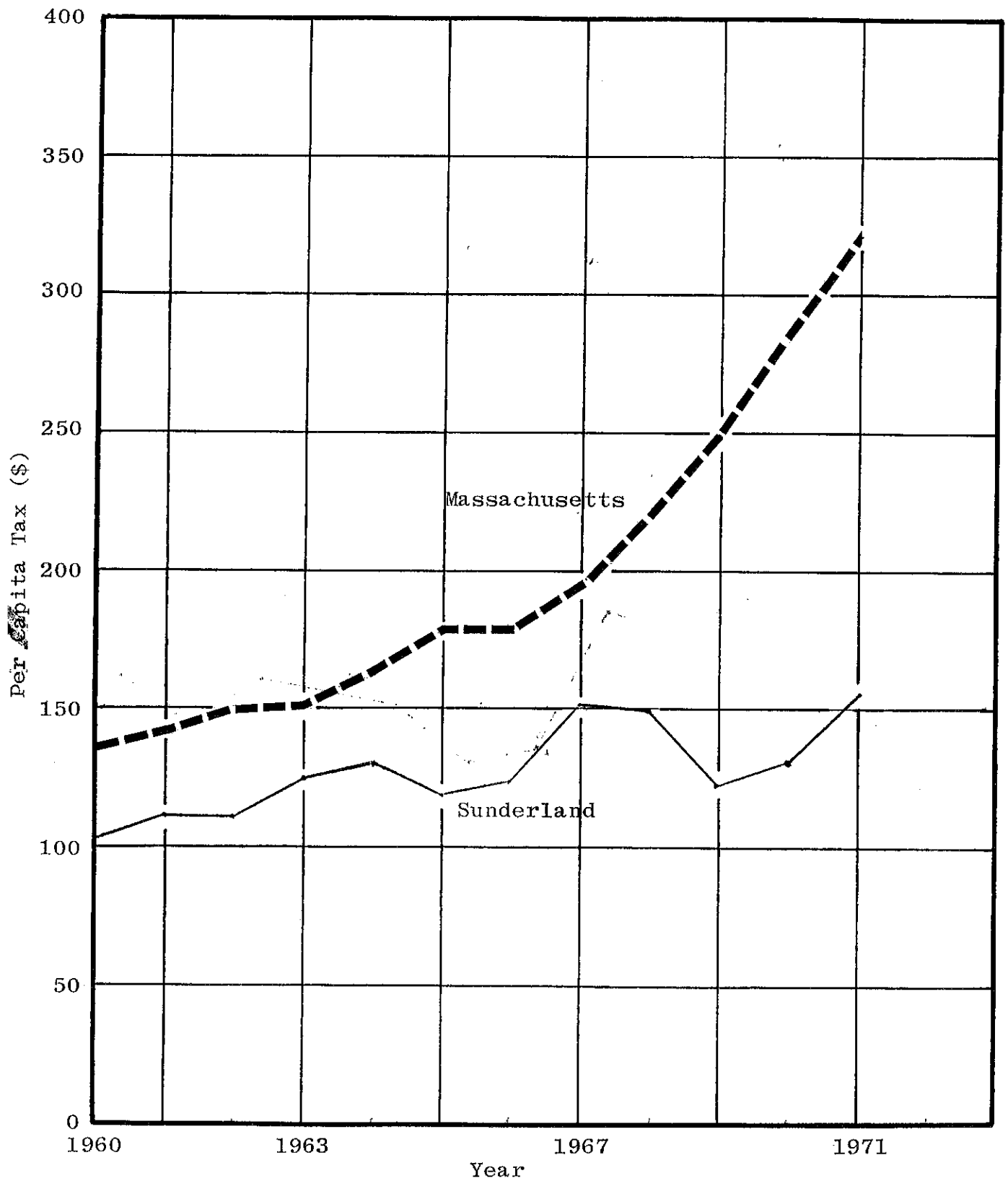
Town	Population			Actual Tax Rate 1971
	1961	1971	Growth 1961-71	
Sunderland	1,279	2,350	83.7%	32.00
Amherst	14,300	27,600	84.2	34.50
Deerfield	3,320	3,880	16.9	72.00
Hadley	3,150	3,800	20.8	103.00
Hatfield	2,400	2,870	19.3	33.00
Leverett	920	1,020	10.9	92.00
Montague	7,900	8,510	7.7	51.00
Whately	1,040	1,160	11.5	112.00
Average Sunderland Rank	4,374 6/8	6,399 6/8	31.9% 2/8	66.10 3/8

Table 6  
SUNDERLAND DATA, 1961 - 71\*

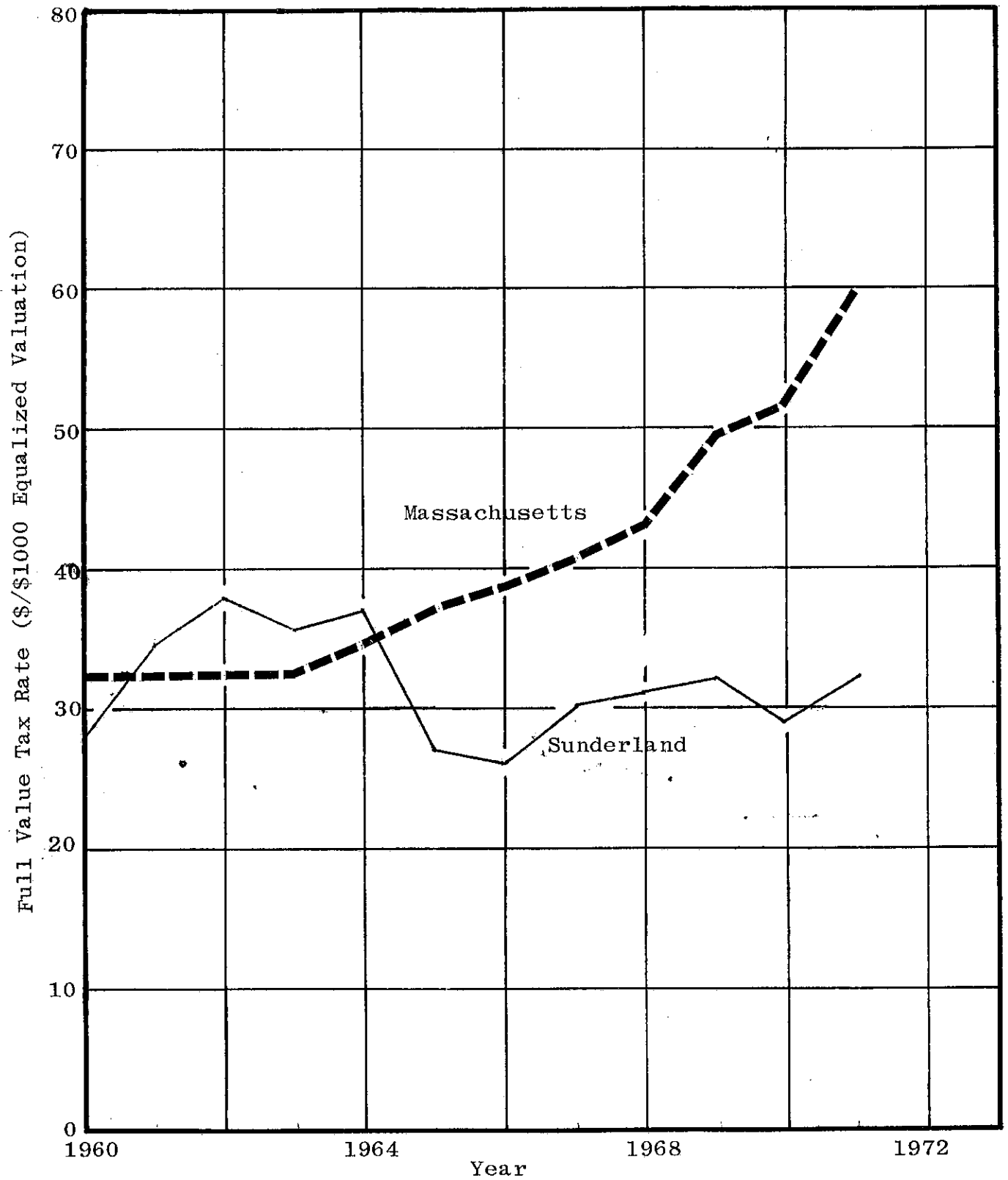
Year	Estimated Population	Actual Tax Rate	Full Value Tax Rate	Assessed Valuation (x1000)	"Equalized" Assessed Valuation (x1000)	Tax Levy (x1000)
1961	1,279	52.00	34.60	2,724	4,127	142
1962	1,287	57.00	37.90	2,962	4,488	142
1963	1,287	57.00	35.70	2,809	4,458	160
1964	1,295	57.00	37.05	2,906	4,471	166
1965	1,338	27.00	27.00	5,272	5,872	158
1966	1,412	31.00	26.04	6,021	7,163	187
1967	1,427	34.00	29.92	6,354	7,220	216
1968	1,543	33.00	31.02	7,020	7,468	232
1969	2,100	32.00	32.00	8,113	8,113	260
1970	2,236	29.00	29.00	10,132	10,132	294
1971	2,350	32.00	32.00	11,354	11,354	363

\*See page 3 for data sources.

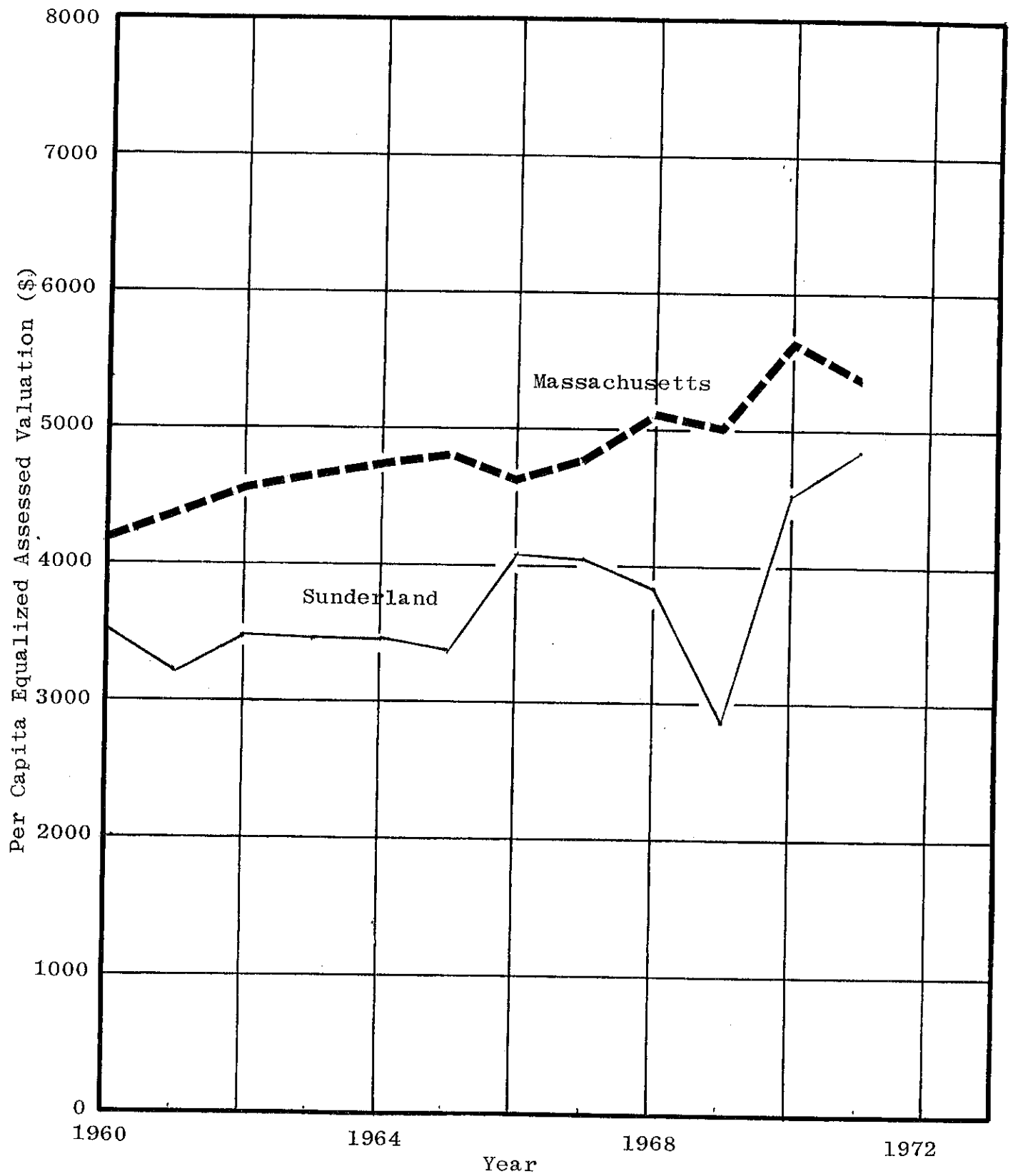
# PER CAPITA TAX



FULL VALUE TAX RATE



# PER CAPITA EQUALIZED ASSESSED VALUATION







## Philip B. Herr & Associates

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### S U N D E R L A N D   E C O N O M Y   A N D   P O P U L A T I O N Sunderland Planning Board May 26, 1972

Sunderland has very suddenly experienced a dramatic change in community function and population size and type. From 1920 to 1960 Sunderland's population was unchanged at just under 1,300 people, chiefly supported by local agriculture and commuting to jobs in South Deerfield, Northampton, and elsewhere. Sunderland then doubled in population during the 60's, with virtually all of the growth attributable to growth at the University of Massachusetts and an influx of students resident in Sunderland.

This report examines the history of that change, and attempts to estimate future directions and quantities of growth. It appears virtually certain that the change to being a "bedroom town" is permanent, unless more local employment growth than expected can be achieved. It also is clear that a close relationship between University of Massachusetts growth and growth pressures on Sunderland will continue, though it is not at all certain what that University of Massachusetts growth will actually be.

If growth were to continue for the next two decades much as experienced in the past decade, Sunderland would have a population of about 7,500 in 1990, larger than the current size of any Franklin County towns except Greenfield and Montague. With that growth would inevitably come dramatic change in the kind of community Sunderland is, the kind of government it would have, the kind of opportunities it would offer or deny.

It should be emphasized, however, that the growth of the town is in large degree controllable through such means as zoning, utilities policies, land acquisition policies, and fiscal policies. The report which follows in general presents things as they are likely to happen given no major public intervention. One purpose of this planning program, however, is to determine whether such intervention should be made or not, and if so, in what way, so particular attention should be paid to estimates of the consequences of such changes as revisions to zoning and utility policies.

Sunderland's population today is very different than it was in 1960. Not only has the population almost doubled, but this new population lives and works in ways which are very different from the population prior to 1960. Some of these changes are set forth in Table 1. In comparison with Franklin County, Sunderland is growing faster; its population is younger; and a larger proportion of its residents live in rented housing. The reasons for these changes, which are only indicators of the more fundamental changes going on within Sunderland and the region, are the subject of this report. First the economy, local and regional, is analyzed and second, the population is discussed with specific population projections to 1990.

TABLE 1  
SUNDERLAND: BASIC CHANGES: 1960-70

Characteristics	1960	1970
1. Population Increase over previous decade:		
Sunderland	29.2%	74.8%
Franklin County	4.0%	7.9%
2. Median Age:		
Sunderland	31	24
Franklin County	34	31
3. Single Family Homes as a percent of Total Housing Units:		
Sunderland	71	43
Franklin County	73	60
4. Percent of total population living in rented housing:		
Sunderland	N.A.	50
Franklin County	72	73

Source: U.S. Census of Population, 1970 and 1960.

## A. THE ECONOMY

### 1. Agriculture

Agriculture has traditionally been Sunderland's chief economic base. In terms of land use, agriculture is still significant: 22% of the total land area is devoted to farming.<sup>1</sup> Yet, most indicators show that farming is declining. Fewer and fewer people each year make their full time living from agriculture. This is far from a local phenomenon. Franklin County and Massachusetts as a whole show this same trend. (See Table 2.) The number of farms has been declining. Land in farms has also decreased, but less rapidly, as the value of farms and farm output has increased. The net result is fewer, larger and more productive farms.

Two of Sunderland's most important components of agriculture, tobacco and dairy farming, also show some decline. (See Tables 3 and 4.) Binder or field tobacco, which prior to 1959, was the primary type of tobacco grown in Franklin County has declined precipitously. The switch to the wrapper or shade grown type, a more difficult type to grow, for a time (between 1959 and 1964) showed signs of increasing total production output. Recent indicators however show decline even in this. Dairy farming also has declined. Even the increased value of dairy products sold has not revived this type of farm in Sunderland.

### 2. Other Economic Sectors

Other than agriculture Sunderland has very little major economic activity. Covered employment<sup>2</sup> shows Sunderland to be a very small employment center. (See Table 5.) Manufacturing is almost non-existent. Construction accounts for the majority of covered employees, and increased substantially between 1960 and 1970. Wholesale and retail trade declined. Service employment has remained steady. Total covered employment per 1,000 residents, a measure of suburbanization or out-commuting, has declined since 1964.<sup>3</sup> Most of Sunderland's residents, then, make their

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<sup>1</sup> PBH & A Land Use Survey, Dec. 1971.

<sup>2</sup> Covered employment is employment in establishments subject to the Massachusetts Employment Security Law. This generally excludes employment in non-profit institutions organized for religious, charitable, educational or scientific purposes; in agriculture, in government and domestic service, self-employment and unpaid family service.

<sup>3</sup> Compare to Mass. ratio of 300 employees per 1,000 residents in 1970, or Franklin County's 1970 ratio of 214.

TABLE 2  
AGRICULTURE: FRANKLIN COUNTY AND MASSACHUSETTS

	Franklin County			Massachusetts		
	1954	1959	1964	1954	1959	1964
1. Number of farms	1541	1022	650	17,361	11,149	8,019
2. Land in farms (1000 acres)	-----	149	111		1,142	902
3. Average size of farm (acres)	122.9	145.8	170.9	82.9	102.2	112.5
4. Farm operators	-----	1009	650	-----	11,149	8,019
5. Hired workers	-----	293	571	-----	7,286	7,996
6. Value of products sold (\$1,000)						
a. Dairy products	3,767	4,280	4,999	36,966	41,021	44,642
b. Other crops (primarily tobacco)	1,841	1,394	2,777	11,102	11,545	15,223
c. Poultry & poultry products	1,391	1,297	920	36,717	29,530	25,732
d. Other livestock	570	722	531	7,345	9,484	9,071
e. Fruit	367	409	529	11,533	10,569	12,801
f. Vegetables	288	195	322	5,755	5,443	6,145
g. Horticulture specialties & forest products	302	313	312	15,808	18,248	19,703
Total Value	8,525	8,611	10,390	125,226	126,440	133,317

Sources: U.S. Census of Agriculture, 1954, 1959, 1964.

TABLE 3  
AGRICULTURE: TOBACCO PRODUCTION, FRANKLIN COUNTY

Year	Binder (field)		Wrapper (shade)		Total	
	Har-vested Acres	Produc-tion Pounds	Har-vested Acres	Produc-tion Pounds	Har-vested Acres	Produc-tion Pounds
1959	488	879,790	50	75,000	538	954,790
1964	225	472,500	513	769,500 <sup>2</sup>	738	1,242,000
1968	90	198,000	N.A.	N.A.		
1969	100	163,500				
1970	90	180,000 <sup>1</sup>	848	1,272,000 <sup>2</sup>	938	1,452,000
1971	50	100,000 <sup>1</sup>	571	856,500 <sup>2</sup>	621	956,500

<sup>1</sup>Estimated 2,000 lbs./acre.

<sup>2</sup>Estimated 1,500 lbs./acre.

Source: 1959 & 1964: U.S. Census of Agriculture.  
1968 & 1969: U.S. D.A., Statistical Reporting Service  
1970 & 1971: Greenfield Recorder, September 16, 1971.

TABLE 4  
AGRICULTURE: DAIRY PRODUCTS, SUNDERLAND

Year	Dairy Stock <sup>1</sup>	Value/animal <sup>2</sup>	Total Value of Dairy Products
1960	780	\$417	\$325,260
1961	753	438	329,814
1962	688	459	315,792
1963	N.A.	480	N.A.
1964	615	501	308,115
1965	545	525	286,125
1966	528	550	290,400
1967	451	575	259,325
1968	446	600	267,600
1969	N.A.	625	N.A.
1970	365	650	237,250

<sup>1</sup>Sunderland Annual Reports 1960-70.

<sup>2</sup>Based on 1959 and 1964 U.S. Census of Agriculture: Dollar value of dairy products sold/no. of milk cows; other years estimated.

TABLE 5  
EMPLOYMENT: SUNDERLAND 1960 - 70 (November Employees)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Agriculture	0	0	0	0	0	0	0	0	0	0	0
Construction, Manufacturing, Transportation, & Mining	30	73	39	127	212	219	192	166	194	255	314
Wholesale & Retail Trade	56	47	55	57	44	46	38	34	43	34	37
Finance Insurance & Real Estate	5	4	3	7	7	11	11	11	13	12	13
Services	21	23	35	34	40	40	42	41	N.A.	43	44
Total	162	152	187	225	309	316	283	252	---	344	408
Total Employment per 1000 est. residents	127	119	145	175	239	236	200	177	---	164	132

Source: Mass. Division of Employment Security.

(or go to school) outside of town. Exact data on the amount of commuting is presently unavailable. Later 1970 Census data giving place of work should be available some time this year.

### 3. Regional Economy

Table 6 shows the regional covered employment for 1960, 1965, and 1970. Sunderland geographically lies between 3 major employment centers: Greenfield to the north, Amherst to the southeast and Northampton to the southwest. Highway access to each of these is fairly easy, especially Amherst which is only minutes away via Route 116.

Amherst and Northampton both contain large institutions which are not covered by the Employment Security law. Northampton has the Cooley-Dickinson Hospital, Smith College and Northampton Junior College. In Amherst there is the University of Massachusetts, Amherst College and the recently established Hampshire College. The University of Massachusetts alone employed 5,600 people in 1970 on a part-time or full-time basis. (See Table 7.)

Considering these institutions, then, Amherst is more the equal, in terms of employment, of Greenfield and Northampton. Greenfield (and Montague) and Northampton, however, are primarily manufacturing centers. They also are retail, wholesale and service centers (See Tables 8, 9, 10). Amherst, on the other hand, despite a sizeable increase in covered employment, still relies primarily on the educational institutions in the town for its employment.

### 4. Future Economy

The estimates available of future employment in the region present a favorable picture. (See Table 11.) Employment will continue to increase: Greenfield-Montague area the slowest and Northampton at a faster rate. Sunderland's growth, dependent to a great extent on Amherst, is also expected to increase.

The effect, however, of the proposed ceiling of 25,000 students at the University of Massachusetts is difficult to judge. It now appears likely that the ceiling will in fact be put into effect. This will slow down the rapid increase in employment that has occurred in the past. Table 12 shows the increase in enrollment 1963-70 at the University of Massachusetts. The fact that the 11.5% annual increase in enrollment, 1965-70, corresponds closely with a total employment growth of 11.2%, 1965-70, suggests how sensitive Amherst's employment level is to the growth of the university. In the analysis of population growth, which follows, the sensitivity of Sunderland's population growth to the university is suggested.



TABLE 6

EMPLOYMENT: REGIONAL COVERED EMPLOYMENT (November Employees)

Town	1960		1965		1970		Growth Rate Annual Av. 1960-70
	No.	% Total	No.	% Total	No.	% Total	
Sunderland	162	1.0	316	1.8	400	2.2	9.7%
Amherst	943	6.0	1279	7.3	1767	9.6	6.4
Deerfield	509*	3.2	710*	4.0	622	3.4	2.0
Greenfield	5512	35.0	6145	35.1	6330	34.3	1.0
Hadley	335*	2.1	423*	2.4	640**	3.5	6.7
Hatfield	659*	4.2	636*	3.9	511**	2.8	-2.4
Leverett	20*	0.1	14*	0.1	4	0.0	---
Montague	971*	6.1	1009*	5.7	921	5.0	-0.5
Northampton	6591	41.8	6899	39.4	7220**	39.1	0.9
Whately	65	0.4	44*	0.2	40	2.5	-2.9
Total	15,773	100.0	17,525	100.0	18,471	100.0	1.6

\*Annual Average Covered Employment

\*\*1969 Annual Average Covered Employment

Source: Mass. Div. of Employment Security

TABLE 7  
EMPLOYMENT: AMHERST, 1960-70

Year	Employment			
	Covered Employment <sup>1</sup>	Major Institutions <sup>2</sup>		Total <sup>3</sup>
		U. of Mass.	Other	
1960	943	4,570	570	3,083 <sup>3</sup>
1961	965	1,810	617	3,392
1962	1,016	2,020	664	3,730
1963	1,072	2,288	712	4,072
1964	1,141	2,658	748	4,548
1965	1,279	3,028	784	5,093
1966	1,383	3,400	820	5,603
1967	1,487	3,950	935	6,372
1968	1,642	4,500	1,050	7,182
1969	1,707	5,050	1,165	7,912
1970	1,767	5,600	1,280	8,647
Average Annual Increase 1965-70 (Percent)	6.6	6.3	10.0	11.2

<sup>1</sup> Nov. employees, Mass. Division of Employment Security.

<sup>2</sup> Major institutions are U. of Mass., Amherst College, Hampshire College, Town of Amherst.

Data sources: Institutional record, Amherst Comprehensive Plan Report, 1969 and Allen Benjamin, Report on Population Estimates for the Town of Amherst, Jan. 1964.

<sup>3</sup> Sum of covered employment and major institution employment.

TABLE 8  
RETAIL SALES: MAJOR TOWNS, 1963 and 1967

Town	1963		1967	
	Number of Establishments	Sales (\$1,000)	Number of Establishments	Sales (\$1,000)
Greenfield	228	41,007	217	50,105
Montague	65	4,562	61	6,507
Amherst	81	13,174	100	15,581
Northampton	295	50,981	296	66,096

Source: U.S. Bureau of Census, Census of Business, 1963 and 1967  
Retail Trade: Massachusetts

TABLE 9  
WHOLESALE TRADE: MAJOR TOWNS, 1963 and 1967

Town	1963		1967	
	Number of Establishments	Sales (\$1,000)	Number of Establishments	Sales (\$1,000)
Greenfield	33	21,372	28	12,619
Montague	4	(D)	8	8,029
Amherst	3	(D)	1	(D)
Northampton	22	12,963	28	12,932

Source: U.S. Bureau of Census, Census of Business, 1963 and 1967.  
Wholesale Trade: Massachusetts.

TABLE 10  
SERVICE INDUSTRY<sup>1</sup>: MAJOR TOWNS, 1963 and 1967

Town	1963		1967	
	Number of Establishments	Sales (\$1,000)	Number of Establishments	Sales (\$1,000)
Greenfield	132	3,409	140	3,528
Montague	35	538	36	645
Amherst	56	1,468	87	2,571
Northampton	177	4,422	165	6,632

<sup>1</sup>Services include hotels, motels; personal services such as coin-operated laundries, dry cleaning, diaper services, beauty shops, shoe repair shops, etc.; business services such as advertising agencies; automobile garages and repair services; motion pictures and other amusement and recreation services.

Source: U.S. Bureau of Census, Census of Business, 1963 and 1967, Selected Services: Massachusetts.

TABLE 11  
FUTURE EMPLOYMENT: REGIONAL

Town or Region	1970	1980	1990	Growth Rate (Annual Average) 1970-90
Greenfield <sup>1</sup> (Total Employment)	10,400	10,650	11,750	0.6%
Millers <sup>1</sup> (Erving & Montague) (Total Employment)	2,300	2,425	2,625	0.6%
Valley <sup>1</sup> (Deerfield, Sunderland & Whately) (Total Employment)	2,080	2,800	3,825	3.1%
Northampton <sup>2</sup> (Covered Employment)	7,220	9,310	11,300	2.2%

<sup>1</sup>Philip B. Herr & Associates projections for Franklin County sub-  
regions, unpublished, 1972. Total employment is covered plus non-  
covered employment.

<sup>2</sup>Metcalf & Eddy, Inc., Preliminary Report on Economy, Feb. 1971.

Table 12

AMHERST: Student Enrollment University of Massachusetts  
1963 - 1970

	University of Massachusetts						TOTAL
	Living on Campus		Living off Campus		Total		
	under-graduate	grad-uate	Under-graduate	grad-uate	under-graduate	grad-uate	
1963	6392	190	993	1116	7385	1303	8688
1964	7080	220	1590	1500	8670	1730	10,400
1965	7770	240	2120	1890	9960	2140	12,100
1966	8470	260	2770	2280	11,250	2550	13,800
1967	9160	290	3370	2660	12,530	2970	15,500
1968	9850	320	3960	3050	13,800	3400	17,200
1969	10,537	340	4549	3439	15,086	3779	18,865
1970	11,200	400	5100	3800	16,400	4200	20,600

Average Annual Increase 1965 - 70 (Percent)	7.6	8.7	20.1	15.9	10.7	15.1	11.5
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Sources: 1963 Allen Benjamin, Report on Population Estimates for the Town of Amherst, 1964; 1969, PBH&A Housing Study, Franklin Co., 1964-68 PBH&A interpolation; 1970 extrapolation.

