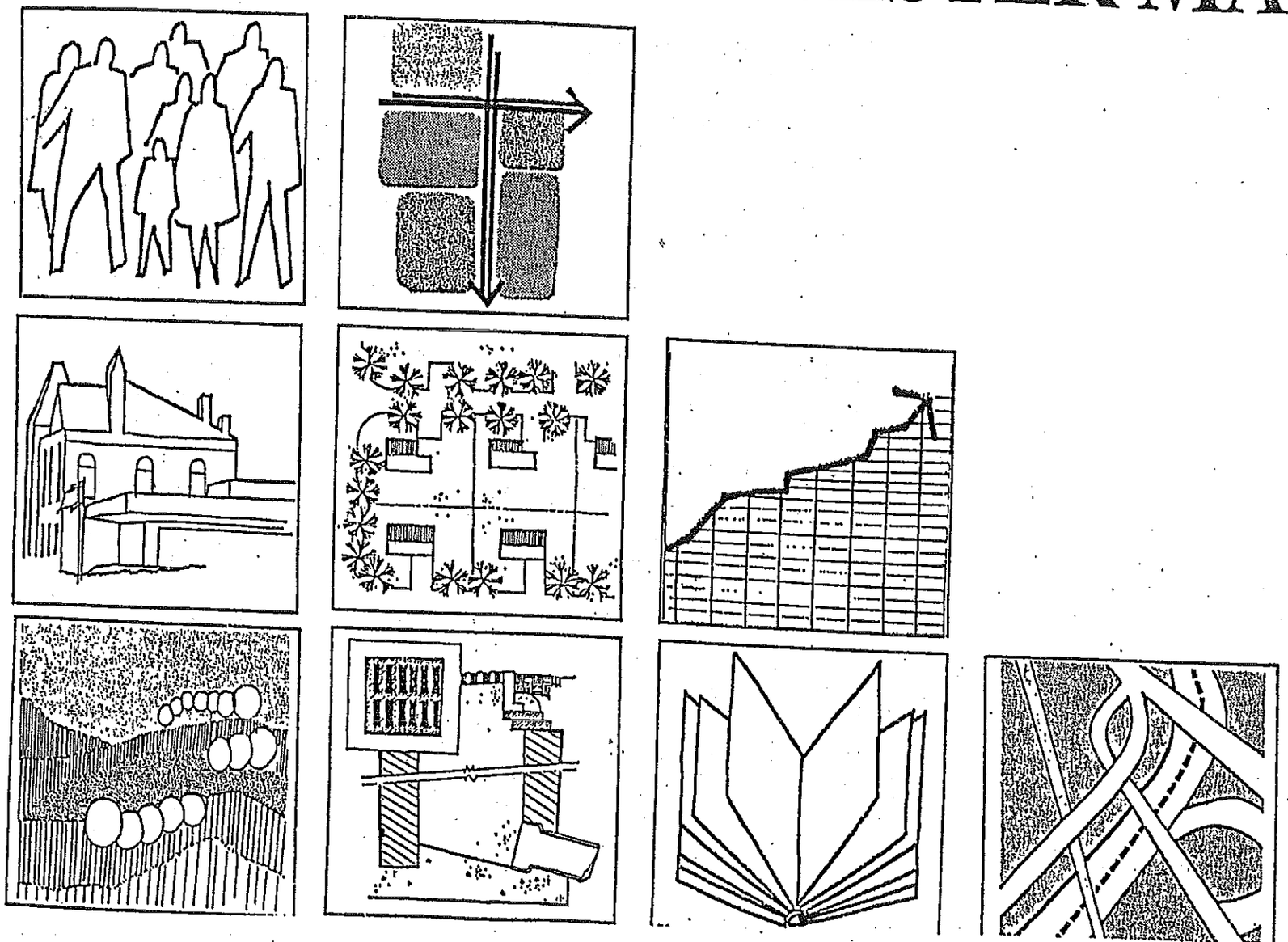
WORCESTER MASTER PLAN



June, 1987

Worcester Master Plan

To the Citizens of the City of Worcester:

It is with pleasure that the Worcester Planning Board presents you the Master Plan for the City of Worcester. Worcester is unique in this effort, and in the emphasis placed on making this a plan which will work. The plan is the result of a year long effort on the part of numerous officials, committees, businesses, organizations, neighborhoods and citizens, in concert with the City's consultants. The approved plan will provide strategic guidance to all sectors of the city, as Worcester plays a leadership role in its region and the state in coming years.

The development of the Master Plan has provided the opportunity for the citizens of Worcester to think about the aspects of the city that make it special. In large and small groups, at formal and informal meetings, people have talked about what is most important to them in the city. The Master Plan describes those things about Worcester which her citizens have identified as important and special. It identifies the places that are important to defining these qualities and suggests ways in which Worcester can enhance and extend these special attributes with thoughtful planning and innovative programs.

The Master Plan approaches its task by describing the guiding concepts of the plan, then approaching specific recommendations both functionally and geographically. Seven functional areas and thirteen geographic planning areas provide the structure for the plan. Implementation strategies are summarized in the Implementation section.

The Master Plan is a dynamic policy guide. Rather than being cast-in-stone, it establishes a framework for decisions now and in the future. It sets forth a coherent set of policies. It provides for continuous evaluation and, when appropriate, change of the policies and the plan. Indeed, it is our intent to review and update the plan annually. Thus the Master Plan enables decision makers to both guide and respond to change, now and in the future.

We look forward to working with all sectors of the community as we move forward to implement the Master Plan and participate in Worcester's development in the coming decades.

Ralph D. Crowley, Sr., Chairman

Frank DeFalco

Deborah A. Kaufman

John F. Keaney

Joan Sadowsky

June, 1987

Worcester Master Plan

SUMMARY

CONTENTS

Worcester is the heart of Central Mass

Master Plan has four sections

pathways & nodes

7 Areas of Special Development Significance

housing

open space

Worcester is located in the heart of central Massachusetts. Historically a manufacturing community, the city experienced population loss during the mid-20th century. A recent resurgence in economic activity has been accompanied by considerable construction, especially of housing. As a result, a major planning effort was undertaken beginning in the spring, 1986. Technical studies were undertaken, and workshops and meetings held throughout the city during the following.summer, fall and winter. This document, and the reports, briefing papers and implementing mechanisms which inform and support it, is the outcome of the planning process.

The Master Plan is organized in four sections...

- ***Guiding Concepts*** set for the framework for the plan
- ***Functional Areas*** report the status of key operating components of the city
- ***Planning Areas*** reviews the needs of the 13 geographic areas of the city
- ***Implementation*** recommends various zoning and programmatic strategies

There is an *Annotated Index* at the end of the document which identifies plan components by topic, and provides a page reference.

Worcester's natual environment is the key mechanism to organize the city. The city 's 38+ square miles provide a feeling for both city and country. The city's system of **pathways and nodes** have evolved in response to the dominant role which the city's hills and valleys have played in shaping the form of the built environment. Enhancement of the *pathway and node* system to make it conceptually and visually transparent will convey the hierarchy of places and paths in the city. Three especially important *pathways* are the *Route 9 Greenway*, *Route 146* and *Shrewsbury Street*. The *Downtown* is a particularly important node.

There are seven important areas in the city which will significantly contribute to its future development. These areas, called ***Areas of Special Development Significance***, include *Downtown, UMass/Biotech Park, Webster Square, Route 146 corridor, Tatnuck Square, The Summit* and *Perkins Farm*. By virtue of this special designation, each has the possibility for flexible regulatory treatment, enabling the City to prompt sensible and acceptable development consistent with its goals.

The existing housing stock of Worcester provides a rich mixture of all types and architecture. Worcester's three-deckers are a traditional source of affordable housing, while its managers and executives have found appealing single-family homes within the city's borders. The housing market is experiencing strong demand, accompanied by price increases. A viable approach to meeting affordable housing goals is a continued focus on the existing stock. An *Owner-Occupant Sales and Purchase Assistance Program* could act as a vehicle through which the City's technical assistance can be focused, and existing resources (especially banks) marshalled. A variety of special housing possibilities require attention, including elderly and other special needs groups, continuing care retirement communities, downtown and infill housing, and the homeless.

Open space serves social, economic and environmental objectives. The city is blessed with a fine heritage of parks, including Elm Park as the first in the country acquired with public funds. Park improvements are needed, together with the acquisition and/or protection of 10 priority sensitive open space sites. Improvements in the *pathway and nodes* system can enhance the amount and quality of open space in the city.

Worcester has a strong and diversified economy which has shifted from manufacturing to medical/service activity. The city is substantially integrated into the regional economy, with 25% of its employed population working outside the city limits. This stable economic base will continue to be affected by US business cycles, but it will have low rates of unemployment as compared with the nation, though rougly comparable to Massachusetts as a whole. Worcester's economic future will be built on *incremental* expansion of existing service and manufacturing industries and *incubation* of new companies, especially in the bio/medical field. The airport will play an increasing role in serving the needs of Worcester and the Central Massachusetts region.

now a medical/service economy

The City's infrastructure is in need of continued capital expenditure. A variety of strategies may be appropriate to reduce demand on the water and sewer system. The creation of a Water and Sewer Authority is one mechanism which can address the financing issues of the system. The transportation network of the city also requires improvement, much of it in relation to the *pathway and nodes* system. Improved access to Downtown and the airport is important for Worcester to retain its key regional role. The Route 146 Corrior is a key to the future. The community facilities in the city contribute considerably to its quality of life. School, fire and police departments are active service providers. The city has 8 hospitals, including the UMass Medical Center. There are 9 colleges within the city. The city has a strong and expanding cultural community, with such substantial resources as Mechanics Hall, the Centrum and the Art Museum.

infrastructure, transportation & community facilities

The 13 Planning Areas are a means to identify and guide planning and development issues. The areas are *Airport, Brittan Square/Lincoln, Burncoat/Summit, Downtown, Hadwen Park/Jamesville, Indian Hill, Main South/Cambridge Street, Quinsigamond Village, Salisbury/Flagg/ElmPark, Shrewsbury St/UMass, Sunderland/Massasoit, Tatnuck* and *Vernon Hill/Grafton Hill.* Though each has a distinct set of qualities and needs, some broad themes emerge. These include a need to stabilize and reinforce existing housing, the importance of the *pathways* and *nodes* in structuring the city, and the care to be given to review and shepherding of development initiatives in both existing and new areas.

13 Planning Areas

As the City meets the challenges of the future, it must be prepared to continue to provide the most competent and professional services possible. One method for doing so is ensuring that the costs are fairly distributed, so that benefits and costs balance. Equitable fees will meet this objective, as will payments *in lieu* of taxes by appropriate non-profit and tax-exempt entities. The City's zoning ordinance needs to provide means to *accommodate* development in built-up areas, and *flexibly* guide development in new areas. Site-specific development proposal review is critical for any development which will affect the city. Clustering is an appropriate strategy for much new development, as it provides for environmental sensitivity. Transferable development rights will aid in channeling development to desired locations. Historic and preservation districts will aid in ensuring the continued vitality of the city's built heritage. Inclusionary zoning will help in meeting affordable housing objectives in new construction.

key implementing actions

While all of this is certainly ambitious, it is entirely attainable. It represents a sound invesment of the City and its people in a solid and creative future.

ambitious, attainable

INTRODUCTION

diverse manufacturing city

Worcester's evolution

a medical/service economy

popula'on increasing

The City of Worcester is located in the heart of central Massachusetts. The city's early settlers were drawn to the location by its dramatic topography and abundant natural resources. The city 's 38+ square miles of land area are characterized by hills and valleys, and the waterways and waterbodies found among them. Lake Qunisigamond on the east, and Coes Reservoir/Pond, Curtis Pond and the Cascades descending from the Holden Reservoir on the west are prominent and defining water bodies. With some 500' difference in elevation between the lowest and highest points in the city, there are a host of places throughout the city providing compelling views and appealing locations to live and work.

Like many of the communities in Massachusetts, Worcester's growth pattern is connected with Boston. Early community leaders such as Stephen Salisbury, the merchant, and Aaron Bancroft, the minister, came west from Boston in the early 19th century. The Salisbury family was, for three generations, a major force in the city's commerce, and left a legacy of public parks and institutions. Bancroft served over 50 years as leader to one of Worcester's major parishes, while his son George went on to become Secretary of the Navy, eulogizer of Lincoln and creator of the American Beauty rose. Some 40 miles west of Boston, Worcester has served throughout its history as a focal point for its region. **Much of Worcester's development during the late 19th and early 20th century was linked to its abundant water resources.** A diverse group of major manufacturers emerged from Worcester's version of the country's industrialization. Manufacturing remained the dominant economic force in the city through the mid 20th century, with such major companies as Norton and Wyman-Gordon continuing as major employers to the present. However the manufacturing sector began to experience decline in the 1970s.

Today, Worcester is the dominant force in an even larger region. However, its function has changed significantly. Worcester is no longer a manufacturing community, nor is it any longer dormant or declining. Moreover, ***Worcester is not changing, it has changed.*** Since 1970 manufacturing employment has dropped from nearly 50% to about 25% of total employment, while services/finance has jumped from about 19% to over 40%. Worcester's top ten employers provide about 1/3 of the jobs; only one of them is in manufacturing, while three are medical institutions. The city also is home to two major insurance companies, and several major banking establishments. The 1970s saw the construction of Worcester Center and the Shawmut Bank Tower, dramatically changing the face of the city's downtown. These changes were further reinforced with the completion of the I-290/I-190 network through the city. Some 25% of employed city residents work outside the city. All of this means that Worcester is a multi-faceted service-based economy with a significant leadership role in its region and the state.

Worcester's population in many respects followed the fortunes of its economy. From a peak of roughly 210,000 residents in 1950, Worcester experienced steady population decreases for three decades, with a reported 1980 population of just under 162,000. Worcester's region absorbed a goodly portion of the city's population decrease, showing steady increases to an estimated 1986 population (including the city) of 380,000. The latter part of the current decade has seen indications of a major reverse in the city's fortunes, with considerable development and population growth. Worcester's estimated **1986 population is nearly 165,000.** A certain amount of this increase is attributable to in-migration by a professional/technical workforce participating in the service-based economy of both the city and its broader region.

The housing for Worcester's residents provides a **rich mixture of types and style.** With so much of Worcester's history linked with its manufacturing base, it is not surprising to find a wide array of housing geared to workers. Many of the city's neighborhoods present appealing mixtures of three-decker architecture, a form which continues to provide good quality affordable housing. The appealing natural features and total land size of the city has provided for a larger and attractive stock of single-family detached housing for the professionals and executives of the companies, hospitals and service organizations of the city and region. Indeed Worcester is unique in providing within its borders a diversity of living choices ranging from highly urban to sprawling rural, thus accommodating a variety of lifestyles.

mixture of appealing housing types

Just as the hills and valleys of the city provided appeal to manufacturers, so also did they draw educators. Worcester has within its borders **nine colleges,** including three--Holy Cross, Clark University and Worcester Polytechnic Institute--of substantial national reputation. The total student population is approaching 20,000. Several of the educational institutions focus on vocational education, including continuing and adult education. The City itself has a sizable vocational education system, operating in parallel with the general school system. Also among the city's educational institutions is the University of Massachusetts Medical Center, with 400 students and a major teaching hospital providing medical services to Worcester and its broader region. There are also seven other hospitals in the city, providing skilled and ample medical care.

many colleges and hospitals

Adding to the city's quality of life are its **many cultural opportunities.** Worcester's Elm Park holds the distinction of being the first public park on which public funds were expended. The city operates 46 additional parks, totalling 1255 acres, and providing a wide range of open space and recreational possibilities. Mechanics Hall, recently completely restored, hosts diverse events of a more classical vein, while The Centrum is the setting for activities ranging from rock concerts to boat shows. The city is blessed with an array of collections and exhibition space, including the Worcester Art Museum and Higgins Armory Museum.

cultural opportunities

In short, **Worcester is a city with a strong and proud tradition, a compelling natural environment, a stable economy and a diverse built environment.** The shift in the economy which began in the early 1970s gave rise to the dramatic resurgence in construction activity, especially in the residential sector, of the mid-1980s. That activity was of sufficient size and impact as to prompt the City's decision makers to undertake a major evaluation of the nature and evolution of the city. This document, and the technical studies, briefing papers and implementing mechanisms which inform and support it, is the outcome of that decision.

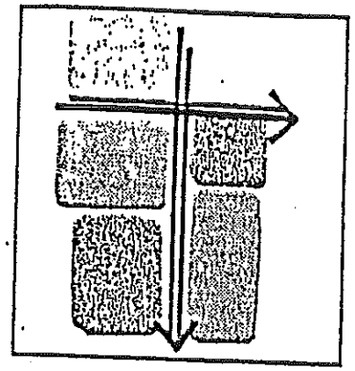
resurgence prompts planning and action

The **Worcester planning process** began in spring, 1986, with the approval of funds to retain a consultant. Active work on the project was initiated in summer, 1986. Through the summer, fall and winter, technical studies were undertaken, and meetings and workshops were held throughout the city. A series of reports and briefing papers were issued, covering a wide range of topics, policy and program options. A *draft* Master Plan was issued by the Planning Board for public review and comment in March, 1987. A new Zoning Ordinance for the City, grounded in the policies and concepts of the Master Plan, is another product of the process. It is important to underscore that this is a *dynamic* plan. It establishes a direction for the City. It necessitates continuous evaluation and update. It requires the continued commitment of all of Worcester.

The Worcester planning process

GUIDING CONCEPTS

CONCEPTS



city formed by its geography

uses integrated throughout

The development of a Master Plan provides the opportunity for a community to think about the places it considers particularly *special*. The preparation of the Master Plan for Worcester has afforded this opportunity to the city's residents. In large groups and small, formally and informally, but always with great passion, Worcester's citizens have talked about what is most important to them. Much of this discussion began to find focus in the debates of the summer of 1986 over the building moratorium. In varying forms, with greater or lesser degrees of clarity, virtually every speaker, pro or con, talked about the importance of Worcester's heritage of both open space and built form. While some talked about specific environmental issues, citing studies and presenting technical arguments, most of those pleading for "open space" or a "halt to the harms of development" seemed mainly to be saying something about *a sense of what makes Worcester special.*

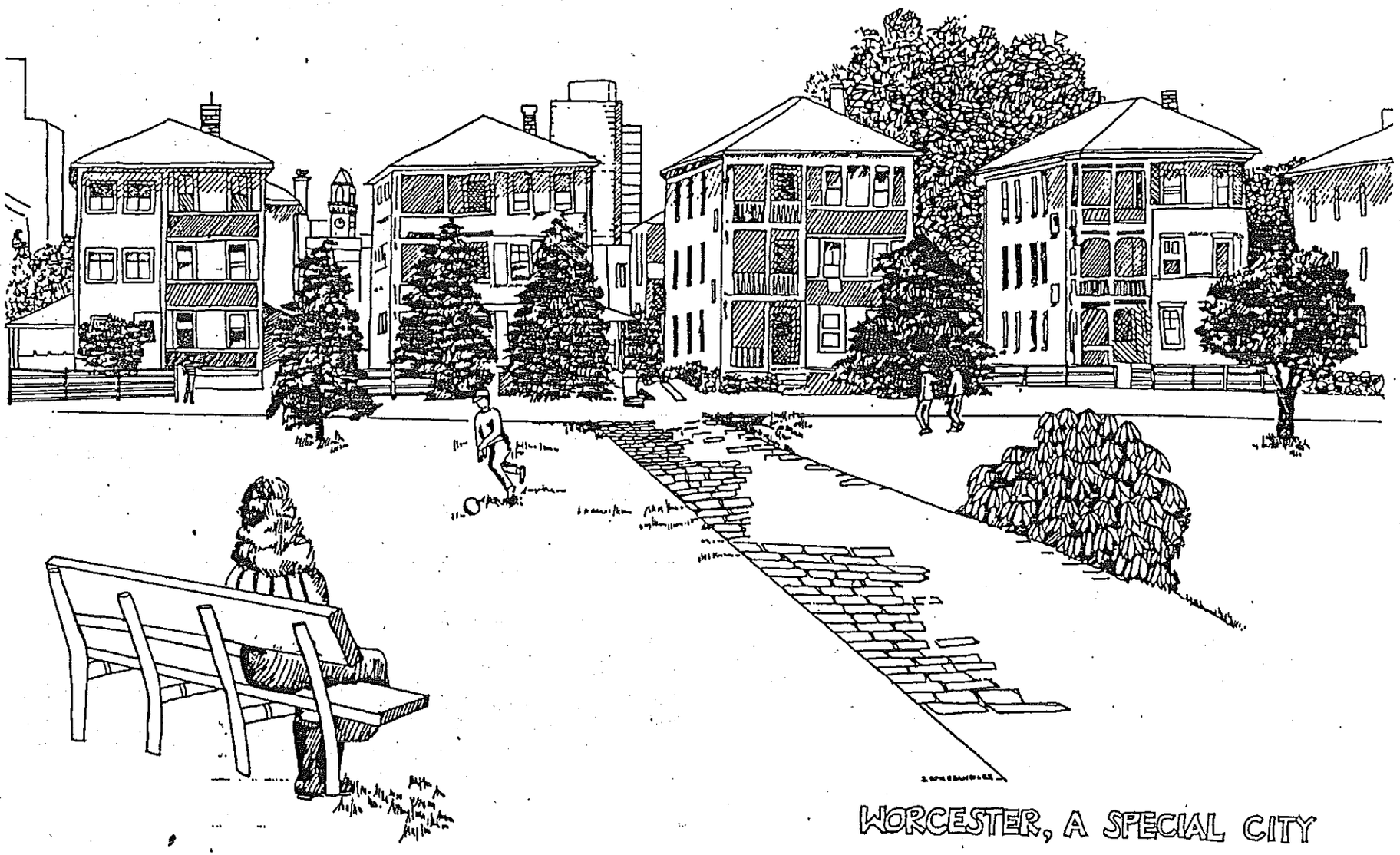
That sense appeared again and again in subsequent meetings and workshops held around the city to discuss the Master Plan. Worcester residents seemed to be groping for some definition of the meaning of their city. It always carried with it some comment about Worcester being *a good place to bring up a family, to work* and *to have a long and enduring life.* Speakers often had very clear connections with parts of the city, where they had grown up, where they live and work now, where others important to them live and work. Yet few could present images and descriptions of *places* (small or large) with the same vividness and passion as they talked about *people* and events. Interestingly, however, descriptions of places were easier to do for times in the past, especially prior to the construction of the major Interstate highway system through the City.

All of this poses the question...

- What is special about Worcester?

Worcester is a city formed by its geography. Its manufacturing heritage used the city's water resources as part of the production process. Plants located in valleys; workers found housing in the hills around the plants. The multitude of hills made it possible for various ethnic groups to find housing in contiguous and readily definable neighborhoods. With a large proportion of Worcester's families Catholic, the spatial organization of parishes further reinforced clearly-defined areas.