## B. POPULATION

The population in the Sunderland region grew by more than 16,000 persons between 1960 and 1970 (See Table 13). Amherst, with its large and expanding universities, and student population accounted for almost 80% of that growth. Sunderland contributed the second largest share of growth, about 6% of the total regional increase (See Table 13).

In this section the population growth of Sunderland by age group from 1960-70 will be analyzed; and the factors which account for that growth will be discussed. Second, a method for determining current population in future years will be presented and projections of future population will be made.

### 1. Population Analysis 1960-1970

From 1960 to 1970 Sunderland grew by 957 persons, a 75% increase. Sixty-two percent of that increase was in the 18-24 age bracket. Another 23% was in the 25-34 age group (See Table 14). Some age groups decreased: the school age group (5-17) declined 3.4% and the 35-39 age group declined by 23.5%. Figure one shows graphically the changing age distribution of the population within Sunderland. Clearly, the new population is young and without school age children.

### 2. Factors Affecting Population Growth

a. New Housing. Substantial growth in population can come about only by an increase in new dwellings. Table 15 shows the increase in housing units in Sunderland from 1960 to 1972. 87% of this growth has been in the form of multi-family units, primarily apartment houses. Since 1965, the number of such units has been increasing steadily. In 1972, 500 new units or more are expected, almost doubling the existing inventory.

b. The University of Massachusetts. New housing units themselves are, of course, dependent on many factors. One of these is market demand. For Sunderland this market for new housing has been created primarily by the Amherst universities, and especially the University of Massachusetts.

Most of the students at both Amherst and Hampshire Colleges live on campus. At the University of Massachusetts, however the percentage of students living off campus has been increasing each year (See Table 12). From 1965 to 1970 the annual average increase in undergraduate students living off campus was 20.1% faster than the total enrollment increase. (For graduate students it was less but still substantial.) This is a substantial piece of the market which

TABLE 13  
POPULATION: REGIONAL

Town	1960		1970		Increase 60-70	
	Pop.	% of Region	Pop.	% of Region	Pop.	% of Regional Increase
Sunderland	1,279	1.6	2,236	2.3	957	6.0
Amherst	13,718	16.9	26,331	27.0	12,613	78.6
Deerfield	3,338	4.1	3,850	4.0	512	3.2
Greenfield	17,690	21.7	18,116	18.6	426	2.7
Hadley	3,099	3.8	3,750	3.8	651	4.1
Hatfield	2,350	2.9	2,825	2.9	475	2.9
Leverett	914	1.1	1,005	1.0	91	0.6
Montague	7,236	9.6	8,451	8.7	615	3.3
Northampton	30,058	37.0	29,664	30.5	- 394	- 2.4
Whately	1,037	1.3	1,145	1.2	108	0.7
TOTAL	81,319	100.0	97,373	100.0	16,054	100.0

Source: 1970 U.S. Census.



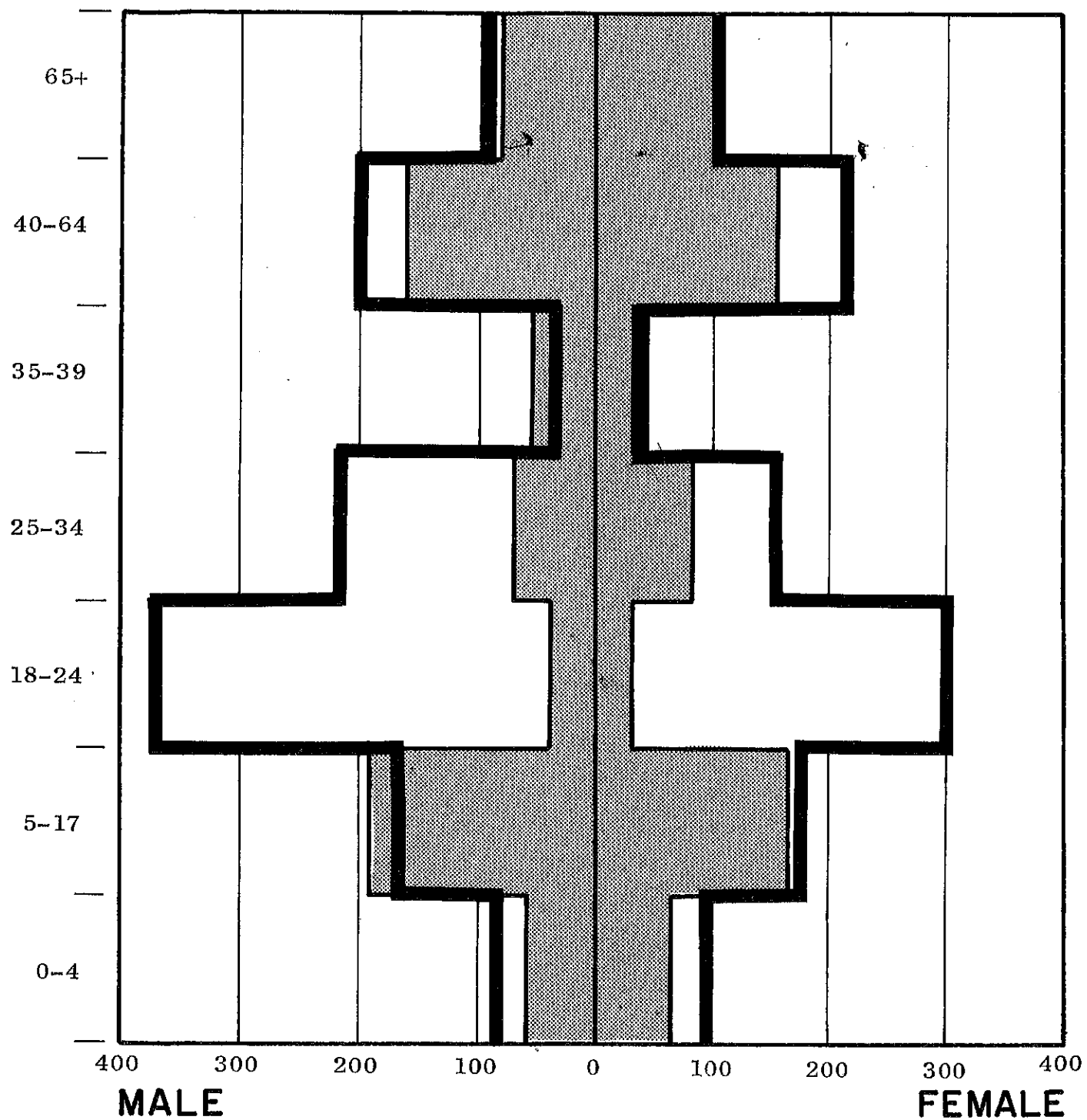
Figure 1

# SUNDERLAND POPULATION DISTRIBUTION

By Age Group and Sex, 1960 and 1970

1960

1970



Source: U.S. Census

TABLE 14  
POPULATION: SUNDERLAND, BY AGE GROUP; 1960, 1965, 1970

Age Group	Year			Increase 1960 - 70		
	1960	1965	1970	Percentage	Numerical	% of Total Increase
0-4	113	104	175	48.3	57	5.95
5-17	351	293	339	- 3.4	- 12	- 1.2
18-24	73	197	669	816.4	596	62.3
25-34	147	123	370	151.7	223	23.3
35-39	98	67	75	- 23.5	- 23	- 2.4
40-64	312	349	419	34.3	107	11.2
65+	180	160	189	5.0	9	0.9
TOTAL ALL AGES	1,279	1,293	2,236	74.8	957	100.0

Sources: 1960 and 1970 U.S. Census of Population;  
1965 Massachusetts Census; and  
PBH & A calculations.

TABLE 15  
TOTAL HOUSING UNITS: SUNDERLAND 1960-72

Year	Single Family	2 or more units	Mobile Homes	TOTAL
1960 <sup>1</sup>	298	122	2	422
1961 <sup>1</sup>	300	122	2	424
1962 <sup>1</sup>	304	122	2	428
1963 <sup>1</sup>	306	122	2	430
1964 <sup>1</sup>	310	122	2	434
1965 <sup>1</sup>	321	125	2	448
1966 <sup>1</sup>	332	141	2	475
1967 <sup>1</sup>	338	141	2	481
1968 <sup>1</sup>	344	185	2	531
1969 <sup>1</sup>	350	409	2	761
1970 <sup>2</sup>	353	472	2	827
1971 <sup>3</sup>	368	500	2	870
1971 Survey <sup>4</sup>	347	591	3	941
1972 <sup>5</sup>	373	630	3	1,006

<sup>1</sup>Estimated based on 1970 Census: 1970 Census minus building permits for each year 1960-69.

<sup>2</sup>U.S. Census, April 1, 1970.

<sup>3</sup>1970 Census plus building permits issued during 1970.

<sup>4</sup>PBH & A survey, Dec. 1971.

<sup>5</sup>1971 plus building permits

the new apartments in Sunderland have capitalized on. (Compare the annual average increase, 1965-70, of undergraduates living off campus: 20.1%; with the increase in 18-24 year olds during the same period in Sunderland: 27.7%; and with the increase in multi-family units: 30.4%).

What happens at the University of Massachusetts then is a significant factor in Sunderland's growth. In the past, the University has been behind in providing dormitory space for its students. Today, though new dorms have been built, some are only 2/3 to 1/2 filled, by many reports. The university, at present, has no policy which requires students to live on campus, and it seems unlikely this will happen soon.

There is more to the University of Massachusetts market than simply the undergraduate students: graduate students, faculty, other employees and the wide range of employment in trade and services which the growth of the university supports also contribute to it. The effect then of a ceiling of 25,000 students at the university, which has recently been proposed, will undoubtedly mean a tapering off in the market for new housing units. Presently it is expected that the ceiling will be put into effect and that it could be held for as long as 10 years. When that ceiling is reached is the most difficult question to answer. The present rate of growth suggests 1973 or 1974, but this rate could be slowed down, so that it is not reached until much later. The policy of the university on this subject is unknown at the moment, because even a definite decision on the ceiling has not been revealed.

c. Local and Other Regional Employment. The previous discussion has stressed the fact that substantial growth in population has been coming from Amherst. Local and other regional employment certainly plays a part in this, a part however which is difficult to determine. The exact relationship between employment trends and population movements is vague, particularly so at the low levels of employment in Sunderland and at the distance of Sunderland from Greenfield and Northampton. It can be said however, that even without Amherst's contribution, the increase in employment in the region and locally, would increase the population in Sunderland. This however is a minor factor and greatly overshadowed by the University of Massachusetts and Amherst.

d. Land Availability. The availability of undeveloped land is a definite limit on the amount of new housing. In Sunderland, not only is there abundant vacant land, but in addition land now used for agriculture is easily converted to use for new dwellings. There is presently in Sunderland 543 acres (5.9% of the total land area) of cleared vacant land (that is, neither wooded nor wetland nor actively farmed), another 4,900 acres of privately owned undeveloped woodland (53.3% of the total land area) and 2,000 acres of private agricultural land (22%).<sup>1</sup>

The willingness of farmers to sell their land has been and will continue to be a significant factor in the growth of new housing. As pointed out in the section on the economy, the product value of agriculture has increased, yet the value of land for development has increased even more. Further, agriculture has been increasingly productive only in the hands of large scale enterprises. However, even these large scale farmers cannot match the price a small farmer will receive from a developer of apartments or subdivisions.

All this is to say that land availability in Sunderland is not really a limiting factor: there is plenty of land available for development at prices which developers are obviously willing to pay. Readily developable land is adequate to support decades of development at any foreseeable rate.

e. Development Controls. The preceding sections have perhaps given the impression that population growth is beyond control of the town. The town, for instance, cannot control the growth of the University of Massachusetts, the regional economy, or the willingness of farmers to sell their land. It has, however, development controls: zoning and subdivision regulations, which can limit or encourage the growth of population.

Sunderland since 1965 has allowed multi-family dwellings on special permit in all zoning districts.<sup>2</sup> There are three densities:

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<sup>1</sup>PBH & A Land Use Survey, Dec., 1971.

<sup>2</sup>The exception is an area 400' wide on Main Street from Old Amherst Road to Claybrook Road.

District	(Sq.ft.) 1st Unit	Sq. ft. per additional unit
R-12	12,000	3,500
R-20	20,000	4,000
R-32, B-N, Commercial	32,000	10,000

These densities in the R-12 and R-20 districts are evidently high enough to make development profitable. There is also enough vacant land suitable for development within these districts so that it could take place.

Sunderland's development controls alone, however, are not the whole story. The development controls of neighboring towns also are important. Of the towns close to the University of Massachusetts, the source of greatest demand, only Amherst and Sunderland provide the necessary densities and areas in their controls which allow apartment development to occur. Whately, for instance, appears to allow apartments but only at 30,000 square feet per dwelling unit. Clearly this is so prohibitively expensive, in terms of land costs, as to be an absolute restriction on apartments. Leverett does not allow apartments at all. It is not likely that any of these towns will change their zoning soon, or enough, to capture any significant amount of new apartments.

Amherst's zoning has been recently changed. New apartments have been restricted to the downtown area exclusively. This has been done to slow down the increase in apartments: since 1960, building permits for 3,700 multi-family units have been granted. Some apartments however are still being planned on subdivisions, outside the downtown, which because of a state "grandfather clause" are controlled by the old zoning. As many as 1,000 units are pending in 1972.

Amherst's zoning change will make Sunderland more attractive for apartments. The large number of multi-family units pending in each town however suggests that the market may very quickly be near saturation. There is some indication now that some apartments are not renting as quickly as a year ago. Most likely new apartments will continue to be in demand in Sunderland but the magnitude of that demand will be much smaller.

It is none the less true that what the people in Sunderland do, by way of changing their development controls, is the most important factor in influencing the rate of town growth. There are a number of alternatives, some of which are being considered now; each of which can affect the population growth significantly. In the population projections which follow a number of assumptions about these alternatives will be made, but only in a general way, and they in no way constitute a recommended action, the only alternatives, or an ultimate solution.

f. Utilities Extensions. Utilities extensions, both sewer and water, are another factor which can affect development and which the town can control. The presence of these utilities allows land to be developed more intensively, with lower development costs, and with less concern that pollution of the land and streams will take place, thus removing one of the major objections which people have to apartments and other forms of intensive development.

The proposed new Sunderland sewerage treatment plant, as of this writing, is about to be approved. It is assumed that it will be approved and that completion of construction will take place by 1975. After that, extensions to the sewerage collection system can be made. The schedule for extensions is not definitely set however. Water extensions have been proposed also, since the completion of the new storage tank. Both these utilities will affect future growth and the different alternatives concerning extensions are considered in the projections.

g. Fiscal Attractiveness. Sunderland has a fairly attractive fiscal situation, relative to other towns in the region<sup>1</sup>. This, in turn, makes development in Sunderland relatively attractive. The significance of fiscal attractiveness, however, considering all other factors affecting growth, must be considered of only minor significance in influencing growth. Further, it is expected that Sunderland's fiscal advantage in the future will not increase; if anything, changes in state tax formulas could substantially reduce it.

h. Summary of Growth Factors. The growth factors outlined above could apply to any town to some degree. However, most towns can disregard many of those factors because they have already been predetermined: the sewer and water mains already cover the town, or there is a limited supply of land, or there is a predictable growth in the economic base. For Sunderland, all of these factors have yet to be determined.

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<sup>1</sup>See PBH & A, Fiscal Analysis, Dec. 17, 1971.

some by actions to be taken by others outside the town, others, equally important, to be determined by actions to be taken by the residents of Sunderland themselves.

### 3. Estimating Current Population

Reasonably current population data is now available from the 1970 Census, but it quickly becomes an inadequate indicator of the current situation considering Sunderland's rapid growth. The town should not have to wait 5 or 10 years for a census report to find out what the decisions on the various factors in the previous section have meant to town growth.

We suggest the use of a system which, using annually available data, yields estimates of current population. The only data needed each year as an input is information on building permits, as reported by the Building Inspector to the State Department of Labor and Industries.

As pointed out in the discussion of factors affecting population, growth comes from new dwellings. The population living in any given stock of housing at the beginning of a year goes down a little by the end of the year, generally about  $\frac{1}{2}$  of 1% of that population, because a few homes are lost through fire, demolition, or conversion, and because family size in existing dwellings tends to get smaller, with children growing up and moving away and deaths combining to more than offset births. Accordingly, population in existing dwellings a year later equals the current year population minus about  $\frac{1}{2}\%$ .

New single-family dwellings average about four residents each, far above the average for older homes because of the type of family most likely to move. New apartment units average under  $2\frac{1}{2}$  persons per dwelling unit, indicative of their special appeal to childless couples. Accordingly, population in new housing equals about four times the number of new single-family homes plus about  $2\frac{1}{2}$  times the number of new dwelling units in apartments.

We have tested this using 1960 and 1970 census data, and have found it reliable. By varying the  $\frac{1}{2}\%$ ,  $4x$ , and  $2\frac{1}{2}x$  factors only slightly, we can produce almost exactly the 1970 Census figure for Sunderland by starting with the 1960 Census and using building activity data plus those factors. We have done this for client towns all over Massachusetts, for a number of towns in Franklin County, and for the County's subregions. We are confident that this system will give us estimates of population within a few percent of the actual figure.



The method is not without its problems. First, there are apparent errors in data, especially for very small towns. Either the 1960 or 1970 censuses or the building data could easily be in error.

Second, there can be variation in the future from the patterns of the past. For example, although apartment units in the past have averaged 2.4 persons per unit, in the future the average could be quite different. If federal subsidy programs result in many family-size apartments being available at low cost, the average occupancy per unit could soar. Even the rate of decline in population in existing units can change. Sudden rapid turnover, possible under sharp economic change, can cause old units to behave more like new ones, and actually gain rather than lose population.

Third, building permits can be a poor indicator of building activity or of occupancy, if a project is given permits but not built, or built slowly, or filled slowly. Apartments particularly pose this problem.

These estimating factors, then, cannot be used blindly, but if used with discretion, can give a good idea of population change. Annual building permit data is available from the Massachusetts Department of Labor and Industries, Division of Statistics, in about March for the previous year.

$P_1$  = population in current year

$P_0$  = population one year earlier

A = percentage of population persistency in existing dwellings

B = estimated persons per new single-family dwelling

C = estimated persons per dwelling unit in new multi-family dwellings

b = estimated number of single-family dwellings built during previous year

c = estimated number of dwelling units (families accommodated) in multi-family dwellings built during previous year

$$P_1 = P_0A + Bb + Cc$$

Note: formula must be applied year by year, not for groups of years in aggregate.

The estimating factors for Sunderland are as follows:

Persistency:  $A = 0.994$

Single-family Population:  $B = 4.0$

Multi-family Population:  $C = 2.4$

Table 16 shows the actual building permits from 1960 through 1971; Table 17 the population results when used with the above method.

#### 4. Population Projections

The method used above for estimating current population forms the basis for the population projections which follow. The number of building permits for each year 1972 to 1990 have been estimated, and the population calculated from these. All the assumptions and limitations discussed under estimating current population therefore apply to the projections.

a. High Growth Analysis. The high growth analysis assumes that, regionally, the University of Massachusetts will continue expanding enrollment to 25,000 students, reaching this point somewhere between 1975 and 1980 and that the rise in off-campus living continues. In other words, the main source of demand continues to increase. Elsewhere, the town of Amherst does not absorb as much of the new apartment demand as previously while other towns continue to exclude apartment development.

Within Sunderland, it is assumed that the utilities, both sewer and water, are extended within 5 to 10 years, that agriculture declines and that the zoning regulations are unchanged, except that the recently proposed amendments to reduce the density in the R-20 district from 4,000 square feet per additional dwelling unit to 6,000 square feet and to limit multi-family units to sewer lines or good soils is adopted. (If adopted however, these amendments will not affect the 500 to 600 units pending in 1972.) The moratorium resolution is assumed to be ineffective.

Translated into dwelling units then, these assumptions result, after 1972 (excluding the 600 currently pending units) in a higher yearly average number of units than the preceding five years (1967-71; see Tables 18 and 19). Single family homes remain a small part of the total built each year, while multi-family units continue to increase each year although dropping off after 1982, if but only slightly.

TABLE 16  
BUILDING PERMITS: SUNDERLAND, ACTUAL 1960-

Year	Single-Family	Multi-Family (2 or more units)	Total
1960	2	0	2
1961	4	0	4
1962	2	0	2
1963	4	0	4
1964	11	3	14
1965	11	16	27
1966	6	0	6
1967	6	44	50
1968	6	224	230
1969	3	63	66
1970	15	28	43
1971	5	130	135
1972			
1973			
1974			
1975			
1976			
1977			
1978			
1979			
1980			

Source: Massachusetts Department of Labor and Industries, Division of Statistics.

TABLE 17  
POPULATION: SUNDERLAND 1960 - 1972

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Year	Population
1960 <sup>1</sup>	1279
1961	1279
1962	1287
1963	1287
1964	1295
1965 <sup>2</sup>	1338
1966	1412
1967	1427
1968	1548
1969	2100
1970 <sup>1</sup>	2236
1971 <sup>2</sup>	2350
1972	2668
1973	
1974	
1975	
1976	
1977	
1978	
1979	
1980	

<sup>1</sup> U. S. Census

<sup>2</sup> The Massachusetts Census counts people differently than done in the U. S. Census, and has not been used here. For the record, the 1965 State Census figure was 1298, the 1971 State Census figure was (unofficially) 2082.

TABLE 18  
BUILDING PERMITS: SUNDERLAND PROJECTED 1972 - 1990

Year	Low Growth			High Growth			Most Probable		
	sing	multi	total	sing	multi	total	sing	multi	total
1970	15	28	43	15	28	43	15	28	43
1971	5	130	135	5	130	135	5	130	135
1972	8	500	508	8	600	608	8	550	558
1973	8	100	108	9	100	109	8	100	108
1974	8	0	8	10	105	115	9	70	79
1975	8	200	208	10	110	120	9	75	84
1976	8	0	8	11	115	126	9	80	89
1977	8	0	8	11	120	131	10	85	95
1978	8	175	183	11	125	136	10	90	100
1979	8	0	8	12	125	137	10	90	100
1980	8	0	8	12	125	137	10	90	100
1981	8	0	8	13	125	138	10	88	98
1982	8	0	8	13	125	138	11	85	96
1983	8	150	158	14	124	138	11	82	93
1984	8	0	8	14	123	137	11	80	91
1985	8	0	8	14	122	136	11	78	89
1986	8	0	8	15	121	136	11	75	86
1987	8	0	8	15	120	135	12	72	84
1988	8	0	8	15	118	133	12	70	82
1989	8	150	158	16	116	132	12	68	80
1990	8	0	8	16	114	130	12	66	78

Source: PBH & A estimates.

TABLE 19  
HOUSING UNIT GROWTH: SUNDERLAND

Period	Actual		High		Low		Most Probable	
	Average/year		Average/year		Average/year		Average/year	
	Single	Multi	Single	Multi	Single	Multi	Single	Multi
1960-66	6	3						
1967-71	7	98						
1973-80			11	116	8	59	9	85
1981-90			15	121	8	30	11	76

These estimates result in a substantial population increase: by 1980, 6,148 persons; and by 1990, 9,185 (see Table 20). This means  $3\frac{1}{2}$  times the 1972 population in 1990.

b. Low Growth Analysis. The low growth assumptions are that the University of Massachusetts will reach 25,000 students much later, perhaps between 1980 and 1990 and that the dormitories are made more attractive to students, thus keeping them on campus. The town of Amherst is assumed to resume accommodating a large portion of the demand for apartments, while other towns retain the status quo.

In Sunderland the utilities are assumed to be slowly expanded: water after 5 years, but the sewer only after 10. Agriculture is assumed to remain steady and fairly profitable. The zoning, however, receives dramatic revision. Apartment development is not prohibited altogether but rather requires some form of large scale development which insures adequate open space, aesthetics, health, and the continuance of agriculture. These can take place only at intervals due to acquisition and planning time and the limited number of large parcels which can be easily acquired.

This results in a much lower number of apartments per year. Single-family homes are not affected that much, while multi-family units decrease with time, and occur at wider intervals.

The population by 1990 that results from these assumptions is a little more than twice the 1972 population. This is still a substantial increase but appears to be the lowest limit attainable without prohibiting apartments altogether.

c. Most Probable. The most probable estimate is simply the average of the high and low estimates. The exact mix of decisions and events which will result in this projection being the actual case is extremely difficult to foresee: some decisions and events will favor the high projection, others the low.

The most likely future is that Sunderland's population will be around 5,500 by 1980 and 7,500 by 1990. This is almost 3 times the 1972 level but it is a decidedly less rapid increase than has been experienced in the past few years.

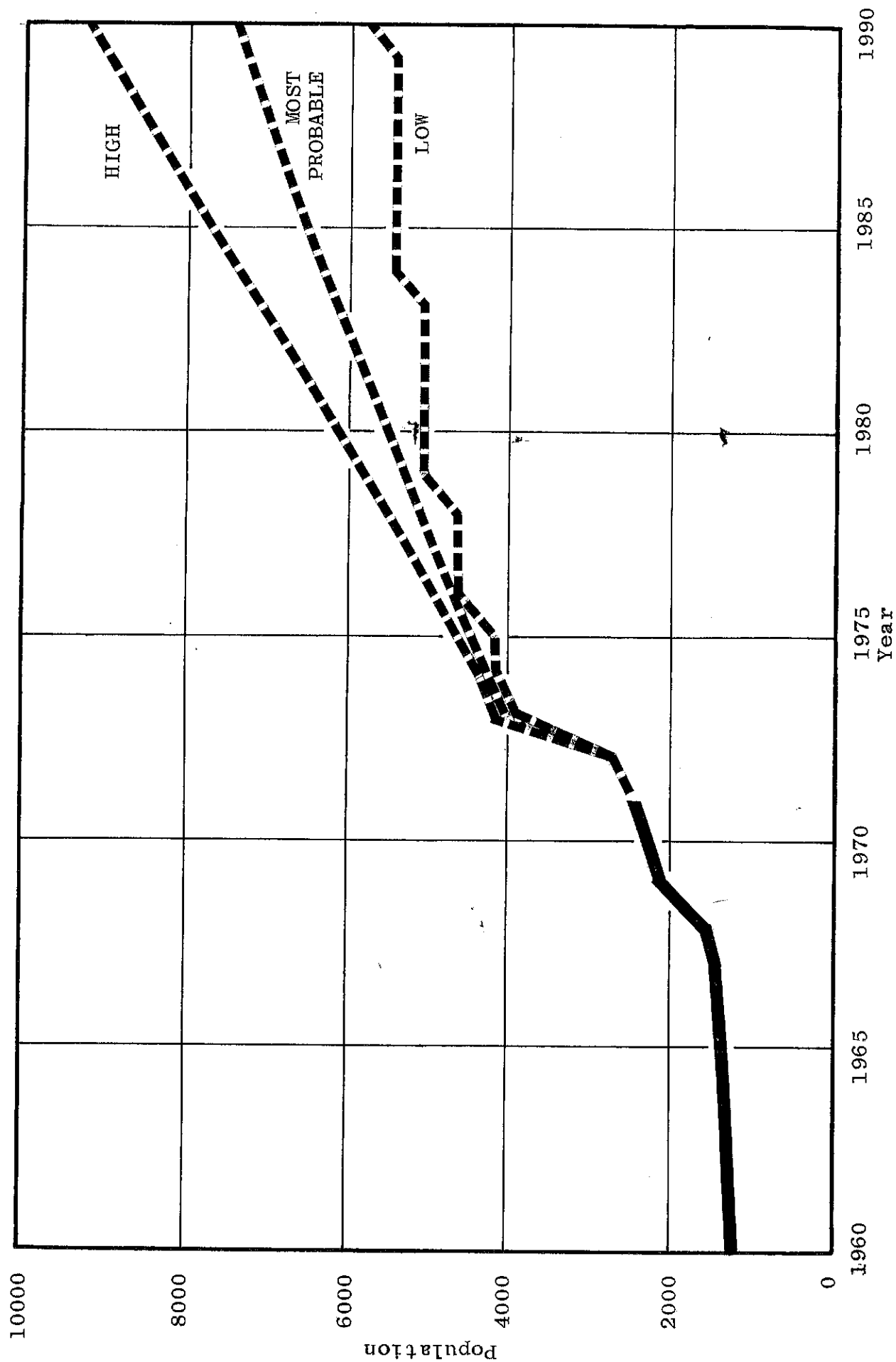
TABLE 20  
POPULATION: SUNDERLAND, PROJECTED 1972-1990

Year	High	Low	Most Probable
1970	2,236	2,236	2,236
1971	2,350	2,350	2,350
1972	2,668	2,668	2,668
1973	4,140	3,884	4,020
1974	4,391	4,133	4,268
1975	4,657	4,140	4,446
1976	4,933	4,627	4,635
1977	5,223	4,621	4,835
1978	5,524	4,635	5,050
1979	5,835	5,059	5,276
1980	6,148	5,061	5,500
1981	6,459	5,063	5,723
1982	6,772	5,065	5,940
1983	7,083	5,067	6,152
1984	7,395	5,429	6,393
1985	7,702	5,428	6,591
1986	8,005	5,427	6,782
1987	8,307	5,426	6,965
1988	8,605	5,425	7,144
1989	8,896	5,424	7,317
1990	9,185	5,783	7,484

Source: PBH & A Projections



Figure 2  
**SUNDERLAND POPULATION**  
 1960-71 and Projected 1972-90



Source: See Tables 17 and 20.