This clustering of Worcester's residents into homogeneous neighborhoods with clear spatial orientations was further reinforced by transportation and housing patterns. Roadways and public transportation were structured in ways which accommodated to Worcester's dramatic topography. A few distinct roads crossed or skirted Worcester's hills, connecting its several residential areas to the places where people went to work or shop. Housing, especially for the large working class that was employed in Worcester's many manufacturing facilities, was relatively dense. Open spaces, including parks and playgrounds, were integrated into the fabric of Worcester's neighborhoods, as were schools. The overall sense was of a city providing a place for *families* to live and work, with relative ease of access to all its activities and services.



WORCESTER, A SPECIAL CITY

All of this background is important because it helps explain what the residents of Worcester sense as special about the city. That is, it is a city of housing for families. This family housing is clustered in places defined by hills, which in turn are tied together conceptually because the hills are linked by pathways also established by geography.

There are a variety of ways to reinforce and build upon a community's sense of what is special. The common thread among all the mechanisms is:

- definition of what is special
- identification of where this occurs.

downtown as special place

Downtowns typically are special places. They have a variety of reasons for such special designation, including economic function, seat of government, historic events, places and/or buildings, and symbolic role in representing the city to its residents and the outside world. The ***symbolic*** **function** of a downtown also points out the reason for designation of other special areas, namely the *connotations* of such places in providing form and structure to a city's residents and visitors. These places are the anchors and links of a *cityscape.* The important places of a city are its ***nodes.*** The important connections between these *nodes* are ***pathways.*** *Pathways* and *nodes* are what enable a city to have a vivid image, for residents and visitors. They provide clarity for movement within the four environments of a city--natural, built, institutional and economic. At particular points in time the interaction of these four environments generate a focus on ***Areas of Special Development Significance.***

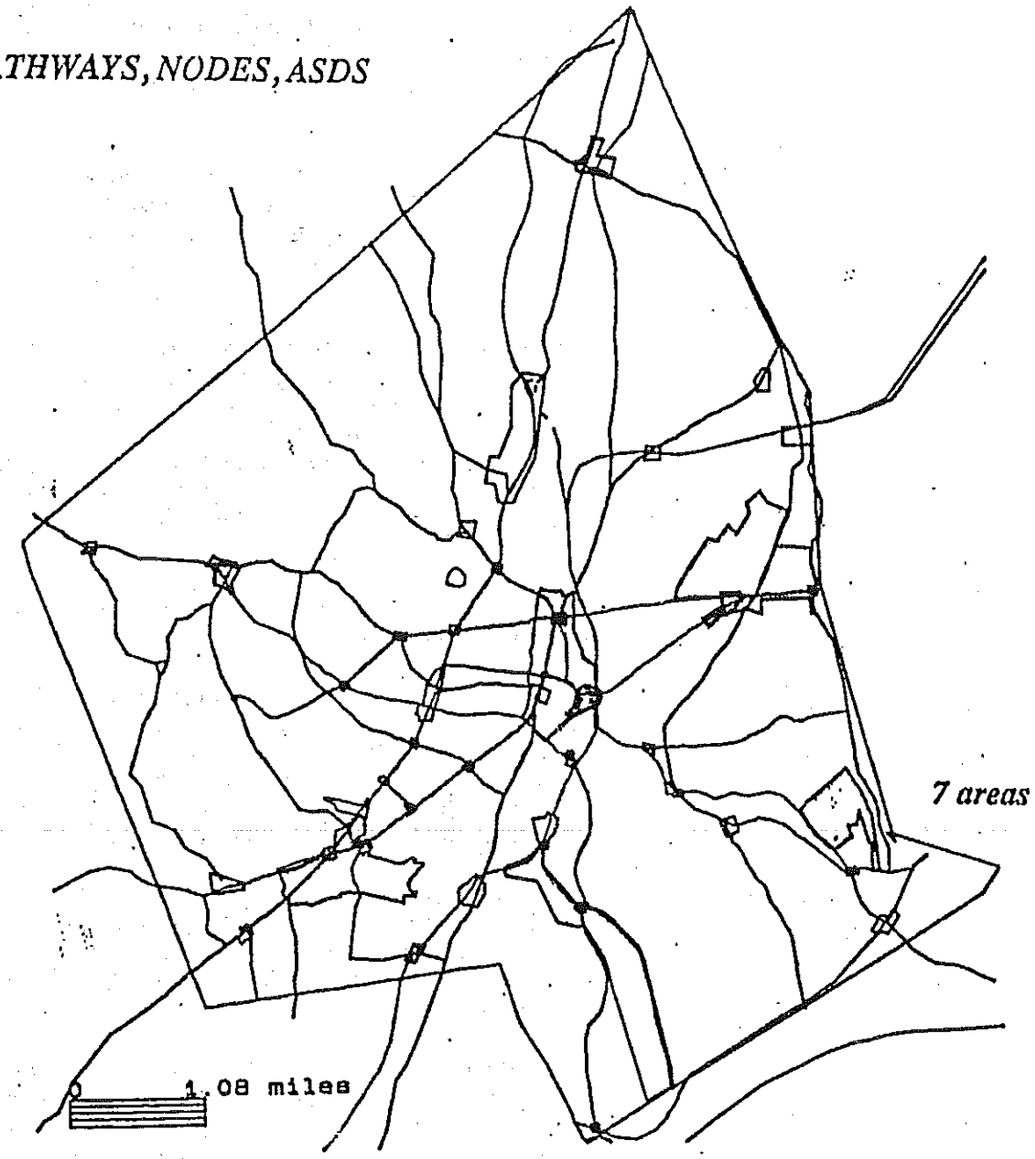
nodes & pathways

Worcester's 38+ square miles of cityscape are dominated by its hills and valleys, and the ways in which they have been linked for the transportation of goods, services and people. There is a difference of 550 feet between the highest and lowest points in the city. There are 13 definable hills, each with different and substantial elevation. There are two major waterway systems traversing the city, each linking major water bodies. What this has meant over the course of Worcester's development is the evolution of a system of ***nodes*** and ***pathways*** that have emerged from Worcester's hills, valleys and waterways. These *nodes* and *pathways* have served to structure Worcester's cityscape, with the *nodes* providing anchors in the built environment to counterbalance the hill-dominance of the natural environment. Similarly the *pathways* of the built environment (roads) serve to link the hills and the valleys/waterways of the natural environment. Thus the *nodes/pathways* of Worcester's built environment are ***resonant*** with the hills/valleys of its natural environment.

city resonant with hills & valleys

The evolution of the City's *node/pathway* structure proceeded more or less organically. That is, nodes and pathways got bigger as demand increased, with the increase in size usually incremental. Locations were constrained by the natural environment and, over time, by the built environment. A hierarchy of *nodes/pathways* also emerged, reflecting the relative importance of the places and links between and among the places.

PATHWAYS, NODES, ASDS



pathways & nodes function for regional, city, neighborhoods

7 areas of special development significance

ASDS are key focus for coming years

mixed uses desirable

creative ways to achieve public policy

Areas of Special Development Significance (ASDS) are so designated because they have meaning or hold promise for the city for multiple reasons. Downtowns typically fall into this category. Worcester's downtown is no exception. Other *ASDS* are designated because of their immediate importance to the scheme of the city's development. At present the seven ASDS in the City are...

- *Downtown*
- *Route 146 corridor*
- *UMass/Biotech Park*
- *Webster Square*
- *Tatnuck Square*
- *The Summit*
- *Perkins Farm*

The map on page 9 identifies the portions of the city which are in each of these areas.

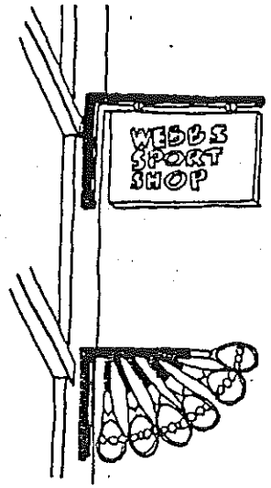
From a planning and regulatory perspective, the common characteristics of the seven areas is that they have multiple uses and great potential. Development of the seven areas has been and will be of special signficance to the city. Each can be divided into smaller sections; each has *nodes* and *pathways* which are part of the cityscape system. The overlay of an Area of Special Development Significance designation permits the City to achieve several purposes:

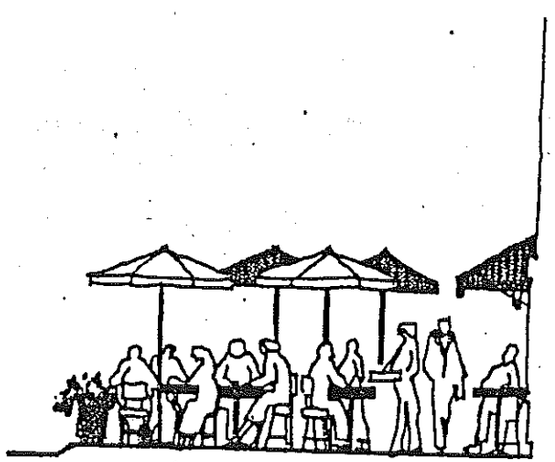
- Development regulated by the overlay criteria can mix uses, rather than be limited by the criteria of the single, underlying zone.
- Development activities consistent with public objectives can be dealt with creatively and innovatively. The greater the achievement of public objectives, the more latitude can be given in terms of incentives.
- Special standards applicable to all development can be used.

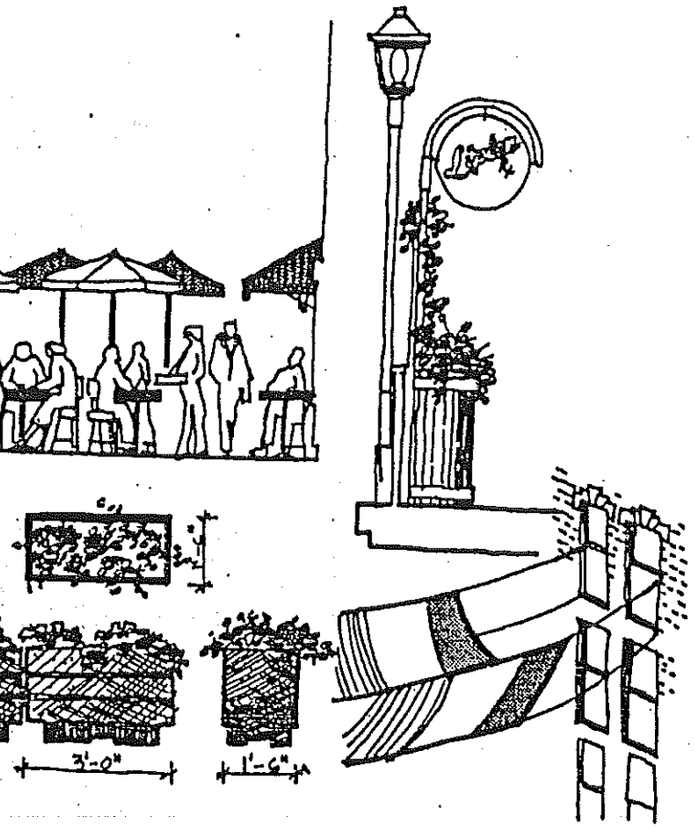
For example, in designating the Downtown as an *Area of Special Development Significance*, the following could occur:

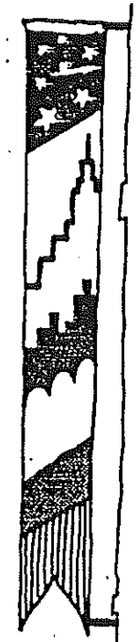
- Retail, office, residential and built public open space could be mixed in a single structure.
- Developments using air-rights development in designated areas and/or provide publicly-accessible roof gardens could have density bonuses.
- All downtown buildings could be required to have sculpted rather than flat tops; none could be of the same height.

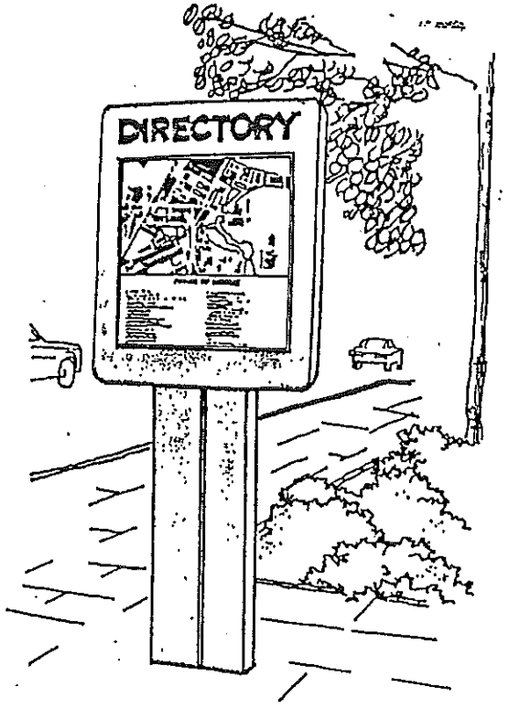
These achieve more intense and round-the-clock activity for Downtown as well as providing affordable housing, the construction of public spaces without expenditure of City funds, and a downtown skyline that harkens to the profile of the city itself with many hills reaching their peaks at different elevations.

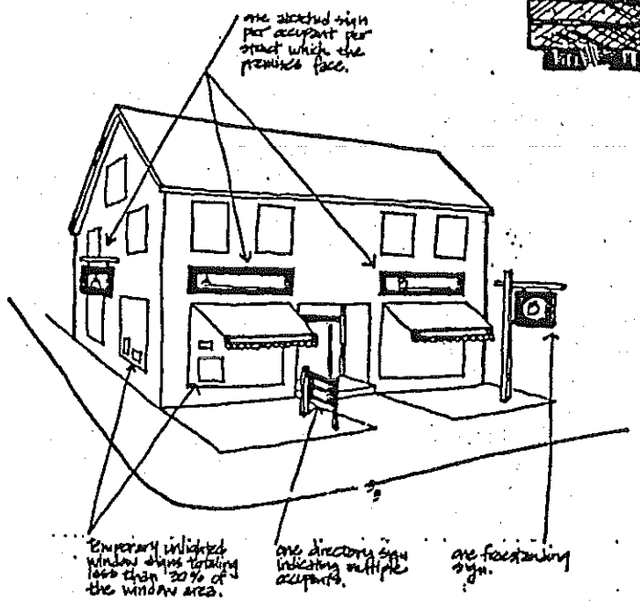

WEBB'S
SPORT
SHOP

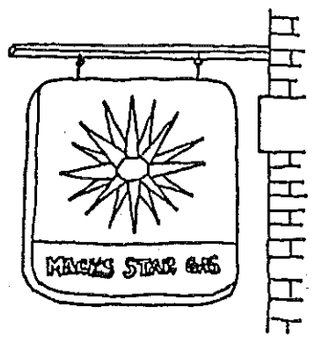


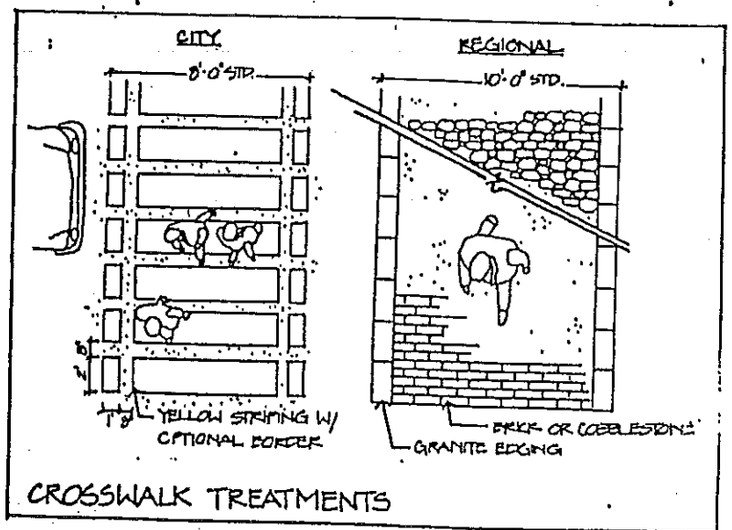

6"
3'-0"
1'-6"



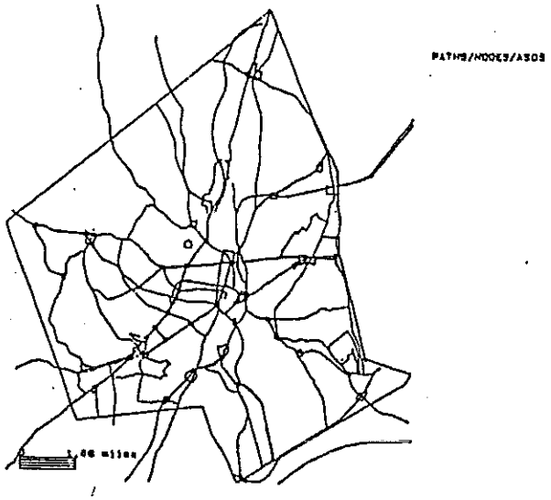

DIRECTORY


one erected sign per occupant per street which the premises face.
temporary unlighted window signs totaling less than 20% of the window area.
one directory sign indicating multiple occupants.
one freestanding sign.


MACK'S STAR GAS


CITY
8'-0" STD.
REGIONAL
10'-0" STD.
YELLOW STRIPING W/ OPTIONAL BORDER
BRICK OR COBBLESTONE
GRANITE EDGING
CROSSWALK TREATMENTS

I-290 a barrier between east & west



Route 9 greenway

enhance pathways & nodes visually and functionally

The one exception to the essentially organic evolution was the construction of the Interstate highway system through the City. The scale and standards for this system were both externally determined, and motivated by forecast rather than present demand. The locations were determined primarily to serve the linking functions each roadway served in the larger Interstate network. The scale and massing of I-290 transform what had been an *edge* between the east and west sides of the City (that is, the railroad tracks/embankment) into a *barrier*. Further, the system established a new built form for the city, which in turn served as a primary design motivator for the redevelopment treatment of the City's downtown. Worcester Center's design focuses its activities inward, and establishes its primary user entrance from the west. Its eastern facade is uniformly a parking garage, a not surprising choice since it faces a newly-constructed Worceser Center Boulevard and the elevated I-290.

A major consequence of the construction of I-290 and Worcester Center has been the loss of a coherent sense of cityscape by both residents and visitors to the city. It is important that the sense of cityscape be made once again transparent and coherent, serving as a coalescing vitality for the City. Map 1 on page 9, presents the ***pathway/node*** system for the City, establishing a hierarchy based on the scale of importance of each pathway/node. Each is ranked as a regional, city or neighborhood *node* or *pathway*.

Each *pathway* and *node* has a special purpose and meaning. For example, **Route 9** (Belmont Street--Highland Street--Park Avenue--Main Street, from east to west) is a ***regional pathway***. It provides crucial east/west links and orientation. Its two ends are ***gateway nodes*** to the city from the larger region. It traverses the city as a ***greenway***, linking green open spaces and waterways, and itself having special design treatment to accentuate its linking of natural and built environments. Interestingly, the original Park Avenue design had this express purpose. Happily many of its attributes remain at least partially intact, such as a tree-provided canopy and roadway branches directly to parks, streams and lakes. The original purposes needs to be reinforced, through actions such as plantings, signs, banners and street furniture, and the possible creation of a mini-City Heritage Park at Coes Pond. This *pathway* also has a number of *nodes* of varying importance. The proposed mini-City Heritage Park at Coes Pond is one such *node*.

In implementation of the Master Plan, *pathways* can be enhanced through provision of traffic and circulation improvements (including appropriate parking solutions), street and right-of-way improvements (such as clear and interesting signs), and landscaping. *Nodes* can incorporate similar improvements, particularly directed toward conveying the nature and importance of the place.

The concepts of *pathways* and *nodes*, and *Areas of Special Development Signficance* grow out of a scheme which responds to the natural environment as a guiding force in development. Also central to this scheme is the concept of ***performance zoning***. For Worcester, what is important is how something actually works. Thus the City's development controls must focus on *performance* rather than *prescription*.

performance zoning

Worcester is substantially, though not completely built. For areas which are built, the applicable notion is ***tolerance***, that is, the ability of the various natural and built systems to tolerate additional demand. For example, *performance zoning* in an area of three-deckers with a development proprosal for an in-fill lot would focus on how the proposed structure and use could be accommodated in terms of design style, structure location on the lot, parking, and so on.

For areas which are developable, the applicable notion is ***flexibility***, that is, the ability of the regulatory system and the proposed developments to flexibly accommodate to the objectives and constraints, each of the other. For example, *performance zoning* for such new developments must be able to distinguish between building on a flat vs. a steeply sloped lot, even if they are the same size.

both flexibility and tolerance are important standards

In its appliction, Worcester's *performance zoning* system needs to be simple in administration and transparent to the user. It needs to clearly link planning and zoning, and to make the two dynamic rather than static in form, content and implementation. Finally the system must have good symmetry between the scale of action proposed and interventions required.

The standards of *flexibility* and *tolerance* are well served by the Areas of Special Development Significance. Achieving multiple objectives in new development is especially demanding of flexibility. Achieving these objectives in built-up areas demands tolerance. The *ASDS* designation permits coherence in design treatment and development programming, by both the City and the developer. There can be a mesh of public and private intent and implementation. Many objectives can be established through the approval process and confirmed by the terms and conditions of a site-specific development proposal approval.

mesh public/private interests

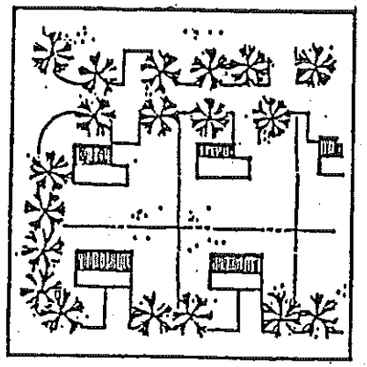
FUNCTIONAL AREAS

13 Planning Areas

A final element of the planning concepts guiding the Master Plan is the designation of *Planning Areas*. These areas reflect the historic evolution of Worcester based on its hills and valleys. They are determined in part by natural and built environments. They are recognizable as places with *names*, such as *Downtown* or *Airport* or *Quinsigamond Village*. Four other considerations guide the designation of *Planning Areas*. They are defined for *planning* purposes. Each must be small enough to be manageable for both analysis and implementation. At the same time the total number can not be so great as to be administratively inefficient. Finally, the boundaries must respect certain imposed institutional realities, such as political and service districts. The map on page 42 presents the thirteen (13) *Planning Areas*. They are...