## 5. Projection Comparisons

The projections developed here have been compared to others done since 1970 (see Table 21). All the other projections are substantially lower than ours: ranging from 53% lower (Ainsworth 1980) to 32% lower (Tighe & Bond 1980). Curran Associates' high projection is not even up to our low projection.

The methods used in each projection varied greatly, as did access to information. Tighe and Bond did not have the 1970 U.S. Census available when they made their projections. Ainsworth used a simple straight line projection which appears not to have taken account of the large number of apartment units pending building permits. Although Curran Associates used a complex statistical method involving a computer, their method does not reflect current peculiarities such as the volume of building permits outstanding.

## SUMMATION

The major implication of this study appears to be that although Sunderland has been going through a transition period in its history unlike any since its founding, that transition period is not over. The factors affecting change are still operating. Before a new equilibrium is reached, or perhaps, even clearly foreseeable, local decisions will have to be made and policies established. These decisions then will clearly be concerned with recent and future change, yet they should not lose sight of the past nor the possibility of a new equilibrium being achieved, one which is different but compatible with the old.

TABLE 21  
SUNDERLAND POPULATION PROJECTION COMPARISONS

	High					Low			Most Probable				
	1975	1980	1985	1990	1975	1980	1985	1990	1975	1980	1985	1990	1995
1. DEHA, March 1972	4657	6142	7702	9135	4140	5061	5428	5703	4446	5500	6591	7404	
2. Curran Assoc., <sup>3</sup> June 1971	3470	4160	4930	5640	1710*	1670*	1430*	1500*	2590	2920	3210	3570	3940
3. Gordon Ainsworth & Assoc. May 1971 <sup>1</sup>										2600		4490	
4. Tighe & Bond July 20, 1970 <sup>2</sup>										3760	4510		5320

<sup>1</sup> Gordon E. Ainsworth & Associates, Inc., Franklin County Water & Sewer Planning Comprehensive Area-Wide Basis, May 1971.

<sup>2</sup> Tighe & Bond, Inc., Engineering Report on Water Pollution Control, July 20, 1970.

<sup>3</sup> Curran Associates, Population Projections and Analysis of Regional Water Supply and Sewerage Planning Needs in Franklin County, Massachusetts, June, 1971.

\* Curran Associates, Unpublished Data.

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### **C O M M U N I T Y   F A C I L I T I E S   S U R V E Y**

Sunderland Planning Board

March 14, 1972; Revised August 9, 1972

This report surveys Sunderland's existing community facilities, their condition, levels of use and major problems. The facilities covered include the town offices, police and fire departments, library, public works garage and yard, schools, local streets and solid waste disposal operation. A subsequent report will present a plan for implementing improvements. Recreation and open space and utilities will be covered in separate reports.

#### **TOWN OFFICES**

Most of Sunderland's administrative offices, except the schools and fire department, are located in the Town Hall. Built in 1867, the Town Hall is situated on North Main Street opposite the library. Town departments which have assigned space in the Town Hall include, on the first floor, the Town Clerk, the Selectmen's office and conference room, and a room for the secretary to the Selectmen. On the second floor is located the Tax Collector and Public Health Nurse, in one office; the Police Chief and Superintendent of Streets as well as the Assessors, in another.

There are a number of town agencies which do not have assigned space but use rooms which are available. These include the Planning Board, the Zoning Board of Appeals, the Conservation Commission, the Recreation Commission and the Finance Committee.

Non-departmental and unassigned space in the Town Hall includes the auditorium on the second floor, a meeting room on the first and, in the basement, the "card room" and gymnasium.

The Town Hall appears to be in excellent condition. The Permanent Building Committee since its inception in 1967 has given it particular attention. Some of the improvements made since then are renovation of the heating system, new roofing, repair of the cupola, painting of the exterior and complete redecoration of the interior, including lowered ceilings, new lights, sanded floors, panelled walls and new electrical fixtures. The result is a very attractive and comfortable building.

The Permanent Building Committee also has reorganized the office space to its present arrangement.

The Town Hall is now used quite intensively, with the possible exception of the second floor auditorium which is difficult to heat. The gym is used by the elementary school, which lacks indoor recreation facilities, as well as by other recreation groups. The card room and meeting rooms are quite often used by Boy Scout, Girl Scout and other organizations, in addition to town agencies.

There are some problems concerning the Town Hall. The location of the Police Department on the second floor is one (See Police Department, below). The Town Clerk's office is very cramped and the vault attached to it added in 1953, containing all the town records, is inadequate as regards space and proper heating.

The Town Hall is located on a small lot, about 1.25 acres, which it shares with the fire station and highway garage and equipment. This leaves little room for expansion. Also, there is parking space for only 14 cars in front of the building, but space is available on the street or in back of the Town Hall if needed.

In summary then, the Town Hall is in good physical condition and has a high level of use. The major problem is one of adequate departmental space in some cases.

#### POLICE DEPARTMENT

Sunderland does not have a full time police department nor a police station. The Police Department consists of a paid police chief, who also presently serves as full-time Superintendent of streets and as a member of the Town Park Trustees. There are 24 additional appointees of the Selectmen, 8 of whom serve as special policemen and 16 as auxiliary police.

The Police Chief's office is located on the second floor of the Town Hall. He shares this office with the Assessors, from whom he is separated by a partition. His space is also used for the Highway Department.

Equipment consists of a town pick-up truck, which is also used for highway work, and portable radios. The Franklin County House of Correction is used for lockup facilities, for which there is no charge to the town.

Problems with the police department at present are the sharing of duties, equipment and office space between the chief of police and superintendent of streets; and the location of the police chief's office on the second floor of the Town Hall. This location is grossly inadequate as it requires all persons being questioned to be taken up the stairs, and provides no privacy.

The police chief estimates that within five years a full-time police department will be necessary, which may be a generous estimate. The rapid increase in population would seem to bear this out. Just when a full-time department should be instituted is something that only the voters can decide. The experience of other towns, comparable to Sunderland in population, will be investigated and presented in a subsequent report. This will perhaps aid in that decision.

#### FIRE DEPARTMENT

The Sunderland Fire Department, started in 1934, is centrally located behind the Town Hall. The station was built in 1944 and was completely remodelled between 1956 and 1958. It consists of 3 bays for vehicles, a large office area, and a tower for drying hose. The building is in excellent condition and is quite spacious.

Equipment consists of 4 vehicles: one 1944 500 gallon pumper, one 1963 753 gallon pumper, one 1970 1000 gallon pumper and a 1964 Pontiac ambulance. The newest pumper is fully equipped, the others less so, but still adequate. The ambulance is "tired" according to the chief.

The department consists of two part-time paid men, the chief and an assistant, plus 40 call men who are paid on the basis of time put in. Sunderland is part of the Tri-state mutual aid program so that more aid is available if needed. A radio communications center is located in the office and men are called through receivers in their homes.

The major problem identified by the chief is man power. During the day, roughly between 6:30 AM and 5:30 PM, only a few call men can respond. The chief would like to see at least 2 full-time men at the station during the day.

There has not been a study of the town by the New England Insurance Rating Association since 1962. Since that time the new storage tank has been installed and new fire equipment purchased. A new study is something the chief would welcome and which can be recommended now. It would help identify problems and probably result in a better insurance rating for the town.

## LIBRARY

The Sunderland library was built in 1900. Known as the Graves Memorial Library, it is located on the corner of School and North Main Streets, in the center of town. The building was extensively rennovated in 1966 and is in good condition.

In 1971 circulation totaled 3193 in the adult department and 5051 in the juvenile department. This is a slight decline over ten years ago when circulation was 3341 adult and 7062 juvenile.

Staff consists of a part-time librarian only. The library is part of a regional system and is visited regularly by the regional bookmobile. There are no major problems with the library building at this time.

## PUBLIC WORKS GARAGE AND YARD

The Highway Department stores its equipment in a garage directly behind the Town Hall. The garage is a brick building with 2 bays. There is very little yard space, for the garage is surrounded by the Town Hall, the Fire station and the private land of a construction company and others.

The office of the Superintendent of Streets, who is in charge of the Highway Department, and, at present, the Police Department, is on the second floor of the Town Hall. There is no office space in the garage itself.

Equipment consists of a 1971 dump truck, a 1971 front end loader and a tractor mower. There is also an automatic sander and a plow which can be attached to the truck. With this equipment the Highway Department maintains the streets, the playgrounds, the Riverside Cemetery, the Town Park and sanitary land fill. Much of the work done by the Department is by contract, with men and equipment hired as needed.

The Highway Department has a major problem with its present location of the garage. The space is definitely too small and there is no fencing of material for security. The Superintendent would like to see better facilities provided and has suggested that part of the large tract of land in the process of being purchased for the new treatment plant be utilized for the Highway Department. Better office space is also a necessity for the Superintendent. (See Police Department).

A study of regionalization of highway maintenance is being undertaken by the County Planning Department, and could have bearing on the need for local facilities.



## SCHOOLS

Sunderland maintains its own elementary school for grades K - 6 and is part of the Frontier Regional School District (includes Conway, Whately, and Deerfield) for grades 7 - 12.

The Sunderland Elementary School is located on School Street in the center of town. The brick building was built in 1922 and is substantially unchanged. In the 1950's one of the basement rooms was converted to a cafeteria and kitchen facility. There are 8 classroom: one for each grade K - 6 and one for a combination library and special classes. On the third floor is located the principal's office and a small storage room. In the basement is the cafeteria and a kitchen, a small teacher's room (also used for storage), the custodian's room containing the heating system, and the boy's and girl's toilets.

There is no indoor recreation area in the school. The gym in Town Hall is used for this. On days when there is bad weather the corridors in the basement are used. The town library, just down the street, is used for a class one day a week. Also special classes are held in the first and second floor corridors.

The school is situated on a 14 acre town-owned lot, about two acres of which is taken up by the sewage treatment plant and access road. The school itself occupies less than an acre so that there is ample space for expansion if necessary.

There is plenty of developed outdoor recreation space: a basketball court, softball field, and playground with slides etc. There is also undeveloped space which is used for other recreation.

Enrollment at the school 1960 - 71 is shown in the following table. In 1971 there were 167 students; almost the same level as in 1960. The kindergarden was added in 1966 and has included students from Whately. (In 1971 there were 12 Whately students). If just grades 1 - 6 are counted, enrollment has actually decreased since 1960, although increasing slightly since about 1964. This agrees with the population change 1960 to 1970 (See Economy and Population, PBH & A, March 1972) which showed that the school age population (5 - 17) declined.

There are no major problems with the elementary school. The lack of indoor recreation space at the school is not considered intolerable, since the Town Hall gym is available most days and the outdoor area is excellent. The janitor finds the building in good shape. The boiler, which is 22 years old, is inspected every year and has no major problems. Both the principal and superintendent of schools find the building adequate for their needs.

Table 1  
SCHOOL ENROLLMENT: SUNDERLAND ELEMENTARY SCHOOL

K*								
Sunder-		1	2	3	4	5	6	Total
Whately	land							
1960	--	26	30	30	31	25	32	174
1961	--	22	26	30	29	30	24	161
1962	--	24	21	28	26	29	31	159
1963	--	NA	NA	NA	NA	NA	NA	NA
1964	--	16	29	23	17	25	21	131
1965	--	22	15	31	23	18	24	133
1966	8	21	17	21	16	30	24	159
1967	18	19	22	17	24	20	30	175
1968	14	11	24	22	14	24	20	153
1969	10	10	29	29	27	14	26	167
1970	17	13	18	26	29	25	18	169
1971	12	17	30	17	25	28	23	167

\* Kindergarden started in 1966, includes students from Sunderland and Whately

Source: Sunderland School Reports, 1960 - 1970, Enrollment as of October 1.

Table 2  
SCHOOL ENROLLMENT: SUNDERLAND RESIDENTS

	Frontier Regional School	Sunderland Elementary School	Other Public Schools <sup>1</sup>	Private Schools	Total School Attending Children
1960	137	174	N.A.	N.A.	N.A.
1961	149	161	N.A.	N.A.	N.A.
1962	159	159	N.A.	N.A.	N.A.
1963	N.A.	N.A.	N.A.	N.A.	N.A.
1964	178	131	8	N.A.	N.A.
1965	178	133	6	N.A.	N.A.
1966	165	151	9	4	329
1967	155	157	11	7	330
1968	151	144	15	1	325
1969	151	157	10	10	338
1970	(147) <sup>2</sup>	152	8	2	326

1 Includes tuitioned students from Sunderland to other public school, and regional or local vocational schools supported by public funds as well as state schools.

2 The Mass. Department of Education Pupil Accounting Workbook contains an obvious error. Enrollment estimated by subtracting enrollment for Conway, Deerfield and Whately from total Frontier School enrollment.

Sources: 1960 - 67: Annual Reports of the Sunderland and Frontier Regional Schools; 1968 - 70: Mass. Department of Education, Pupil Accounting Workbook.

The Frontier Regional School in South Deerfield has a number of problems regarding classroom space, inadequate gym and library facilities and lack of an auditorium which will require attention in the near future. The whole question of improvement is tied clearly with the expansion of the Frontier district to include the Hatfield school district. The problem is unresolved as of this writing. However, 1970 enrollment from Sunderland shown in Table 2, has actually declined since 1965 and is only slightly above 1960 level.

The large population increase experienced in Sunderland over the past 8 years has not put any appreciable burden on the schools. The new apartments that have been built have been occupied for the most part by college students who do not contribute significantly to the school age population. Apartments, however, do contribute some students. In 1970, although multi-family dwellings (mostly apartment houses) represented 57% of the housing units in Sunderland, only 11% of the elementary school enrollment (19 out of 169 total) came from the apartments. In 1971 this was even less: 13 out of 167 or 8%.

In summary then, Sunderland's elementary school is experiencing no major problems despite a rapidly increasing total population. The problems at the Frontier Regional School are serious, yet unrelated to Sunderland's increase in population over the past few years.

#### LOCAL STREETS

Sunderland has about 33.5 miles of local roads. 4.31 miles are state owned and maintained while 29.19 are town owned and maintained. There are in addition many miles of private roads.

The state roads include all of Route 116, Route 47 (S. Main Street) from Route 116 to Old Amherst Road, and the small portion of Route 63 that passes through the northeast corner of town. In 1968 a functional classification of all roads and streets in the State into eight categories of use was complete by consultants to the Massachusetts Department of Public Works.\* The purpose of classifying roads by function is to provide a basis for determining the level of government that should be responsible for their improvement and maintenance, and to provide a rationale for programming their improvements. The consultants to the state D.P.W. suggested the jurisdictional and functional organization shown in Table 3. Also shown is the present organization. Map 1 shows the functional classification of roads for all of Franklin County.

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\* Automotive Safety Foundation and the Mass. D.P.W., A Statewide Highway Transportation Plan, Road and Street Responsibilities, September, 1968.

Table 3

## EXISTING AND PROPOSED ROAD AND STREET RESPONSIBILITY BY FUNCTIONAL CLASSIFICATION

Responsibility by Functional Classification	Existing (1965)		Proposed (1990)	
	Local	State	Local	State
A. Full State Responsibility				
State Primary System				
1) Interstate	0	0	0	0
2) Principal	0	0	0	0
3) Major	0	0	0	0
State Secondary System				
4) Collector	0	4.31	0	4.31
5) Community Service	7.10	0	0	7.10
B. Local Responsibility but eligible for State Aid (CH.90 Construction)				
6) Regional Arterials	1.05	0	1.05	0
7) Town Arterials	3.49	0	3.49	0
C. Local Responsibility but eligible for State Aid (CH 90 Maintenance not including B which is also eligible)				
8) Local access (former state highways)	2.42	0	2.42	0
D. Local Responsibility but eligible for State Aid (CH 81)				
8) Local Access	15.13	0	15.13	0
Total	29.19	4.31	22.09	11.41

The only major change for Sunderland as a result of these recommendations would be the transfer of the remaining portion of Route 47 (an additional 7.10 miles) to full state responsibility.

Many local roads, which are now the responsibility of the Town, are also eligible for state aid programs, the most important of which is Chapter 90 Construction. Chapter 90 aid is appropriated each year by the legislature and distributed to local cities and towns for all approved projects up to a maximum amount determined on the basis of road mileage (40%), population (40%), and land area (20%); the state paying half the project cost for road construction and the county and the town each paying one quarter. All Chapter 90 projects are reviewed by both the county and the state D.P.W.

Under this program Sunderland has reconstructed many of its roads. Upper Montague Road (Rte 47) and Plumtree Road have been done over the past ten years. Silver Lane is scheduled for reconstruction beginning in 1972 and funds for this purpose have been appropriated by the town.

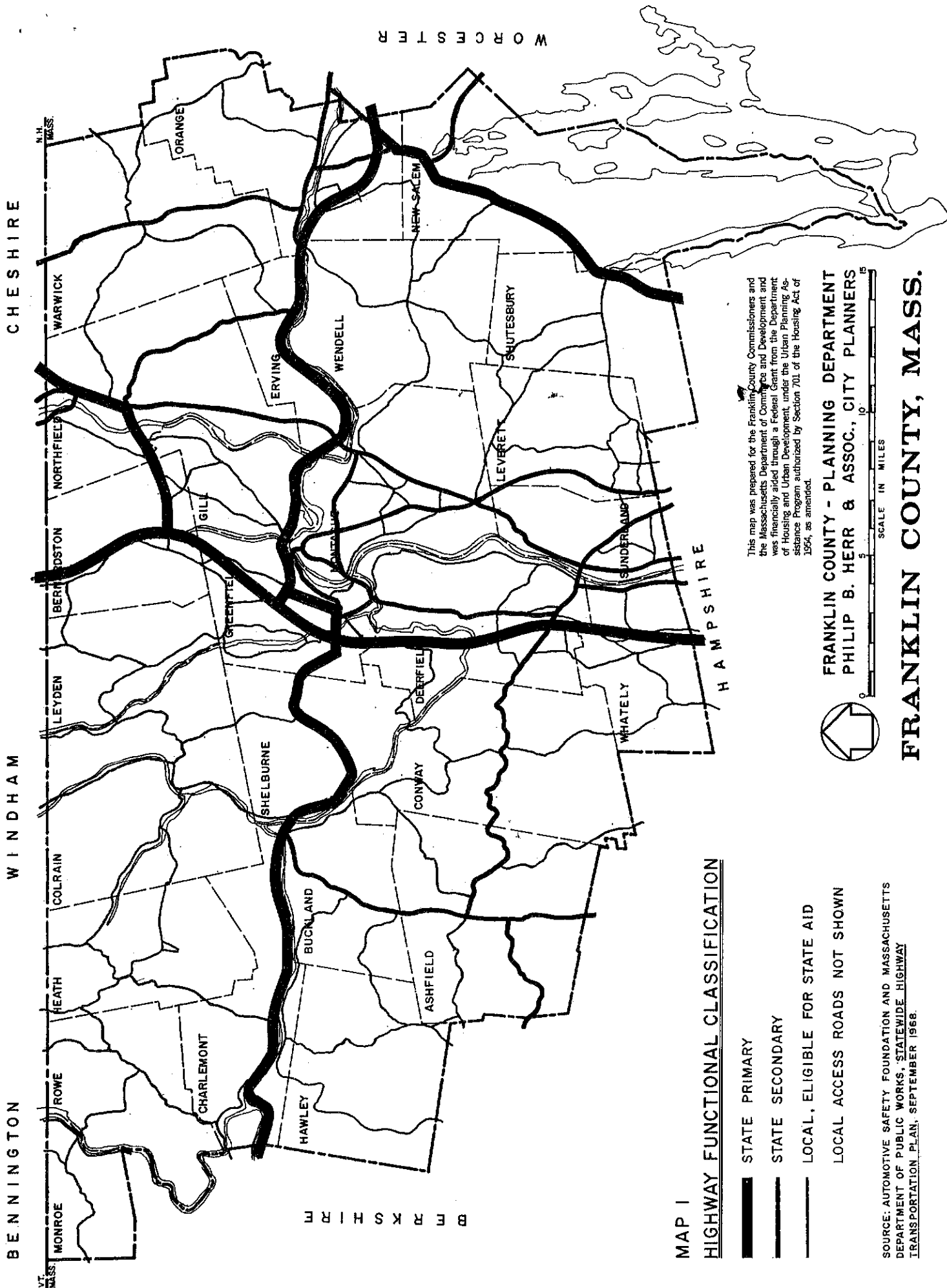
Once Silver Lane is completed, nearly all roads eligible for Chapter 90 Construction money will have been done. All these roads, plus former state highways (this includes School Street, Old Amherst Road, and Hadley Road) are then eligible for Chapter 90 maintenance money. Sunderland is also receiving aid under Chapter 81. This is limited to towns with 1945 state-equalized assessed valuations of less than \$5 million. Funds are apportioned on a mileage basis and may be used for maintenance, repairs and improvements of any town roads.

Additional aid has also been given to Sunderland for special projects (Garage Road) and from the General Highway Fund. Table 3 summarizes the expenditures on roads in Sunderland, 1960 - 71. An average of \$42,676 per year, or \$1,462 per mile per year, has been spent on roads. This is about 20% of the \$5150 we find most towns spending on a per mile basis. Less than half of the average amount spent per year on roads (\$19,768 or \$677 per mile) was paid<sup>1</sup> for by the Town after state and county aid received is subtracted.

With this relatively small amount of expenditure by the town, Sunderland has maintained its roads in what appears to be fairly good condition. The major traffic route (Rte 116, see maps 4 and 5)

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1 State and County aid is often received after the town has spent the money, so that expenditure by the town vary from year to year.



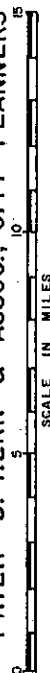
MAP 1  
HIGHWAY FUNCTIONAL CLASSIFICATION

- STATE PRIMARY
- STATE SECONDARY
- - - LOCAL, ELIGIBLE FOR STATE AID
- LOCAL ACCESS ROADS NOT SHOWN

SOURCE: AUTOMOTIVE SAFETY FOUNDATION AND MASSACHUSETTS  
 DEPARTMENT OF PUBLIC WORKS, "STATEWIDE HIGHWAY  
 TRANSPORTATION PLAN, SEPTEMBER 1968."



FRANKLIN COUNTY - PLANNING DEPARTMENT  
 PHILIP B. HERR & ASSOC., CITY PLANNERS



FRANKLIN COUNTY, MASS.

This map was prepared for the Franklin County Commissioners and the Massachusetts Department of Commerce and Development and was financially aided through a Federal Grant from the Department of Housing and Urban Development, under the Urban Planning Assistance Program authorized by Section 701 of the Housing Act of 1954, as amended.

Table 4

## EXPENDITURES FOR ROADS AND STREETS, 1960 - 71

	Total Expenditures 1	Total Exp per mile 2	Total Aid 2	Town Expenditures 3	Town Exp. per mile
1960	46749	1601	15768	30981	1061
1961	36097	1237	28831	7266	249
1962	44090	1510	18039	25251	865
1963	N.A.	N.A.	N.A.	N.A.	N.A.
1964	22402	767	29222	-6820	-234
1965	33675	1154	20601	13074	448
1966	43410	1487	25853	17557	601
1967	39113	1340	18869	20244	693
1968	47027	1611	14053	32974	1130
1969	53048	1989	37193	20855	714
1970	54137	1855	35316	18821	645
1971	44689	1530	7145	37544	1286
Average (1960-71)	42676	1462	22881	19768	677

1 Includes all state and county aid plus town expenditures

2 Includes all state and county aid recieved.

3 Total expenditure minus aid received.

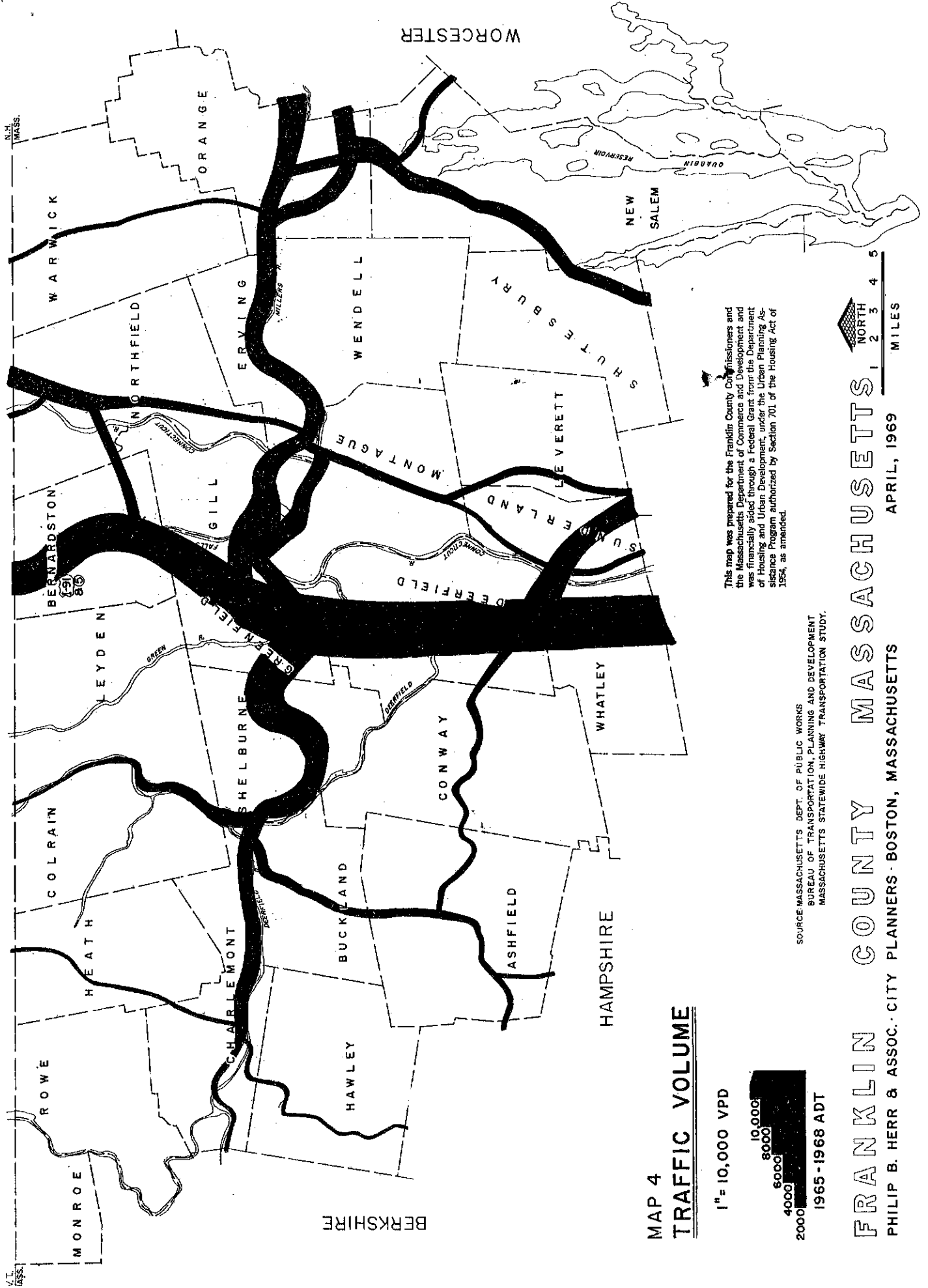
Source: Sunderland Annual Reports



BENNINGTON

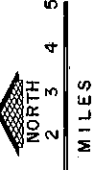
WINDHAM

CHESHIRE



This map was prepared for the Franklin County Commissioners and the Massachusetts Department of Commerce and Development and was financially aided through a Federal Grant from the Department of Housing and Urban Development, under the Urban Planning Assistance Program authorized by Section 701 of the Housing Act of 1954, as amended.

SOURCE: MASSACHUSETTS DEPT. OF PUBLIC WORKS  
BUREAU OF TRANSPORTATION, PLANNING AND DEVELOPMENT  
MASSACHUSETTS STATEWIDE HIGHWAY TRANSPORTATION STUDY.