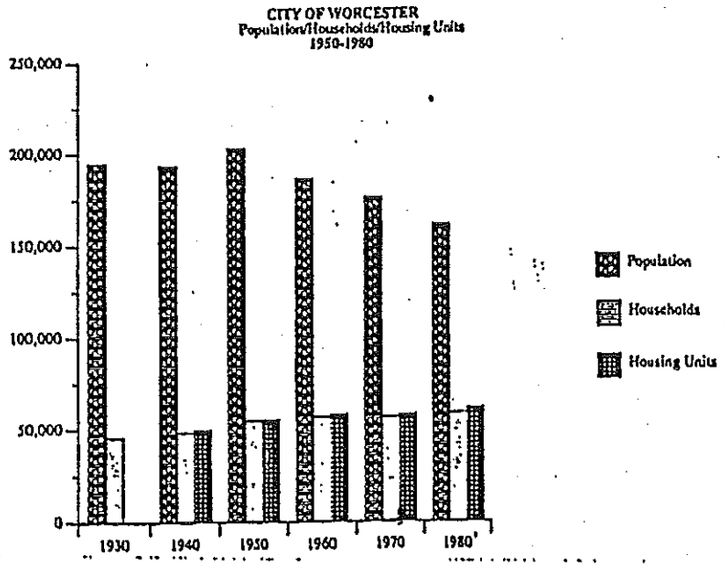
- Airport
- Brittan Square/Lincoln
- Burncoat/Summit
- Downtown
- Hadwen Park/Jamesville
- Indian Hill
- Main South/Cambridge Street
- Quinsigamond Village
- Salisbury/Flagg/ElmPark
- Shrewsbury St/UMass
- Sunderland/Massasoit
- Tatnuck
- Vernon Hill/Grafton Hill

HOUSING



strong demand

need for 2,000 units



Even though the population of the city has been shrinking since 1950, the stock of housing in Worcester has been growing continually, basically because of reduced household size. As the urban core for many suburban towns, Worcester is a city of older, less expensive dwellings. Similarly a relatively higher proportion of Worcester's dwelling units are occupied by renters.

As an older urban city, Worcester has a broad range of housing types in age, style and cost. Given the city's manufacturing history, it is not surprising that many housing units are in structures with 2-4 units. These three-deckers have traditionally provided a large pool of the city's affordable housing. Worcester also has a large stock of single-family detached housing on large lots, enabling its expanding professional and managerial groups to live within the city. Recent development activity has especially added to the stock of housing aimed at newly-formed and small households.

The growth in housing units has not been sufficient to keep up with the growing demand, particularly in the 1980s. This is reflected in low vacancy rates. From 1980 to 1985, the median prices for housing of most sizes at least doubled. This represents an increase of about 14% per year for the entire five year period, with the largest increases coming most recently. Recent reports indicate that rents may have more than doubled in these same five years.

As is shown by the occupancy permits issued in 1986, **the type of housing completed consisted primarily of condominiums and single family structures, with a smaller growth of apartment buildings.** Building permits issued in late 1986 show continued strong growth of condominiums and single family dwellings, along with an increased interest in construction of apartments.

The growth in demand for housing in Worcester can be traced to **rapid growth of small, single person households, and the decline in large households.** The number of households consisting of two or three persons has remained virtually constant over the past decade. However, the composition of these households has been changing markedly as the number of single parent families grows.

The growth in demand for Worcester housing comes not only from new households forming in Worcester, but also increasingly from new residents moving in from outside the city. This appears to be a result of greater economic activity in the entire Central Massachusetts region and the fact that housing in Worcester is less expensive than in the suburban towns. With increasing economic activity in the area, there is reason to believe that **Worcester's population and household count will continue to rise until housing prices in the city are comparable to prices elsewhere.** In terms of continuing the supply of affordable housing, at least 2,000 units are necessary to avoid price increases associated with households competing for an under supply of housing.

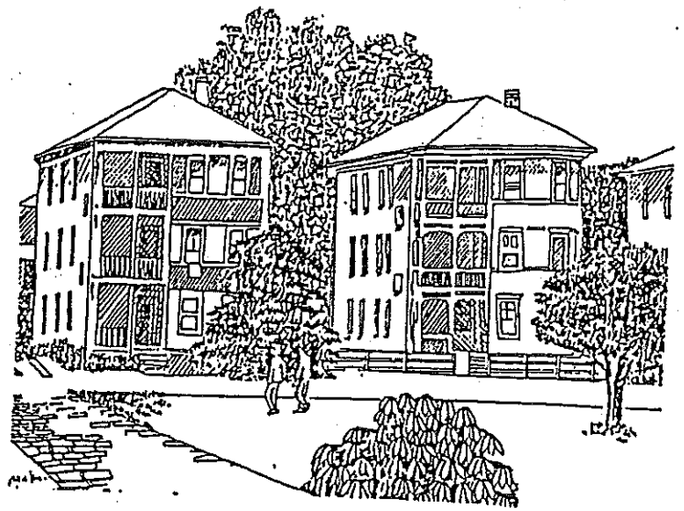
The existing housing stock of Worcester provides a rich mixture of housing types and architectural styles. This mixture of housing helps define Worcester's neighborhoods in ways that are important to the residents of these neighborhoods. Because much of the city's housing which serves moderate and median income households is in this *existing* category, it is important that the City continue to focus much of its housing effort here.

An important portion of Worcester's housing stock consists of **three-deckers.** Three-deckers create a clearly urban feel to neighborhoods and do much to establish Worcester's unique cityscape. Historically, these houses have served residents well. Owners have typically lived in one of the units, maintaining the building because it was also *home.* The presence of these owner-occupants contributes to neighborhood stability. Three-deckers also have provided affordable rental units.**The ability of three-deckers to continue to serve these purposes appears to be threatened by age of the buildings and residents and by rising values.** Owner-occupants are selling to non-resident investors.The age of these three-deckers can only be offset by **maintenance or rehabilitation.** Where economically feasible, it is in the interest of the City to encourage this work and to devote resources to increase the likelihood that it will occur. Continuing *loan and grant programs at below-market interest rates* is appropriate.

Owner-occupancy is considered desirable. Buildings and neighborhoods are generally perceived to improve with this form of ownership. Wherever possible, programs should continue to reinforce owner-occupancy of three-deckers. A recommended program is one designed to maintain occupancy of three-deckers in the demographic category traditionally served.

As many present owners are under economic pressure to sell to investors, it would be useful for the City to create an **Owner-Occupant Sales & Purchase Assistance** (S&PA) program. In such a program, the City's role is primarily technical assistance and coordination to appropriately involve existing resources such as local banks. **A primary objective is to make selling to *existing* occupants as financially attractive and as easy as sale of the building to an investor.** At present many traditional three-deckers are selling in the $125-150,000 range. *Condo-ing* such buildings with priority to present tenants would make ownership units available at $42-50,000. These prices are well within MHFA's first-time homebuyer guidelines and are affordable for typical present occupants. A $50,000 residence of this sort would require a monthly payment of roughly $425, covering principal and interest (at MHFA's 5.5% interest rate), property taxes, insurance and a modest condominium operating/replacement reserve fee.

Rising housing costs are putting financial pressure on families living in houses which are larger than they need. One solution to these problems is the creation of **accessory apartments** in these large houses, without changing the visual appearance of the structure. An *accessaory apartment* is a separate unit created within an existing home, typically using no more than 25% of the total floor space. This provides a smaller, more affordable unit for the renter and additional income for the owner. It enables families to remain in their homes and neighborhoods. This form of housing is especially appropriate for Worcester's older citizens, and could be limited to in-family users.



owner-occupant sales & purchase assistance

City's role is technical assistance

sell to existing occupants

accessory apartments

on-campus housing for students

The presence of many colleges brings a sizable student population to Worcester. Some portion of this student population (especially graduate students) lives off-campus, successfully competing with low-moderate income households for the affordable rental units in Worcester. Given the more transient nature of students and their specialized shelter requirements (not the least of which is proximity to the campus and its facilities), the colleges should provide on-campus housing for both undergraduate and graduate students. Dwelling units presently occupied by students would be returned to the rental stock available to permanent residents. It is also possible for the colleges to enter the housing market as non-profit housing developers, providing housing for other Worcester households as well as their students. This could serve as an endowment investment as well as achieve social purposes.

inclusionary zoning

Housing objectives can also be met through the use of ***inclusionary zoning*** techniques. This zoning simply requires a developer to contribute to housing affordability. The developer may satisfy the requirement by setting aside some units for low and moderate-income families, by providing land for such units, and/or by providing a cash amount which will be used by the City for affordable housing. A 10% commitment on all developments of 10 or more units (new or rehab) is appropriate.

density bonus

Setting minimum dimensional requirements by zoning regulations restricts the amount of housing which can be built on a given parcel. By allowing more units than current zoning allows, that is, a ***density bonus***, the City can make a project more profitable for the developer while also achieving housing objectives. The City can obtain a *quid pro quo* for this density bonus, such as low- or moderate-income units included in the project or a cash contribution to a fund used for affordable housing.

downtown housing

At present, there are numerous old, but structurally sound, commercial buildings in the Worcester downtown area. Although these buildings are not currently used, there is developer interest in converting these into housing. Similarly there is a substantial amount of developable space when air rights over streets are considered. The City should move aggressively to begin downtown housing developments (both rehab and new construction) for several reasons:

- They can add housing units without disrupting natural environments.
- They represent an ideal opportunity for the City to implement an inclusionary housing plan, thus creating affordable housing in a mixed-income environment
- The construction or rehab of downtown buildings contributes to the revitalization of the downtown area.
- Housing brings people downtown, increasing retail activity and safety.
- Private sector interest minimizes the resources the City would have to devote to these projects.

convert old manufacturing buildings for housing

The City's interest in downtown housing can be supplemented by a parallel interest in conversion of existing structures (primarily former manufacturing buildings) in areas where original uses are no longer appropriate. The conversion of the Royal Corset building is an example.

infill housing

Infill housing involves using sites which are scattered throughout the neighborhoods of Worcester for the construction of housing. Often these lots were previously occupied by housing. While some of these lots might best serve other uses (including continued use as open space), many could be used again for housing. Successful infill housing development often requires modifications of existing zoning. By maximizing the development of these sites, other land which is better used as open space can be preserved for that purpose. In addition, properly planned infill housing can be used to enhance the physical and social characteristics of the surrounding area because it ensures a compatible structure size and appearance, accounts for parking needs and otherwise considers on a lot-specific basis the appropriate nature and scale of use. This would especially be true for infill housing in traditional three-decker neighborhoods.

help homeless & special populations

Within Worcester there are a number of **special populations whose housing is at risk.** Among them are the elderly, low-income households, the mentally disabled and retarded, and the homeless. Providing for these populations involves regulatory, structural and financial effort. For many of these people, some type of congregate living is an appropriate solution for which the City's zoning must provide. Frequently congregate living arrangements also enable the direct provision of a wide range of supportive services.

continuing care retirement communities

As the elderly live longer, their ability to live independently decreases. New forms of housing which recognize the gradual need of the elderly for increasing support (social, recreational, nutritional and medical) are necessary. **Continuing care retirement communities** (CCRC) respond to such needs. They are often developed collaboratively by medical institutions and housing developers. This presents an opportunity to Worcester's medical community to expand its activities toward an holistic health care approach. The City itself holds several land parcels appropriate for CCRC use.

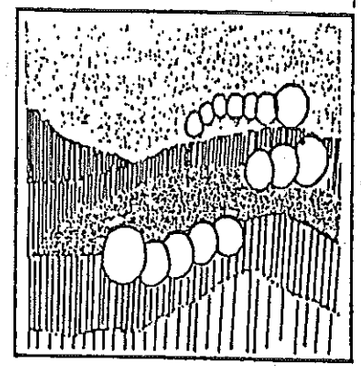
new construction must be site-sensitive

Worcester has experienced a large volume of **new housing construction** in recent years. As the amount of land which is available for new housing is used, the remaining sites are often environmentally-sensitive and present genuine design and development challenges. While new housing will continue to play a vital part in Worcester's development, it is important to recognize that it must be site-sensitive.

substantial effort needed

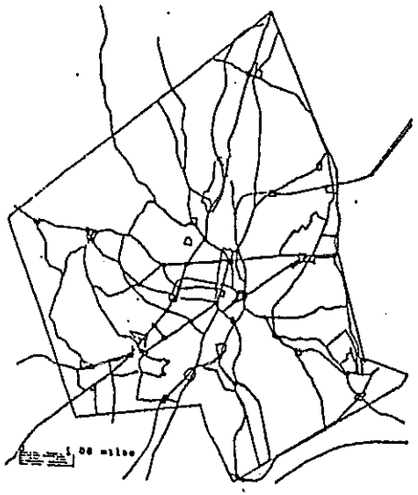
Worcester has reached a point where housing policy and planning must become active and substantial functions within City government. The specialized needs of diverse populations, and the complexities of the solutions available, require a focused and significant effort on the part of the City. This will enable the City to ensure the continued availability of housing of preferred types and at affordable rates to both its traditional and new residents. The Worcester Housing Partnership can be an active force in identifying and promoting sensible housing solutions.

OPEN SPACE/RECREATION



visible improvements on

pathways & nodes



Urban open space is present in a variety of forms--parks and playgrounds for active recreation, tree-lined streets which provide shade and color, and undeveloped land in its natural state. To a great extent Worcester's city form is a result of its natural environment. Topography, waterways and valleys helped shape the built form of the city. Valleys and waterways were locations for industry. The radial circulation pattern followed the hilly topography. Residential neighborhoods developed on the hills around workplaces. The multiple hills allowed an evolution of many neighborhoods, each with a clear identity, tradition, and relationship to the natural environment. The pleasing pattern of three-decker houses stepping up the hillsides is evidence of this relationship.

Open space serves social, economic and environmental objectives. Open space adds to the quality of life by affording pleasant views, serene surroundings and opportunties for relaxation. Open space enhances property values. Development, which is sensitive to open space needs (such as cluster and planned unit development), is cost-effective. Open space ensures the continued existence and integrity of natural ecosystems.

Worcester's natural environment can be used as a key mechanism to organize the city through the enhancement of a system of ***pathways*** and ***nodes***. Such a system has to be conceptually and visually transparent, and convey a hierarchy of paths and places. A system which recognizes the *regional, city* and *neighborhood* nature of pathways and nodes achieves these purposes.

Pathways will be enhanced through traffic, circulation, street and landscape improvements. *Nodes* will incorporate parallel improvements to traffic, circulation, landscape and built form through such actions as intersection design (special pedestrian paving and public squares/parks/greens), wall art, and special signs. A key regional *pathway* is the ***Route 9 Greenway***. This pathway could recapture the historic green/boulevard quality intended by original planners for Park Avenue. A key regional *node* is the ***Downtown*** area. Downtown can be served by an on/off ramp system focusing on Washington Square as the primary entry to the city from I-290. Visual and literal access enhancement could be gained by depressing the rail embankment. Intensified but linked development of both sides of Worcester Center Boulevard can be generated through air rights development and city-top atriums and gardens.

Seven important areas of the city will receive more focused attention through designation as **Areas of Special Development Significance.** These areas include...

- *Downtown*
- *Route 146 corridor*
- *UMass/Biotech Park*
- *Webster Square*
- *Tatnuck Square*
- *The Summit*
- *Perkins Farm*

Each area will play a crucial role in the city's foreseeable future, not only in terms of development but also in how the pattern of open and recreational space is formed and modified.

Serving the recreation needs of people in an urbanized environment requires understanding the basic relationships between the supply of recreation and open space resources and their potential users. Worcester has a long tradition of understanding these needs. Parks and open space have been a part of Worcester since the Common was set aside in June, 1669. Perhaps the best known historic park in Worcester is Elm Park. Acquired in 1854 using public funds, it is recognized as the first purchase of land for a public park in the U.S. Both the Common and Elm Park are on the National Register of Historic Places, as are Green Hill Park Refectory and Bancroft Tower in Salisbury Park. The first Park Commission was formed in 1863. A guiding concept at that time was to connect the City's parks with avenues and boulevards. The design of many of Worcester's early parks was strongly influenced by the work of the nation's most noted landscape architect, Frederick Law Olmsted.

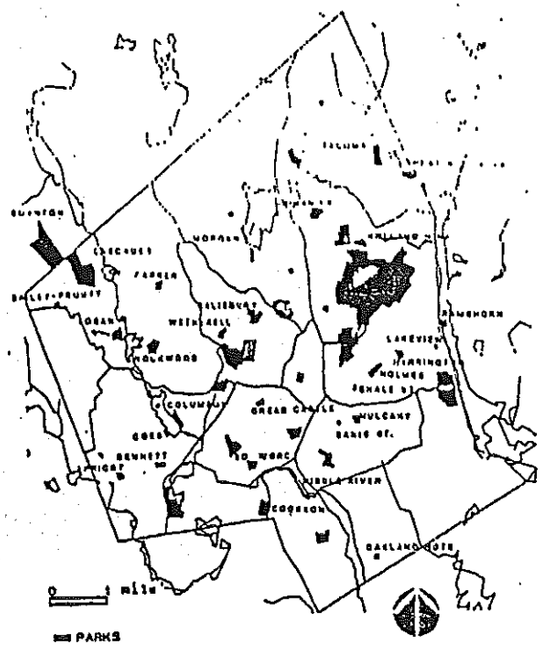
Worcester itself offers diverse geographic and recreational settings, with hills and striking topography intermixed with numerous wetlands, lakes, ponds and waterways. Many wetlands areas such as Coal Mine Brook, Poor Farm Brook and Broad Meadow Brook, remain today as unspoiled natural areas. Other waterways, such as the Upper Blackstone River Corridor, are testaments to the city's use of water for economic activity, especially manufacturing. This area is presently being studied for development as a Heritage State Park.

A first consideration in providing for recreation and open space is the nature of the City's present and projected population. Current projections have the 30-44 group (the so-called *Baby Boomers*) increasing dramatically for the next several years. Worcester is also experiencing significant growth in the 75+ age group. There are increasing numbers of non-family households and households with single parent families. The teen-age population will grow along with the *Baby Boomers*. Each of these groups has different recreational preferences. There is also an increasing awareness of the specialized needs of handicapped individuals, for access and facilities.

The resource base of outdoor recreation facilities is large and diversified. There are over 1,900 acres in public, quasi-public and private ownership in the city. The Parks and Recreation Department manages 47 parks with 1,255 acres of recreation land and facilities. In addition the School Department, the Commonwealth and quasi-public and private organizations have a variety of land and facilities.

Though the Parks and Recreation Department has an active maintenance program, there is need for improvements to many parks and facilities. Playing fields are heavily used, as is the children's play equipment. Parking and service areas are a city-wide problem. Litter and vandalism is a serious problem at some of the larger parks. Access, signs and drainage could be improved in many instances. Improved public transportation service is appropriate for several locations.

Many of the facilities are not sufficiently developed for more passive recreation. Site lighting, handicapped access, and bicycling are particular elements which would contribute to uses in this category. There is continuing prompting for a *greenbelt* system, linking the city and its open spaces. Creating such a system would be an interesting return to one of the concepts of the early park planners.



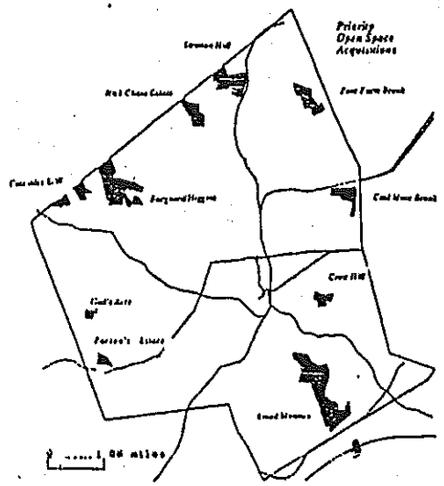
diverse geography and recreational settings

over 1900 acres of recreation land

major initiatives

node and pathway enhancement

cooperative park maintenance



Three parks are designated for expansion, including Kendrick Field, Beaver Brook Park and Oread Castle Park. Facilities expansion is important in both the northwest and southeast sections of the city. In addition, **major initiatives** at the Coes Pond area, Bancroft Tower and along the *pathway/node* system are important. The Coes Pond area provides a splendid opportunity to create a City Heritage Park in the space along the waterway north of Park Avenue. Bancroft Tower provides a city vista possibility, with the potential of recapturing this space for family recreation for the city and the region. *Pathway/node* initiatives can be quickly implemented, including a banner competition and node enhancements of roadways, walkways, signs, monuments and plantings. Special signs can be used throughout the city to convey in form, color and narrative the nature of *pathway/node* use.

The majority of issues for the Parks and Recreation Department concern the **rehabilitation and management of facilities.** Of specific concern are provision for access to parks, adequate parking, the condition of playing fields, courts and play equipment, litter and vandalism. These subjects relate to the areas of maintenance, facility rehabilitation and capital improvements.

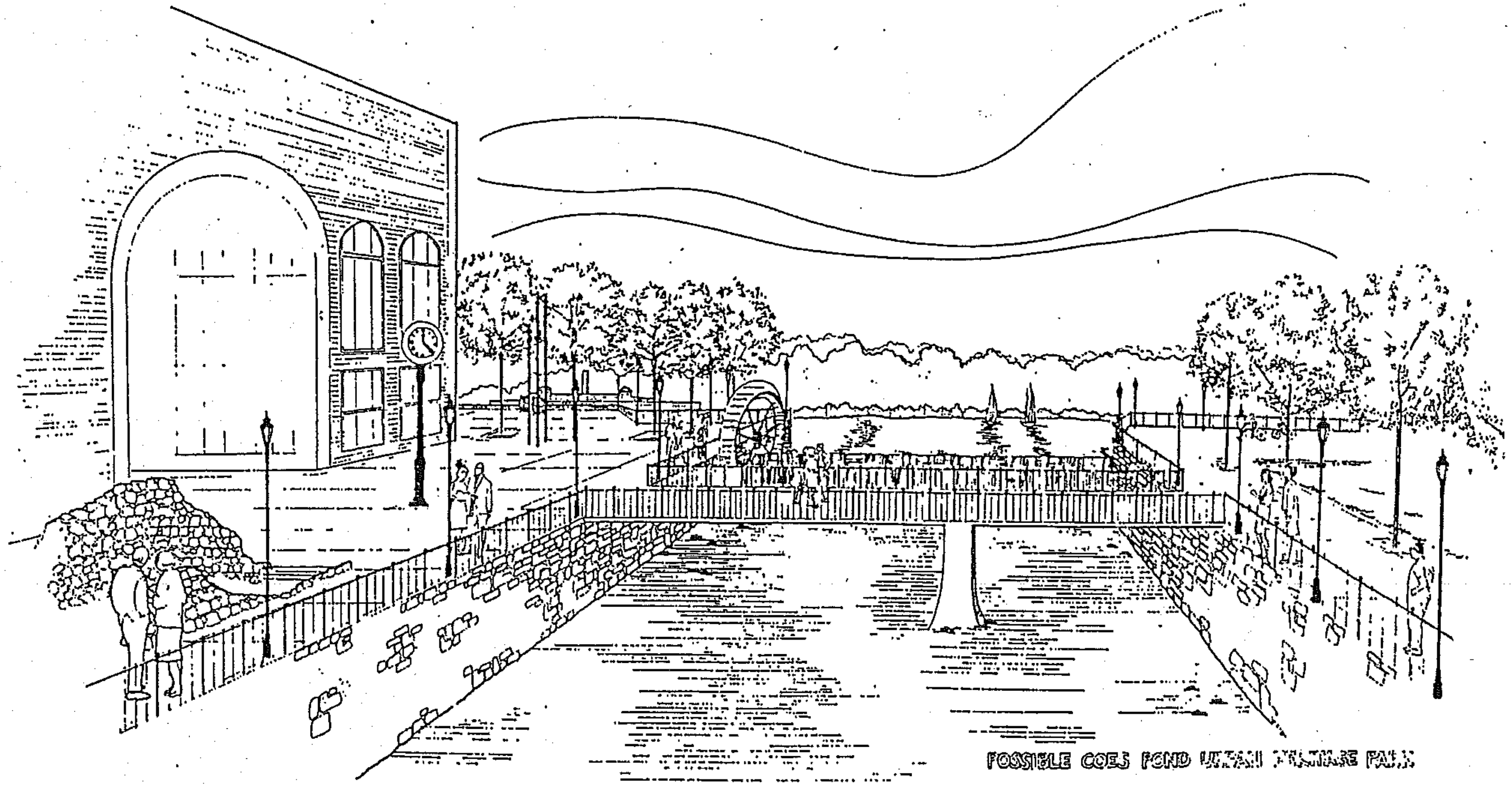
A major opportunity is available to encourage continued **high levels of cooperation** among the Parks and Recreation Department, private and public,neighborhood organizations, and leagues and residents to raise the level of maintenance and security at each park. Informal arrangements with leagues and residents already exist for some parks. Attempts should be made to expand this approach, promoting shared responsibility for certain maintenance and rehabilitation functions in neighborhood parks.

The co-op approach could be extended to the area of **street tree maintenance.** Residents or neighborhood groups, with guidance from the Forestry Division, could water and fertilize street trees nearest them. Furthermore, the City should continue to inform residents, businesses and institutions of the benefits of donating trees through the Gifts Catalogue.

To **increase management efficiency**, the Department should continues its efforts to streamline maintenance scheduling. Facilities condition recording, tree inventory and performance data for all departments is now available for the Maintenance Division through its Maintenance Management Workbook. Complete computerizaton is advisable, including listing of recreation programs and special events, with the Recreation Division as a clearing house.

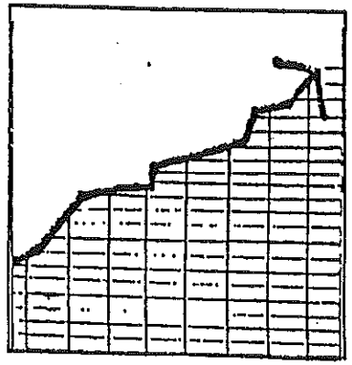
Ten sites are designated as top priorities for acquisition and/or protection as open space. An additional 41site over 5 acres have been identified. With related rationale, the 10 are...

- Wigwam and Coal Mine Brook--groundwater recharge
- Poor Farm Brook--groundwater recharge
- Broad Meadow Brook--size and biological diversity
- Nick Chase Estate--outstanding flora and fauna
- Borggard/Higgins--size, historic features, biological diversity
- Crow Hill--access to other cultural facilities, population density, views
- Cascades Park East and West--size, biological diversity, connector
- Stratton Hill--size, biological diversity, critical location
- God's Acre--wildlife protection, historic feature
- Parson's Estate--significant waterway



POSSIBLE COES POND URBAN HERITAGE PARK

ECONOMIC DEVELOPMENT



WORCESTER EMPLOYMENT

	1970		1984	
Services	14,875	19.5%	35,404	41.1%
Manufacturing	32,857	43.1%	23,022	26.8%
Other	28,543	37.4%	27,577	32.1%

strong and diversified

service - sector based

regionally integrated

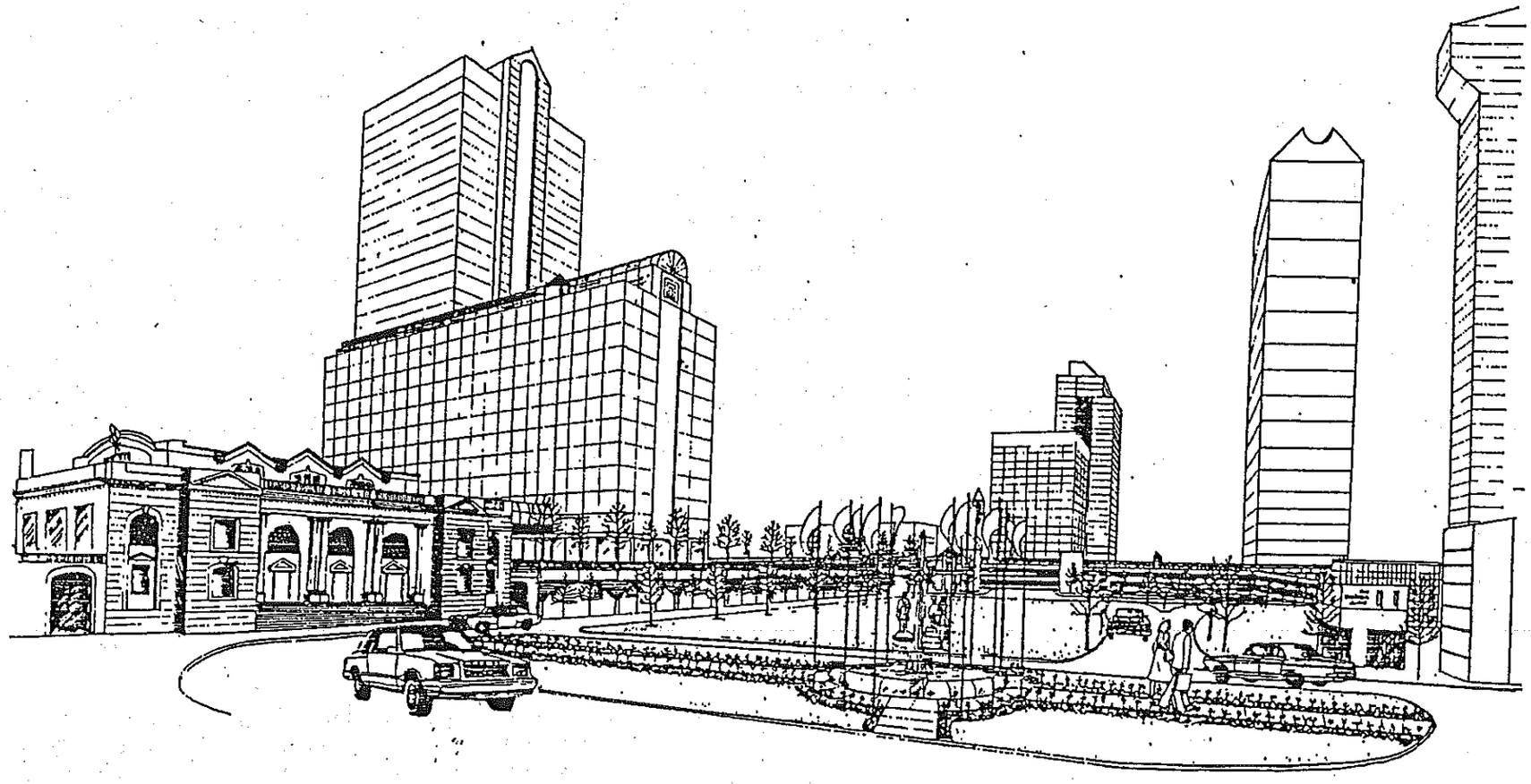
Worcester has a strong, diversified economy which has shifted from manufacturing to service activity. Between 1970 and 1984, the proportion of employment in the service areas (including finance, insurance, real estate and other services) increased from 19.5% to 41.3%, while manufacturing dropped from 43.1% to 26.8%. In absolute terms, the number of service area employees increased from 14,875 to 35,404, a 138% increase. Similarly, manufacturing employees dropped from 32,857 to 23,022, a 30% decrease. Interestingly, Worcester actually added jobs in a time period when it was losing population. The employment in different sectors of Worcester's economy is roughly comparable to that in the State of Massachusetts. This is important because it means that Worcester's economy is not overly concentrated in one industry or one company. The city will not suffer great trauma if one industry or one company gets into trouble.

The **shifts in the economy** together with its diversity can be seen in another way by examining trends in Worcester's largest employers. The top ten employers in 1986 combined to provide 25,708 jobs, roughly 30% of the total. Only one of these top ten companies is in manufacturing, while three are hospitals and one is the City itself. Because the service sector is less affected by business cycles than the manufacturing sector, this shift adds stability to the economic base.

Another major trend in Worcester's economy is the degree to which it is being **integrated into the Central Massachusetts regional economy.** In 1960, only 10% of the people who lived in Worcester worked outside the city. By 1986, this had increased to about 25%. Similarly, the number of people who live outside Worcester but work in the city has also increased in this time period. While there are a number of reasons for this, the construction of the I-290/I-190/I-495 system is the major reason because it improved greatly Worcester's accessibility.

The following are the **major economic trends** for the city...

- Worcester will have an **increasingly stable economic base,** but it will continue to be affected by U.S. business cycles.
- Worcester will have **low rates of unemployment** compared to the U.S. average but will have rates comparable to the state as a whole.
- Worcester's economic base will **continue to shift** from manufacturing to service sector activity but at a less dramatic rate than during the past 15 years. This will tend to dampen the rate of income growth but add stability to the economy.
- There will be a continued increase in the percentage of people living in Worcester but working outside the city. Similarly, more people working in Worcester will live outside the city. Worcester will continue to become **more a part of the regional economy.**



POSSIBLE DOWNTOWN GATEWAY

Downtown definition, new housing

incubator industries in older areas

While the overall economy of the city and region is strong and the major trends are difficult to alter, there are a number of economic development issues and opportunities for the city, including...

- How to promote further economic activity Downtown
- How to handle the **older manufacturing zones** which have increasing conflicts among industrial, residential and commercial uses
- How to make provision for more manufacturing activity in the city as the available space within **industrial parks** runs out
- How to maximize the potential of the **Route 146 corridor**
- The proper role for the **airport**

Worcester's downtown shows physical evidence of the energetic activities of the past decade, including Worcester Center, the Centrum, Mechanics Hall and One Exchange Place, and two bank towers. **More work is needed downtown,** including...

- ***Definition and appearance.*** Worcester's downtown is poorly defined. It is difficult to know where the downtown starts and ends. Cultural amenities like the art museum and science center are spread out. The traffic along I-290 is an important resource to be drawn into the downtown area. Air rights development could help clarify definition and appearance. Washington Square and Main St. need to be reworked, with improved on/off ramps for I-290.
- ***Housing*** There is currently little housing in downtown Worcester. Downtown housing would help to support the retail and office uses already downtown and improve the vitality of the area.

A second major economic development challenge is how best to handle the **older manufacturing zones.** These older manufacturing zones stretch from Prospect and Grove Streets in the north to Beacon Street and University Park in the South, and contain segments of Harding Street on the east side of I-290, and Harding, Quinsigamond, Shrewsbury, and Canterbury Streets on the West side. These older manufacturing zones formed the heart of early industrial Worcester but are now an uneasy mix of industrial, commercial and residential uses criss-crossed by rail lines and I-290. The area does not currently work well for any of its industrial, commercial or residential uses. The industrial buildings are generally multi-storied structures, which are not desired by today's manufacturing or processing firms. The lots are small, making expansion difficult. The streets are congested and difficult for large trucks to maneuver. Residential uses are also a problem. The residences are often isolated units with small manufacturing firms as neighbors. The truck traffic provides hazards for children, and the lack of neighborhood identity is undesirable. Similarly, commercial uses are often not well situated in relation to the residential uses. This area is mostly compatible with small ***incubator industries,*** which want inexpensive space and can make do with the many problems and inconveniences presented.

These older manufacturing districts need a considerable amount of work to make them more desirable for industrial, commercial or residential uses. The physical problems are severe. The appropriate approach is to determine what is the best direction to promote in each area and then adopt a strategy to move in this direction. This can be accomplished through localized plans and strategies for the appropriate Planning Areas. Areas close to or part of residential neighborhoods should be encouraged to move towards residential and commercial uses. Similarly, areas filled mainly with manufacturing firms should be restructured to make them more suitable for the needs of modern industry. They could become, for instance, a combination of incubator space and small industrial parks suitable to larger manufacturing firms. The importance of retaining good job opportunities in this area is particularly important because of its close proximity to areas with the highest rates of un- and underemployment in the city. It will be important to separate these older districts into those appropriate for continued economic activity, and those which should be converted to other uses.

Five industrial parks have been built in Worcester in an effort to retain existing manufacturing activity as well as to attract new firms. These are generally located in the more suburban parts of the city, often with good access to major highways. Three of these industrial parks are currently filled and a fourth (Liberty Central Industrial Park) is now under development. The BiotechPark is the fifth site, which is just opening. This park is entirely dedicated to bio-technology firms. The Biotech Park reflects a sensible commitment by Worcester to expanding its economic base following **a strategy of *incremental* growth** linked with its existing strengths, in labor force, education and corporate commitment. This growth can be both ***incubation* and *expansion*** in nature. *Incubation* involves nurturing new industries, generally as spin-offs of existing companies. *Expansion* is the growth of existing companies.

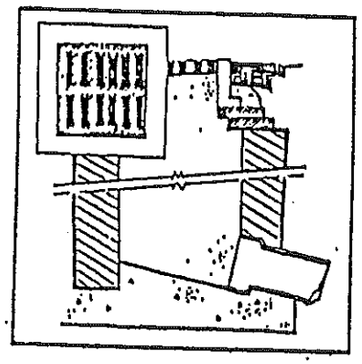
An improved capacity on the part of the City is needed to guide and/or participate in the various economic development activities. A Establishment of strong public/private partnerships could help focus on the City's economic development activities, including the ability to participate financially through bonding capacity and strategic reinforcement of labor force training and provision.

The Worcester Airport, owned and operated by the City, is an important part of the city's transportation system and plays a critical economic development role. The airport is used for commercial flights as well as general aviation (i.e. private and corporate) and air freight. The airport is evidencing increases in commerical traffic, especially with two major commercial carriers now providing service. Future services are anticipated, even with a focus on Worcester users only. The airport is operating at about 20% of capacity for commercial use in terms of its current runways and air traffic control system. The airport needs improved facilities and better access. Improvements in terminal and parking are planned. Clarified routes to the airport will help make user access simpler and more pleasant. The possibility of off-site terminal facilities and transportation service needs to be explored, especially as there appears to be substantial pent-up demand. Helipads are among the options. The increased activity should also serve to make the airport a ***fiscal contributor*** to the City's revenue picture, reversing the circumstance of the past many years.

grow by incubation and expansion

airport an economic plus

INFRASTRUCTURE



water from outside city

limited supply

groundwater resources management needed

The City of Worcester draws its water almost exclusively from a series of surface water reservoirs located outside the city limits to the north and west. Current annual consumption is approximately 9.3 billion gallons with a total reservoir capacity of 7.8 billion gallons. This 80% ratio of supply to demand is just the opposite of what good resource management indicates should be the practice. This situation has existed for many years, leaving the city very vulnerable to periods of extended drought. A system like Worcester's ought to have a reliable supply of roughly 15-18 billion gallons annually, or 160-200% of annual demand.

Roughly 70% of the water service customers are residential. They account for an estimated 20% of the annual water usage. The bulk of Worcester's water is consumed by large and small industrial customers and commercial customers. The remainder of the demand comes from the institutional sector. Additional unbilled demand comes from firefighting, open hydrants, leaks, and meter failures. Studies estimate Worcester's 1999 demand as approximately 30 million gallons per day, about a 20% increase over 1986. Most of this increase will be from non-residential customers.

There are several approaches to **ensuring an adequate supply of water.** One is adding and/or restoring ***groundwater*** sources. The City's well field at Coal Mine Brook has been closed since 1977 due to contamination by coliform bacteria. A multi-year sewer and rerouting project is underway to try to restore the Coal Mine Brook wells to service as drinking water supply. If this project is successful, an estimated 4 mgd or 1.5 billion gallons annually could be added to the supply. However, the existence of numerous private septic systems within 2,500 feet of the well will continue to pose a threat to water quality. One alternative is to use in-city groundwater supplies to service that portion of non-residential demand with lower quality requirements. Many companies and institutions are proximate to such groundwater sources. A second is acquisition of additional ***surface*** supplies. The Turkey Hill Brook and Five Mile River watersheds west of the City could yield between 4.8 and 6.6 billion gallons annually . Management of existing reservoirs to ensure continued full capacity is important, including evaluation of development impact on the Leicester reservoir.

The **costs in acquisition of new watersheds** are both financial and political. Preliminary estimates for the Five Mile River project are over $25 million. Also, the potential watersheds are located in jurisdictions over which Worcester currently has no control. Until and unless some action is taken at a state or regional level to create a regional water supply system for Central Massachusetts along the lines of the Massachusetts Water Resources Authority, this political hurdle may remain the biggest obstacle to acquisition .

Though the City does have a contract with the **Massachusetts Water Resource Authority** for purchase of up to 17.5 mgd from the Quabbin/Wachusett reservoir system, such use is for **emergencies** only and requires the prior approval of the MWRA. Given the MWRA's projected system shortfall of up to 150 mgd by the year 2020, the City should not look to it as a reliable source of additional water supply except for true emergencies.

Thus a more effective near term solution is groundwater resources management and reduction in demand by existing and future users.

An immediately available and effective means of increasing water supply is to reduce the demand. There are three strategies for demand reduction...

- *Pricing*
- *Leak detection/metering*
- *Public education*

strategies to reduce demand

Historically,Worcester's competitive advantage over some other potential industrial locations was largely based on its abundant water resources. Low water pricing was an economic development strategy. Though this is no longer necessary, water customers still pay only about 60% of the costs of the system, with taxpayers paying the other 40%. Any economic analysis will conclude that underpricing promotes overuse. The simplest approach to conservation is full-cost pricing

increase costs

One predictable result of higher costs will be lower demand. However, different sectors of the customer base will respond differently. ***Industrial Service/Retail /Institutional users*** will treat the cost of water as a cost of doing business. They will pass on the costs to their customers, or find substitutes, or change processes to use less water. Some industries can not only conserve water but can store and recycle some of the water used. Some may investigate using their own wells or an alternative City system, as much industrial use has less stringent requirements for water quality. This represents further savings, especially relative to higher cost/high-quality water. ***Tax exempt institutions*** have an added incentive to conserve. For non-profits, full cost pricing will, for the first time, indicate the true cost of using water. The large difference between pre- and post-implementation water bills should provide strong motivation to conserve.

conservation

Residential users can respond to increased rates with conservation, though the impact will be modest. A better long term strategy involves *building code requirements for water conserving fixtures* in all new and rehab construction. It is important that no one be unfairly burdened by the new rates. Very low income households and the elderly can be insulated from the effects of utility price hikes by so called *lifeline rates.*

A second form of controlling demand is **leak detection and metering.** Water main breaks are typically dramatic incidents and are discovered quickly. However, water main leaks of even small size can add up to considerable system losses over time. Another form of system loss is undermetering. While some small number (estimates are under 1%) of customers remain unmetered entirely, most losses from undermetering are due to old meters which systematically under-report the water consumption. Some programs have reduced losses from unaccounted water by as much as 30%.

detect losses

A program of **public education** helps residential and small commercial customers to implement the conservation measures that are available to them. Low cost/no cost retrofit kits can be made available, and technical assistance provided to small businesses to assist in conservation. Dramatic water savings by large businesses or institutions should be publicized to help others look for ways they might also conserve. A comprehensive water conservation strategy for Worcester need not diminish the quality of life for its citizens or retard business development.

public education

water quality

filtration plant a must

old distribution network

link improvements with nodes & pathways

benefit fees

The second major issue for Worcester is **water quality**. Recent problems with turbidity (lack of clarity), and potential contamination are well documented. The extensive landholdings surrounding the reservoir system are closed to the public but contamination from spills or as a result of further development must be monitored. Aging pipes in the distribution system both contribute to diminished water quality and exacerbate problems existing in the water supply. The federal Clean Water Act will impose stricter water quality limits on all public supplies, and require filtration of all surface water supplies. Worcester does not now filter the water from the reservoir system. A recent study recommended a 50 mgd **filtration plant** located at Holden Reservoir No. 2 . This plant would filter both particulates and organic matter from all water sources and bring the water up to proposed EPA standards. Cost estimates for the filtration system include a $27 million treatment plant, and an additional $15 million for related distribution needs. There is an estimated six year design and construction period for this facility.

Worcester's **water distribution network** is an old one, and in need of extensive upgrading. The Department of Public Works currently maintains a repair and replacement program for water mains which is not funded sufficiently to keep up with the deterioration of the system. Undersized mains need replacing, older mains need cleaning and relining, and pumping stations should be repaired and replaced on a regular basis. The generalized system needs are well understood. However, given the current shortage of capital funds, a system of priorities needs to be established.

One of the underlying principles of the Master Plan is to help reorganize the city along a series of pathways which assist traffic flow and define neighborhoods, and around a set of development nodes which will focus future development activities at existing activity centers, thereby reducing the spread of linear development and inappropriate uses of land in outlying neighborhoods. **Infrastructure improvements should reinforce this concept of *nodes* and *pathways*.** If capital improvements are focused on the development areas, they will act to help attract and retain development, much as the recent infrastructure improvements to downtown have done. A conscious and public decision to delay improvements in non-priority areas should have the effect of further encouraging new activity to locate along the key pathways and at planned growth nodes. Repair and replacement of water pumping stations should be coordinated with the development of these areas of development activity.

Benefit fees provide for equity in distribution of costs of the City's water and sewer system. The evaluation of development impacts and the assessing of benefit fees should require...

- analysis of the incremental burdens that developments will place on public infrastructure systems
- mitigation measures
- benefit fees tied to the share of the cost of the mitigation measure that can be attributed to the development.