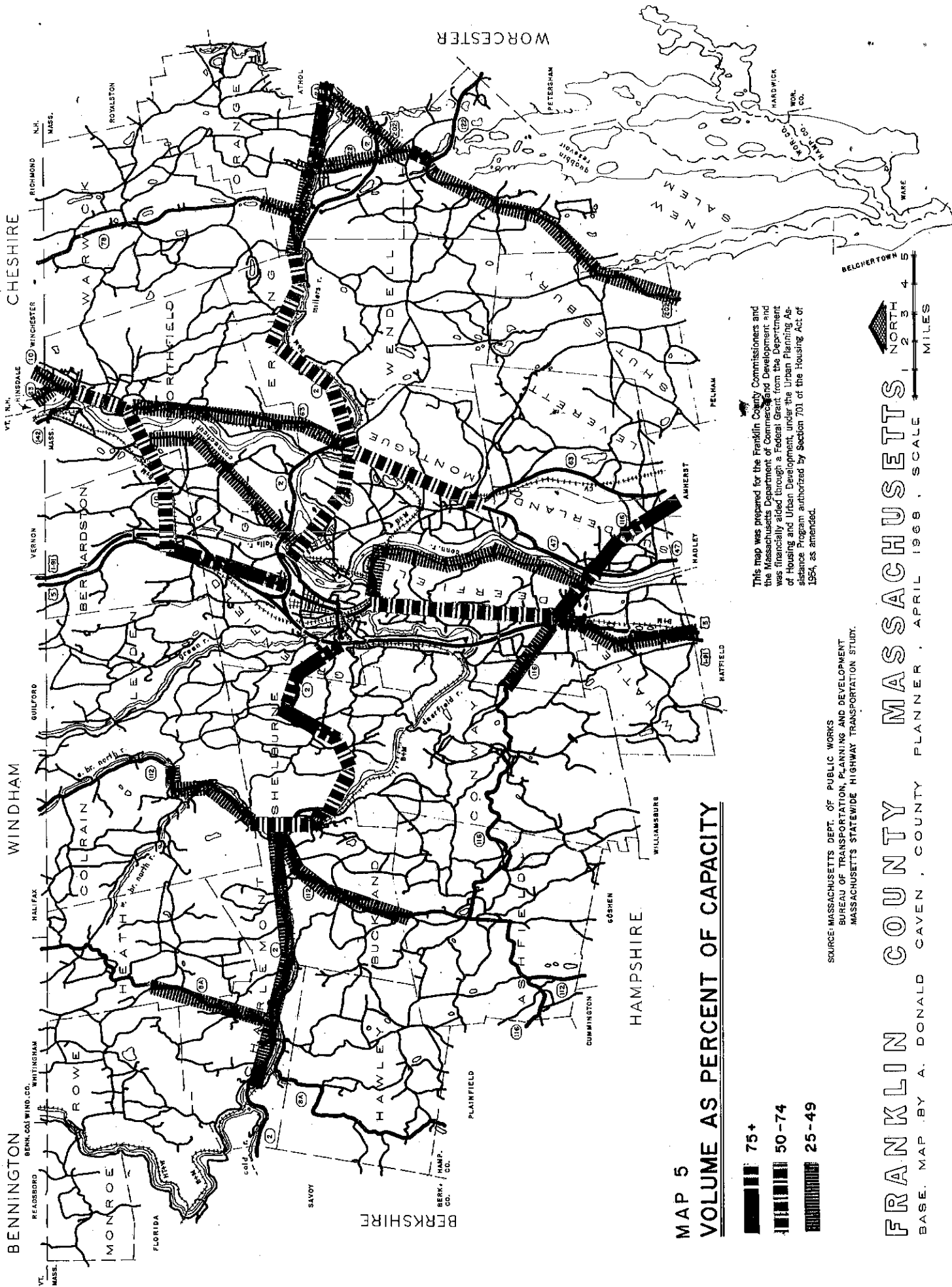
FRANKLIN COUNTY MASSACHUSETTS  
APRIL, 1969  
PHILIP B. HERR & ASSOC. CITY PLANNERS - BOSTON, MASSACHUSETTS

MAP 4  
TRAFFIC VOLUME

1" = 10,000 VPD



1965 - 1968 ADT



This map was prepared for the Franklin County Commissioners and the Massachusetts Department of Commerce and Development and was financially aided through a Federal Grant from the Department of Housing and Urban Development, under the Urban Planning Assistance Program authorized by Section 701 of the Housing Act of 1954, as amended.

SOURCE: MASSACHUSETTS DEPT. OF PUBLIC WORKS  
BUREAU OF TRANSPORTATION, PLANNING AND DEVELOPMENT  
MASSACHUSETTS STATEWIDE HIGHWAY TRANSPORTATION STUDY.

FRANKLIN COUNTY MASSACHUSETTS  
BASE. MAP BY A. DONALD CAVEN, COUNTY PLANNER, APRIL 1968, SCALE 1" = 2 MILES

is the responsibility of the state and is patrolled by the state police. It is estimated that Route 116 is operating at more than 75% of capacity (1965)<sup>1</sup> and apparently is the only major road problem at this time. However, Route 116 appears to have adequate alignment and width, and it is doubtful that the problem is as serious as the figures would indicate.<sup>2</sup>

1965 road mileage has been used in the preceding analysis. More recent data will be available soon from the State Department of Public Works. However, because most new development has occurred along existing roads, few, if any, subdivision roads have been created. The expectation then, is that very little road mileage has been added to the town's responsibility since 1965. The amount of potentially developable frontage remaining is still considerable and thus the amount of road mileage can be expected to remain fairly constant into the future.

The locating of intensive development, apartments, and commercial development, primarily along Routes 116 and 47 has also been beneficial, in that it has not created traffic congestion or the necessity for road widenings of local access roads. If this is encouraged in the future, then Sunderland will be able to maintain its roads at the relatively low cost that it is able to do now.

#### SOLID WASTE DISPOSAL

Sunderland's sanitary land fill has been in operation only about a year. Still known as "The Dump," it is located off Route 47 near the junction with Falls Road. The two acre site is leased by the town for \$300 annually and is operated by the Highway Department. The expected remaining life of this site is 2 years, at the outside, as judged by the Superintendent of Streets, or "over a year" as judged by Curran Associates.<sup>3</sup>

Recognizing that a new sanitary landfill would be necessary soon, the town engaged the firm of Curran Associates of Northampton "... to conduct an engineering study of possible sites for a municipal sanitary landfill elsewhere in town." That study has recently been completed.<sup>4</sup> The following recommendations were made:

- 
- 1 PBH & A, Land Use Circulation and Utilities Plan, Franklin County Massachusetts, October, 1970.
  - 2 There were reservations expressed in the report cited covering the method of calculating capacity done by the State DPW.
  - 3 Curran Associates, Inc., Engineering Study for a Sanitary Landfill Town of Sunderland, Massachusetts, Northampton, MA: August 1971.
  - 4 Ibid.

1. The possibility of using a regional landfill is not feasible at this time and therefore Sunderland should proceed with finding and developing its own municipal landfill site.
2. Of the ten possible sites investigated (see map) only two were found to be adequate. The one "strongly recommended" was area number 3, located north of Reservation Road in the very northeast corner of town. The alternative site was area number 7, located off Route 47 near Gunn Brook.
3. The owners of these sites should be approached by the Town to ascertain the availability of purchase or lease of at least five acres, preferably fifteen or more acres, at each site.
4. and upon establishment of a Town landfill, a town-wide household refuse collection system should be instituted as an economy measure. Cost estimates for the two sites were also calculated.

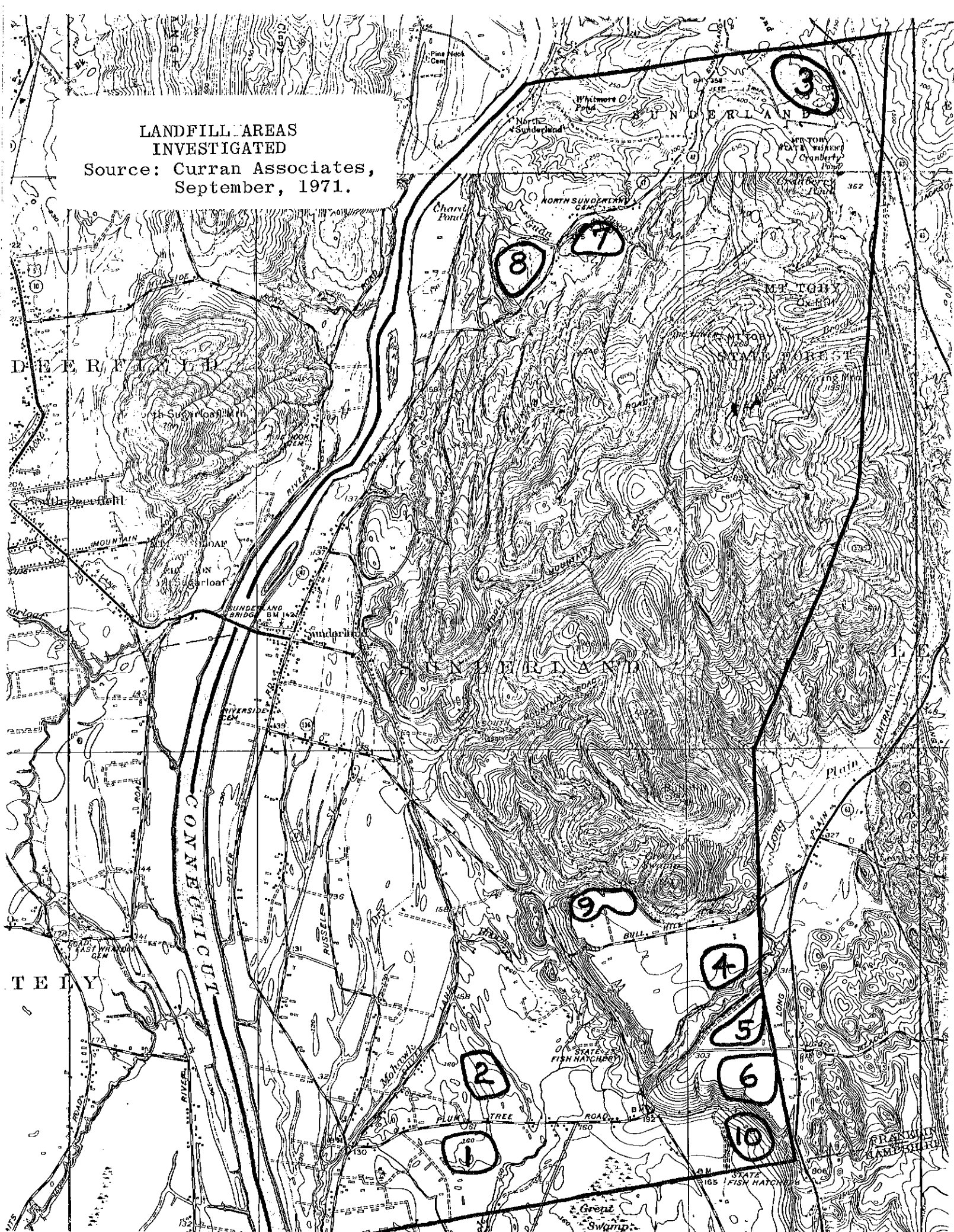
A. Capital Costs	Area 3	Area 7
1. Equipment		
Tractor-crawler	\$32,000	\$32,000
Chipper	4,000	4,000
2. Land (purchase)	6,000 <sup>1</sup>	30,000 <sup>2</sup>
3. Site Development		
Access roads	2,000	4,000
Equipment shelter	3,000	3,000
Sanitary facilities	3,000	3,000
Gate, signs, fuel storage	1,000	1,000
4. Contingencies, legal counsel, and engineering	10,000	10,000
<hr/>		
Total capital costs (initial)	\$61,000	\$87,000
5. Annual costs of capital expenditures	8,300	10,400

1 5 acres required for 20 years of use

2 15 acres required for 20 years of use

LANDFILL AREAS  
INVESTIGATED

Source: Curran Associates,  
September, 1971.



B. Annual Operating costs (same for each area based on operating 9 hours/week or 27 hours/week)

	9 hours	27 hours
1. Labor	\$2,130	\$6,320
2. Equipment maintenance	1,400	1,400
3. Fuel and oil, etc.	300	300
4. Supplemental Labor	300	600
4. Miscellaneous	500	500
<hr/>		
Total annual operating costs	\$4,630	\$9,120

C. Total annual cost including operating costs and capital costs.

	9 hours/wk	27 hours/wk
1. Area 3	\$13,930	\$17,420
2. Area 7	15,030	19,520

These cost estimates indicate that a new sanitary landfill will represent a significant increase in Town expenditures. The 1971 cost of operating the present landfill was \$7,350.<sup>1</sup> This could double within two years by Curran Associates estimates.

The method used by Curran Associates to determine the volume of solid wastes which will be generated in the next 20 to 25 years (a period beyond which it is difficult to foresee) deserves further comment. Noting that "only the compacted volume of refuse in the landfill is meaningful," which can vary not only because of the types of material collected (brush and trees will not compact the same as household or industrial refuse) but also by the method of delivery and compaction itself, they perhaps correctly state that "average per-capita values should only be used as a check on estimates or if no other information can be obtained."

However, Curran Associates used Tighe and Bond's estimates of future population<sup>2</sup> to project the total volume of domestic refuse in future years. As pointed out in our report Economy and Population these projections are far below ours. Noting also that domestic wastes, by Curran Associates' estimates, amounted to 72% of the total

1 1971 Annual Report

2 Tighe and Bond, Inc., Engineering Report on Water Pollution Control, July 29, 1970

compacted volume of refuse in 1972, we would expect that Curran Associates projected volume of refuse per year will in actuality prove to be too low.

Curran Associates recommended that an area of five acres or larger be sought for a sanitary landfill which would provide at least five years of use because, "future advances in technology or future legislative constraints may, in fact, make sanitary landfilling obsolete" and because there is the possibility of future regional disposal operations in the area. Our larger estimates of population would indicate that a five acre site would not last five years, but rather much less, perhaps only three. This seems to be an unacceptably small useful life for a landfill. It would also seem that during this time period landfills would not become obsolete nor a regional landfill be put into operation.

How much refuse per year and consequently how much land is necessary for a landfill needs to be reconsidered carefully. It also demands immediate attention due to the short life remaining at the old landfill.

#### SUMMARY

This survey has indicated that there are some major problems with Sunderland's community facilities. At least one of them demands immediate attention: the landfill. The others can be postponed (the police department, the highway department and the fire department) but only by acceptance of a lower level of protection and services. Later phases of this planning program will include a plan for implementing improvements as well as a capital improvements program for scheduling costs.

## Philip B. Herr & Associates

COMMUNITY AND REGIONAL PLANNING

230 BOYLSTON ST., BOSTON, MASSACHUSETTS 02116 PHONE: 617 KE 6-5620

### COMMUNITY FACILITIES PLAN Sunderland Planning Board January 16, 1974

This report outlines an improvements plan for Sunderland's community facilities. These include the Town offices, police and fire departments, library, public works garage and yard, schools and solid waste disposal operation. Local streets, recreation facilities and utilities are covered in separate reports.

Following completion of the "Community Facilities Survey" comments and suggestions from Town officials were solicited and received. A joint meeting between the Planning Board and the Permanent Building Committee further discussed the issues involved. Since that time the Community Advisors have made a number of suggestions and proposals regarding community facilities. These are included under each facility as they are discussed.

#### Sanitary Landfill

The need for a new sanitary landfill was the most pressing problem identified by the facilities survey. The advisors noted that the existing dump was a liability. Recognition of the problem has resulted in the selection of an area off Reservation Road as the site for a new sanitary landfill (this is area 3 on the map in the "Community Facilities Survey"). Ten acres will be leased initially which should be suitable for approximately 13 years of use by Curran Associates estimates<sup>1</sup> and slightly less by our population estimates; perhaps 9 or 10 years.

As in the case of extending the useful life of the new sewerage treatment plant, we suggest that the Town adopt measures which will tend to prevent the population from growing at the maximum projected rate. This would slow the depletion rate of the ten acres leased initially and will allow the Town a longer return on its substantial initial investment. It would also allow time for the considerable uncertainty regarding regional solid waste disposal proposals to become clarified before additional land is leased.

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<sup>1</sup>Curran Associates, Inc., Engineering Study for a Sanitary Landfill, Town of Sunderland, Massachusetts, Northampton, MA: August, 1971.



### Elementary School

The survey found that there were no major problems with the Sunderland Elementary School. In response to our survey report, however, the Superintendent of Schools pointed out two issues:

1. Inadequate administrative office space, and
2. The desirability of flexible rooms for small groups.

The response from the Advisors to the suggestion for a combination gym-office addition to the school (tied to converting the Town Hall gym into needed office space) was mixed. At least two groups felt that the school was spatially inadequate and that the lack of a gym was a liability. One group favored not only a new school gym but a new Town Hall adjacent to the school and gym. One group opposed converting the Town Hall gym to offices and thus apparently opposed a new school gym.

The benefit to the Town of the proposed addition would appear, however, to be substantial. It would provide not only a gym right at the school, rather than down the street, which in cold and snowy weather is not an easy trip, but also would provide the possibility of additional classroom or meeting room space if moveable partitions are provided. The present cramped quarters of the school administration would be eliminated. It would also clear the way for conversion of the Town Hall gym into offices. The advisor group, which probably uses the gym more than any of the others, the under 25 year olds, were in favor of the new gym and perhaps some weight should be given to their assessment of the need for one.

Although the estimated cost of this project, around \$300,000, is substantial, it might actually be reasonably afforded by FY 1976, while still holding the total cost of capital improvements to \$7.00 on the tax rate and debt to 5% of assessed valuation. This is the standard under Scheme 'B' of the Capital Improvements Program, a standard which includes the cost of the new treatment plant and sanitary landfill and is a cost standard which, relative to other towns, is fiscally conservative.

### Town Offices and Police Department

The survey found that the Town Hall office space was inadequate and particularly severe in the case of the Police Department. There were a number of solutions considered by the Advisors, the Planning Board and the Permanent Building Committee:

1. Construct a new Town Hall somewhere.
2. Construct a new Town Hall adjacent to the Elementary School and convert the existing Town Hall to a museum.
3. Construct a police station on the site of the new sewage treatment plant.
4. Use the Warner Brothers building adjacent to the Town Hall for additional space.
5. Convert the gym to additional office space.

Warner Brothers intends to continue using their building, and, considering that the cost of a new Town Hall or of a separate Police Station would not only be about equal but enormous, the only financially feasible solution is to convert the gym to offices (this would be possible only after a new gym is built onto the school; an additional impetus to following through on that proposal). The cost would be approximately \$90,000; substantially less than what it would cost to build either a new Town Hall or a police station.

The earliest that the conversion could be started within the constraints of the Capital Improvements Program under Scheme 'A' is FY 1977. Under Scheme 'B' (holding the total impact of capital improvements to \$7.00 on the tax rate) it would be easily affordable by FY 1978. As an interim measure, since the Police Chief estimates that a full-time department will be necessary around 1976, space in the new highway garage might be used if this is secured prior to conversion of the gym. There are three additional reasons for continuing to use the existing Town Hall. First, considerable time and money has been expended already in refurbishing the building over the past ten years. Second, one group of advisors noted that centralized community facilities were an asset, and certainly the Town Hall contributes to this. Third, a majority of the advisor groups support the establishment of an historic district. The extent to which the Town Hall adds to the character of the district should be something to which the Historic District Study Committee can speak. It is our impression that the contribution is significant and that continued use as a Town Hall will aid in the building's preservation.

Two issues raised in the discussions of community facilities between the Planning Board and other Town officials would appropriately be dealt with at the time of the gym conversion or following it. These are:

1. Provision of office space and storage space for Town agencies which now lack that space, or inadequate space, and
2. Perhaps a new vault for proper storage of Town records. The present one is inadequate but might be improved with temperature and humidity control.

#### Highway Garage and Yard

The present Highway Department garage and yard, located behind the Town Hall, is inadequate as regards space and security. Room for expansion is almost non-existent. One proposal has been to build a new garage on the tract of land purchased for the new sewer treatment plant. An estimate of the cost would be approximately \$100,000. Another proposal has been to convert a barn on River Road. The cost of this would be of course substantially less, but doubt has been expressed as to the desirability of using an old wooden building for highway equipment.

For the Capital Improvements program we have budgeted \$100,000 for some kind of new highway garage. Timing is somewhat flexible and depends to a certain extent on opportunity. An appropriate time, however, would be after conversion of the Town Hall gym. This would be FY 1978 at the earliest or FY 1980 when most easily affordable.

It should be noted that a new garage would not conflict with the Curran Associates study for the Franklin County Planning Department which proposed a County-wide highway organization<sup>1</sup>. This organization would be administrative only. Equipment and materials used for road maintenance would still be stored locally.

#### Regional School

The issues at the Frontier Regional School have yet to be resolved. It can be expected, however, that improvements will have to be made and that Sunderland will share part of these costs. For the Capital Improvements program we have estimated Sunderland's share to be the equivalent cost of about one classroom, or \$180,000. Part of this would be repaid to the town through state aid, thus reducing the annual cost to the town.

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<sup>1</sup>Curran Associates, A Plan for Highway Maintenance in Franklin County Through Intergovernmental Cooperation, July, 1972.

While the exact cost and timing of this major improvement is not now foreseeable, it should not delay other major improvements to any great degree.

### Fire Department

The only problems identified in the survey were the lack of men available on call between 6:30 A.M. and 5:30 P.M. and the desirability of a new ambulance. A new ambulance has already been purchased. Action on the other falls outside the scope of the Capital Improvements Program and should not affect the timing of other improvements.

If a full-time department is instituted, however, a new study of the Town by the New England Insurance Rating Association would be appropriate. Otherwise the Fire Department should be in very good shape for a number of years, requiring only normal maintenance and replacement of equipment.

### Library

There were no major problems identified with the library building. It has been suggested to the Planning Board that the library would be more useful if it were open for a longer period of time, particularly during the school year. A staff of volunteers might supplement the regular personnel.

### Summary

This report has tried to outline a reasonable approach to improving Sunderland's community facilities based on an assessment of current needs and opportunities. As such it should not be considered a blueprint but rather a guide since unforeseen problems and opportunities may arise which may alter this program. Continued planning will be needed but should not delay action over an extended period.

The primary constraints on implementing major improvements are ordinarily financial or time needed to prepare a detailed proposal. Both these constraints are considered in the Capital Improvements Program, as are other projects such as conservation, recreation and utilities which affect the scheduling of the community facilities projects. As the major scheduling device then the Capital Improvements Program has been proposed as a continuing process: updated as part of the Master Plan Program during the third year of that Program and subsequently each year thereafter by the Planning Board.

## Philip B. Herr & Associates

COMMUNITY AND REGIONAL PLANNING

230 BOYLSTON ST., BOSTON, MASSACHUSETTS 02116 PHONE: 617 KE 6-5620

### U T I L I T I E S   P L A N Sunderland Planning Board December 19, 1973

The presence of public utilities, water and sewer, is a major influence upon where new development will locate. Public water alone will often make an unsuitable site available for development either by providing water where it cannot otherwise easily be obtained or by eliminating the possibility of a contaminated private water supply. The existence of both utilities can make intensive development a possibility.

The major premise then of this report is that public utilities can guide development. This is the reverse of the usual procedure of trying to determine where development will most likely occur and then providing utilities in those areas. The basic tool used in determining where development should be located is the "Development Goals and Strategy" report developed from the work of the Community Advisors and the Planning Board. A major product of this utilities study is a policy on sewer extensions which serve those Development Goals and Strategy. The water system, under control of the Sunderland Water District, is reviewed here but only for its degree of supportiveness of that plan.

#### SEWER SYSTEM

The new treatment plant will soon be under construction and should be completed by November of 1975. The plant capacity is designed for 500,000 gallons per day, or, at expected average flows, a sewered population of 4,820. 8,200 feet of new force main will connect the plant to two new pumping stations (see map).

When the new treatment plant opens in early 1976 it will be operating at over 50% of capacity<sup>1</sup>. Careful management of the re-

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<sup>1</sup>In 1970 75% of the total population was estimated as being sewered. Assuming the same percentage in 1976 (although it will probably be larger) and a total population of 3,400 means that the sewered population will be 2,550; more than 50% of the designed sewered population. Even assuming a reduced average flow per capita since 1970, the average daily flow will be over 250,000 gallons per day.

maining capacity is therefore necessary to extend the useful life of the plant. Four issues bear on managing the remaining capacity: (1) the imposition of higher standards of treatment by the federal and state governments; (2) the projected total population of the town; (3) the proportion of that total connected to the sewer system; and (4) the timing and extent of sewer main extensions.

#### 1. Federal Water Pollution Control Amendments of 1972

The Federal amendments of 1972 changed the system of water quality standards, from one of setting standards for the resultant qualities of receiving water to one of setting standards for the qualities of the effluents discharged into the waterway. A timetable of technological improvements was also established. By 1977 all existing municipal treatment plants must have secondary treatment. This will be met in Sunderland. Beginning in 1983, however, these plants must utilize "the best practicable technology". Sunderland should therefore expect to have to make improvements in the plant somewhat after 1983. Federal and state money will likely be available for treatment plant improvements as follows: 75% federal, 15% state, 10% local. Exactly what the best technology will be ten years from now is impossible to forecast. The new treatment plant is capable of handling additions to it, and it might require only the addition of tertiary treatment facilities rather than an entire new plant, if this is still the best technology. (The state's amendments to the Clear Waters Act bring it into conformity with the federal regulations and establish the 15% state - 10% local sharing of costs.)

#### 2. Total Population

The maximum projected population for Sunderland is 9,200 in 1990<sup>1</sup>. Assuming that 90% of this population is sewered, the capacity of the treatment plant would be exceeded by 70%. In fact, by 1980 the design capacity would be exceeded at this rate of growth. It is important, therefore, as stated in the "Development Goals and Strategy" report that the town "adopt policies and measures which will tend to prevent the population from growing at the maximum projected rate".

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<sup>1</sup>Philip B. Herr & Associates, "Economy and Population", March 13, 1972.

### 3. Sewered Population

The capacity of the plant will not only be affected by the total population but by the proportion of that total connected to the sewer system. In 1970 this proportion was estimated at 75%<sup>1</sup>. This can be expected to increase due to the remaining vacant land within reach of the existing sewer system and extensions to the system. Setting the sewer entrance fee at \$300 per dwelling unit may do more than anything else, however, to prevent the proportion from growing at a fast rate.

### 4. Sewer Extensions

Extension to the sewer system will have far reaching effects on town costs, where development will be encouraged, and the capacity of the treatment plant, but is also an area where the town can exercise the most control.

There are good reasons for extending the sewer system. The Community Advisors to the Planning Board noted that sewers are needed in a number of areas in the town (see map), particularly South Silver Lane and Plum Tree Road, due to existing pollution problems. They also recommended that nearly the entire southern section of town (see map) and, ideally, the entire town should be sewered in the future. Recognizing then that competing considerations bear on where and when sewers are extended, we recommend the following policy.

1. Sewers should not be extended until after adoption of zoning and subdivision amendments which will tend to prevent the population from growing at the maximum projected rate. These amendments are listed at the end of the "Development Goals and Strategy" report.
2. Sewers should not be extended into the Whitmore Pond, Mountain or Agricultural Soils areas, at least until after they are extended into the southeastern section of town. This will prevent encouraging development where it is not desirable and at the same time move towards alleviating the problems noted by the Community Advisors. The Sewer Map shows the tributary sewage areas in the southeastern section which should receive first priority consideration for extension of the sewer system<sup>2</sup>.

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<sup>1</sup>Tighe & Bond, Inc., Engineering Report on Water Pollution Control, July 28, 1970.

<sup>2</sup>A tributary area is loosely defined by Tighe & Bond as the area capable of being sewered by a trunk sewer. Between groups or even individual areas a pumping station may be required.

3. It is particularly important, considering the location of the new treatment plant, that extensions of the sewer system down River Road, Hadley Road or Russell Street be resisted. This includes part of the area identified by Tighe and Bond as the "probable area of expanded development of sewer system by 1995" consisting of 205 acres south of Old Amherst Road (see map). The presence of sewers would only encourage development on this prime agricultural land or put additional tax burdens on farm land owners through higher assessed valuations.
4. The engineering feasibility of sewerage the southeastern section of town prior to the Agricultural Soils areas should be studied closely. The additional costs associated with the pumping stations and lengths of force main which may be required should be weighed against the benefit accrued from the preservation of agricultural land, meeting the concerns of the Community Advisors and directing development to where it is most suitable.
5. Once the feasibility and costs of any sewer extension have been determined the project should be scheduled as soon as possible within the constraints of the Capital Improvements program.
6. The possibility of additions to the treatment plant around 1983 should be anticipated through the appropriation of money into the Stabilization Fund.

#### WATER SYSTEM

The Sunderland Water District has recently asked for and received a change in its enabling legislation which allows it to sell water anywhere in town rather than just to abutters. This opens the way for expansion of the distribution system. In the past year the water main down Route 116 has been extended as far as the intersection of Plumtree Road (see Water System map). A new well has been developed on the Hubbard property near Long Plain Brook to support the additional users.

First priority for extension of the system calls for completion of the long planned Plumtree Road-South Silver Lane loop (see map). These proposed actions are in complete support of the "Development Goals and Strategy" plan. The area served by the proposed loop is one planned for most future development and one noted by the Community Advisors to need water service.



As in the case of the sewer system the Advisors recommended water service for the entire southern section of town and ideally the entire town. However, the maximum hydraulic grade of the storage tank prevents most of the mountain area from receiving water until a new storage tank is built at a higher elevation. This is shown on the Water System map as the area above elevation 420 feet (USGS datum).