There is not universal public sanitary sewer system coverage to all residences in Worcester. Estimates by DPW are that 8% of the streets are not served and that as many as 10-15% of the households rely on private septic disposal. This is a result of several factors, including difficult topography, historic patterns of development, and a shortage of capital for system extensions. Lack of service is greatest on the perimeter of the city. The results of this lack of coverage include a delay in conversion of some private ways, the threat of contamination of groundwater and surface water bodies, and a devaluing of property in those areas not served.

sewer extension

The network of pipes and pumping stations that make up the sanitary sewer system contains segments that are as much as 120 years old. The sewer system shares with the water distribution network the **problems of aging systems**, including breaks, leakage, tuberculation, blockage from root growths, and infiltration by ground water. Deferred maintenance due to lack of funds has allowed the system to deteriorate despite a massive campaign in recent years to catch up to maintenance needs.

As with the water supply system, **the sewer system operates at a significant annual deficit.** The costs of sewer operations, are significantly higher than the revenues produced by the sewer use charges. Estimates are that only 67% of the true costs of system operation are recovered through charges; the rest is subsidized through the property tax. The costs of system extension and programmed upgrading will be considerable even when spread out over time. The City needs to adopt revenue practices that will allow it to fulfill its public health obligations. Adoption of full cost pricing and the imposition of development benefit fees will be necessary in order to finance the capital costs and pay operating charges.

eliminate deficit by full cost pricing

The water and sewer system in Worcester is a system **primarily with financial needs.** Management is relatively efficient given its lack of sophisticated equipment. Departmental leadership is stable and enjoys a large degree of popular support. Recent experience with large construction projects, like the Quinsigamond Avenue Treatment Plant and the stormwater separation project, have given staff important experience needed for the challenges ahead.

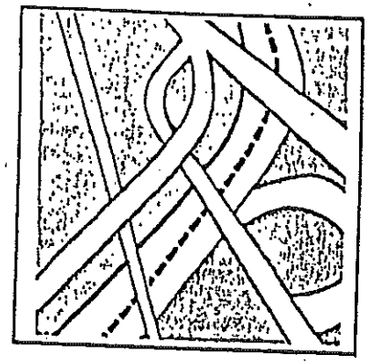
A possible solution to the financial needs of the system is an **independent water and sewer authority.** The first advantage is that an independent commission can maintain separate accounting, allowing full cost pricing. Economically vulnerable users, such as the elderly, could be further protected through special *lifeline* exemptions. The Authority could be self-supporting, allowing the City greater latitude on expenditures from general revenues. However, such a system would retain public accountability. Logically, the system would also be managed under contract by existing DPW staff, with backup of the City's existing support systems, including data processing.

independent water & sewer authority

The alternative of **doing nothing is not available to Worcester,** even in the short run. The filtration requirements of the Clean Water Act, combined with the State policy of giving grant preference to municipalities which employ full cost pricing mean that Worcester must act soon.

Federal and States mandates

TRANSPORTATION



Washington Square Gateway

depress railroad

signature artwork bridge

Worcester's topography has guided the development of its roadway system. The major north/south valley is now dominated by the I-290 system. The development of Worcester Center in the early 1970's created a barrier on the previous east-west system involving Front Street. A major result has been a confusion in circulation, especially for a regional visitor wishing to enter Worcester's downtown. This is an important consideration, given the prominence which the Centrum has given Worcester's downtown, and the potential for significant future increases in transportation demand from a Convention Center at Union Station.

Access to downtown must be improved, both perceptually and functionally. While a detailed transportation study, with particular emphasis on the I-290 entrance/exit system, is necessary, two major actions would appear appropriate. They are:

- Connect **Washington Square** (visually and functionally) **to Downtown**, using it as the **major gateway** to the city.
- Make **Washington Square** the primary vehicular entry to the city from I-290, by a new system of **on-off ramps.**

The P&W railway embankment is a major and problematic barrier between Washington Square and Downtown. A *design resolution* is required which establishes Washington Square to Worcester Center Boulevard (to the north) and Foster Street as the major roadway into and out of the city. This would involve decomissioning Franklin Street (from Worcester Center Boulevard to Washington Square), eliminating the "flying buttress" accessways to the parking garage, access and circulation improvements in the garage, and upgrading the roadway around Washington Square and to Worcester Center Boulevard. To enhance this design objective, the built environment may be connected on both sides of Worcester Center Boulevard through ***air rights development.*** The air rights development to the southern end of Worcester Center should fully bridge Worcester Center Boulevard while that to the north may be more of a skywalk connecting uses on either side of Worcester Center Boulevard. An important component is providing destinations for pedestrian movement on decks and skywalks. The top of the Worcester Center parking garage could be an enclosed atrium, providing a City park and garden, restaurant and retail space.

In this scheme there are two alternatives to connecting Washington Square and the Downtown. Each will involve takings and realignments. The first alternative is to **depress and deck over the railroad**, accommodating both vehicular and pedestrian traffic. This alternative best achieves the design and transportation objectives. The second alternative does not depress the railroad. Instead, a ***signature artwork*** type of **bridge** would be constructed. It will need to at least triple the space presently provided for underpass from Washington Street, to maximize visual access to the Downtown. Both alternatives maintain and enhance the grandeur of the Washington Square open space, stautues and monuments. Either alternative can proceed independent of the on-off ramp system.

One significant problem about entering Worcester from I-290 is that it is not clear where Worcester is! This could be resolved by making Washington Square the primary on-off ramp location into the Downtown. The need for improvements in traffic control on I-290 has already be identified in the *Worcester I-290 Traffic Study "Working Paper"* dated February 1986, prepared by the Central Massachusetts Regional Planning Commission. Downtown exits are predicted to have both AM and PM capacity problems by 1990, with several going to LOS *D* and LOS *E/F*. Given that population projections used in the report have already been exceeded, these problems likely already exist. Thus even without any initiatives in Downtown development there is a major need for traffic improvements. Undertaking a study which incorporates alternative city as well as transportation design schemes will lead to the best outcome.

improve on/off ramps

One factor that contributes to the attractiveness of new development to downtown Worcester is the availability of sufficient **parking** at reasonable rates. Sufficient parking in the downtown area is important to the economy and viability of the city. A Downtown Parking Supply and Demand Study prepared in March 1986 by the City of Worcester Department of Traffic Engineering revealed that overall downtown parking demand is approximately 94% of available supply during daytime non-Centrum event periods. Parking demand/supply ratios of 90% or more indicate that parking shortages may occur within specific downtown sub-areas.

downtown parking

The best strategy in response to shortages is to focus on better management and control of the existing downtown parking lots, garages and on-street spaces. **Management techniques** could include peak-period downtown parking prohibition, loading zone time restriction, and increase in parking violation fines. In the long term the City's zoning requirements for new construction projects must require construction of new parking facilities.

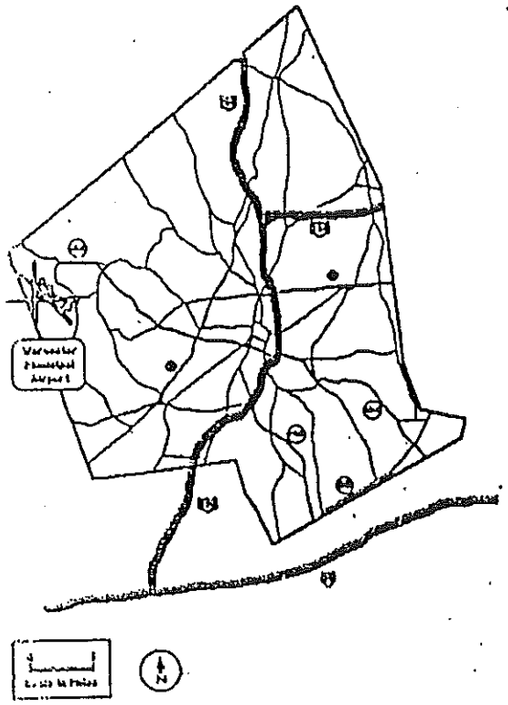
apply management techniques

The Downtown is not the only area in the city with parking woes. With much of the city's built environment formed prior to the advent of mass ownership of automobiles, many neighborhoods simply do not readily accommodate cars. The problems are especially acute and personally annoying at the smaller neighborhood shopping areas. On-street parking is rarely sufficient, especially for the typical quick convenience shopper. As with the Downtown, management techniques are the most immediately effective response.

neighborhood shopping/parking a problem

Residential parking is a more difficult problem, especially in the relatively dense three-decker neighborhoods. Built before their occupants owned cars, these buildings rarely provide enough if any off-street parking. Many lots which were formerly occupied by a three-decker have be informally converted to abutter parking. The City must be sensitive in its development approval process to the parking needs of its neighborhoods.

parking in neighborhoods



improve access

upgrade facilities

Worcester Municipal Airport (WMA), located in the west/central part of the City, handles over 122,000 planes per year. There are presently four commercial airlines serving WMA: Continental, Express Air, Eastern Express, and Piedmont. Continental's service was added February 1, 1987. An increase in commercial traffic of 50% is predicted for 1987 based on the addition of Continental. WMA also has active corporate and general aviation (GA) use. Analysis of air traffic in the region and the Northeast corridor generally suggests growth in demand for all types of aviation. Recent initiatives at WMA (reconstituted board, new airport manager, capital improvments) indicate a policy disposition on the part of the airport to grow, with a primary focus on servicing the air transport needs of Worcester and its region.

A key transportation concern for the development of the Worcester Municipal Airport is how access and egress to and from the airport can be improved with minimal impact on the adjacent residential areas. A strategy to improve access to the airport should involve parallel efforts that focus on both short- and long-term goals as well as on airport site and facility improvements. Short term improvements typically are route identification coupled with Transportation System Management (TSM) actions. TSM actions usually consist of minor improvements and/or modifications to the existing transportation system. Long term improvements typically consist of the construction of a new transportation corridor and/or the total reconstruction of an existing transportation corridor. Typical facility improvements increase parking and improve on-site traffic circulation patterns, as well as increase air traffic capacity directly (terminal, baggage, hangars, service facilities, etc.). As air traffic demands increase it will be necessary to consider on-site terminal facilities and transportation service, including helipads for corporate users.

Improvements should be made to facilitate airport access, including...

- A route congruous with the Regional Pathway system, beginning at the Lincoln Square node along Highland/Park/Chandler/Mill to Goddard. This also serves to emphasize key *nodes*, most particularly Park/Chandler and Tatnuck
- Designation of a route with access from the Massachusetts Turnpike beginning in Auburn at Oxford/Stafford/Ludlow/Main to Goddard.
- Improved signs along roadways and at airport entries, with a new Worcester-unique airport *logo* sign used.

Two long range improvements will be necessary for the southwesterly route to continue to be suitable:

- Upgrade Ludlow Street between Stafford and Main
- Bridge railroad tracks from Stafford to Ludlow; reconfigure the Ludlow/James intersection

The Bio-Tech Park represents a change in the City's commercial/industrial land use base. It is the first *high tech* development project in the city. Based on recent studies, The Bio-Tech Park will generate a total of 6,000 vehicle-trips per day. To serve the Bio-Tech Park, Plantation Street and the Plantation Street/I-290, Belmont Street/Plantation Street and Belmont Street/Shrewsbury Street intersections will be reconstructed to provide additional capacity. However, with the traffic generated by the Bio-Tech Park, UMass Medical Center (present and expansion) and residential projects (existing and planned) in the area, as well as general background traffic growth, the reserve capacity provided by the roadway improvements will be fully utilized in the near future. The traffic congestion and delay condition that existed prior to the intersection and roadway improvements will return without additional roadway improvements or a reduction in travel demands. Since the latter is unlikely, the former is necessary.

bio-tech park

The **Route 146 Corridor** has been designated an *Area of Special Development Significance.* As such it will receive particular attention from the City. The area is presently undergoing extensive study for its transportation needs as a result of the decision to locate a new Turnpike interchange at Route 146. This study is under the combined aegis of the Massachusetts DPW and Massachusetts Turnpike Authority. The state's Department of Environmental Management is undertaking a major study of the full corridor area as part of its Urban Heritage Park program. It is the intent of this study to analyze the full potential of the site, including economic development, housing, transportation and recreation uses. A particular outcome will be a preliminary environmental analysis regarding hazardous waste issues.

Route 146 Corridor a major new link

Worcester has a variety of mass and interurban ground transportation systems. *Amtrak* provides **rail** service to the City of Worcester. Up to five stops a day are made, with service provided to Boston three times daily, Chicago and west once daily, and the east coast corridor of NY/DC/Florida once daily. Service to Boston is not commuter-oriented. There is some long-term possibility of MBTA commuter rail service connecting Worcester, Boston and intermediate stops. The extent of cross-migration to places of employment (especially in the I-495 area) reinforces the need for commuter-oriented transportation. *Conrail* and the *Providence & Worcester Railroad* provide freight service to the city and surrounding areas. The City of Worcester is served by the Worcester Regional Transit Authority (WRTA), and two private **bus** companies, Peter Pan and Marathon Line. The WRTA is a 25 community member transit authority serving Worcester and the surrounding area. The WRTA operates a 62-bus fleet with peak morning and evening demand requiring the use of over 50 buses at any one time. The relatively large size of Worcester means that residential densities are often not sufficient to generate demands on special routes. This accounts for the radial nature of the system. Alternative methods (dial-a-bus) might be possible, but are often costly because they are labor intensive. A likely alternative is employer-provided van service. The Peter Pan Bus Company provides express bus service to/from Boston, with the Marathon Bus Line providing local bus service along Route 9 between Worcester and Boston.

rail service

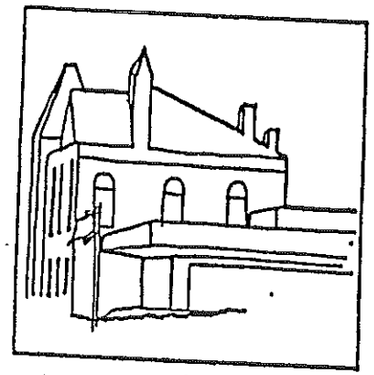
need for commuter rail

bus service

In the most immediate sense, **Worcester's transportation system is in need of a comprehensive Transportation Systems Management plan.** Signals and signs in the city do not work effectively. Critical intersections have not received detailed scrutiny or the sorts of modest but effective physical alterations possible using a TSM approach. Parking in both Downtown and neighborhoods needs a coherent strategy. The *path/edge/node* system is an ideal structure around which to organize a TSM plan.

Transportation Systems Management a critical need

COMMUNITY FACILITIES



school enrollment up

fire and police equipment needs

city hospital future

For the first time in over a decade, **school enrollment** is increasing. The population increase which prompts the enrollment increase is not evenly distributed in the city. Neighborhood patterns are making it increasingly difficult to maintain racially-balanced schools. Twenty five percent of the present school enrollment is minority. Currently, the schools are used at full capacity. A number of old school buildings have deteriorated to the point where they need to be replaced. Twenty-two of the buildings are 75 or more years old. The combination of an aging system and a shifting population places strong challenges on the system to creatively respond to the racial distribution of school age children. This is especially critical given the Commonwealth's mandate for racial balance in schools in order to receive 90% reimbursement for new construction. A companion challenge is ensuring a good quality of education for all students. Expanding the magnet school program, redistricting as appropriate, busing, expanding open enrollment and construction of new schools are all potential actions for the School Department.

Worcester's **Fire Department** operates 13 fire stations with a total of 24 response units (engine, ladder, aerial scope, and squad companies). In 1986 the Department opened a new fire station in the East Side of Worcester on Grafton Street. The Department's two primary problems are staffing and aging equipment. Present estimates indicate the Department is short-staffed in 23 out of 24 first-line response units. Eight of the Department's 16 pumpers are more than 15 years old. Three of the 7 ladder trucks are between 17 and 23 years old. Both new equipment and repairs are costly. In 1983 the Department purchased a new aerialscope ladder truck for $264,126. Recently, two ladder trucks were sent out for major repairs.

The Worcester **Police Department** operates out of a central Police Station. Patrol cars and police officers are assigned to the various sectors of the city from the station. This centralized structure gives the Department the flexibility to reallocate and reassign staff as needed. Like the Fire Department, the Police Department experienced cutbacks in personnel and capital budgets based on Proposition 2½. Both the Fire and Police Departments would benefit from **computerization of recordkeeping and analysis.**

Worcester has a large supply of **hospitals and physicians.** The eight hospitals are operating in a highly competitive environment. Recent studies report that the Worcester area has 8.6 beds/1,000 persons, over double the national target. As a result, a few have significantly changed the type of services they provide. Almost all of the hospitals have aggressively marketed out-patient clinics. Additionally, as Worcester's population ages, the hospitals are expanding geriatric care. Worcester now has one of the highest proportions of elderly residents in New England.

In 1983 the City debated the future of Worcester **City Hospital.** At that time, the hospital was viewed as poorly managed, over-staffed, and underutilized. The city opted to keep it open and bring in new management through the Hospital Corporation of America. Since that time the hospital building and grounds have been renovated, the staff cut from 1,050 to 850 employees, the deficit cut, new equipment purchased and services shifted to include a geriatric medicine department. A *Strategic Plan* adopted in 1985 recommended continued provision of acute medical care and developing programs for underserved segments of the population. This does place special financial demands on hospital operations.

Although there are nine colleges and universities in Worcester, the city is not perceived as a *college town* . Despite some prominent locations, the schools have not provided a focus for the city's development. With a few notable exceptions, the schools have tended to isolate themselves rather than become a strong force in city life, either organizationally or spatially. Their decisions about operations (such as student body size, housing, parking and so on) and physical plant seem to be taken with limited awareness of impacts on the city or immediately surrounding neighborhoods. The colleges need to be a stronger civic force, especially in terms of working with neighborhoods and the City is guiding improvements in their areas.

9 colleges need to be a stronger civic force

Clark University is buying local stores and apartments, renovating them and maintaining them for neighborhood residents (rather than for students). Its goal is to improve the aesthetics and image of the neighborhood. Clark's development plans include the completion of a $20 million university center and dormitory. Though its location on College Hill would seem to minimize its impact on the city, **Holy Cross** has 500 students living off campus. **Worcester State College** is the largest school in Worcester with 3,800 day students plus and additional number of night students. A large portion of the students work and attend school part-time. Most of the students are from the Worcester area: 85% of the graduates remain in Worcester County. There is very limited dormitory space. **Worcester Polytechnic Institute** expects to increase graduate enrollment slightly. WPI would like to build more on-campus housing and provide more parking for students and faculty. **Quinsigamond Community College** is a business-oriented community college. Most of the programs at the school are oriented to job training for local business and industry. **Central New England College** is another school oriented towards business and industry. The school focuses on Computers and Information Systems, Engineering Technology, and Management of Technology. The school has worked with local industry in developing these programs and placing students in cooperative work-study programs. **Assumption College** is a small Catholic Liberal Arts college. Currently, the school does not have any plans for expansion. **Becker Junior College** is a 2-year business-oriented junior college. It recently expanded by building a new Student Center. There are approximately 400 students at the **University of Massachusetts Medical Center** and a total of approximately, 4,000 faculty, staff, and students. UMass has plans for a considerable amount of expansion, including adding a psychiatric wing and a primary care center to the hospital. The **Consortium for Higher Education** coordinates several activities for the nine colleges and universities in Worcester.

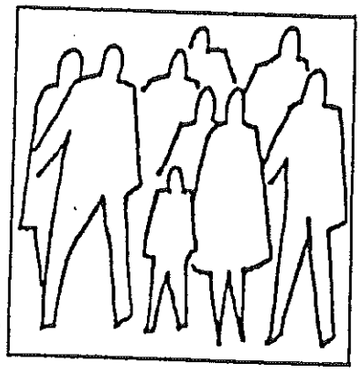
The educational institutions in Worcester cover large land areas of the city and operate as economic entities, yet pay no taxes. Notwithstanding the general economic benefit to the city of the schools, they should bear their **fair share of the costs of public services.** Some of these costs can be user fees. Others can be *payments in lieu of taxes*. Expansion of colleges involving purchase of previously tax-paying property might well in a one-time fee. For example universities in Cambridge pay 13.6¢ per square foot of tax-exempt property. A related issue is the fiscal impact in **student housing.** More than 2,500 students are currently living off-campus. Schools need to supply more on-campus dormitories and limit the opportunity for students to live off-campus.

payment in lieu of taxes

The city's educational institutions (both public and private) train the labor force. The **Worcester Vocational Technical School** , and other vocational education programs (both secondary and continuing education) have an important role in guiding the provision of special occupational resources.

vocational education implement

CULTURAL ACTIVITIES



cultural climate as major asset

cultural commission

funds

significant economic impact

During the past decade, Worcester has experienced an expansion of cultural activities in the city. Many point to the renovation of Mechanic's Hall and the opening of the Centrum as the two major confirming events. Today there are approximately eighty independent cultural organizations covering all aspects of the arts, including art, childrens programs, choral music, history and heritage, literature, museums, performing arts, dance, crafts, education, theatre and music. Additionally, Worcester's Cultural Commission was established through the City Manager's office to foster the development of the arts.

The range and quality of Worcester's cultural organizations and activities compare favorably with other cities of its size. Yet, even wih some success, the cultural community in Worcester remains diffuse. The organizations continue to have difficulty in obtaining funding. They feel they lack support from the city. Despite culture's low public image, Worcester residents view the cultural and entertainment activities as a **major asset to the city.** One question in a survey conducted for the Master Plan asked about the positive features of Worcester. Two-thirds of the respondents selected *Entertainment* as one of their choices.

The Worcester **Cultural Commission,** a department of the City Manager's Office, was created to foster the development of arts in Worcester through publicity, advocacy, information and funding. The Cultural Commission provides grants and funding information and distributes the state lottery funds from the Massachusetts Arts Lottery. It also is a member of the Massachusetts State Advocacy Committee, and represents the city in seeking state funding for local programs. The Cultural Commission publishes an *Artist's Directory* and *A Cultural Directory of Worcester.* Another responsibility of the commission is coordinating and publicizing the activities of First Night in Worcester.

The two largest **sources of funds** for Worcester's cultural activities are the Massachusetts Arts Council and the Massachusetts Arts Lottery. The Arts Lottery is distributed on a per capita basis for each city and town in the state. Since 1980 Worcester has received $900,000 from the Arts Lottery. In 1987 Worcester was allocated $180,000 to fund artists and performers. However, for the past several years Worcester has received the fifth largest share of Arts Council funds despite being the second largest city in Massachusetts. Boston, Cambridge, Springfield and Fall River all are funded at a higher level than Worcester. In 1986 Boston received approximately $3.6 million dollars in arts council funds. Springfield received approximately $432,000; Cambridge received $343,000, while Worcester received only $333,000.

The Cultural Commission believes that Worcester's failure to gain a larger share of funds is partially due to the public perception of arts in Worcester. In order to gain more local support the Cultural Commission conducted an **economic impact** study. The study determined that there was $19.6 million per year in direct spending resulting from cultural activities in Worcester. This figure includes spending on materials and supplies, studio, rehearsal, and performance space, wages, and ticket revenues. It does not include indirect or "spin-off" spending in hotels and restaurants. The economic impact of the cultural community needs to be part of the City's Economic Development strategy.

artist's special housing needs

Housing is of special concern to artists in Worcester. As housing prices in Worcester increase, artists are faced with increased difficulties in finding inexpensive living and studio space. For example, the Grove Street Gallery is currently used at full capacity, with a waiting list of artists waiting for space to open up. Conversion of older manufacturing buildings to artist living and studio would appear to be indicated, especially where those structures are in neighborhoods where the previous use is incompatible with a current residential use.

promotional needs

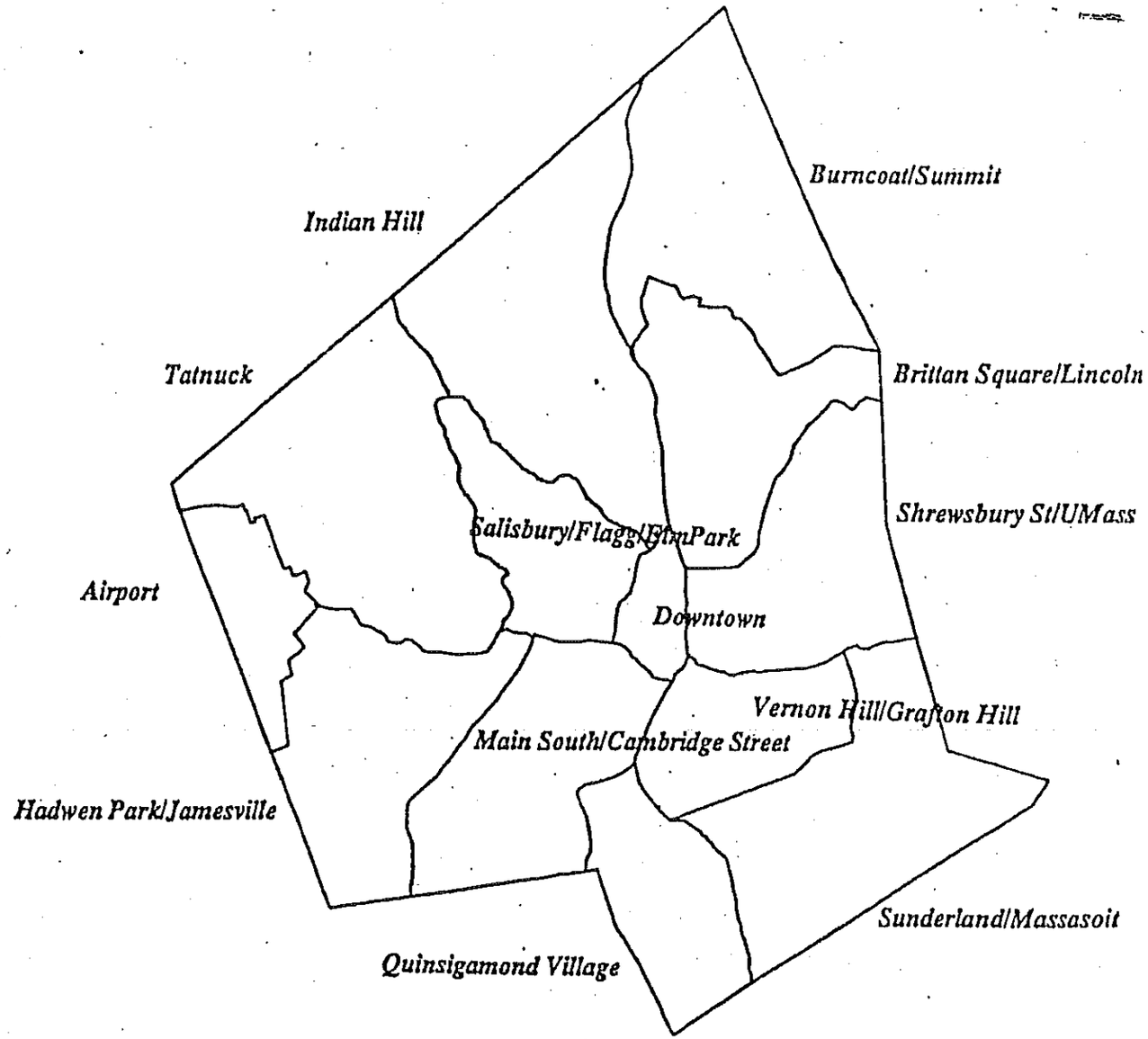
A number of actions are appropriate to promote cultural activities in the city, including..

- Increase public awareness of the various performances and exhibits in the city by launching a general **media campaign** on the arts in Worcester
- Reinforce the role of the arts in the schools.
- Enhance the cultural resources of the city by **linking the downtown cultural institutions** with related public and private improvements, including a culture discovery walk.
- Identify and promote the **economic development benefits** of a positive cultural climate.
- **Increase allocations for cultural activities** from current sources and, at the same time, seek out new sources of funding.
- Work towards **greater self-sufficiency** for local cultural organizations.
- Study the need for **artist and studio space** in the city and assist in creating whatever space is needed.
- Expand the sponsorship of **major events.**
- Promote the development of a mid-size multi-use **performing arts center.**
- Study the feasibility of **arts funding as part of development.**

Worcester Master Plan

PLANNING AREAS

PLANNING AREAS



The evolution of the city in response to its strong natural environment yields a set of thirteen (13) *Planning Areas.* These *areas* are useful for purposes of analysis and for future planning efforts. They were defined based on several factors...

- Existing physical boundaries and natural features
- Built environment
- Acknowledged neighborhood groupings
- Manageable dimension and service needs
- Historic social, political and economic clustering

naturally defined

Thus these *planning areas*, treated together, correspond to the way Worcester's residents already see the city organized in their day to day lives. They reflect on the way Worcester citizens and leaders have responded to the imperatives of space, structure, commerce and discourse to form a city.

The thirteen *planning areas* are shown on the map on page 42, and are...

- *Airport*
- *Brittan Square/Lincoln*
- *Burncoat/Summit*
- *Downtown*
- *Hadwen Park/Jamesville*
- *Indian Hill*
- *Main South/Cambridge Street*
- *Quinsigamond Village*
- *Salisbury/Flagg/ElmPark*
- *Shrewsbury St/U Mass*
- *Sunderland/Massasoit*
- *Tatnuck*
- *Vernon Hill/Grafton Hill*

13 planning areas

Though each has a distinct set of qualities and needs, some broad themes emerge from this spatial focus on the City. Not surprisingly, some of the themes coincide with the analysis of the City from a functional perspective. Among these themes are...

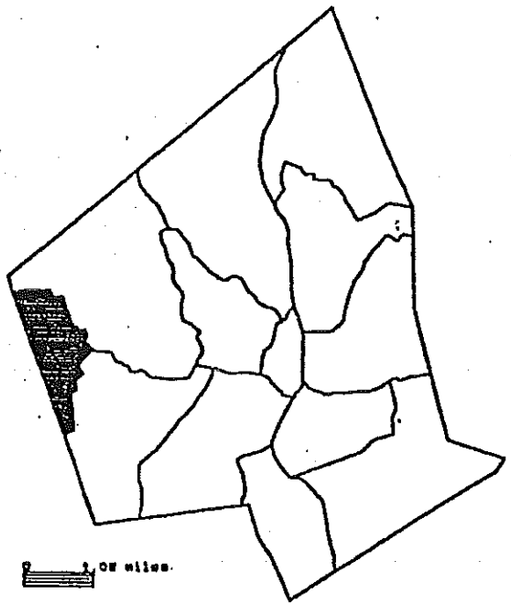
- A need to stabilize and reinforce existing housing
- The importance of the *pathways* and *nodes* system in structuring the city
- The care to be given to review and shepherding of development initiatives, in both existing and new *areas*

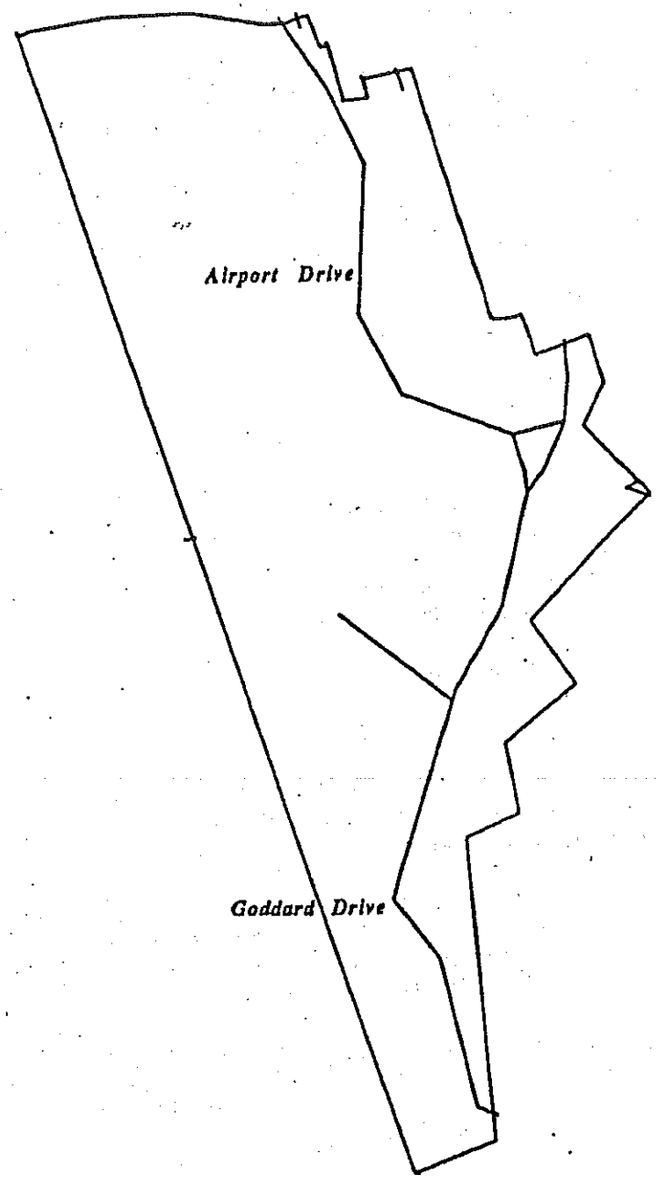
common themes

The following pages briefly describe each of the *planning areas*. The qualities, needs and contributions of each are highlighted. Each provides the basic structure for specific and regularly updated area and neighborhood plans created jointly by the City and area residents, neighborhood centers, businesses and other interested parties.

basis for area and neighborhood plans

AIRPORT





The *Airport* is located on the most commanding of Worcester's many hills. Its dramatic viewsheds cover all parts of the city, and stretch to include the Boston skyline. The natural qualities of this area thus serve to reinforce and enhance Worcester's role of regional prominence. The eastern edge of the *airport* area slopes dramatically down from its maximum height 1,000 feet above sea level, with the Tatnuck Country Club some 300 feet below the runway level. This steep slope is heavily wooded, and serves to present a pleasing green facade to the city.

a commanding vista

The *airport* area is devoted to transportation and economic uses. Worcester Municipal Airport takes up the largest portion of the area. The runways extend to the west into Leicester. The airport has a terminal facility, substantial parking and a variety of hangars for corporate and general aviation use. The other major built form in the *airport* area is the Airport Industrial Park. Developed over the past several years, this park is now fully commited. Many of its companies arrived as a result of internal relocation and expansion of existing Worcester businesses.

serves transportation and economic goals

Airport Drive serves as a *city pathway*. It establishes connections with three *nodes*, which are outside the *airport* area. This pathway serves both the airport, and the industrial park.

The future of the *airport* area will focus on improvement of the facilities, as the air transportation demands of residents and businesses of the Worcester region expand. This expansion will require careful monitoring of vehicular use of the various access *pathways* to ensure that airport generated traffic is adequately handled. A second requirement will be ensuring that truck traffic serving the industrial park is appropriately routed.

facilities improvements

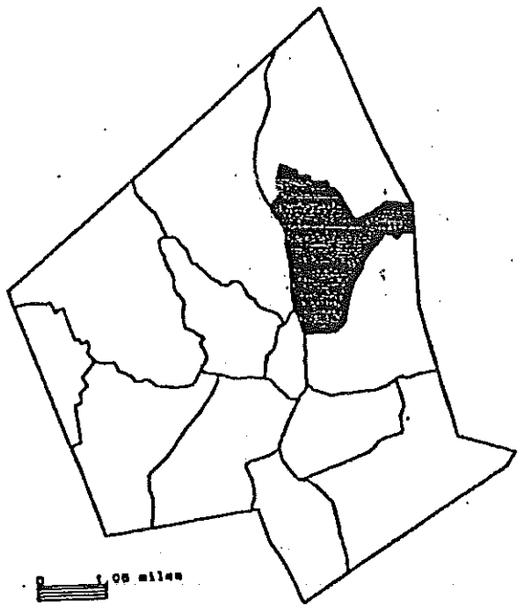
A parallel planning concern to airport expansion is the impact to health and safety of airplane traffic. Though improvements in technology are making planes quieter, the noise levels can still be a problem. Since the airport is owned by the City, it is important that the City inform and protect new developments in the airport area. The *Airport Environs Overlay Zone* is defined by noise contours. It is also an ideal TDR sending zone. An overlay zone provides a way to ensure that structures in the area are adequately constructed to protect occupants from the impact of airport noise. It establishes a construction standard for new and rehabilitation activities that achieves an acceptable reduction in noise level. An additional mechanism to regulate airport impact on development is the *avigation easement.*

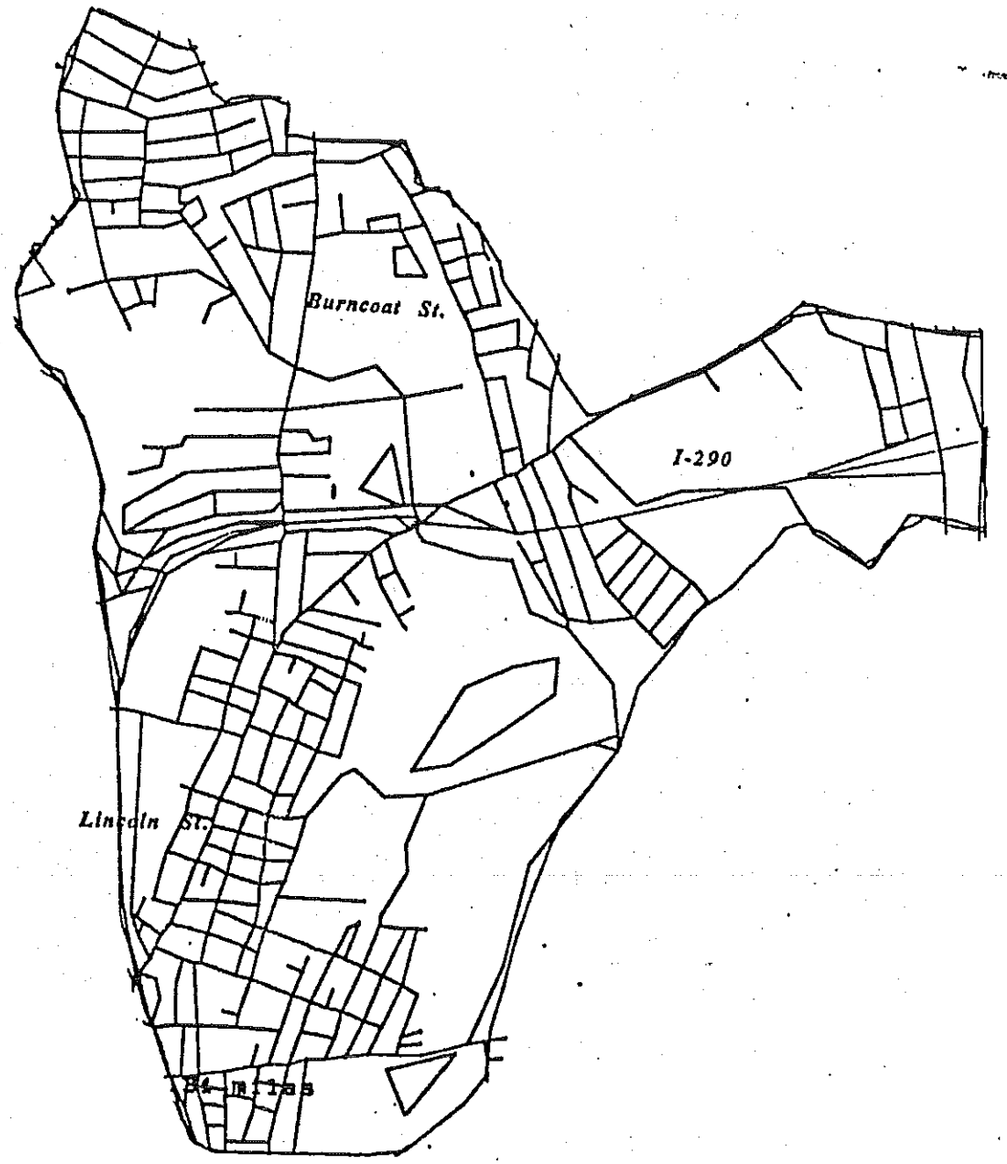
overlay zone

The Action Strategy for the Airport Includes:

- Improving ground access and signs
- Improving terminal facilities
- Increasing parking
- Adopting the Environs Overlay Zone
- Promotion of the airport for citizens of Worcester and the Central Massachusetts Region

BRITTAN SQUARE/LINCOLN





The distinguishing feature of the natural environment of ***Brittan Square/Lincoln*** is the large amount of public open space including Green Hill Park and Golf Course, Burncoat Park, and Dodge Park. Burncoat Park and Green Hill Park have significant ponds within them. Also present is the watershed area along the Coal Mine Brook, running from west to east, and entering Lake Quinsigamond. This area also has several distinct hills, the most prominent of which is Green Hill at a 750 foot elevation. The largest natural valley in the area runs east/west and contains the right-of-way for I-290.

much open space

Portions of I-290 and I-190 form a hard edge to the western border of the area. A stretch of I-290 runs through the east/west valley. The railroad right-of-way continues the hard edge on the west side. This area contains one of Worcester's traditional institutional zones with several hospitals located along Lincoln Street. The Burncoat Junior/Senior High school complex dominates the northern section of Burncoat Street. This area extends to the edge of *Downtown*, and a large manufacturing zone runs along the entire western edge. Residential structures are more limited than in many other areas of the city.

several hospitals

I-290 serves as a *regional pathway* with major interchanges at Plantation Street, at Lincoln Street, and at the confluence of I-290 and I-190. Lincoln Street serves as a *city pathway* from *Downtown*. It is fed by Burncoat Street, a *neighborhood pathway* for local retail activities and the school complex. This area contains two natural activity *nodes*, both associated with I-290 interchanges. *I-290/Plantation* is a natural gateway to the city, but is currently developed at very low density. *I-290/Lincoln* also has low density development.

The acquisition of the Coal Mine Brook Watershed has been given top priority by the Conservation Commission. The rehabilitation of Green Hill Park will restore this valuable city resource to more active use.

Coal Mine Brook watershed

The major planning opportunities for the built environment for this area are the two underdeveloped *nodes*. The *I-290/Plantation Street node* should be developed as a major gateway entrance for the city. Improvements should include additional signage and development opportunities. State Mutual is expanding at the other node, which provides an impetus for other improvements. Both need to assess the impact on the area of mall development to the east.

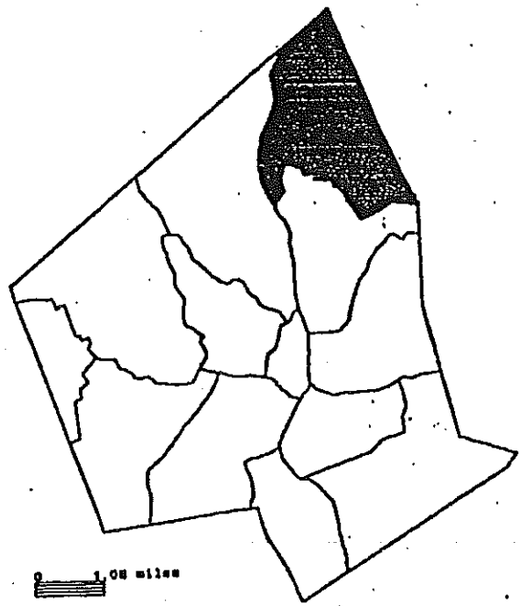
Existing households at the higher elevations in the area suffer from lack of water volume and pressure. Upgraded pumping capacity and/or water main replacement is recommended for these areas. Lack of improvements will necessarily restrict further development in these parts of the area.