As a first step, however, the planned expansion of the District meets the immediate concerns of the Advisors and moves toward meeting the goals of water service for the entire town and directing and supporting development in the southeast sector.

### DRAINAGE

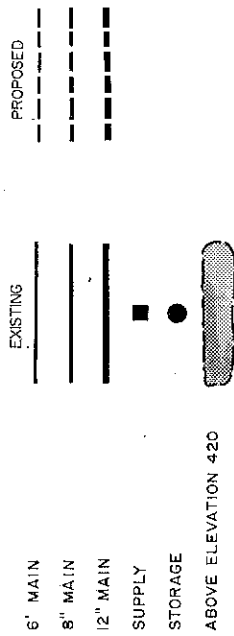
Drainage problems in many areas of town have been identified at meetings of the Selectmen and Planning Board as well as by the reports of the Community Advisors. These problems are particularly severe in areas surrounding apartment complexes where the levelness of the land, compounded by a high water table, has resulted in water runoff onto abutters' property.

Correcting these problems may require expenditures by the town for new culverts and drainage ditches and in some cases storm water drains. In the future these problems can be prevented by requiring under zoning the submittal of a detailed site plan showing the proposed direction of surface runoff, and proposed catchbasins and drainage easements to contain the runoff. The proposed drainage system would then be reviewed by the Planning Board for effectiveness, and a permit granted only upon determination that the system will not result in runoff onto abutters' property.

Traditionally, storm water drainage systems have been designed to carry the increased runoff resulting from developing impervious surfaces (roofs, parking) into streams or rivers. The result is higher peak stream flows, and less recharge of groundwater levels. Subdivision regulations and zoning bylaws should instead move towards retention of the pre-development water balance as far as possible, utilizing recharge systems and retention basins to return stormwater to the ground, and to avoid increases in peak stream flows.



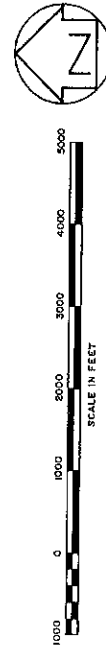
# WATER SYSTEM



SOURCE: TIGHE & BOND, CONSULTING ENGINEERS, REPORT ON WATER SUPPLY FOR THE ROUTE 116-PLUMTREE ROAD-SILVER LAKE AREA, JULY 1966.

JANUARY, 1972 REVISED APRIL 3, 1973, DECEMBER 14, 1973.

BASE MAP PREPARED DEC. 1971 FROM U.S.S.M.A.P.S.  
REVISED DEC. 30, 1971 FROM AIR PHOTOS AND  
P.B.H. & A. FIELD SURVEYS.



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# SEWER SYSTEM

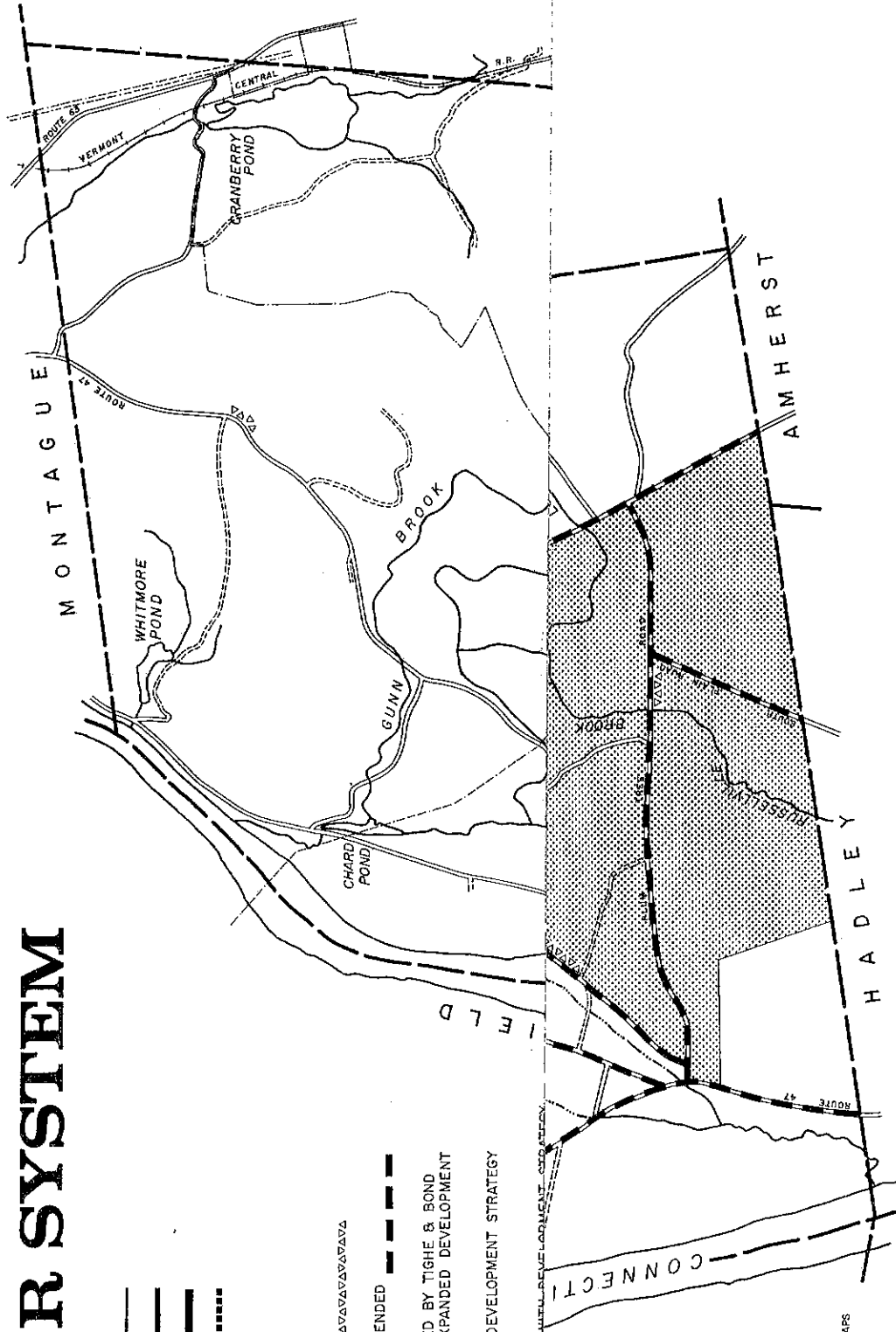
- 8" MAINS
- 10" & 12" MAINS
- 15" MAINS
- FORCE MAIN
- PUMPING STATION
- TREATMENT PLANT

PROBLEMS IDENTIFIED BY  
COMMUNITY ADVISORS

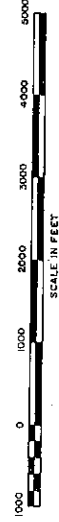
SEWER EXTENSIONS RECOMMENDED  
BY COMMUNITY ADVISORS

TRIBUTARY AREAS IDENTIFIED BY TIGHE & BOND  
AS "PROBABLE AREA FOR EXPANDED DEVELOPMENT  
OF SEWER SYSTEM BY 1995"

SUPPORTS DEVELOPMENT STRATEGY



BASE MAP PREPARED DEC. 1971 FROM U.S.G.S. MAPS  
REVISED DEC. 30, 1971 FROM AIR PHOTOS AND  
PBH & A FIELD SURVEYS.



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### **C I R C U L A T I O N   P L A N** **Sunderland Planning Board** **December 12, 1973**

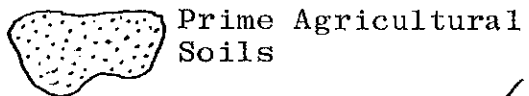
Four major sources have been drawn upon for this report:

1. "Community Facilities Survey", Philip B. Herr & Associates, Revised August 9, 1972 (section on Local Streets).
2. Comments upon that report by the Planning Board, the Permanent Building Committee and other Town boards and agencies.
3. The Community Advisors' reports to the Planning Board.
4. "Development Goals and Strategy", Philip B. Herr & Associates, October 6, 1973.

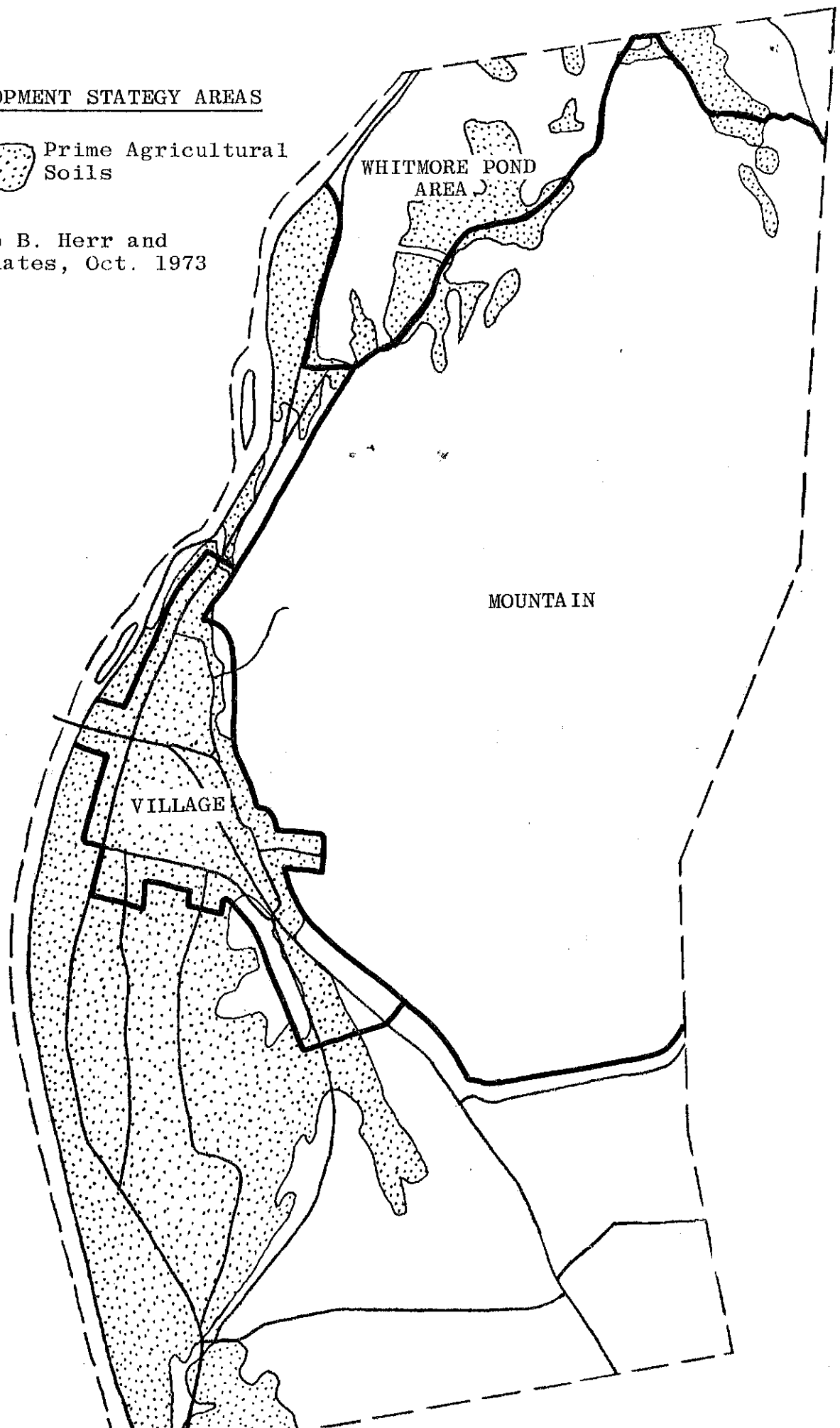
The intent of this report is to focus on those circulation issues which bear on the implementation of the "Development Goals and Strategy" report. The goals of this circulation plan are:

1. Assure that improvements to existing roads serve the "Development Goals and Strategy" plan. Specifically this means:
  - a. giving lowest priority to road improvements in the Mountain, Whitmore's Pond and Prime Agricultural Soils areas so that development is not encouraged in these areas, and
  - b. conversely giving highest priority to road improvements in remaining areas in order that intensive development can be supported (see map).
2. Assure that road improvements serve the problems identified by the Community Advisors in their studies, by giving priority to those improvements which do so.

DEVELOPMENT STRATEGY AREAS



Philip B. Herr and  
Associates, Oct. 1973





3. Make the design of the cross-section, grades and curves for new roads and those scheduled for improvements serve the "Development Goals and Strategy" plan as well as the problems identified by the Community Advisors.
4. Accommodate travel and access within and through the town consistent with safety, minimal congestion and the lowest feasible conflict with the environs.

#### "Community Facilities Survey" Summary

The major findings in the Local Streets section of the "Community Facilities Survey" were:

1. That Sunderland is spending only roughly 28% of the \$5150 we find most towns spending on a per mile basis (including state aid).
2. That with this relatively small expenditure most roads appear to be in "fair" to "good" condition.
3. That the only major road problem appeared to be Route 116.
4. That road mileage under local responsibility had remained fairly constant despite rapid development and that this would continue into the future due to still remaining developable road frontage and an absence of new subdivisions.

More recent data than that used in the survey is now available from the Massachusetts Department of Public Works<sup>1</sup>. This data confirms that road mileage has indeed remained fairly constant in the period 1965-70. In 1965 total road mileage was estimated at 33.50 miles. In 1970 this had increased 7.54 miles to 41.04. (Much of this increase is due to different inventory methods. This is now being cleared up by the DPW.)

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<sup>1</sup>Mass. DPW, Bureau of Transportation Planning and Development, Statewide Highway Transportation Section, Road and Street Inventory, 1970. This data is at present unofficial and is in the process of being reviewed by both the central and district offices of the DPW.

## Community Advisors Report

The Community Advisors included a number of comments on road and circulation problems in their reports to the Planning Board.

### A. Liabilities

1. Traffic and congestion along Route 116 (mentioned by two groups).
2. Speeding along Route 116, Route 47 to Falls Road, South Silver Lane, and Old Amherst Road.
3. Hazardous intersections at Routes 116 and 47; Route 116 and Old Amherst, Plumtree and Garage Roads.
4. South Silver Lane too narrow.
5. Lack of sidewalks on Plumtree and River Roads (to apartments).
6. Lack of bicycle paths.

### B. Proposals

1. No more traffic lights than presently on Rte. 116 (do not make more traffic lights needed).
2. Expand Amherst bus service.
3. Bike paths along 116 and 47. Eliminate bike ban along 116.
4. Bus stop at church yard.
5. Extend sidewalks to apartments on River Rd.
6. Add frontage roads along 116.

Route 116 is confirmed by the Community Advisors to be Sunderland's major road problem. Traffic volume data also confirms the extent of increased traffic using this route. From 1965 to 1968 traffic volume was approximately 6,000 vehicles per day average. In 1970 this had increased to roughly 8,000 vehicles per day<sup>1</sup>.

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<sup>1</sup>Source: Mass. DPW

## Circulation Plan

This plan is divided into three sections. The first deals with the so-called "Chapter 90" road reconstruction, the major town program of road improvements (see "Community Facilities Survey", Revised August 9, 1972, p. 10 for an explanation of this program). The second concerns the design standards used in constructing or reconstructing roads and the third section with miscellaneous issues, not included elsewhere which deserve comment.

### 1. Chapter 90 Reconstruction

In the past ten years the upper North Main Street and Montague Road sections of Route 47, as well as Plumtree Road from Route 116 to Route 47, have been reconstructed under Chapter 90. South Silver Lane from Old Amherst Road to Plumtree Road is scheduled for reconstruction in 1974 and 1975. Drainage work has already begun on this project.

Four other roads have been declared eligible by the DPW for reconstruction under this program. These are Russell Street, "Old" Hadley Road from Old Amherst Road to Route 47, Bull Hill Road and the easterly section of Plumtree Road. The DPW requires that the Selectmen program Chapter 90 funds well in advance. It is assumed then that one of the four eligible roads will be reconstructed after South Silver Lane, that the Chapter 90 program will continue (although each year there is a discussion of replacing the program), and that all the roads are somewhat deserving of reconstruction to begin with due to their state of repair or disrepair.

We suggest that the Chapter 90 program can well serve the goals of this plan if, among the eligible choices, the following priority schedule is followed:

Highest Priority: South Silver Lane

This deserves the highest priority, first because it is located in the southeastern section of Town, outside the Mountain, Whitmore Pond and Agricultural Soils areas, and would therefore help to support development diverted or discouraged in these other areas, and second, because the Community Advisors noted that South Silver Lane had a number of problems associated with it including the narrowness of the road.

Second Priority: Bull Hill Road and Plumtree Road east

Both these roads are again located in the southeastern section of Town and, as above, could help support development diverted from other areas. None of the Community Advisors noted these roads as having particular problems so they cannot be rated as having highest priority. Neither can a choice between them be made without additional information.

Lowest Priority: Russell Street and "Old" Hadley Road

Both these roads are located in the Prime Agricultural Soils area. Their reconstruction is not desirable because development is to be diverted away from such areas. Again no mention is made of these roads by the Community Advisors and a priority distinction between them is not seen as necessary at this time.

## 2. Uniform Road Design Standards

In addition to the question of whether a road should or should not be reconstructed it is important to consider the design standards used in such cases, as well as in other cases where road adequacy is an issue. We suggest first, a uniform set of standards, to be adopted by the Planning Board and endorsed by the Selectmen, which would be used to evaluate the following:

1. Chapter 90 road reconstruction
2. Roads proposed under Subdivision Control Law
3. "Public Ways", preexisting the effective date of subdivision regulations, for which the Planning Board must determine the adequacy for its planned use.
4. Street acceptance
5. New roads proposed by the Town, county, state, or federal governments.

Second, we suggest that these uniformly applicable standards vary in two ways. First they would vary by the functional type of road: either a lane, minor or collector street. This would reflect the function of the road (local or through traffic), the uses served (residential, commercial or industrial) and the expected volume of traffic. These are defined as follows:

## Road type definitions

Type	Uses Served	Dwelling units served	Service	Traffic volume ADT <sup>1</sup>
lane	residential	0 - 10	local	0 - 100
minor	residential	11 - 50	local	100 - 500
collector	residential and/or commercial	50+	local & thru	500 - 2,000
arterial	residential and/or commercial and/or industrial		local & thru	2,000+

Second, the standards should vary by development strategy area: Whitmore Pond, Mountain, Agricultural Soils, etc. This would reflect the topography, character and desired level and type of development in the particular area.

The variations suggested here must of course be within the normal limits of safe travel. The sources used to establish these limits are noted at the end of this report. Recently, there has been criticism of design standards which are excessive and therefore wasteful. Right-of-way and pavement widths are often singled out as being excessive. This has resulted from the well-intentioned effort to avoid the hardship and cost involved in future road widenings and the inability to foresee the amount of development any particular road might serve.

Within the context of the Master Plan, we feel confident enough to suggest limited variations to provide flexibility and avoid this waste. Indeed even the hard numbers proposed should be given some flexibility, less so perhaps in the case of new subdivision roads if adopted in the Planning Board's Regulations but nonetheless governed by circumstances in each particular case. The verbal standards below hopefully will help in such circumstances. Roads larger than collectors, such as arterials and limited access highways, have not been considered here. These would deserve very special considerations if they were proposed.

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<sup>1</sup>ADT (Average Daily Traffic). The number of vehicles using a road during an average 24 hour period.

a. Whitmore Pond and Mountain Areas

These areas are chiefly preservation areas. Limited low density development, if any, is expected to occur here.

Steep slopes, woods, streams and a fragile ecology characterize the areas and deserve careful sensitivity. Existing roads are primarily narrow, dirt and winding. However, these should not justify development but rather be brought up to a slightly higher standard before approval of any development, higher than is, than existing yet not as high as elsewhere in Town nor significantly out of character for the areas.

The road design standards are as follows for these areas:

1. Types of roads: The smaller road types are definitely preferable (lanes or minor streets). New collectors or arterials would be detrimental in these areas.
2. Pavement: In keeping with the character of the areas unpaved roads are best where feasible. Pavement on lanes could be waived under certain circumstances: the road is to remain private, provided with an alternative all-weather surface, grades not excessive, and abutting lots assessed for betterments if the town accepts the road.
3. Travelled way width: This should be narrow on new or existing roads to minimize the impact on the environs.
4. Sidewalks: Sidewalks abutting the road are not desirable in these areas. Where sidewalks are desired, by the town or private developer, they should be separate paths, preferably connecting to other pathways.
5. On-Street parking: The travelled way width and ROW width must provide for this since a certain amount normally occurs. However, if either parking bays are provided or buildings are set back a minimum of 75' from the road this allowance (4' for minors or collectors and 2' for lanes) can be eliminated.
6. Right-of-way width: This consists of the travelled way width plus a certain allowance for underground utilities, future widenings, curbs, shoulders and grading of slopes. Underground utilities are a remote possibility in these areas so they are not particularly crucial. Widening is also remote but cannot be ruled out. Curbs are necessary on grades over 6% to contain surface runoff and shoulders can be a minimum of 3' each side.

The important issue however is that slopes be contained within the ROW in order that slope easements on abutting property and the necessity of clearing in order to accommodate them can be avoided. Six feet would allow for a 2:1 slope (2' horizontal to 1' vertical) to be contained within the ROW under normal circumstances up to 15% cross-slope. If these slopes cannot however be contained, then retaining walls should be used.

The ROW width then equals the travelled way width plus 3' each side for curb and shoulder and 6' each side for slope containment for a total of 18' plus the travelled way. This would be the absolute minimum. Where special considerations seem applicable, a larger ROW width may be necessary.

7. Centerline radius: In order for the road to be winding, the minimum centerline radius should be smaller than usual. This would allow the road to fit the topography better and also reduce the maximum speed attainable.
8. Grade: The maximum street grade (slope) allowed should be greater than usual in order that excessive cut and fill is avoided.
9. Forward sight distance: The forward sight distance, a function of the vertical curvature of the road, should also be less than normal in order to fit the topography. This will also reduce the maximum speed attainable.

Table one shows the suggested design standard figures.

b. Agricultural Soils, Village and Remaining Areas

The agricultural soils area should receive only limited development, while the Village and remaining areas are the locations planned for most future development. Topographically, the three areas are basically level and flat, presenting little difficulty for road design. A major exception however is drainage, which can be a problem due to the levelness of the land and a high water table.

TABLE 1  
SUNDERLAND: Suggested Uniform Road Design Standards

	Travelled Way 1 Width	Minimum ROW* 1 Width	Minimum Centerline Radius	Maximum Grade (%)	Minimum Sight Distance
A. Whitmore Pond and Mountain					
1. Lane	16	34	50	14	100
2. Minor	20	38	100	12	150
3. Collector	24	42	250	8	300
B. Agricultural Soils, Village and Re- maining Areas					
1. Lane	22	40	75	12	125
2. Minor	26	44	150	10	225
3. Collector	30	50	350	6	400

1 Four foot allowance for parking can be subtracted from travelled way width and ROW on Minor and Collector streets and 2 foot on lanes where either parking bays are provided or buildings are set back a minimum of 75 feet from the road.

\*Right-of-Way



Road design standards for these areas then can be relatively full yet still not excessive. Right-of-way widths should be a minimum of 9' each side of the travelled way. This would allow for utilities and sidewalks, where necessary, in the Village and remaining areas. An additional amount for future widening can be added if desired. In the Agricultural Soils area, a simple 9' each side is probably sufficient. Other figures in Table 1 are normal standards consistent with safe circulation.

### 3. Other Circulation Issues

While this plan has been primarily concerned with the circulation issues involved in implementing the Development Strategy plan, a few other issues deserve comment.

- a. Amherst Bus Service: This service can serve the goals of this plan well by alleviating some of the traffic along Route 116. Continuation and use of the bus service should therefore be encouraged.
- b. Zoning Controls: Incorporation within the zoning bylaw of strict egress control for major projects, particularly along Route 116, can eliminate unnecessary road hazards. Also landscaping control can preserve views from the road.
- c. Scenic Roads: Designation of roads under Chapter 40, Section 15c of the General Laws as Scenic Roads can serve the goals of the program, especially in the Whitmore Pond and Mountain Areas. This is now under study by the Conservation Commission.
- d. Bicycle travel: Bicycle travel has traditionally been used only as a form of recreation or of exercise. Increasingly in the United States it is becoming an alternative form of transportation to the automobile. It is estimated that "bicycle paths...cost approximately one-tenth as much as secondary road" and that as a transportation alternative bicycling "...has large social benefits and virtually no adverse economic consequences."<sup>1</sup>

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<sup>1</sup>James P. Hamill, "Planning and Development of Bikeway Systems", Urban Land, V.32, No. 9, October, 1973.

The advisors to the Planning Board have noted as liabilities the lack of bicycle paths and a bike ban along Route 116. A new state law has eliminated bike bans on public roads but has imposed very strict safety requirements on using them and fines if these requirements are not met.

The issue of bikepaths (strictly defined as "bikeways physically separated from both motor vehicle and pedestrian conflicts") is not so easily resolved. The demand for a bikeway system from the Sunderland apartments along Route 116 to the University of Massachusetts can only be estimated but would appear large. It might even be located within the enormous right-of-way (120') of Route 116. Matching federal funds are available through the Department of Housing and Urban Development's Open Space and Legacy of Parks programs and the Bureau of Outdoor Recreation's Land and Water Conservation Fund for the development of bikeways. However first priority for these funds is recreational bikeways.

It would seem then that the Recreation Committee would be the logical group to deal with developing a proposal and estimating demand. The recreational aspects would of course be emphasized to meet federal requirements.

The amount of time and energy needed to complete such a proposal would probably be enormous but worthwhile if it could alleviate, even if only a little, the traffic along Route 116.

## SOURCES

Two major sources have been used in the development of the design standards in this report. These are:

1. National Association of Home Builders Research Foundation, Manual of Residential Street Development Standards (Interim Report), 1973.
2. U.S. Dept. of Agriculture, Farmers Home Administration, "Planning and Performing Site Development Work", FmHA Instruction 424.5, 2/7/73.

In addition, many of the subdivision regulations of other towns have been consulted. Of particular help has been the Tisbury Planning Board's Subdivision Regulations.

All of the design standards suggested by these sources however have had to be tailored to Sunderland's particular topography and character. They have been primarily useful in establishing the normal limits within which the road types could vary.

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### **C O N S E R V A T I O N   A N D   R E C R E A T I O N**

Sunderland Planning Board

February, 1973; Revised February 1, 1974

Contributions to this report have come from a number of sources. The Conservation Commission and the Recreation Committee have co-operated in the identification of goals and actions. The Recreation Committee's survey of recreation needs has helped in determining community feeling. In addition, the U.S. Soil Conservation Service has worked closely with the master plan program during the preparation of their Natural Resources Inventory for Sunderland. Finally, the work of the Community Advisors has been incorporated in this revised report.

### **CONSERVATION ISSUES**

Sunderland's topography is a study in contrast. The land rises from the broad flat plains of the Connecticut River Valley in a series of steep slopes and plateaus more than 1100 feet to the top of Mt. Toby. Between the river and the mountain has been the traditional area of development and the area where the greatest demands have been placed on the land. The demands have come from families for homesites, from farmers for the fertile soil and from plant and animal life for a natural habitat. Over the years the remoteness of Sunderland from population pressures, the economic viability of its agriculture and the compatibility of agriculture with animal life has helped to establish a balance among these demands. Today that balance is threatened by a reverse trend of expanding population pressures and declining agriculture. Even the fragile ecology of the slopes of Mt. Toby, important as the source of fresh water streams, may be subject to some of this development pressure because of a changing technology and economic base. Just a small amount of development could cause erosion, uncontrolled run-off and pollution of streams in this area.

The Community Advisors reports to the Planning Board have supplemented this basic analysis. In general, they indicated six areas of concern (see appendix for a more detailed summary of these reports):

1. Mountain Area. The Mt. Toby area and adjoining hills were valued as both a natural and a recreational resource.
2. Agriculture. Agriculture was valued as a natural and economic asset.
3. Gunn Brook - Whitmore Pond Area. This area, roughly bordered on the north by the Montague town line, on the west by the Connecticut River and North Sunderland Road, on the east by the State Forest and on the south by North Mountain Road, was valued for its streams, ponds, waterfalls, coves and other outstanding natural features.
4. Connecticut River. The river was valued as a scenic, recreational and water resource.
5. Historic Assets. The historic houses of Sunderland were considered an asset and the creation of an Historic District the most fully supported action.
6. Conservation Elements. The elements to be considered in a conservation plan, such as water quality, streams, wildlife, and large amounts of open space were also highly valued.
7. Other Assets/Liabilities. Specific natural features were also individually mentioned including Green Swamp, Long Plain Watershed, ledges above Bull Hill Road and the meadow off North Plain Road.

### CONSERVATION GOALS

Based on the issues above two basic goals have been developed.

#### 1. Ecological Balance

First this program seeks to balance man's demands upon the land with nature's demands. It seeks to protect those ways in which nature supports the needs of a developing community and region: by protecting watersheds, by preventing erosion, by guiding development away from wetlands and flood plains and by preserving plant and animal life cycles and the purity of air and water, four factors upon which human life depends.

## 2. Preservation of Agriculture

The role of agriculture in maintaining the balance between man and nature is pivotal. First it supports not only human life but animal life as well. Second it functions as open space, providing a form of passive recreation and enjoyment that meets the needs of man's spiritual life. Third the high quality of the soil along the Connecticut River makes it the most agriculturally productive in Franklin County, some of the best in New England, and its use for development an irretrievable loss of a valuable natural asset.

## RECREATION ISSUES

There are three sources for identifying recreation issues in Sunderland. The first is an inventory of existing recreation facilities measured against some common standards of adequacy; second, a survey of recreation needs conducted by the Recreation Committee; and third, the reports of the Community Advisors.

### A. Inventory

Included in this recreation inventory is reserved open space (i.e., undeveloped publicly or semi-publicly owned land) and unreserved open space (i.e., undeveloped privately owned land including agricultural land). These have been included here because almost all forms of undeveloped land function at the very least as a form of passive visual recreation. The term "reserved" is used to mean the degree to which the land is free from the possibility of private development. In the case of state and town owned land continued open space use has a high probability, although not certainty; because it could be sold at some time. Water District land has a lower probability and semi-public land lower still.

		Controlling	
	Activity	Agency	Acres
1. Public Recreation			
a. Town Park	picnicing	Town	12
b. Elementary School	playground, ballfield, tennis court	Town	11
c. Town Hall	gymnasium	Town	--

	Activity	Controlling Agency	Acres
2.	Commercial Recreation		
a.	Tennis Club - Rte. 116 tennis	private	1.5
3.	Reserved Open Space		
a.	Mt. Toby State Park forestry	University of Massachusetts	726
b.	Sunderland Fish hatcheries	Mass. Dept. of Fish & Game	103
c.	Sunderland Water District water supply	Water District	68
d.	Amherst College recreation	Amherst College	22
e.	Amherst Angling Club (Chard Pond) fishing	private	6 (app.)
4.	Unreserved Open Space (private)	Total	8459
a.	Agricultural Land		2130
b.	Wooded		5700
c.	Wetland		87
d.	Vacant cleared		542

#### B. Standards of Evaluation<sup>1</sup>

	minimum	ideal.	per capita	radius of service
1. Playground	2 acres	4 acres	1.5ac/1,000	$\frac{1}{2}$ mile
2. Playfield	10 acres	15 acres	1.5 ac/1,000	$1\frac{1}{2}$ mile
3. Reserved Open Space			5 ac/1,000	3 miles

<sup>1</sup>The standards used here have evolved over time and are, more or less, what are now rule of thumb standards. They have been used only in an attempt to provide an objective evaluation of the inventory and to determine where, if any, there is a gross inadequacy. They are not a recommended standard or goal. This is particularly true of reserved open space; adopted standards for which have varied by place, by type of place (urban, suburban and rural) and over time.

### C. Evaluation

The first point to be noticed is that Sunderland has a vast amount of open space. This is one of the major characteristics of the town. 90% of this is in private ownership and only 10% is reserved in some form. This 10% is reserved primarily for some special purpose, such as forestry management, water supply or fish hatcheries. These reserved lands however form a major recreation facility and use of them is quite extensive although informal. The State Forest in combination with the larger area of unreserved, private land and forest surrounding it, is used for hiking, nature study, and horseback riding (rented horses are available in Leverett on Rte. 63). The fish hatcheries are open to the public and are used for nature study by visitors as well, since they attract a variety of "fishing" birds, song birds, and duck.

Developed recreation facilities, such as the school playground and ballfield, meet the minimum standards although they are not ideal. The major problem is one of service area. Such facilities are normally used by residents in close proximity, and parents are usually unwilling to let their small children travel very far to a playground. The southern portion of town is the primary area, with a sufficient concentration of population, that lacks such a facility.

The Town Park is used almost exclusively for picnicing. It has been recently furnished with tables, benches, fireplaces, and shelters. Although it includes a small pond this is not suitable for either swimming or fishing.

### D. Recreation Committee Survey

The survey conducted by the Recreation Committee in 1972 supports the conclusions above. The survey was limited to the parents of children who participated in the summer recreation program but it appears to present a fair cross-section of feeling on recreation needs. The primary need identified by the survey was for some sort of swimming facility. To find or develop such a facility within the town has been a primary goal of the Recreation Committee also.

The other needs identified by the survey covered all forms of recreation activities, from sledding to fencing of the school tennis court. Most, however, required an extensive amount of reserved open space for the activities involved. Supervised and organized recreation programs, particularly for youngsters and teenagers, were indicated favorably. In this connection a problem identified was that the Elementary School playground has sometimes been closed to children after school hours.



## E. Community Advisors Reports

The reports of the Community Advisors indicate the same range of recreation concerns as the Recreation Committee Survey. In general developed or intensive recreation facilities were indicated as most needed. These included a swimming facility, an additional playground in the southeast part of Town, a second boat launch, and a rest area along Rte. 47. The most valued extensive recreation resource was Mt. Toby and the trails that run through it. Most groups concurred that an expanded trail system would be beneficial particularly if connected to the Town Park and if no motorized vehicles were allowed. There was also concurrence on Sunderland's joining the Tri-Town Beach as the best solution to solving the need for a swimming facility.

It appears that the major recreation issue, if there can be said to be one, is that of providing a variety of recreation resources. This variety would encompass active and quiet pursuits, developed and extensive facilities and facilities for all age groups. The problem that may arise from this is that any proposal to improve, develop or provide access to a facility will have only a limited constituency, even a minority, and therefore likely to be defeated, particularly if it appears costly or time consuming. Overcoming this problem will mean that specific proposals should be clearly put into an overall plan or program; a program which emphasizes how different interests and age groups are being provided for through actions taken one or two at a time.

## RECREATION GOALS

Based on the above discussion the following goals have been developed.

### 1. Open Space and Recreation Enjoyment

First this program seeks to preserve and develop a variety of resources so that all residents may enjoy open space and recreation through both active and quiet pursuits. Accomplishing this goal requires ensuring access to open spaces and recreation facilities for all age groups.

### 2. Education

Secondly, this program seeks to increase public awareness of our environment. This goal calls for access as already mentioned in addition to efforts through schools and recreational programs, to name two.

## OTHER GOALS

Conservation and recreation, although separated here for discussion, are interrelated and can supplement each other. The primary interrelationship between them, and the most important single element which seems to unite most if not all the areas of concern outlined under conservation issues, is that of scenic or visual enjoyment, a passive form of recreation.

This would explain why the mountain is important to many residents, even to those who do not use it for hiking, horseback riding or camping. It forms a highly visible backdrop to the town. For similar reasons, the Connecticut River and the undeveloped shore is an asset even to those who do use the river for boating and fishing. Farms and the agricultural land of the plain are also significant to those who are not farmers or fully aware of the high quality of the soil. The visual relations between these elements are also important: from the mountain the expanse of farmland and river is pleasing and from the plain this expanse ends in the forested, sharply-defined mountain.

The support which the Historic District received is an additional example. Not all the advisors which indicated interest in the creation of a District are interested in architectural history or the history of the Town but rather they are interested in a pleasing visual asset.

There were other comments by the advisors which also indicate this same concern. Cleaning up junk cars or the share of the Connecticut, planting trees along Rte. 116 in specific locations, making sure commercial buildings enhanced the village character. Perhaps the comment by one group summed up this concern best: maintain the high visual quality of the town.

Accomplishing this goal would require the cooperative efforts of many segments of the Town government and population. High visual quality cannot be legislated, nor is it the concern of just one agency. At least those major elements which contribute to this quality: the forested Mt. Toby, the undeveloped Connecticut shore, farmland and the central historic village have been identified and actions to preserve them can be taken through conservation, zoning and an Historic District Commission. Beyond this, cooperative effort is needed, not only to identify what contributes to visual quality but how to maintain or enhance it.

Cooperative effort is also required if the limited amount of public funds, energy and natural resources available to the town are to be efficiently used. Priority should therefore be given to single actions which meet the needs of conservation, recreation or visual quality. This includes not only town actions, but state, national and private actions as well. Two additional goals for this program formally stated are the following:

#### 1. Maintain High Visual Quality

This program seeks to maintain the high visual quality of the Town. The basic elements of this quality are the forested mountain, the undeveloped Connecticut River shore, farmland and the central historic village. Accomplishing this goal will require a combination of efforts in preservation, conservation and development controls.

#### 2. Integration of Efforts

This program seeks the coordination of efforts of various municipal agencies and institutions with each other, with state agencies, non-municipal institutions, benevolent organizations and private citizens and developers. Efforts to coordinate programs is intended to facilitate the maintenance of the high visual quality of the Town and to minimize costs to the community in officials' and citizens' energy, in taxes levied and in non-replenishable natural resources.

#### GOALS SUMMARY

The following is a summary of the conservation and recreation goals above.

1. Ecological balance
2. Preservation of agriculture
3. Open space and recreation enjoyment
4. Education
5. Maintain high visual quality
6. Integration of efforts

#### PROGRAM OBJECTIVES AND ACTIONS

Based on the six primary goals a number of specific objectives and actions have been developed.

### Objective 1: Preservation of Agriculture

The preservation of agriculture is both a primary goal and specific objective of this program. This objective however is a difficult one to achieve because of the economic pressures working against it. One of these pressures is that the development value of agricultural land has far exceeded its agricultural use value. This has been reflected in higher assessed valuations in some cases and consequently higher taxes. The recent constitutional amendment and subsequent legislation allowing agricultural land to be valued, for assessment purposes, at its agricultural use value rather than for its potential development value, may help alleviate this situation.

Even if the amendment is effective in relieving some of the tax burden, the fact remains that agricultural land can still be sold for a profit that may exceed that which can be obtained from continuing farming. This is particularly true of relatively small farms. The long term trend has been towards larger more efficient farms. The small scale farmer then is caught in a squeeze between his large agricultural competitors and the developers. Some farmers have met this by selling off only a small amount of land at a time for homes. But this piecemeal approach only results in making their farms still smaller, less efficient and consequently less competitive.

### Proposed Action: Transferring Development Rights

A wholly new zoning approach is being proposed to help lift development pressure off agricultural land without destroying the capital value created by that pressure. It is being proposed that apartments or condominiums be banned from prime agricultural land. A developer wishing to build multi-family units elsewhere in town would, among other things, have to pay for the purchase of "development rights" from the owner of agricultural land, in effect paying him for the opportunity to transfer his rights to development off his agricultural land onto land more suitable for development. The owner of agricultural land ends up with a cash payment, with his land restricted from development, and probably with lower taxes. The developer ends up with having paid not only to buy his development site and also for "extra" development rights, but also gains permission to develop multi-family units.

## Objective 2: Preservation of Outstanding Natural Features

Sunderland is fortunate in having a number of outstanding natural features of more than local significance. These have been identified in the "New England Natural Areas Project" sponsored by the New England Natural Resources Center with the cooperation of the Trustees of Reservations and the Massachusetts Audubon Society. This inventory lists six areas in Sunderland out of only 32 for all of Franklin County. In addition, these same areas were identified in the Connecticut River Basin Comprehensive Water and Related Land Resources Investigation<sup>1</sup>.

The areas listed and a brief description are as follows:

1. Large sycamore tree on Main St.: Said to be the largest specimen of this species east of the Mississippi River. (Believed to be on public land, within Rte. 47 right-of-way.)
2. Long Plain gravel delta and fish hatchery: South of Mount Toby is a large flat area of gravel abutting the south side of the mountain and the eastern highlands and extending west to Route 116. Long Plain is one of the most striking of the deltas built into glacial Lake Hitchcock. At least four gravel pits have been established in the excavation of the prime material available here. The fish hatchery owes its location to the excellent supply of pure, cold water emerging as springs from the interior of the delta. One of the major trout hatcheries in the Commonwealth, it is a popular spot for bird watchers, wild flower enthusiasts and of course, those interested in seeing trout. A commercial trout hatchery is located on the adjoining property. In addition, the Sunderland Water District has a new well field in the same area.
3. Mt. Toby: A mountain area, partly state forest and owned by the University of Massachusetts and privately, with admirable scenic vistas of the basin, unusual geologic formations and fine examples of a variety of ecosystems. The area contains an untouched, rarely visited, particularly scenic slope of significance. Gunn Brook and Roaring Brook have spectacular waterfalls. It is also a botanical treasurehouse of the 40 odd species of fern native to Massachusetts. All but two grow here. There are many trails and a forest fire lookout tower. The mountain including the Roaring Mountain area has considerable value as an instructional and research facility and is heavily used.

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<sup>1</sup>Connecticut River Basin Coordinating Committee, Connecticut River Basin, Volume IX, Appendix O "History and Environment", June, 1970.

4. Sunderland Caves: This is the largest cave in the state with a length of 150 feet and some side passages. Cliffs and a pinnacle rock are nearby as is a view over the Connecticut Valley. Geologically, the Sunderland Caves are spaces found between large blocks of conglomerate which have slid and tilted so they rest against one another. In the rocks themselves is a petrified record of slippage on mud during the Triassic Deposition.
5. Whitmores Ferry: At Whitmores Ferry in Sunderland a layer of black shale a coniferous branch has been found. But this site is much better regarded as the basic for triassic fish fossils. A waterfall is also located at this site.
6. Whitmores Pond Pine Stand: Just south of Whitmore Pond south edge of Greenfield Quadrangle lie two stands of white pine, separated by a fence and covering a combined area of 50 - 70 acres. Both stands have developed from pastures in which a few white pines and red cedars became established. Grazing was continued until six years ago in the stand owned by Carleton Gunn while the white pines have grown to considerable size. There is little hardwood growth in this stand and there has been some selective cutting. The other stand, owned by the Whitmore family has been protected from grazing and cutting since a time shortly after the close of the Civil War. There is much hardwood growth. One value, for research purposes, is evident in the contrasts resulting from different treatments and use has been made of this.

With the exception of the large sycamore on Main St. (publicly owned) and the Long Plain delta (for the most part either developed or publicly owned) these areas for the most part are located in North Sunderland, roughly between Falls Road and the Mt. Toby State Forest (see map). This area, in addition to the features listed, contains a matrix of land uses (agriculture, forest, wetland, ponds and streams) which supports a variety of plant and animal life. This area also contains an abundance of sugar maples which support one of the few remaining sugarhouses in the state. This is located on Rte. 47 and is open to the public.

Proposed Action: Critical Resource Zoning

This area in North Sunderland is presently privately owned, much of it by two families, and has been preserved in their hands for generations. It would be useful, however, if the town could be assured an opportunity to purchase such environmentally vital land before it is developed, without having to purchase all such land right away.

That is the intent of creating a Critical Resource District in the Zoning Bylaw. It would be an "overlay" over the regular use and density districts. Prior to development in such district, an applicant would have to file an environmental impact report on the proposed development, and give the town a sufficient period of time to have a town meeting and to consider either purchasing the property in question or some part of it or some rights over it. If the town chooses not to purchase, the owner may proceed to develop subject only to the regulations otherwise applicable.

The Subdivision Control Law has a somewhat parallel provision which empowers planning boards to "freeze" land within a subdivision for three years pending possible town purchase for park or recreation purposes. We understand that the Commonwealth of Puerto Rico has employed a "P District" to similarly "freeze" sites intended for public acquisition, a provision court-approved there. However, there is no direct precedent for this in Massachusetts that we are aware of, although the approach was suggested by an M.A.P.C. report.\*

There is an issue as to whether the delay in development which this requirement imposes constitutes a properly compensable taking of rights (it is in effect a free option for the town). A legal analysis would be misplaced here: our view is that this is a sup-portable approach so long as it is used reasonably. Truly critical areas must be selected for inclusion, and all others left out. The device mustn't be used defensively to simply block development.

The exact boundaries of the Critical Resource District are shown on the proposed Zoning Map. The creation of a substantial Conservation Fund will aid in meeting this objective by allowing the costs of purchase, should it be necessary, to be provided for in advance.

### Objective 3: Preservation of Other Natural Features

Critical Resource Zoning is aimed at preserving those natural features and areas of outstanding national, state, or regional significance. There are in addition features of local significance which are equally deserving of conservation. Some of these features may never be inventoried but may include significant topographic

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\*Ells, Stephen, "Massachusetts Open Space Law", M.A.P.C. Open Space and Recreation Program for Metropolitan Boston, Vol. 4, April, 1969.

features, wetlands, flood plains, stands of trees or streams. Presently wetlands are protected by the Wetlands Protection Act. The Sunderland Zoning bylaw prohibits all development within 100 horizontal feet of the Connecticut River mean high water line.

Additional regulation is needed, however, particularly in the Mt. Toby area. Here steep rocky slopes, with bedrock at less than 2 feet, supports a fragile ecology. Even a limited amount of development in these slopes could cause erosion, uncontrolled runoff, and silting and pollution of streams. These slopes have previously been immune to the development pressures of the flat bottom land, where, as pointed out, the demands have been most concentrated. The effects, however, of rising land costs and stricter regulation of development may be to make these slopes relatively more attractive for development. Already the change in Sunderland's economic base, from an agricultural economy to a "bedroom" town, allows this. In addition, the demand by commuters for privacy, seclusion and the salubrious air of the forest has made locations such as Mt. Toby a much desired resource.

#### Proposed Actions:

##### 1. Open Space Community Zoning

The Open Space Community Zoning attempts to conserve significant natural features by requiring first that such a Community be a "plan" encompassing a minimum of 10 acres. The extent to which the Community is "planned" would be measured in part by the extent to which "Major topographic changes or removal of existing trees are avoided whenever possible, vistas, river views or other scenic views from public ways are preserved." This is a stated intent of the bylaw. Second, specific natural features, if the plan encompasses them, are excluded from being built upon at all. These include:

1. Land within 100 horizontal feet of the Connecticut River Basin mean high water line.
2. Flood plains (see map).
3. Land with slopes in excess of 25% (see map).

Excluding these natural features from the total land area of the plan leaves the "Applicable Land Area"; the area on which dwellings



can be placed. Finally, these dwellings can be placed anywhere on this "Applicable Land Area" without regard to ownership lines or zoning district boundaries. This means that placement of dwellings can avoid significant features or land relatively less suitable for dwellings.

This mechanism has the additional benefit of not placing on the town the burden of identifying natural features in advance, but rather requiring this information from the developer in the form of a Site Plan at the time he applies for a special permit for his development. Meeting the intent of this zoning means that the developer must cooperate in careful planning along with the town. This serves the goal of integrating efforts between the private and public sectors.

## 2. Slope and Erosion Control

While the Open Space Community Zoning regulates intensive large scale development town wide, it does not regulate individually built single family home development or conventional subdivisions. Careful regulation of slopes is included in the proposed zoning bylaw. Development on slopes over 25% would require a Special Permit. Clear-stripping would be allowed only under controlled conditions. Vegetation would have to be retained based on a formula related to the degree of slope. Performance bonds would in some cases be required.

## 3. Stream Protection

Setbacks for filling, parking areas, and leaching fields are proposed in the new zoning to protect not only the Connecticut River but also other year-round streams, which are among the town's prime assets.

## 4. Subdivision Regulations

A number of environmental protections have been included in the proposed Subdivision Regulations. Among the more important of these are:

- a. Environmental Analysis. For a subdivision creating 30 or more lots an Environmental Analysis must be submitted consisting of plans showing detailed topography, vegetative cover, soil types and results of percolation tests as well as a visual analysis of scenic views. These plans must also be accompanied by a narrative statement of the impact of the subdivision upon surface water, ground water, wildlife habitats, vegetative cover, historic or scenic environs, erosion, and the Wetlands Act.



- b. Subdivision Districts. In order to minimize the impact of subdivision roads upon the environment, two districts have been created within the Subdivision Regulations. These will allow the design standards of roads to better reflect the sharp contrast in topography and character between the Mountain and Plain areas of the town (see "Circulation Plan", December 12, 1973).
- c. Development Guidelines. In order to encourage development consistent with the town's environment, character and goals, Development Guidelines have been appended to the Subdivision Regulations. These guidelines divide the town into four landscape types based on land form, vegetation and existing development. They are included for reference and possible implementation at the developer's option.

#### Objective 4: Flood Plain Protection

In order that damage from flooding be minimized, areas along the Connecticut River subject to periodic flooding need to be protected.

#### Action: Flood Plain Zoning

The following is a possible amendment to the Sunderland Zoning Bylaw which would regulate development within flood prone areas. The Conservation and Recreation map attached to this report shows the areas subject to "occasional flooding" as defined by the U.S. Geological Survey. These areas need to be more carefully defined by control elevations before adoption of the flood plain regulation. These areas would then be an "overlay" district, similar to the Critical Resource Area.

#### Sec. Flood Plain Regulations

1. Flood Plains. All land lying below certain control elevations (USGS datum) along the Connecticut River as shown on the Zoning Map, shall be considered to be flood plains, deemed to be subject to seasonal or periodic flooding.

2. Uses Permitted. Any use otherwise permitted by this Bylaw shall be permitted within such flood plains. However, no building permit for other than an accessory building shall be issued except upon approval of a Special Permit by the Board of Appeals. Such Permit shall be issued only if it is demonstrated by the applicant that the proposed development will pose no hazard to health and safety.

3 Requirements. Without limiting the generality of the foregoing, the following are presumed to be hazardous to health or safety within flood plains:

3.1 Floor level of structures for human occupancy established at an elevation lower than the control elevations defining flood plains.

3.2 Individual sewage disposal systems at an elevation lower than the control elevations defining flood plains.

3.3 Methods of filling or excavation subject to displacement by flood waters.

3.4 Construction, use, and/or change of grade which will obstruct or divert flood flow, substantially reduce natural floodwater storage capacity, or increase storm water runoff velocity so that water levels on other land are substantially raised or so that danger from flooding is increased.

3.5 Failure to so design and secure any structure that it will not be floated off, battered off, or swept away by flooding to the control elevations.

3.6 Lack of means of egress entirely above the control elevations.

3.7 Failure to protect against gas, electric, fuel, or other utilities breaking, leaking, short-circuiting, grounding, or igniting in the event of flooding to the control elevations.

#### Objective 5: Preservation of Historic Assets

Sunderland has many fine old buildings dating back to the first settlement of the town. A major concentration of these are located along Main St. from about Old Amherst Road to North Silver Lane. (See report on "Historic Districts", November, 1972, and map accompanying this report.) As a unique representation of the town's history and a beautiful aesthetic asset, Main St. is deserving of preservation.

### Proposed Action: Historic District Regulation

The 1973 Annual Town Meeting took the first step in achieving this objective by directing the selectmen to appoint an Historic District Study Committee. Following through with this initial effort by the appointment of members to the Committee and preparation of a report should be encouraged. The Selectmen first, and then the Study Committee, should be in close touch with the Massachusetts Historical Commission, 40 Beacon St., Boston, who, acting in an advisory capacity only, can provide expert advice on the technical details of setting up an Historic District as well as furnishing copies of reports prepared by other Historic District Study Committees. It should be noted also that the large sycamore tree on Main St. is located in the possible Historic District, and along with other large trees which line that street, contribute to the beauty of the area. The Tree Warden presently follows a policy of maintaining these trees and replacing any destroyed with new ones as soon as possible. This policy should be encouraged.

### Objective 6: Provide Swimming Facility

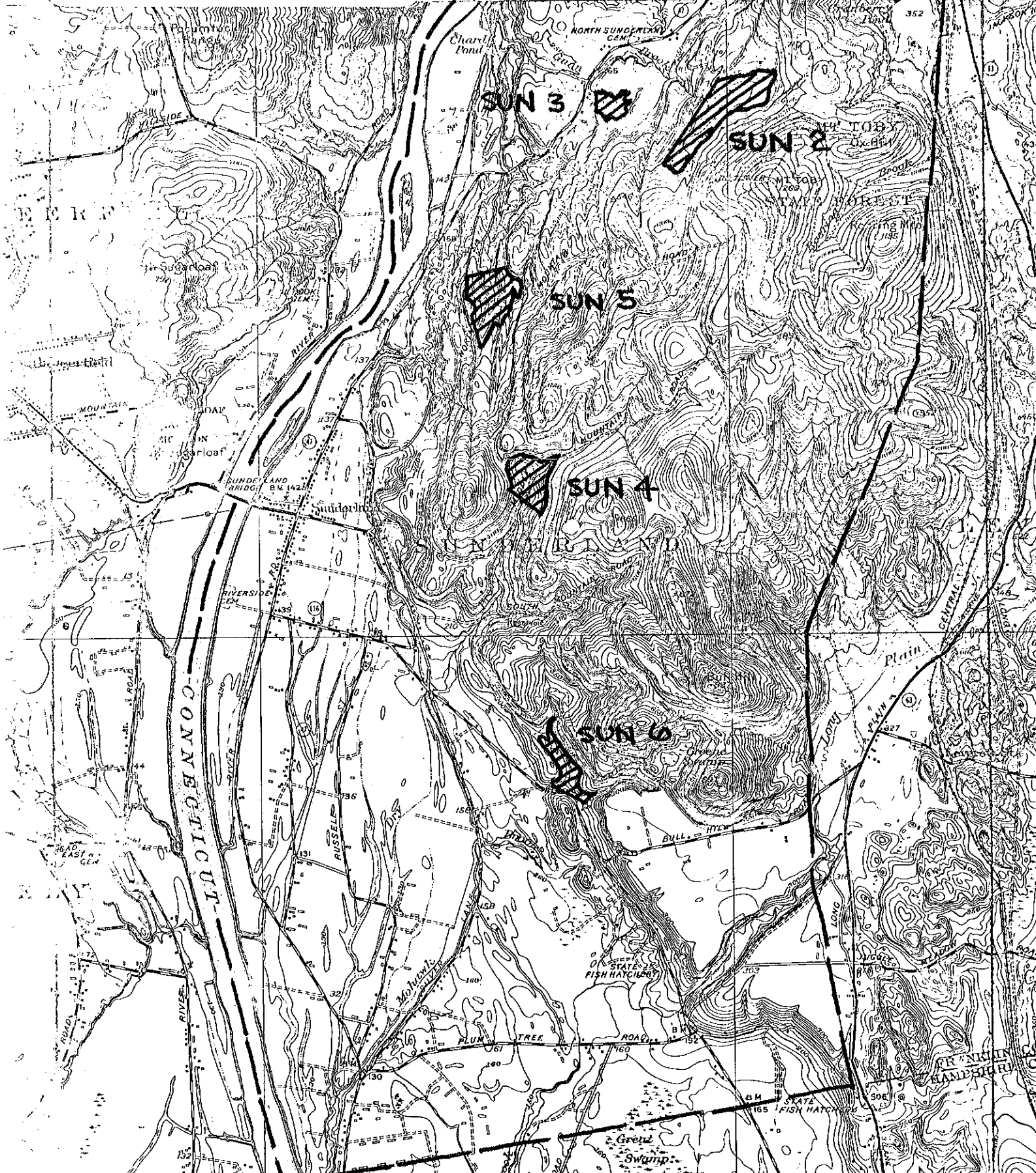
The lack of a swimming facility was identified by the townspeople through the Recreation Committee's survey and the Community Advisors as a liability. A number of alternatives were discussed:

1. negotiation with the University of Massachusetts for limited use of Cranberry Pond;
2. negotiation with the apartment complex for limited use of its pool;
3. a survey of possible sites for an artificial pool and an investigation of development costs;
4. exploration of the possibility of developing one of the water impoundment sites suggested by the Soil Conservation Service (see map) as a swimming pond;
5. reconsideration of joining the Tri-Town Beach in Whately.

### Proposed Action

The majority of Community advisors endorsed the idea of joining the Tri-Town Beach. The other suggestions were felt to be either too expensive or detrimental to the natural environment. The exact cost of buying into the Tri-Town Beach is not known. The Capital Improvements program has budgeted \$30,000 for this, however. It could be afforded in FY 1975.

POSSIBLE WATER  
IMPOUNDMENTS  
Source: Soil Conservation  
Service



#### Objective 7: Provide Playgrounds and Playfields

The present Town-owned playground and playfield next to the Elementary School effectively serves only the residents of the immediate neighborhood. Proximity to a developed playground is one of the most important recreation needs a Town can supply. Our own experience suggests that there needs to be about 1,000 residents (300 homes) within a  $\frac{1}{2}$  mile radius to justify a playground. The southern portion of the town presently lacks such a facility (see map).

#### Proposed Actions:

##### 1. Open Space Community Zoning

The Open Space Community Zoning requires that a minimum of 25% of the "Applicable Land Area" be reserved as open space for use by the residents of the Community or Town. This insures that recreation areas are provided when and where they are needed at no cost to the Town.

##### 2. Acquisition of Sites

Outside of Open Space Communities and the Elementary School playground service area, sites should be investigated for possible acquisition as playgrounds. This is particularly true of the southern portion of Town where there are about 200 homes outside the  $\frac{1}{2}$  mile service area of the Elementary School playground. Our population estimates indicate (see "Economy and Population", March 13, 1972) that 300 homes in this area could be exceeded in ten years. Sites should be selected for acquisition and purchase if possible before that. (See Capital Improvements)

#### Objective 8: Nature and Recreation Trail

The Mt. Toby area and the trails which run through it is one of the most valued of Sunderland's assets. It is valued for its natural untouched qualities. Extensive development for recreation purposes is considered to be detrimental as are motorized vehicles which are felt to be out of place on the existing trails.