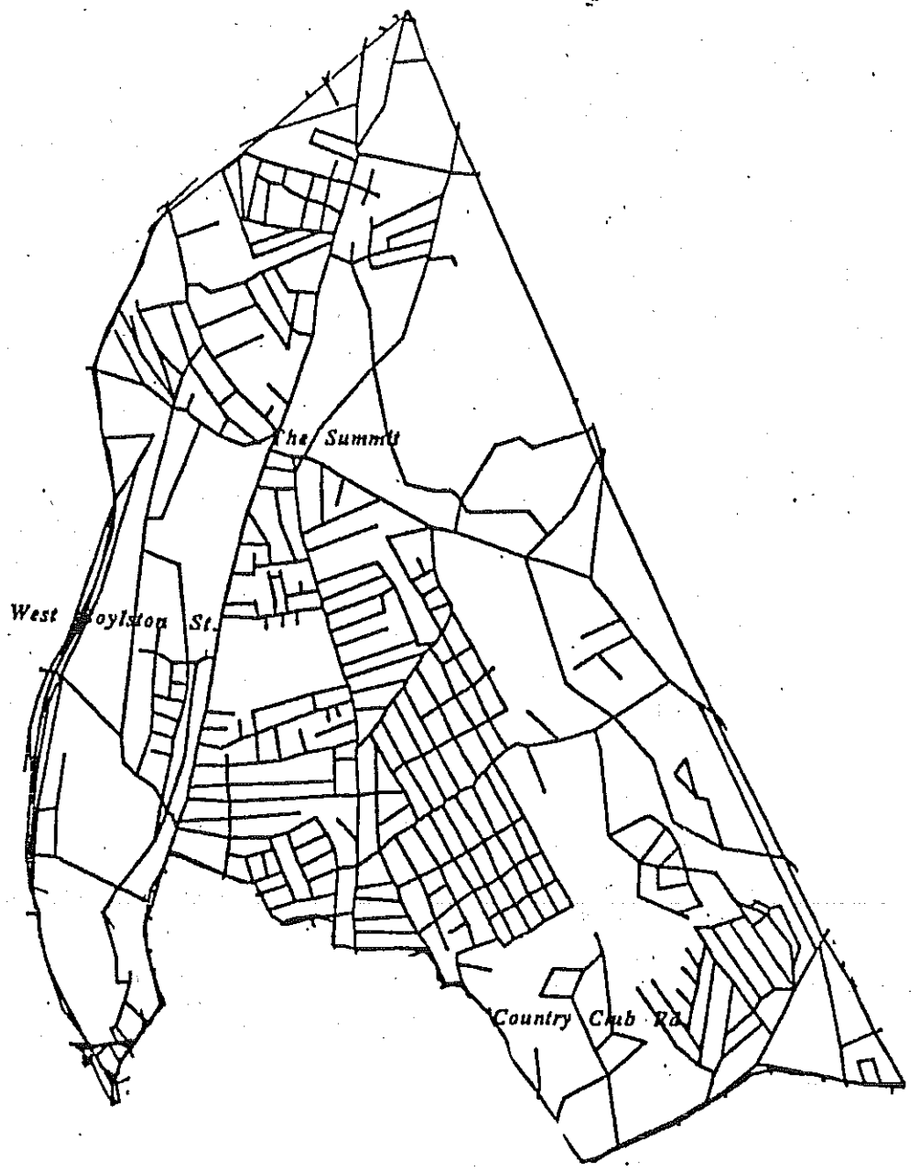
water and sewer questions

The action strategy for Brittan Square/Lincoln includes:

- Pathways/Nodes improvements
- Establishment of a "Gateway" at the I-290 Interchange
- Water/Sewer improvements
- Stabilization of housing
- Upgrade Green Hill Park

BURNCOAT/SUMMIT





The primary physical features of importance in *Burncoat/Summit* are the valley located along Poor Farm Brook and the hill that rises on the western side of the area to its summit at Burncoat Street and Quinapoxet Lane. The hill and valley configuration is typical of Worcester's rolling topography, but the steepness of the west to east slope makes this a flood-prone area. Runoff flows through the valley to enter Lake Quinsigamond at its northern end. The 700 foot elevation at the top of Burncoat Hill allows for a significant viewshed both to the east and to the southwest.

valley and hill

An additional significant feature is the Worcester Country Club. This large open space, while not fully accessible to the general population, does provide significant benefits to the residents of the area, including absorption of runoff, wildlife habitat, air pollution filtration by vegetation, and a temperature moderating effect. The only significant waterbody in the area is the Poor Farm Brook. It provides few recreational opportunities, but does serve as the primary source for the public wellfield at the Poor Farm site in Shrewsbury.

Burncoat/Summit is bordered on the west side by I -190 which acts as a physical barrier and a strong visual and psychological edge. Along this western edge is a large manufacturing zone occupied by The Norton Company. The structures here strongly define the physical character of the western portion of the area. One of the dominant built forms in this area is the housing complex of Curtis Apartments/Great Brook Valley. These developments are composed of dense low to mid rise family housing of masonry construction. Recent rehabilitation of the Great Brook Valley segment, including facade elements, has improved the appearance of this development, though Curtis Apartments still retain an institutional quality. The remaining built environment is characterized by moderate density wood frame residences laid out in a generally rectilinear street grid, with the exception of the group of high rise buildings off Country Club Boulevard.

I-190 a strong edge

City pathways include West Boylston, East Mountain, West Mountain, and Lincoln Streets. The single *neighborhood pathway* is Burncoat Street running North and South. These *pathways* provide for efficient travel north and south within the area and include commuter routes to and from the *downtown node*. This area contains two activity *nodes*, a *city node* at "The Summit", and a *neighborhood node* at the intersection of Lincoln and Boylston Streets.

Two significant planning issues are *watershed protection* and *open space preservation*. The rehabilitation of the Poor Farm Brook watershed and well field can be an important element in increasing water supplies for the city, whether for drinking and/or industrial use. The Conservation Commission has identified the Poor Farm Brook watershed as a high priority for public acquisition. The major open space resource is the Worcester Country Club.

watersheds and open space

A built form planning issue is the diffuse image of the area. Its considerable topographic changes and location on the edge of the city make it difficult to create a clear coherent expression of its character. This can be improved by reinforcing the commerical areas which serve the area. *The Summit* is identified as an *Area of Special Development Signficiant*, with improvements needed in use, appearance, and organization of vehicular and pedestrian traffic. Simple recognition of its function for the area will help clarify one anchor point.

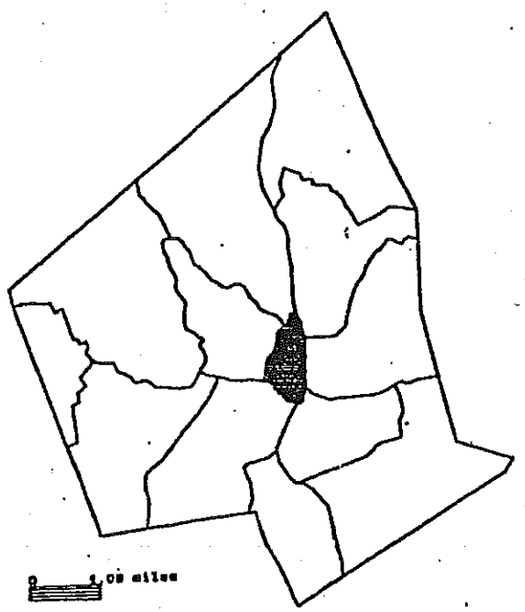
Summit as ASDS

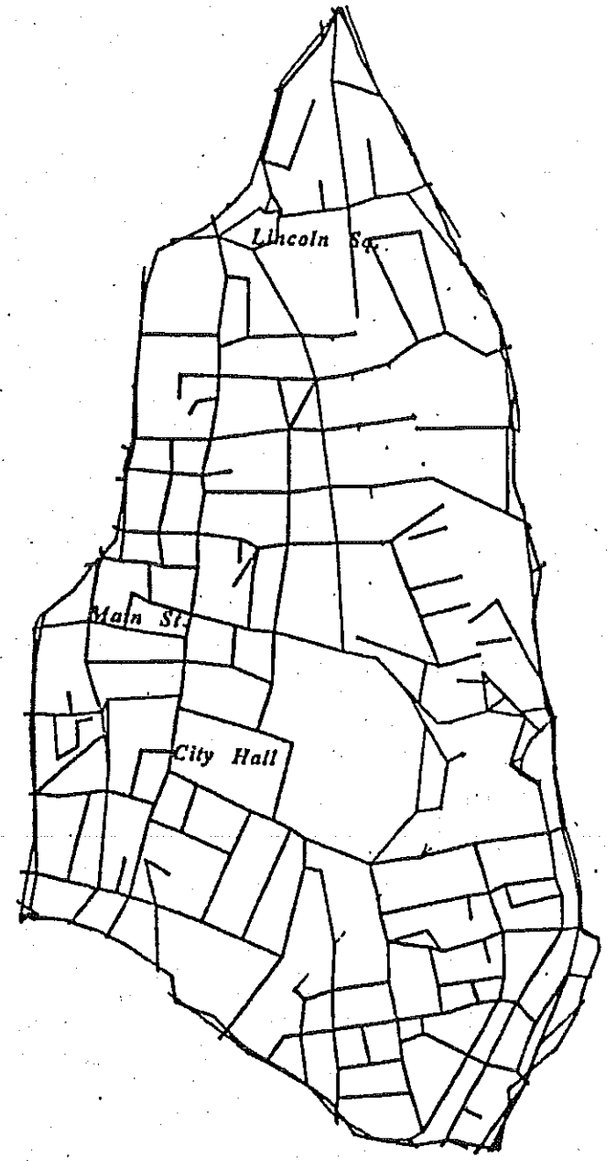
The action strategy for Burncoat/Summit Includes:

- ASDS designation at the Summit
- Pathways improvements, including anticipating mall impacts
- Open space acquisition

The Summit

DOWNTOWN





Downtown is a traditional focal point for Worcester, as for most cities. Worcester's *Downtown* is located at the convergence of a series of *pathways*. Indeed it is defined primarily by *pathways*. This is not surprising, given the dominance of topography in establishing the city's form. Worcester's *Downtown* is the basin of its hill and valley system. The most profiounced natural forms are the hill on *Downtown*'s western edge, and the hill system to its east. This natural defining quality has been superceded by the imposition of a built hill, that is I-290.

Downtown design issues

The built environment has attempted to become the defining quality of *Downtown*, though with *only marginal success*. Residual factors from earlier compromises with the natural environment (such as the railroad embankment) have established inescapable physical design constraints. The location and design of I-290, especially with its multiple entrances and exits, have served primarily to confuse the structure of *Downtown*. The designers of Worcester Center made a major design decision which involved turning the structure's back to I-290 and the east, and attempting to focus user attention through a fortress-like parking garage (from the eastern side) and an atrium-like entry point (from the western side). Entry via automobile requires successfully negotiating a Worcester Center Boulevard crossing. This is not a simple procedure, as driving decisions must be made very quickly, and without visual clue until the driver emerges from the railroad embankment underpass. Further, there is no visible conveyance of the retail purpose or appeal of the structure. It is assumed that the destination is known, and its attributes need not be conveyed by its built form. Given the size of the parking garage, it is rather surprising that the facade which conveys the purpose of Worcester Center (at least its retail purpose) is approached only on foot, coming eastward from the Common. Only the two office towers, each of which is topped by a *logo* conveying the primary tenant's banking business, communicate the purpose of the structures from all sides.

Worcester Center access

The problems with Worcester Center are further evidenced by the slow development of the parcels on either side of Worcester Center Boulevard. Only the publicly-financed *Centrum* has proceeded according to the original redevelopment plans and schedule. There are recent announcements of plans for a major office structure. A mid-rise residential rehab project is also underway. But the fact remains that development of new and/or major rehabilitation *Downtown* along the Worcester Center Boulevard *pathway* has been extremely slow. This is due in large part to the vast expanse of pavement to be spanned, by either built form or human beings.

new development slow

By comparison rehabilitation has been active in the older buildings of Worcester's *downtown*. Also, the other major office tower was located on the traditional Main Street, not on the city's attempt at a new main thoroughfare. The more recent investments by the private sector, which include such mixed use developments as Exchange Place, have traded on Worcester's heritage. The City itself has placed major emphasis on this with the renovation of Mechanic's Hall. Lost in this emphasis has been the cluster of cultural and public institutions at Lincoln Square. This is due in large part to their physical isolation resulting from the roadway improvements associated with Worcester Center Boulevard.

rehab active

2 faces of City Hall

discovery pathway

commerce pathway

murals to reflect activity

day-care as office amenity

Madison (to the south), I-290 (to the east) and Belmont (to the north) are all *regional pathways* defining the edges of *Downtown*. Main Street is a *city pathway* which serves as one of the two spines of the *Downtown*, with Worcester Center Boulevard (a *regional pathway*) being the other downtown spine. Main Street has three *nodes*, one at each end and one in the middle. *Federal Triangle* defines the southern end of *Downtown*, while the *Lincoln Square* set of cultural and public institutions is the northern end. *City Hall* is a *node* which has two faces, and two experiences. The west face conveys public sector bustle and activity, a face reflected in the Shawmut Bank building which contains a similar private sector use. The east face presents public ceremony and celebration, with the Common spilling into the reflecting pond.

Historically these *nodes* and *pathways* were of a scale, form and distance that were manageable by walking. The introduction of roadway improvements converging at Lincoln Square perceptually confused that possibility for users. There is a need to reintroduce the pedestrian possibilities of *Downtown*. Expanding commerce and business onto Worcester Center Boulevard allows Main Street be a *discovery pathway* for *Downtown*, complemeting the new *commerce pathway*. However, this combination of commerce and discovery will require that *Downtown* be made more coherent and accessible in its functions.

Several actions are necessary to accomplish this. A major initiative is already underway with the reuse of Union Station as a convention center. This permits leveraging of public and private investment to achieve multiple objectives. The *Union Station/Washington Square node* can become the major gateway to *Downtown*, with effective on/off ramps for I-290 and improved entry onto Worcester Center Boulevard. The fork in the road which occurs at the Centrum physically conveys the two choices - to the right is *contemporary commerce* along Worcester Center Boulevard, and to the left is *discovery of heritage*.

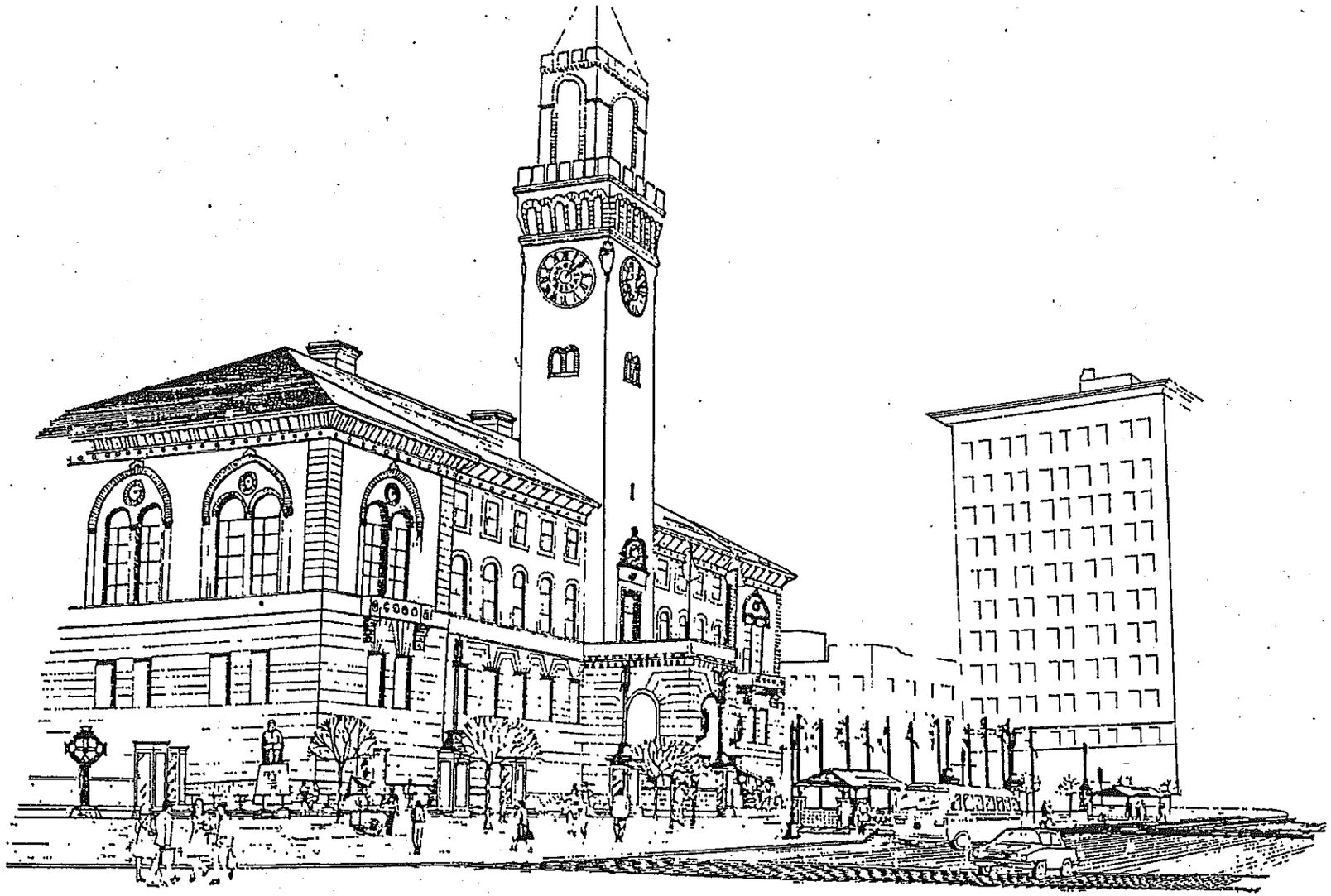
The link of *heritage* and *commerce* may be achieved through air rights development over Worcester Center Boulevard, connecting the Union Station area to new retail, hotel and residential uses at the southern end of Worcester Center and connecting new office towers to a rooftop experience of gardens, restaurant and retail businesses on the parking structure via skywalks.

Major improvements to the west facade of City Hall and Main Street, using the structure's design and materials for guidance, will add a sense of Worcester's past and present as a source of unified energy. Murals on the Denholm building and the Shawmut parking garage can fill out of the visual landscape with excitement rather than drab concrete. The Federal Triangle needs to be recreated as a green *node*, one end of a pleasant discovery walk from Lincoln Square through Worcester's full range of heritage.

Downtown activity can be increased both day and night through residential development. Further mixing of ages will be encouraged through consideration of on-site day care as part of the package of amenities provided in new *Downtown* buildings.

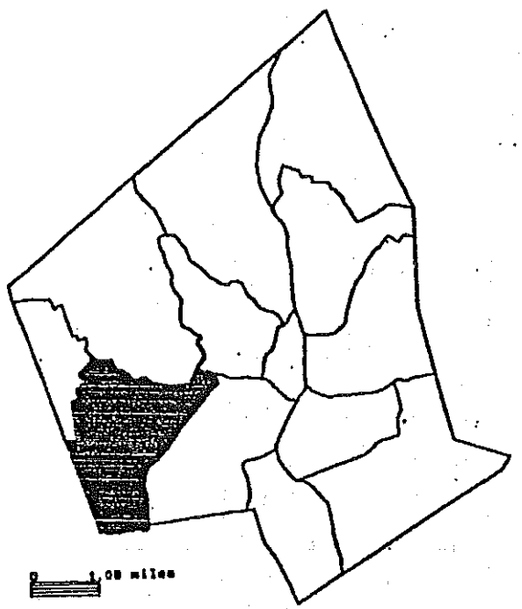
The action strategy for Downtown includes:

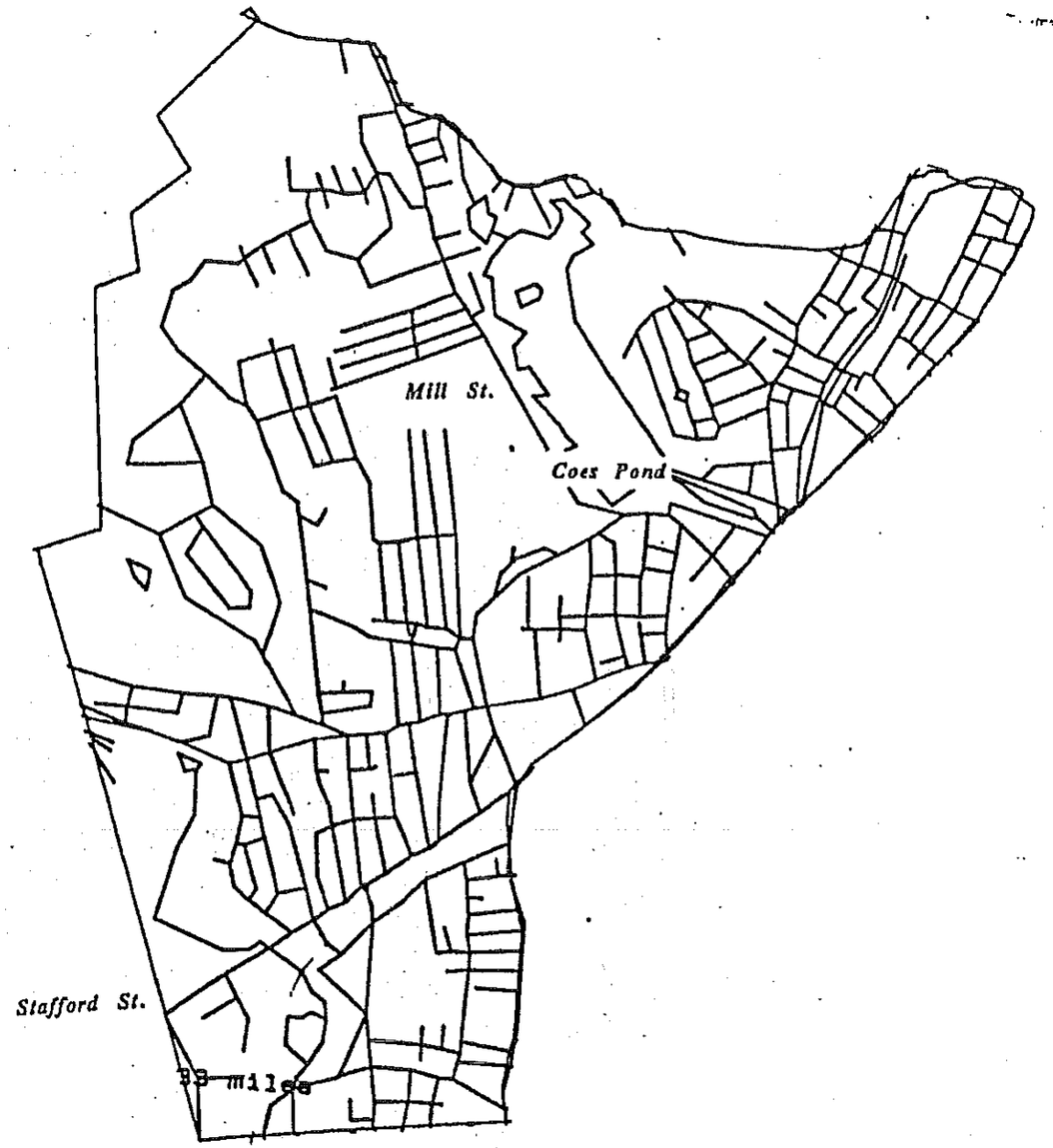
- Adoption of the ASDS Overlay
- Creation of the new Commerce Pathway
- Visual enhancement of Main Street as a Discovery Pathway
- Historic preservation, including refurbishing City Hall



POSSIBLE CITY HALL IMPROVEMENTS

HADWEN PARK/JAMESVILLE





The topography of *Hadwen Park/Jamesville* slopes from west to east from a high point in the vicinity of Swan Avenue down to a series of streams and ponds of which Coes Reservoir is the largest. Large amounts of open space are found on the western edge of the area towards the City line, especially at Parson's Estate, and again surrounding the waterway system. Hadwen Park itself is a major but little used city recreational resource. Coes Pond provides an active bathing beach easily accessible to several residential neighborhoods.

diverse topography

Built forms here are primarily low rise one and two family residences of moderate to low density. The older manufacturing structures around Curtis Pond formed the core an area referred to as Jamesville in the 19th century. Recent development activity has been limited primarily to residential construction. A large masonry housing development of the Worcester Housing Authority faces Coes Pond on its north shore. There is also a significant retail component found in the vicinity of Webster Square, characterized by low level strip development and shopping plazas. It is in this area that persons entering from the west first encounter Worcester as an urban place. At this point, Worcester is seen as a city of hodge-podge signs and strip development, hardly the qualities of a city which has been formed by its hills and valleys.