Outside of the State Forest, these trails traverse private land. The informal arrangement which allows the public to now use these trails and private lands should not be taken for granted. Some effort should be made to secure the right of public access before that access is prohibited. This would also be a precondition of establishing any rules for use of the trails or enhancing their usefulness.

### Proposed Action

A limited first step in securing the right of public access would be the purchase of rights-of-way or easements over trails. This would not be as costly as purchase of full fee. A right-of-way or easement for a trail should also be purchased over land connecting Middle Mountain Road and North Mountain Road through the Town Park. This would make the Town Park a logical base from which to use the trails. Regulation could then be more easily carried out

Three additional actions would enhance the usefulness of the trails. First, the purchase of a right-of-way or easement for a trail connecting the upper ends of Middle and North Mountain Roads. This would form a complete loop with the Town Park. Second, the Town Park should be expanded to accommodate more parking or at least some clearing to accommodate this. The limited amount of development needed to accomplish these efforts would not appear great enough to detract substantially from the natural character of the area. Third, trails should be marked so that users are clear about the right to their use.

### Objective 9: New Gymnasium

The existing gymnasium in the Town Hall is presently intensively used. It is used by the Elementary School which lacks such a facility and by teen and adult physical education classes in the evenings. Boy Scouts, Girl Scouts, and other organizations also use it from time to time. The Town Hall administrative offices are presently near capacity and additional space is needed. Conversion of the Town Hall gym into offices is a major recommendation for improving these facilities. (See Community Facilities Plan)

### Proposed Action

Before conversion of the existing gym can take place, however, a new gym must be built. It is proposed that a new gymnasium - administrative office addition be built onto the Elementary School. This would also help alleviate the inadequate office space presently in the school. A number of years ago a gymnasium-cafeteria addition was proposed. That was rejected in favor of conversion of the basement meeting rooms to a school cafeteria. The present proposal, which we estimate would cost roughly \$280,000, could be partly funded through state aid and is tied closely with other elements of the Master Plan (Community Facilities Plan and Capital Improvements Program).



#### Objective 10: Access for Boating and Fishing

The Town presently maintains a boat launching site at the end of School St. In the past there has not been much boating on the Connecticut River due to fluctuations in the level of the water caused by upstream dams. This has been somewhat stabilized in recent years. There are also efforts underway to restore American shad and Atlantic salmon to the river<sup>1</sup>. These two developments will create a much greater demand for access to the river; more than can be handled through the present School St. boat launch. Parking at this site is limited. Also, the site does not provide good access to mid-stream.

Russellville Brook, in South Sunderland, is a prime trout fishing stream which presently lacks access. Where the brook crosses Plumtree Road had been used until recently when adjoining property owners fenced off the stream to prevent cars from being parked on their land.

#### Recent Efforts

The County of Franklin is presently developing a 10 acre site in Whately across the river from Sunderland which will provide a launching facility for car-top boats. Access to it will be fairly easy for Sunderland residents via Route 116. This site should be available for use fairly soon.

#### Proposed Action

The town could acquire a right-of-way or easement to Russellville Brook off South or North Plain Roads. This might also be done in connection with the purchase of a site for a playground.

#### Objective 11: Rte. 47 Rest Area

The section of Route 47 abandoned by the relocation of that road could be used as a roadside rest area. At this section, Rte. 47 comes the closest to the Connecticut River and provides a good overlook of the river and an island. The section of Rte. 116 which was similarly abandoned was converted to a rest area.

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<sup>1</sup>Committee for Restoration of Anadromous Fishes in the Connecticut River

### Proposed Action

The State Department of Public Works should be approached with the suggestion for using this abandoned road for a rest area. Only a small amount of development appears necessary as the road bed is still intact. Some clearing of trees would also be needed to provide a better view. The adjacent sanitary landfill, soon to be abandoned when the new landfill goes into operation, ought also to be considered for inclusion in the development of a rest area. This would enhance the usefulness of the site.

### Objective 12: Encourage Access and Use of Existing and Proposed Facilities

In order that the most benefit is derived from this Conservation and Recreation program, simultaneously with the development of existing and proposed facilities, efforts should be made to encourage the use of and access to these facilities. Access means not only physical access and proximity but knowledge and awareness of what is available. Use means not only active uses but passive ones such as visual enjoyment and education in natural and town history. It also means maintaining facilities so that they are truly useful, encouraging multiple use of existing resources and not restricting the public use of public facilities unduly.

### Proposed Actions

#### 1. Better use of existing resources

The Elementary School playground should be available after school hours. This has been identified as a problem. Also the tennis court here should be fenced so that it can be used to greater advantage. Flooding of the play area in winter for ice skating should also be encouraged. The use of the Town Park in connection with the development of a nature and recreation trail will encourage year-round use of this facility.

#### 2. Environmental markers

The historic houses of Sunderland have had plaques attached which show the date the house was built and the original owner. The proposed nature and recreation trail could be similarly marked, pointing out tree species or geologic formations.

### 3. Environmental Pamphlets

Complementing a program of markers could be the development of pamphlets explaining the markers, the history behind them and the recreation resources available. It could also explain any restrictions on use of these facilities and the pertinent regulations. This type of pamphlet could be used to help orient newcomers to the Town as well as be informative to already established residents. It would also encourage proper use of the conservation and recreation resources of the Town.

### 4. Environmental Workshops and Programs

The Recreation Committee has supported a number of recreation programs in the past. These could be supplemented with environmental programs. Preparation of the environmental pamphlet could be one such program. The work of the Conservation Commission, the Natural Resources Inventory, the Historic District Study Committee and the Master Plan could be drawn upon for information. Actual preparation could be done by school groups.

#### Objective 13: Process

To ensure that the conservation and recreation program be dynamic, well-informed and relevant to current needs and interests the program process should be carefully reviewed.

#### Recent Effort

The work of the Community Advisors has been of enormous help in preparing this program. Goals and objectives are now much more firmly established. Actions to accomplish these will, however, require additional dialogues in order to insure that they truly meet community needs and values.

#### Proposed Efforts

##### 1. Annually Review Plan

Review of this plan annually, making it more explicit where feasible, and adopting it as policy as revised will help focus attention on current issues, needs, and achievements.

## 2. Encourage Public Participation

In order that the above can be accomplished the Conservation Commission and Recreation Committee should establish and encourage a dialogue with the community.

### FIVE YEAR PROGRAM

This report has suggested six major goals, 13 objectives and about 21 specific actions. To proceed, some system of priorities and scheduling is required. We suggest the following:

1. Where funding constrains the program, priority should be given to:
  - a. Acquisition rather than development of land already acquired and
  - b. Acquisition of easements or rights-of-way rather than purchase of full fee if this will equally well accomplish the objective.

This is in view of escalating land costs and diminishing opportunities.

2. Priority between acquisition, which is cost-constrained; or control, which is community energy-constrained should be given to threatened situations, where if action is not taken shortly, opportunity will disappear.
3. Some efforts are by their nature continuous, and therefore not subject to priority rating.
4. Subject to all the above, priority should be given to actions which:
  - a. Involve willing participants, as opposed to efforts requiring imposition of unwanted restraints or use of eminent domain and
  - b. actions which help meet more than one objective or goal of this program.

Based on this system of priorities, all of the proposed actions have been classified into three sets:

1. continuous efforts
2. short-run efforts, meaning those likely to be accomplished within five years
3. long-run efforts, those likely to take longer than five years.

#### Short-Run (five year) Program

1. Open Space Community Zoning
2. Critical Resource Zoning
3. Slope and Erosion Control
4. Flood Plain Zoning
5. Historic District
6. Join Tri-Town Beach
7. Acquire and develop nature and recreation trail
8. Provide fencing of tennis court
9. Acquisition of playground sites

#### Long-Run Program

1. New gymnasium
2. Acquisition of right-of-way to Russellville Brook
3. Development of Rte. 47 rest area
4. Provide environmental markers
5. Develop environmental pamphlet

#### Continuing Program

1. Maintenance of trees along Main St.
2. Maintain existing facilities
3. Insure access to existing and proposed facilities
4. Continue recreation programs
5. Develop environmental programs
6. Annually review plan
7. Encourage public participation
8. Build strong conservation fund

## APPENDIX

### Summary of Community Advisor Reports Relating to Conservation and Recreation

	<u>Number of Groups</u>	
	<u>Asset</u>	<u>Liability</u>
I. Conservation		
A. Assets/Liabilities		
1. Mt. Toby Area		
a. forest	3	0
b. mountain	1	0
c. State Forest	1	0
d. "Patties Village"	1	0
e. mountain & hiking trails	3	0
f. tower	1	0
g. development	0	1
2. Agriculture		
a. good agricultural soils	1	0
b. farms (agriculture general)	3	0
c. agricultural economy	1	0
d. summer farm employment	1	0
e. loss of agricultural land to development	0	1
3. Gunn-Whitmore area		
a. waterfalls	4	0
b. caves	3	0
c. area in general	1	0
d. Whitmore's landing & fossil site	1	0
4. Conservation elements		
a. wildlife	1	0
b. large quantity of open space	1	0
c. water quality	1	0
d. no polluting industry	1	0
e. all ponds	1	0
f. streams & brooks	1	0
g. floods	0	1

		<u>Number of Groups</u>	
		<u>Asset</u>	<u>Liability</u>
5. Historic assets			
a. central village	1	0	
b. historic houses	1	0	
6. Connecticut River			
a. river	1	0	
b. undeveloped shore	2	0	
7. Other assets			
a. view from Sugarloaf	1	0	
b. Green Swamp	1	0	
c. Long Plain watershed	1	0	
d. ledges above Bull Hill Rd.	1	0	
e. meadow off North Plain Rd.	1	0	
f. Sycamore tree	1	0	
8. Other liabilities			
a. channelling of Mohawk Brook	0	1	
b. conflict between conservationists and developers	0	1	
B. Proposals		<u>Number of Groups</u>	
1. Mt. Toby area			
a. leave wooded areas untouched except for forestry-product use (no clear cutting)		1	
b. no development on Mt. Toby		3	
c. "Slope and Erosion" control		1	
2. Agriculture			
a. tax breaks for farms & open space		1	
b. exclusive agricultural zoning district		1	
c. <u>no</u> exclusive agricultural zoning district		1	
d. "Open Space Community" zoning		1	
e. <u>no</u> "Open Space Community" zoning		1	
f. town search for farmers to maintain farms		1	
g. town search for new crops		1	

	<u>Number of Groups</u>	
3. Gunn-Whitmore area		
a. "Critical Resource" zoning	1	
b. no development within 500' of caves & waterfalls	1	
c. conservation area at Whitmore Pond	2	
4. Conservation elements		
a. protect valuable natural assets	1	
b. stream belt and wetlands system	1	
c. wetlands protected	1	
d. town option to buy any land to be sold	1	
5. Historic Assets		
a. Historic District	4	
6. Connecticut River		
a. river bank protected	1	
b. clean up river & bank	1	
c. no development below 130' U.S.G.S.	1	
d. no development within 100' of Connecticut River	1	
7. Other assets		
a. Plumtree wildlife area	1	
b. preserve Green Swamp	1	

## II. Recreation

	<u>Number of Groups</u>	
	<u>Asset</u>	<u>Liability</u>
A. Assets/Liabilities		
1. Developed Facilities		
a. School playground	1	0
b. Town Park	1	0
c. lack of school gym	0	1
d. lack of swim area	0	2
2. Extensive recreation		
a. Mt. Toby hiking trails	3	0
b. lack of marked trails	0	1
c. lack of bicycle paths	0	1



		<u>Number of Groups</u>	
		<u>Asset</u>	<u>Liability</u>
3. Access			
a. lack of access to Russellville and Mohawk Brooks for fishing	0		1
b. existing boat launch	1		0
c. lack of 2nd boat launch	0		1

B. Proposals		<u>Number of Groups</u>	
1. Developed Facilities			
a. Provide swim area			1
b. Join tri-town beach			3
c. Rte. 47 rest area			1
- with old landfill included			1
d. more tennis courts			1
e. expanded Town Park			1
f. parking area near Town Park for trails			1
g. playground-recreation area in southeast part of Town			2
h. Town park at 116-47 intersect			1
i. Park and reservoir off 116 at rest area			1
2. Extensive recreation			
a. Nature and Recreation trail			
- if not costly			1
- no motorized vehicles			3
b. Connecticut River islands for camping			1
c. Bike paths			1
d. Bike paths along Rte. 116 & 47			1
3. Access			
a. Access to Russellville Brook			1
b. 2nd boat launch			2
c. <u>No</u> 2nd boat launch			1

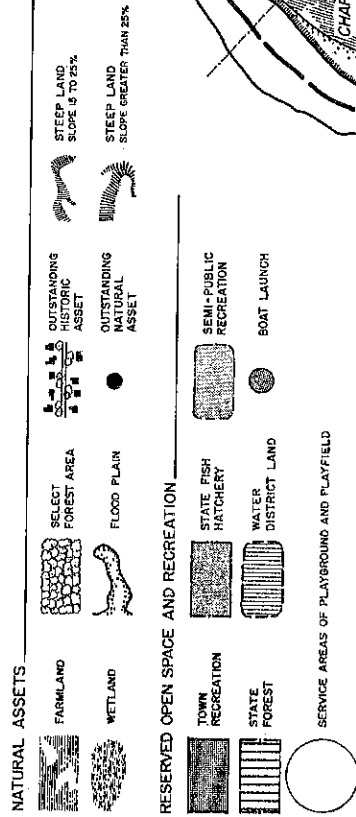
III. Beautification/Aesthetics		<u>Number of Groups</u>	
		<u>Asset</u>	<u>Liability</u>
A. Assets/Liabilities			
1. Junk along Connecticut River shore	0		1
2. Advertising signs along Rte. 116	0		1
3. Scattered junk sites	0		1

B. Proposals

Number of Groups

- |   |   |
|---|---|
| 1. Maintain high visual quality of the Town | 1 |
| 2. Visual barriers around apartments        | 1 |
| 3. Limit advertising signs along Rte. 116   | 1 |
| 4. Clean up Connecticut River shore         | 1 |
| 5. Place trash cans along highways          | 1 |
| 6. Clean up junk sites                      | 1 |
| 7. Plant trees at selected locations        | 1 |

# CONSERVATION AND RECREATION



MARCH 1973, REVISED APRIL 17, 1974

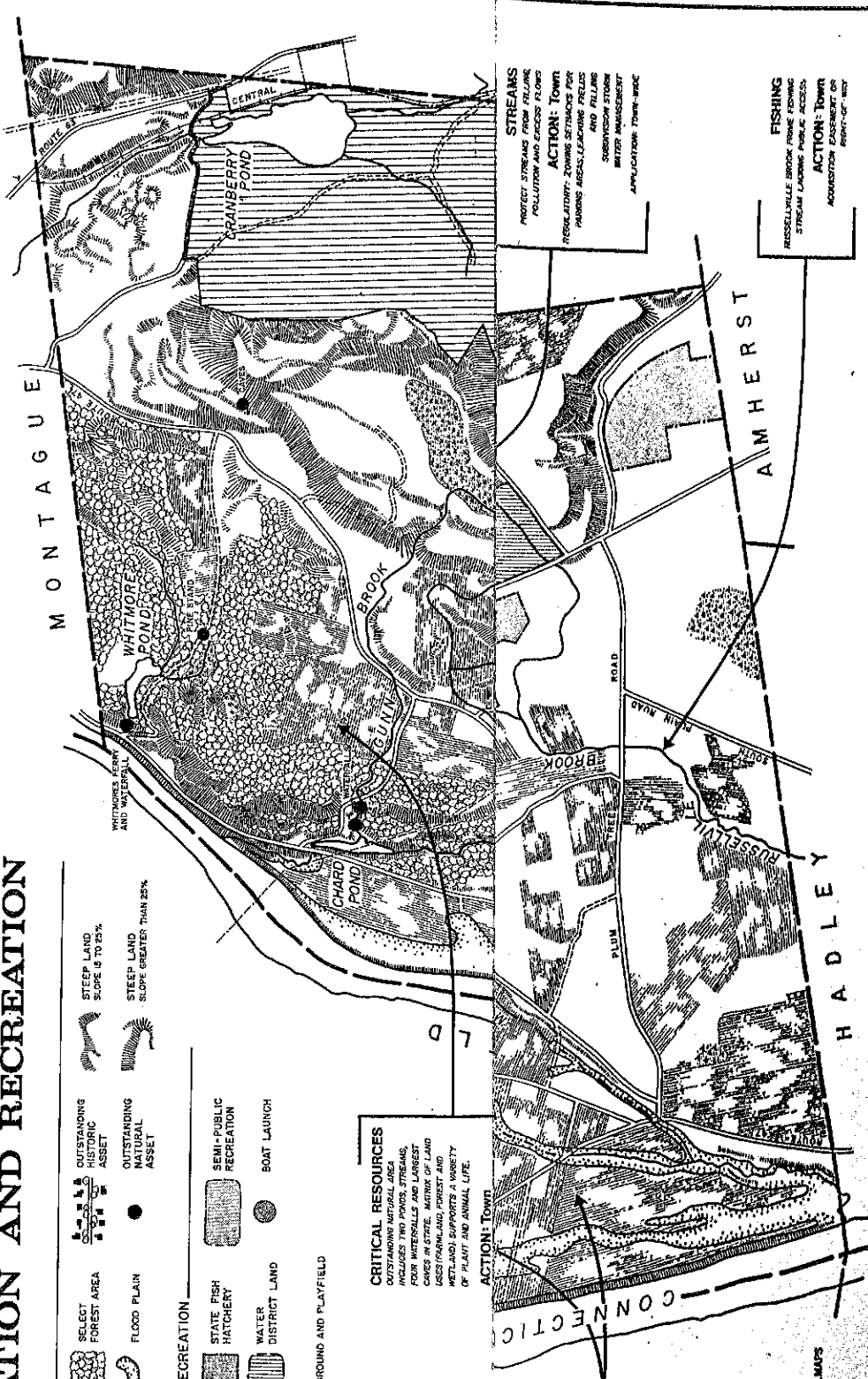
**OTHER RESOURCES**  
ENCOURAGE MINIMAL IMPACT OF DEVELOPMENT ON NATURAL RESOURCES AND VISUAL QUALITY

**PRIME AGRICULTURAL LAND**  
BROAD, FLAT BOTTOM LAND OF THE CONNECTICUT RIVER VALLEY MADE OF SOME OF THE SOILS MOST PRODUCTIVE IN THE COUNTRY AND SOME OF THE BEST IN NEW ENGLAND

**ACTION: TOWN**  
REGULATORY: ZONING, EASEMENT, SUBDIVISION, STORM WATER MANAGEMENT  
APPLICATION: TOWN-WIDE ONLY

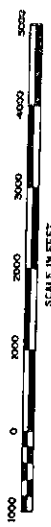
**CRITICAL RESOURCES**  
OUTSTANDING NATURAL AREA  
HATCHERY IN STATE STREAMS  
FOR WATERSHEDS AND FOREST  
CAGES IN STATE, NADIR OF LAND  
USES (FARMLAND, FOREST AND WETLAND), SUPPORTS A VARIETY OF PLANT AND ANIMAL LIFE.

**ACTION: TOWN**



**STREAMS**  
PROTECT STREAMS FROM FILLING POLLUTION AND EXCESS FLOWS  
**ACTION: TOWN**  
REGULATORY: ZONING, EASEMENT, SUBDIVISION, STORM WATER MANAGEMENT  
APPLICATION: TOWN-WIDE ONLY

**FISHING**  
RESERVE BROOK FISHING STREAM LACKING PUBLIC ACCESS  
**ACTION: TOWN**  
ACQUISITION, EASEMENT OR RIGHT-OF-WAY



**SUNDERLAND, MASSACHUSETTS • PLANNING BOARD**  
**PHILIP B. HERR & ASSOCIATES** - PLANNING CONSULTANTS - BOSTON

BASE MAP: PREPARED DEC. 1971 FROM U.S.G.S. MAPS  
REVISED DEC. 30, 1971 FROM AIR PHOTOS AND  
PHOTO FIELD SURVEYS

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## **Philip B. Herr & Associates**

COMMUNITY AND REGIONAL PLANNING

230 BOYLSTON ST., BOSTON, MASSACHUSETTS 02116 PHONE: 617 KE 6-5620

### **H I S T O R I C   D I S T R I C T S** **Sunderland Planning Board** **November 1972**

This report explains the history, purposes and administration of Historic Districts in Massachusetts as well as the possible application of this type of "zoning" to the Town of Sunderland. It is prompted by a number of indicators which show that there is an active interest in the town's historic character: a number of houses have been restored to near original historical condition, old houses have been marked with a plaque showing the date built and the original owner, and the Conservation Commission, the Recreation Committee, and the Planning Board have all given positive response to the suggestion for some sort of historic preservation for the town. But more than this is the fact that while Sunderland has two excellent volumes of written history for the town, the physical town itself, its houses, its roads, its farm lands and trees, is a living history, a history which complements the written in a way many other towns cannot match and which gives Sunderland so much of its character.

## HISTORIC DISTRICTS IN MASSACHUSETTS

The first Historic Districts in Massachusetts were those of Beacon Hill, Boston and the Nantucket Historic District, both created in 1955. Since then twenty four municipalities have adopted such districts, either under Chapter 40C of the General Laws or by special acts of the General Court.<sup>1</sup> These twenty four municipalities represent a variety of locations within the state, and in size range from Petersham to the City of Boston.

The purpose of an Historic District is to protect one or more areas in a town which the townspeople believe to be of particular historic or architectural significance to the country, state or the town itself. Architecture is included and is the usual focus of attention (although it need not be) because it is the usual artifact of the past which survives and shows a town's history. A group of buildings, their relationship to each other and their environs is often more significant than the buildings taken individually, and this is what Historic Districts try to protect. It is for this reason also that despite individual efforts to restore or maintain individual houses in original historic condition, loss can still result if the relationship of the different buildings and structures in area is not viewed as a whole, as something unique in the town and deserving of preservation.

The first step in establishing an Historic District<sup>2</sup> is for the Selectmen to appoint an Historic District Study Committee. This Committee, consisting of from three to seven members, is charged with inventory of the historic assets of the town (buildings, structures, sites, etc) and selecting one or possibly more areas to be designated Historic Districts. A preliminary report is then

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<sup>1</sup>See Appendix A for complete list.

<sup>2</sup>For a more complete description of how an Historic District is created see Guidelines for the Establishment of Historic Districts available from the Massachusetts Historical Commission, State House, Boston.

prepared which documents the reasons why the area the committee has selected should be so designated. After a public hearing a final report is submitted to the town. If the town, at town meeting, votes to accept the Historic District proposed by the Study Committee, an Historic District Commission is formed which administers the district.

The Historic District Commission, consisting again of from three to seven members but which is required by law to include at least one of the property owners from the district, administers the district by issuing either a certificate of compliance, a certificate of hardship or a certificate of non-applicability before any construction is allowed within the district that affects the exterior appearance or architectural features of a structure whose features are publicly visible.

A number of misunderstandings exist concerning Historic Districts which should be explained more fully here. First an Historic District Study Committee merely investigates and reports its conclusions and recommendations. The Town has the opportunity to both alter their recommendations, at public hearing, and to reject or accept them at town meeting. Creation of a Study Committee then, represents no final commitment by the town to the acceptance of an Historic District. Second, an Historic District Commission is often confused with an Historical Commission or an Historical Society. An Historical Society is a private organization and has no statutory authority. An Historical Commission is a town agency with statutory authority for a number of functions and which is responsible to the town. An Historic District Commission is the administrator of the town's Historic District, has statutory authority, is responsible to the town, and may include members from the Historical Commission and Historical Society since all three can exist in one town.

Third, Historic Districts are often referred to as a type of "zoning" and, in truth, they are quite similar in many respects, but the differences are substantial. A town's zoning by-law basically governs the use of land while Historic Districts govern the appearance of buildings, structures and surroundings. The following table illustrates this more clearly.

	Regulated Under	
	Zoning	Historic District
1. Use of land, structure	Yes	No
2. Building setbacks, yards heights	Yes	Yes
3. Architectural design	No <sup>1</sup>	Yes
4. Textures, materials	No <sup>1</sup>	Yes
5. Landscaping	Yes	No
6. Signs		
a. size, location, illumination	Yes	Yes
b. color, style	No	Yes
7. Color of buildings, storm doors and windows, window air conditioners, lighting fixtures, antennae, terraces, walls and fences	No	Optional
8. Reconstruction after disaster in same design	Yes	No
9. Interior arrangement	No	No
10. Ordinary maintenance not altering appearance	No	No

<sup>1</sup>Occasionally these are considered in the granting of special permits



An Historic District, then, governs only exterior appearance. This can be further restricted, if the study Committee recommends or the Commission itself so decides, to exterior appearance from designated public ways. Item 7 of the list is the result of the 1971 amendments to Chapter 40C which made that law more flexible and acceptable to a great many towns.

Another misconception about Historic Districts is that they will remove property from the tax rolls thus lowering the town's tax base. This is completely false. All property remains in original ownership and remains on the tax rolls. There are some indications although sparse, that an Historic District helps stabilize the property values within it, or actually increases them. This can be an additional benefit to the town as a whole.

For the people who live within a proposed Historic District there is often an initial concern and negative feeling for such a district. But once the district has been created and its regulations more fully understood they have usually supported it. Lexington for example started with a "district" consisting of only one building. Since then it has been extended and accompanied by lesser opposition and more support from those who live within the existing district. Nantucket has extended its District to include the whole island. The people there, noted for their individuality, have found Historic Districts a more adequate form of regulation than regular zoning, something which they have turned down time and time again.

But a town should not have to wait for support until after a District is created. The Historic District Study Committee at the very least should make every effort to inform the people of what an Historic District will do, how it will do it and what it won't do.





#### APPLICATION TO SUNDERLAND

The area along Main Street extending from about Silver Lane on the north to Old Amherst Road on the south is a potential Historic District in Sunderland (see map). This report explores only the possibility of such a District. It would be up to the Study Committee to decide the exact boundaries, what should be included and what should not.

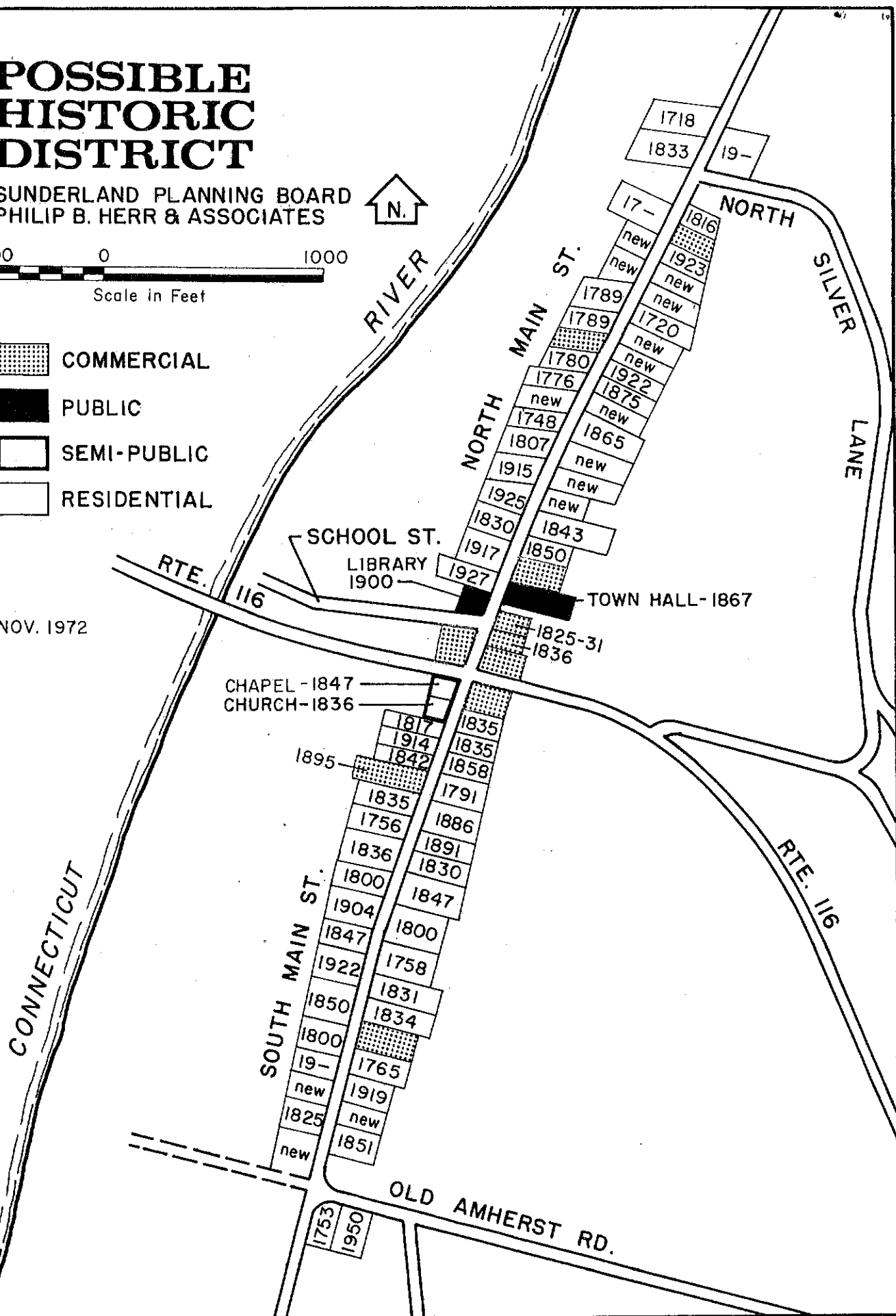
# POSSIBLE HISTORIC DISTRICT

SUNDERLAND PLANNING BOARD  
PHILIP B. HERR & ASSOCIATES



-  COMMERCIAL
-  PUBLIC
-  SEMI-PUBLIC
-  RESIDENTIAL

NOV. 1972



The area along Main Street is significant to the town for a number of reasons. First it is beautiful. Whether viewed from the top of Mt. Sugarloaf or from Main Street itself, the combination of old houses, broad street, and large, mature trees is striking.

Second, this area is where the first settlers of the town built their houses. Some of these original houses still survive. The typical Puritan method of town planning is evident in the grouping of the houses together, the church at the center and the farmland surrounding.

Third, this area has not remained static but rather shows that the town has grown and changed since 1718. There are varied architectural styles, from 1718 to 1970. There are examples of colonial, federal, Greek revival, victorian, colonial revival and 20th century styles, even including well executed ranch types. The list below shows the dates these buildings were built. It illustrates that there is very nearly a building from every decade since 1718.<sup>1</sup>

Decade	No. of Houses	Decade	No. of Houses	Decade	No. of Houses
1720	2	1800	4	1900	2
1730	0	1810	2	1910	4
1740	2	1820	2	1920	5
1750	3	1830	11		
1760	1	1840	4	1930-1970	12
1770	1	1850	4		
1780	1	1860	2		
1790	3	1870	1		
		1880	1		
		1890	2		

Century Total 13

33

23

Unknown - 9

<sup>1</sup> The dates have been drawn from the plaques on the houses as well as from the list by Edith Hubbard Warner in the History of Sunderland Massachusetts Volume II.

## CONCLUSION

Many historic districts are simply a concentration of houses, buildings or sites representing a single period in a town's development. Sunderland's would be unique. It would be an area at once both beautiful and a concise history of the town. This would require that the administration of such a District by the Historic District Commission be particularly sensitive to those qualities. Fortunately, the Commission would be able to rely on those residents who have restored their homes to original condition and those who have built newer homes in sympathy with the historical setting. An Historic District would enhance those residents efforts while assuring the town of the continuance of a valuable and significant town asset.

# APPENDIX A. HISTORIC DISTRICTS IN MASSACHUSETTS

CITY/TOWN	LEGISLATION
Bedford	Ch. 118, Acts of 1964
Belmont	Ch. 40C, Gen Laws, by-law 1972
Beverly	Ch. 40C, Gen Laws, ordinance 1971
Boston	
Back Bay*	Ch. 625, Acts of 1966
Beacon Hill**	Ch. 616, Acts of 1955
Beacon Hill**	Ch. 622 Acts of 1963
Boxford	Ch. 40C, Gen Laws, by-law 1970
Cambridge***	Ch. 40C, Gen. Laws, ordinance 1963
Carlisle	Ch. 40C, Gen. Laws, by-law 1969
Concord	Ch. 345, Acts of 1960
Groton	Ch. 40C, Gen Laws, by-law 1965
Hamilton	Ch. 40C, Gen. Laws, by-law 1972
Harvard	Ch. 40C, Gen. Laws, by-law 1972
Harwich	Ch. 40C, Gen. Laws, by-law 1970
Hingham	Ch. 502, Acts of 1966
Lexington	Ch. 447, Acts of 1956
Lexington	Ch. 185 Acts of 1958
Marblehead	Ch. 101, Acts of 1965
Nantucket	Ch. 395, Acts of 1970
New Bedford***	Ch. 40C, Gen Laws, ordinance 1971
Petersham	Ch. 211, Acts of 1966
Salem***	Ch. 40C, Gen. Laws, ordinance 1972
Sandwich	Ch. 40C, Gen. Laws, by-law 1965
Sharon	Ch. 40C, Gen. Laws, by-law 1970
Sudbury	Ch. 40, Acts of 1963
Wayland	Ch. 40C, Gen Laws, by-law 1965
Wenham	Ch. 40C, Gen. Laws, by-law 1972
West Springfield	Ch. 40C, Gen. Laws, by-law 1972
Yarmouth	Ch. 694, Acts of 1965

\*Back Bay Architectural Commission

\*\*Beacon Hill Architectural Commission

\*\*\*entitled Historical Commission

NB: All others are entitled Historic District Commissions

APPENDIX B: SAMPLE ARTICLE FOR ESTABLISHMENT OF HISTORIC DISTRICT  
STUDY COMMITTEE.

Article \_\_\_\_\_ To see if the Town will vote to direct the Selectmen to establish, under the provisions of Chapter 40C, General Laws, as amended by Chapter 359 of the Acts of 1971, an Historic District Study Committee consisting of not less than 3 nor more than 7 members, which shall make an investigation and report on the historic significance of the buildings, structures, features, sites, or surroundings included in such proposed historic district or districts as the committee may recommend, and shall submit a final report with its recommendations after a public hearing together with a map of the proposed district or districts and a draft of a proposed by-law, to the Town Meeting.

or act in relation thereto.

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### **D E V E L O P M E N T   C O N T R O L S**

Sunderland Planning Board

June 11, 1974

Development controls are usually the chief tool towns use for guiding growth, and are proposed for a key role in the Sunderland growth strategy. The town has available a whole array of controls. Briefly they are:

a. Zoning. This is adopted and amended by town meeting. It controls the use of land. A wholly new bylaw with several innovative features is being proposed, and is described later in this report.

b. Subdivision regulations. These are adopted and amended by the Planning Board, and control the division of land and the private creation of new streets. A wholly new set of regulations was proposed as part of this program, and have been adopted. The regulations are described below.

c. Building code. A new building code is scheduled to take effect January 1, 1975, for all municipalities in the state. This leaves no real town options.

d. Health regulations, especially re sewage disposal. These are adopted and amended by the Board of Health, and could conceivably tighten up on the uniform statewide requirements of the State Sanitary Code by increasing minimum standards for septic tank size, percolation rate, depth to water table, horizontal separations, etc. Such tightening is suggested, but hasn't been studied in detail in this program.

e. Historic District Commission. If adopted by vote of town meeting, this can control architectural appearance within selected districts. We have recommended it, and a local committee is, as required by statute if the town is to proceed, studying it.

f. Scenic Roads. The town meeting may designate roads not to be altered unless the Planning Board agrees that the alteration doesn't endanger trees or stone walls or other scenic qualities. The town is studying this.

## PROPOSED ZONING

The proposed zoning bylaw, shortly to be acted on, is reproduced separately. It is a wholly new bylaw, but draws upon the present bylaw for some of its content and language. Among the most important changes proposed are these:

a. Elimination of the "strip zoning" of R-20 along existing roads, and uniformly requiring 32,000 sq. ft. lots for the entire area outside the village center. Lot size requirements for most of the town's land area are unchanged.

b. Provision for clustering of development, allowing somewhat smaller individual lots, provided that a compensating amount of open space is reserved.

c. Multi-family units are to be allowed only as a part of cluster developments, and then only as part of a development which includes single-family homes.

d. An incentive system is included to encourage developers to compensate agricultural land owners for restricting their land from development, in return for which the developer is allowed more units on non-agricultural land.

e. A system is included to prevent developing on selected critical resources, such as the area around the Sunderland caves or the waterfalls, until the town has had a chance to purchase the land.

f. Commercial development guidelines have been strengthened, with revised parking controls, control over egress onto streets, increased front yard setbacks, and landscaping requirements. Commercial districts were deepened wherever feasible but not extended in frontage, so as to encourage development in depth.

g. Erosion controls are proposed.

h. Earth removal regulations are proposed.

i. Administrative provisions are clarified, especially with regard to the Board of Appeals.

## NEW SUBDIVISION REGULATIONS

The newly adopted Subdivision Regulations also make major departures from the present ones. The most important changes are:

a. Strengthened submittal requirements, including a thorough environmental analysis for larger subdivisions.



b. Refined design standards. Requirements vary according to how heavily used the road will be, and according to whether the development is on the steep mountain land or on flat land. Formerly, a single set of requirements applied everywhere, and were less thoroughly described than they now are.

c. Strict drainage control. Especially careful standards are spelled out for dealing with storm water.

d. Increased construction requirements. Bituminous concrete pavements are substituted for oil surfacing. Wiring must be underground. Again, many details are now spelled out where formerly only vague guidelines existed.

e. Design guidance. A set of design guidelines have been included, intended to persuade if not require developers to build in a way which is sympathetic to the varying qualities of the land.



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### C A P I T A L I M P R O V E M E N T S

Sunderland Planning Board

January, 1974

This capital improvements program is a listing of proposed public improvements which Sunderland might face over the next few years, their estimated costs, how they might be paid for, and their fiscal consequences. These projects have been compiled within the context of the Sunderland Master Plan, of which this report is a component. Each project is discussed in context more fully in the "Community Facilities Plan" and the "Utilities Plan" sections.

The major value of such a listing of capital projects usually lies in the aid it provides in "programming" necessary capital expenditures over a series of years as part of the Town's fiscal planning. We have found that there are other substantial benefits as well. First, this type of scheduling effort provides incentives and the framework for Town departments to regularly project their upcoming capital needs. (While one might expect that kind of planning to be going on in any case, in fact, it is frequently the capital improvements program which provides the impetus.) Having the departmental plans in a format which can be easily integrated provides important communication among departments themselves and between the departments and residents. (Again, effective communication within Town government cannot be just presumed to exist.) Finally, this type of analysis helps to provide a yardstick by which the Town can gauge its ability to afford various capital projects.

#### The Projects

Within this program, what we are considering as a capital improvement is any substantial public improvement of a non-recurring nature. As an example, Chapter 90 road construction is a recurring item. By "substantial", we mean any project with a total cost over \$10,000.

The largest capital expenditure Sunderland is likely to undertake in the foreseeable future is the new sewage treatment plant. This is now ready for construction and state and federal aid has been secured. The following is a breakdown of its initial financing.

<u>Total project cost:</u>	<u>\$1,682,000</u>
Tax levy	37,000
Federal grant	811,250 <sup>1</sup>
State grant	516,250 <sup>1</sup>
Borrowed (U.S.D.A. loan)	317,500 <sup>2</sup>

Financing is assumed to begin this year although it may not actually start until FY 1975 with the first payment on the loan due also in FY 1975.

The new landfill is assumed to be funded next fiscal year because of the urgency of the problem. The area north of Cranberry Pond has been tentatively selected as a site which the town will lease. Curran Associates estimates of initial capital costs, excluding land purchase, for this site are \$55,000<sup>3</sup>. We have assumed that \$5,000 will be put on the tax levy for FY 1975 and that \$50,000 will be borrowed for five years at 5.2% interest; the first payment on which will be due in FY 1976.

Other proposed capital improvements are:

1. Tri-town beach. The cost of buying into the Tri-town beach is not known as of this writing. \$30,000 has been allowed for this in the program and it has been scheduled second in new projects (see "Open Space and Recreation" report).

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<sup>1</sup>Federal and State commitment is for 90% of the eligible costs, estimated to be \$1,475,000

<sup>2</sup>U.S. Department of Agriculture loan is for up to \$500,000 at 5% interest.

<sup>3</sup>Curran Associates, Inc., Engineering Study for a Sanitary Landfill Town of Sunderland, Massachusetts, Northampton, Massachusetts: August, 1971.

2. Conservation fund. As recommended in the reports "Open Space and Recreation" and "Development Goals and Strategy" a strong conservation fund is necessary in order to allow the Conservation Commission to purchase land within the Critical Resource Zone. \$10,000 per year has been allowed within the program for this.
3. Gymnasium-office addition to the Elementary School. This has been proposed as the first step in a general improvement of the Town's community facilities. This would be followed by:
4. Conversion of Town Hall gym. This would add badly-needed office space to the Town Hall while providing adequate space for the Police Department. (See "Community Facilities Plan"). Total estimated cost for this is \$370,000: \$280,000 for the new gym-offices and \$90,000 for conversion of the old gym.
5. New Department of Public Works Garage. \$100,000 has been allowed for a new garage. Other options are being investigated however (see "Community Facilities Plan").
6. Acquisition of playground site. A site for a playground ought to be purchased in the southeastern section of Town (see "Open Space and Recreation" report). The cost is estimated to be \$15,000.
7. Frontier Regional School additions: At some point in the near future additions to the Frontier School will be necessary. We have estimated that Sunderland would be responsible for the equivalent cost of about one classroom. This amounts to \$180,000 based on \$6,000 per pupil for a 30 pupil classroom. State aid presently would pay for 65% of the total cost plus 65% of the interest on the amount borrowed. Sunderland would then be responsible for its full share of the debt although the annual cost of this debt would be less due to state aid which is given on an annual basis rather than in a lump sum or in two or three payments as in the case of the treatment plant.

Two alternative improvements schedules are shown. First, "Scheme A" lists projects about as rapidly as town officials could justify and prepare for them. Second, "Scheme B" lists only projects needed for health and safety, the sewage treatment plant and sanitary landfill, plus an "allowance of funds available for other projects within an arbitrary budget, set at \$7.00 net cost on the tax rate.

Table 1 shows the "Scheme A" improvements listed by the year in which they are to be financed. Table 2 analyses their impact on the tax rate. Table 3 analyses their effect on town debt. Table 4 illustrates the revenue and debt allowances under "Scheme B".

### Fiscal Consequences

The annual net cost on the tax rate of capital improvements jumped from about \$1.80 in 1972 to \$4.85 in 1973; due primarily to the cost of the new treatment plant. Under "Scheme A", building municipal improvements as rapidly as feasible, that cost would further increase to \$8.43 in FY 1979, more than 20% of the projected tax rate, a fairly high level.

The alternative is to set a limit to the net cost on the tax rate of capital improvements. We have arbitrarily set this limit at \$7.00. Using this limit ("Scheme B") a steadily growing capacity for undertaking new projects is developed, as existing commitments are paid off and assessed valuations grow. As shown by table 4 (line D.1) as much as \$67,146 in additional current costs could be committed by FY 1980 without exceeding \$7.00 on the tax rate. This would, for example, allow Sunderland to join tri-town beach, continue the Conservation fund and build the school gym-offices in FY 1976, and still be able to schedule the conversion of the Town Hall gym for FY 1978.

Sunderland has very little debt now. The new treatment plant will raise it to just over 3% of assessed valuation. A conservative limit is 5% of assessed valuation. Even under "Scheme A" this limit would not be exceeded.

The Town might well choose actions somewhere between the "fast as possible" "Scheme A" and the conservative "Scheme B". Either way or anywhere in between, a reasonable program for future years is affordable. In any year when the tax rate impact of capital improvements is less than \$7.00 money should be appropriated for the "Stabilization Fund". For example, in FY 1975 about \$7,000 should be appropriated unless projects in addition to those listed are approved.

### The Process

This report should be revised and updated each year. It should reach one more year into the future and gain in accuracy and completeness. Some towns have created Capital Improvements Committees but the Planning Board is given statutory authority for such a task. It has been suggested, and the Planning Board has agreed, that it should do this. The Capital Improvements program would then help coordinate town agencies' plans as well as aid the Planning Board in performing its prime function of planning for Sunderland's future.

Table 1  
CAPITAL IMPROVEMENTS SCHEDULE: Scheme 'A'

FY <sup>1</sup>	Project	Total Cost	Tax Levy	Initial Financing	
				Grants	Bonds
1975	Landfill	55,000	5,000	0	50,000
	Tri-town beach	30,000	30,000		
	Conservation fund	10,000	10,000	0	0
1976	Conservation fund	10,000	10,000	0	0
	School Gym & Offices	280,000	30,000	0	250,000
1977	Conservation fund	10,000	10,000	0	0
	Town Hall Conversion	90,000	9,000		81,000
1978	Conservation fund	10,000	10,000	0	0
	DPW garage	100,000	10,000	0	90,000
1979	Conservation fund	10,000	10,000	0	0
	Acquisition of playground site	15,000	15,000	0	0
1980	Conservation fund	10,000	10,000	0	0
	Frontier Addition <sup>2</sup>	180,000	20,000	0	160,000

<sup>1</sup>Fiscal Year: designated by the calendar year in which it ends:  
i.e., FY 1974 runs from July 1, 1973, to June 30, 1974.

<sup>2</sup>State aid is given annually. Initial financing is for the full  
Sunderland share without state aid.

Table 2

## ANNUAL COSTS OF CAPITAL IMPROVEMENTS: Scheme 'A'

	CY 1972	CY 1973	1/01/74 to 6/30/74	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980
<b>A. Pre-FY 1975 Projects</b>									
1. Sewer Construction									
a. Principal (July)	9,000	9,000	0	8,000	8,000	8,000	8,000	8,000	8,000
b. Interest (April)	4,774	4,424	4,074	3,759	3,544	3,129	2,814	2,499	2,184
2. Frontier Regional	4,130	3,966	0	3,802	3,639	0	0	0	0
3. Town Hall repair	4,340	4,170	0	0	0	0	0	0	0
4. Sewer treatment plant	0	37,000	0	32,000	31,200	30,400	29,600	28,800	28,800
5. Conservation Fund	0	8,000	0	0	0	0	0	0	0
TOTAL Pre-FY 1975	22,244	66,560	4,074	47,561	46,383	41,529	40,414	39,299	38,184
<b>B. New Projects</b>									
1. Landfill				5,000	12,600	12,080	11,560	11,040	10,520
2. Tri-town beach				30,000	0	0	0	0	0
3. Conservation Fund				10,000	10,000	10,000	10,000	10,000	10,000
4. School gym-offices					30,000	38,000	36,700	35,400	34,100
5. Town hall conversion						9,000	13,212	11,744	11,328
6. DPW garage							10,000	13,680	13,212
7. Playground site								15,000	0
8. Frontier addition				45,000	52,600	69,080	81,472	96,864	20,000
TOTAL New Projects									
C. TOTAL All Projects	22,244	66,560	4,074	92,561	98,983	110,609	121,886	136,163	137,344

Table 2 (cont.)

	CY 1972	CY 1973	1/01/74 to 6/30/74	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980
Projected Assessed Valuation (\$1,000)	12,514	13,734	13,734	14,250	14,900	15,300	15,700	16,150	16,550
Net Cost on Tax Rate									
A. Pre 1973 Projects	1.78	4.85	-	3.34	3.11	2.71	2.57	2.43	2.31
B. New Projects	0	0	-	3.16	3.53	4.52	5.19	6.00	5.99
C. All Projects	1.78	4.85	-	6.50	6.64	7.23	7.76	8.43	8.30
Projected Tax Rate	33.00	34.00	34.00	36.30	37.50	39.00	40.20	41.00	41.70
Capital Improvements share of tax rate (%)	5.39	14.26		17.91	17.71	18.54	19.30	20.56	19.90



Table 3

OUTSTANDING DEBT AS OF JANUARY 1 (CY)<sup>1</sup> AND JULY 1 (FY)<sup>2</sup> (Scheme 'A')

	CY 1972	CY 1973	1/01/74 to 6/30/74	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980
A. Pre-FY 1975 Debt									
1. Sewer Construction	122,000	113,000	104,000	104,000	96,000	88,000	80,000	72,000	64,000
2. Frontier Regional	26,180	19,635	13,090	6,545	0	0	0	0	0
3. Town Hall repair	8,000	4,000	0	0	0	0	0	0	0
4. Sewer Treatment plant	0	0	320,000	320,000	304,000	288,000	272,000	256,000	240,000
TOTAL	156,180	136,635	437,090	437,090	406,545	376,000	352,000	328,000	304,000
B. New Debt									
1. Landfill					50,000	40,000	30,000	20,000	10,000
2. School gym-offices						250,000	225,000	200,000	175,000
3. Town Hall conversion							81,000	72,000	63,000
4. DPW garage								90,000	81,000
5. Frontier Addition									160,000
TOTAL	0	0	0	0	50,000	290,000	336,000	382,000	489,000
C. TOTAL DEBT	156,180	136,635	437,090	437,090	456,545	666,000	688,000	710,000	793,000
Projected Assessed Valuation (\$1,000)	12,514	13,734	13,734	14,250	14,900	15,300	15,700	16,150	16,550
Debt Ratio (%)									
A. Pre-FY 1975	1.25	0.99	3.18	3.07	2.73	2.46	2.24	2.03	1.84
B. New Projects	0	0	0	0	0.33	1.89	2.14	2.37	2.95
C. Total	1.25	0.99	3.18	3.07	3.06	4.35	4.38	4.40	4.79

<sup>1</sup>Equal to debt as of December 31 previous year<sup>2</sup>Equal to debt as of June 30 previous fiscal year<sup>3</sup>Does not include state aid

Table 4  
Scheme 'B' BUDGET ALLOWANCES

	FY 1975	FY 1976	FY 1977	FY 1978	FY 1979	FY 1980
A. Projected Assessed Valuation (\$1,000)	14,250	14,900	15,300	15,700	16,150	16,550
B. 1. Revenue Capacity @ \$7/\$1,000 A.V.	99,750	104,300	107,100	109,900	113,050	115,850
2. Debt Capacity @ 5% of A.V. (\$1,000)	712	745	765	785	807	827
C. 1. Unavoidable Costs						
a. Pre-FY 1975	47,561	46,383	41,529	40,414	39,299	38,184
b. Landfill	5,000	12,600	12,080	11,560	11,040	10,520
c. TOTAL	52,561	58,983	53,609	51,974	50,339	48,704
2. Unavoidable Debt						
a. Pre-FY 1975	437,090	406,545	376,000	352,000	328,000	304,000
b. Landfill	0	50,000	40,000	30,000	20,000	10,000
c. TOTAL	437,090	456,545	416,000	382,000	348,000	314,000
D. 1. Revenue capacity minus unavoidable costs	47,189	45,317	53,491	57,926	62,711	67,146
2. Debt capacity minus unavoidable debt (\$1,000)	275	288	349	403	459	513

## APPENDIX

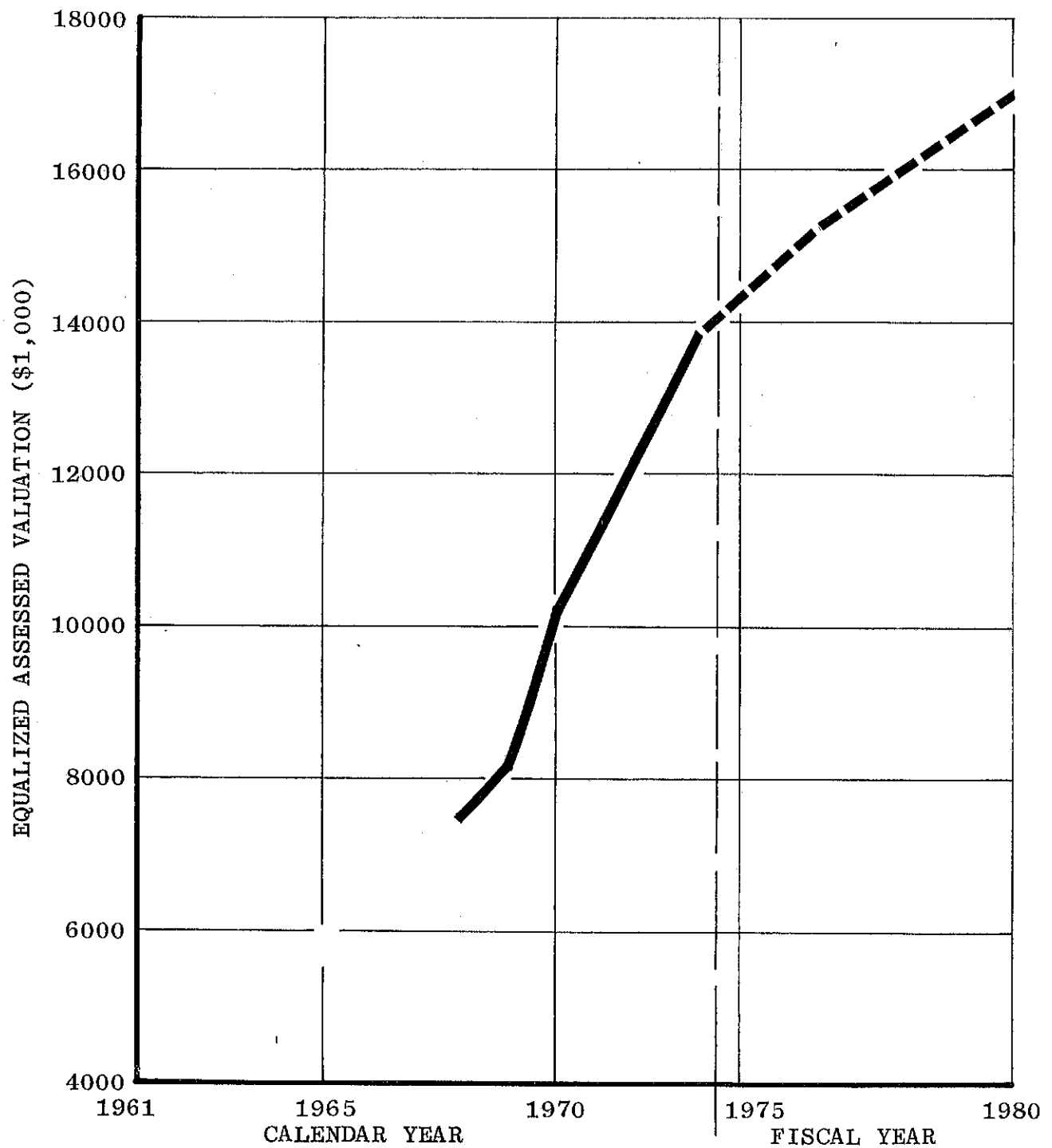
### Projecting Assessed Valuation

The method used in projecting the assessed valuation for Sunderland is a rather simple one, based on our expectation of the growth in new housing units over the next six years.

Figure one shows the actual equalized assessed valuation from 1961 to 1973 and our projections for Fiscal Years 1975-80. The steady and fairly rapid rate of increase over the past few years has been almost entirely due to new housing construction. This construction has averaged 120 new units per year over the past five years (113 multi-family and 7 single-family). The effects of the moratorium and new zoning regulations following that should be to substantially decrease this past rate of growth, at least to the level of our low projection of housing unit growth (see "Economy and Population", p. 28) for the period 1973-80 of 8 single-family per year and 59 multi-family per year.

This suggests that the increase in assessed valuation would also be at least about half of what it has averaged per year over the past five years. This would mean an increase of about \$600,000 per year average over the next six years. We have projected the valuation at slightly less, since even this still appears to be quite high.

Figure 1  
SUNDERLAND: Equalized Assessed Valuation  
Actual 1961-73 and Projected 1974-80



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### STATUS OF PLANNING GRAPHICS Sunderland Planning Board March 29, 1974

A number of maps have been prepared for the Sunderland Planning Board. "Reproducible" maps are on a translucent base material (primarily mylar), making Diazo or ammonia process prints feasible. Others have been drafted on opaque prints and must be reproduced photographically or by reflective light processes. Copies of reproducible maps can be made available at low cost; opaque maps cannot and are therefore essentially "non-reproducible".

#### MAP INDEX

Title	Scale <sup>1</sup>	Reproduced in Sunderland Master Plan <sup>2</sup>
REPRODUCIBLE MAPS:		
Topography <sup>3</sup>	1" = 600'	no
Street Base Map	1" = 600'	no
Soil Types	1" = 600'	no
Land Use (number coded, black & white version only)	1" = 600'	no
Water System	1" = 600'	yes
Sewer System	1" = 600'	yes
Conservation and Recreation	1" = 600'	yes
Zoning Map, Existing	1" = 600'	no
Zoning Map, Proposed	1" = 600'	no
Subdivision Districts	1" = 600'	no
Development Strategy Areas	none	yes
Possible Historic District	1" = 600' (8½" x 11")	yes

<sup>1</sup>Maps at 1" = 600' are 42" x 64" unless otherwise noted.

<sup>2</sup>At reduced scale and size.

<sup>3</sup>Photographic enlargement of U.S.G.S. maps with minor changes in streets added. This map is presently outdated by new U.S.G.S. quadrangle for "Mt. Toby".

REPRODUCIBLE MAPS:

Highway Functional Classification, Franklin County	1" = 2 miles	yes
Traffic Volume, Franklin County	1" = 2 miles	yes
Volume as Percent of Capacity, Franklin County	1" = 2 miles	yes

NON-REPRODUCIBLE MAPS:

Land Use (color coded)	1" = 600'	no
Soil Limitations for On-Site Sewage Disposal Systems	1" = 600'	no
Class I and II Agricultural Soils	1" = 600'	no
Landfill Areas Investigated	none	yes
Possible Water Improvements	none	yes