Coes Pond potential

Regional and *city pathways* play a major part in determining the character of this area. Park Avenue, Main and Stafford Streets serve not only to attract through traffic to and from *Downtown*, but also as the focus of retail and commercial activity for the southwest side of the city. This intensity of uses culminates in the vicinity of Webster Square. For eastbound travel, Park Avenue should serve as a boulevard through the city. The area also contains several of the important access routes serving the Worcester Airport including Goddard Memorial Drive and Ludlow Street. As airport traffic increases, these *pathways* will need to be better defined and improved.

airport access important

The area also contains several of the most important *city nodes*, principally those at Goddard/Main, due to the growing significance of the Worcester Airport, and at Stafford/Park since they should function as the introduction to the urban scale of the city. This second *node* is also part of the Webster Square ASDS. Of unique importance is the *neighborhood node* surrounding the lower portion of Coes Pond because of its potential for enhancement as an historic museum and open space resource at the dam site. Combining new buildings and significant open space improvements should act to re-establish the special character of Park Avenue which was once designed as a boulevard street enhanced by a tree canopy and other amenities. The adoption of an ASDS overlay will be the first step in reducing the commercial sprawl currently associated with this area. More focussed development should be the result.

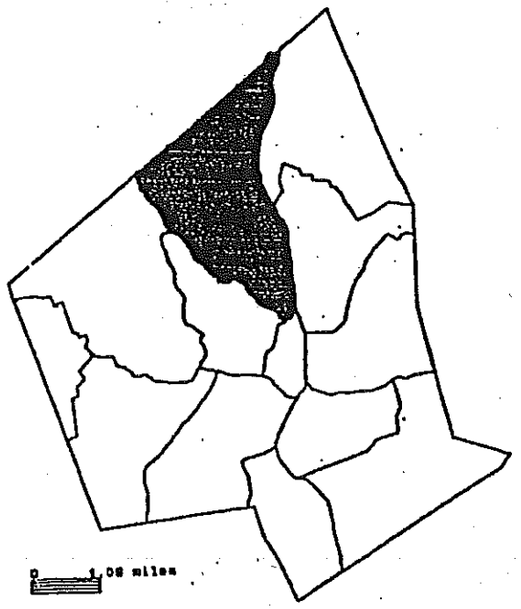
A number of other improvements to the built and natural environments are in order. A boating facility at Coes Pond would be a contribution to community activities. It will also be important to continue the extension of public sewers to all streets impacting Coes Pond. The area known as Parsons Estate has been identified by the Conservation Commission as a priority for acquisition.

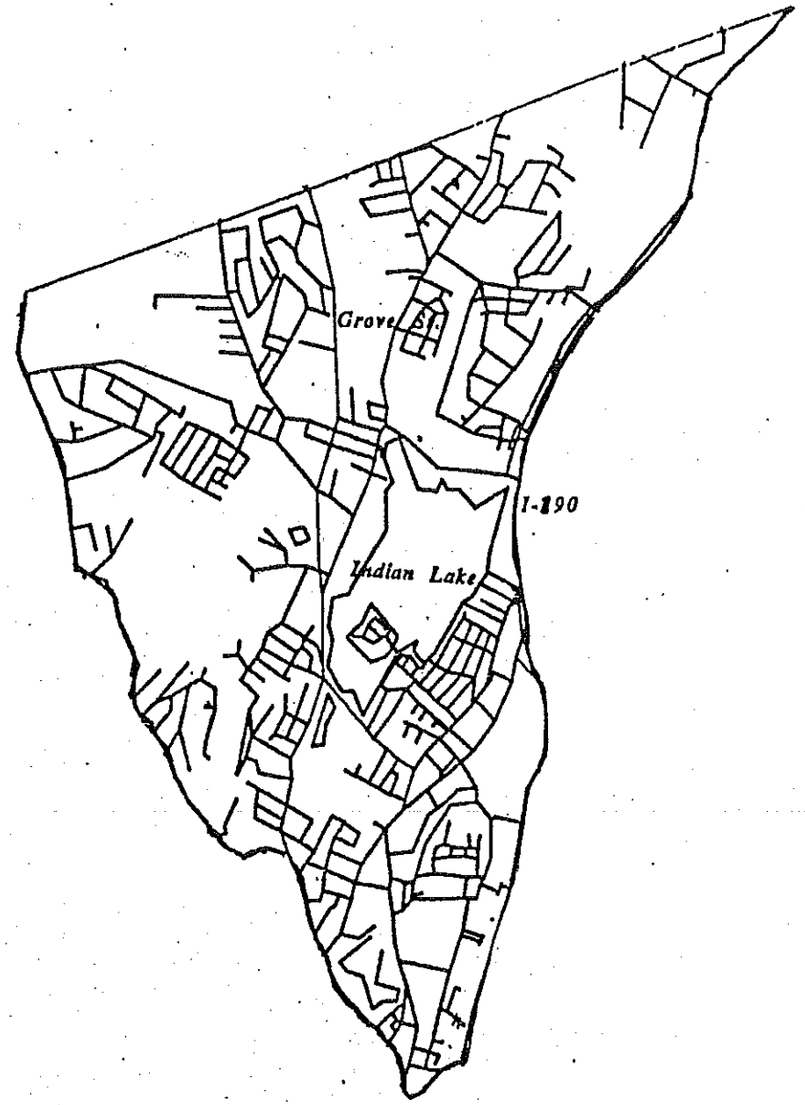
sewer extension

The action strategy for Hadwen Park/Jamesville includes:

- Enhancement of Coes Pond as a City Heritage Park
- Adoption of ASDS designation for Webster Square
- TSM improvements
- Stabilization of housing stock
- Upgrade Beaver Brook Park

INDIAN HILL





The topography of the *Indian Hill* area is dominated by elevated land forms north and west of Indian Lake, including Indian Hill and Salisbury Heights. Indian Lake occupies a large portion of the east central section of the area, and provides some limited public recreation access. Considerable portions of the area are undeveloped, including Stratton Hill and Nick Chase Estates. A very well maintained city park at Institute Park adds considerably to the natural environment.

This area is characterized by low density single family residential buildings, primarily wood frame. These are found along Salisbury, Forest and Grove Streets. The corridor formed by Park Avenue, West Boylston Street, and Gold Star Boulevard contains low rise retail and other commercial structures. I-190 forms a hard built edge along the eastern side of the area, running north to the City line. The Assumption College campus extends easterly into this area from Salisbury Street. The campus is modern and low rise and contains residences as well as classroom, laboratory and administrative buildings.

single family residences

I-190 runs along the eastern border of the area, with several interchanges, the largest of which is at Gold Star Boulevard. This *regional pathway* provides access to points north and connects with I-290 for travel south and east. The right of way acts to inhibit travel to the east. A *city pathway* is formed by portions of Park Avenue, West Boylston Street and Gold Star Boulevard. This *pathway* is heavily developed with commercial activity of city and regional significance. Another *city pathway*, Salisbury Street, defines the western edge of the area, serving neighborhood and commuter traffic. Three *neighborhood pathways*, Forest, Grove, and Holden Streets, serve as collectors for the adjacent residential neighborhoods.

A *city node* occurs along the corridor formed by West Boylston Street and Gold Star Boulevard, which operate as a pair of one way streets. Auto related businesses predominate. The current traffic pattern makes it difficult for traffic moving north to flow west out Grove Street. A major access to I-190/I-290 is found at the northern end of this *node*, which increases traffic and increases the locational advantages for commercial users. *Neighborhood nodes* are found at Salisbury/Park and at Forest/Grove. These are relatively undeveloped and serve a traffic routing function. Attention to development needs will prompt increases in bulk and height limits at the West Boylston/Gold Star *node* to create a more urbanized feel, and diminish the cluttered visual effect of the current sprawl.

I-290 dominant built form

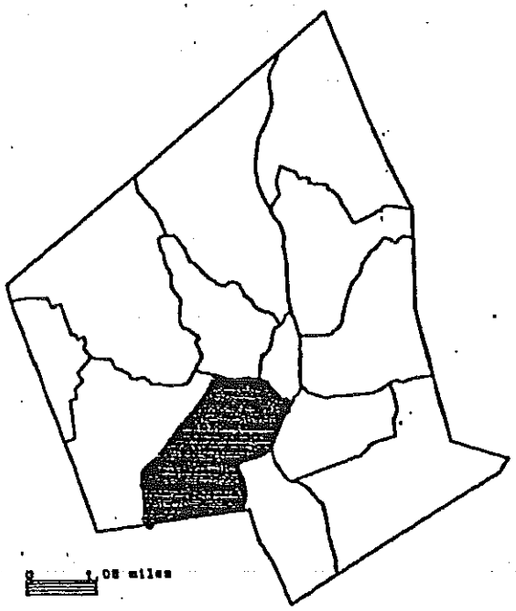
The large tracts of undeveloped land in this area offer open space and watershed acquisition and protection opportunities. Chief among these areas are Stratton Hill and Nick Chase's Estate. By comparison, the area around Indian Lake is intensely developed, making reclamation efforts difficult. The older development jutting out into the lake presents yet another unique feature of Worcester. This area contains a small but historically significant housing development in the Watt and Heroult Streets neighborhood. The *worker cottages* in this development were built by the Norton Company.

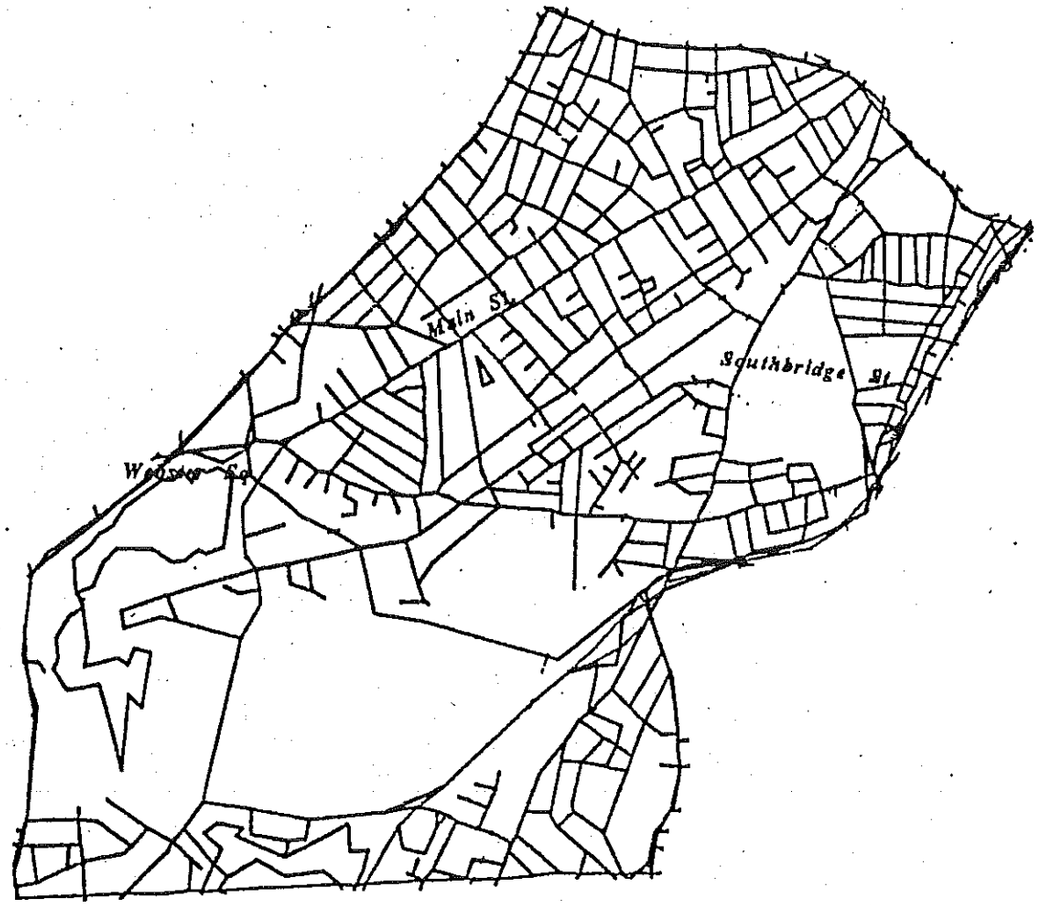
conservation land potential

The action strategy for Indian Hill includes:

- Conservation of open space through acquisition
- Node improvements at Gold Star/West Boylston
- Watershed protection
- Historic and neighborhood preservation
- Upgrade Kendrick Park

MAIN SOUTH/CAMBRIDGE STREET





Main South/Cambridge Street stretches from *Downtown* to Webster Square, with a southwesterly orientation. **Its natural environment is characterized by gently rolling** terrain. Originally both the Upper Blackstone and Middle Rivers were major natural features for the area. Much of the Upper Blackstone has disappeared through underground diversion of the waterway. The Middle River system remains a dominant natural feature, connecting Curtis and Leesville Ponds. The water bodies and ways are the most important of the natural features, from a planning perspective. Another major attribute of the natural environment is the Hope Avenue Cemetery, an extremely large open space in the southerly end of the area.

By comparison **the built environment is substantial, extremely variable and often conflicting in use.** It includes some of the oldest built structures in the city, including many turn-of-the-century manufacturing buildings. The area is also bisected by the railroad right-of-way, which establishes an extremely important physical form of varying types in different subportions of the area. Park Avenue, Chandler Street and I-290 form strong edges for the area. Main Street is the important *city pathway* within the area.

There are a number of signficant subareas in *Main South/Cambridge St.*, defined by the nature of the built environment. The *Main South* area, immediately adjacent to *Downtown*, is undergoing some development. A major effort is the rehabiltiation of the Aurora Hotel. Another proposal is the Urban Village which is supported by a UDAG grant obtained with City assistance. Central New England College, with interests in expansion, is also in the *Piedmont* area. Depending on the extent of capital commitment by CNE, its expansion could serve as a solid anchor for development at this lower end of Main Street. The residential uses in this area are higher density, fitting the three-decker form.

Out from *Downtown* along Chandler Street is City Hospital, high-rise housing and, at the corner of Chandler and Park (a connecting point of three Planning Areas), an emerging *city node*. The recent completion of a mid-rise office tower just north of Chandler on Park Street makes this area the logical focus for middle-level density development.

Further along Main Street is an area dominated by *Clark University* and *University Park*. This area is at the top of a gentle rise. The *Main Street pathway* at this point is notable for the iron picket fence *motif* observed by both Clark University and St. Peter's Church. May/Main and Maywood/Main each serve as *neighborhood nodes*. In this area are several worthy historic structures and qualities.

Webster Square is the most southerly of the *nodes* within this area. It serves the extremely important function of being the urban gateway into Worcester. Though the city border is some distance to the west, *Worcester, as an urban experience, begins only at the Main/Park/Stafford intersection*. Curtis Pond is extremely prominent at this point, and is deserving of greater emphasis.

The nature and diversity of the built environment in *Main South/Cambridge St.* presents a rich range of issues and opportunities for the City. The area presently generates vivid images, in subareas such as Main Street, Piedmont Street, Webster Square and Park Avenue. A major opportunity exists to reinforce these traditional subareas by underscoring the *pathway/node* system that serves to define them.

built form substantial and variable

conflicting uses

many subareas

Clark a focus

The beginning of urban Worcester

REUSE OF MANUFACTURING BUILDINGS

Main Street spine

Main Street is the *spine* of the area. It is a strong orienting force for both residential and business uses. The gentle topographic changes that occur along this *pathway* also serve to define the subareas of South Worcester. This is evident as one leaves *Downtown*, and enters the *Main South* area. Central New England College is a strong physical presence on Main Street, with the ability to serve as an anchor to this subarea through a coherent campus plan. The *May/Main node* is a transitional point, as Main Street completes a grade change to plateau at Clark University and St. Peter's Church. Again, the presence of major institutional forces within a subarea anchor the built environment. Clark's movement up and over the hill toward Park Avenue provides an opportunity for coherent campus planning, with the ability to shift both vehicular and pedestrian patterns. The City's ownership of streets can be an important part of resource reallocation in this area. Finally, the *Webster Square node* probably presents the greatest opportunity to improve the face of Worcester in the city. It is presently characterized by a tangle of uses and signs. The triangle formed by Main/Park/Mill is an ideal area for higher density, mixed uses. The present WHA residential complex on Main Street establishes a built form reference, with the Curtis Pond vista as a strong natural form reference.

Park Avenue and I-290 are equally strong as *pathways* which serve to define edges of the area. The improvement potential of Park Avenue from Webster Square to Elm Park is enormous, as efforts are made to recapture its original design intent. Again, the gentle topographic changes along this distance serve to establish scale and design references. ***The built form of Park Avenue should be resonant with the natural quality of Worcester's hills and valleys***, rolling up and down from height at Webster Square to green-edged waterways at a proposed Coes Pond mini-Urban Heritage Park, rolling back upward to a mid-height *node* at Park and Chandler (ending at the present office mini-tower) and then rolling downward again to Elm Park, which itself expresses the hills and valleys design motif of the city.

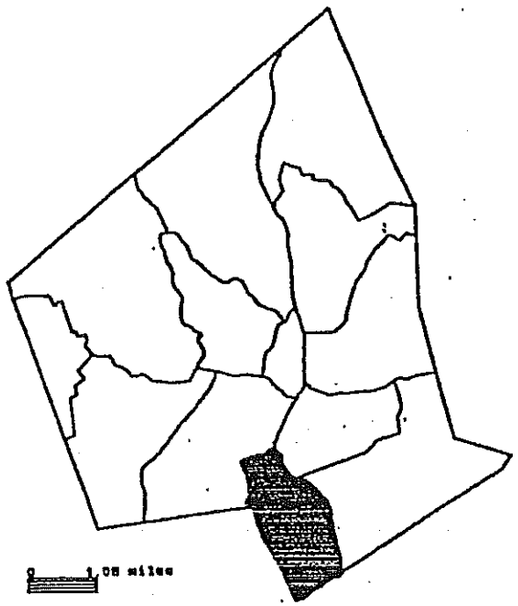
The significant stock of manufacturing uses along with rail right-of-way in this area presents major reuse opportunities, for residential and/or artist studio/housing purposes. This will also serve to untangle non-compatible uses. Reuse of such buildings around Curtis Pond provides a significant opportunity to reclaim this water body for more general purposes. Important considerations in such reuse will be parking, traffic and compatibility with abutting uses. Particular emphasis in the housing efforts need to be placed on increasing owner-occupancy at the lower income levels.

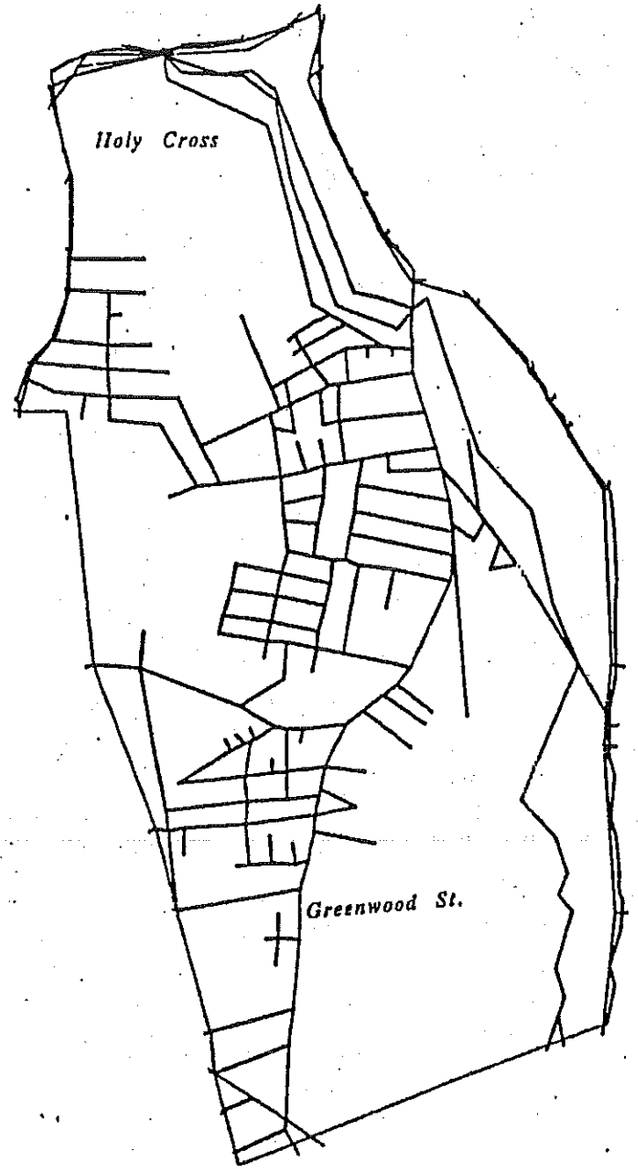
action strategy

The action strategy for the *Main South/Cambridge Street* area includes...

- Designation of Webster Square as an *Area of Special Development Significance*
- *Pathway* and *node* improvements, with particular emphasis on Park Ave. and Main Street
- Use of Clark University and CNE as anchors for subarea improvements
- Housing initiatives including three-deckers, rehab and conversion
- Improvements of Southbridge Street pathway
- Elimination of conflicting land uses
- Upgrade Oread Castle Park

QUINSIGAMOND VILLAGE





Quinsigamond Village is strongly defined by two land forms, College Hill and the Blackstone River Valley. The hilltop contains dramatic viewsheds both toward *Downtown* and to the southeast over the valley. The river valley contains wetlands, though the quality of this resource is diminished by the area's industrial history. Some open space resources exist along the river, but the largest open area is that formerly occupied by the municipal landfill off Greenwood Street.

The built environment in *Quinsigamond Village* is also dominated by two forces. The first is The College of the Holy Cross, while the second is the group of active and inactive industrial facilities along Greenwood and Ballard streets. Housing in the area has traditionally served workers in the industrial facilities, is dense and of wood frame construction. Industrial and waste disposal uses have dominated the valley portion of the area for years. I-290, the railroad line and the river form effective physical and psychological barriers to east/west movement through this area, so that local patterns are oriented north and south along Greenwood Street. Greenwood Street serves as the focus for area retail and institutional uses. The area also contains the regional sewage treatment plant which extends across the City line into Millbury. This modern facility is well buffered from surrounding uses.

Holy Cross dominant built form

This area is bordered along its entire eastern edge by Ballard and Millbury Streets, which are *regional pathways*. The planned connection of Millbury Street (Route 146) to the Turnpike in the future will have a profound impact upon this area in particular. The City currently has an opportunity to act in concert with the State to transform the character of a large portion of this area. The study area for the Worcester portion of the Blackstone Canal Heritage State Park is defined an *ASDS*. This area contains significant open space resources along the water, large amounts of underutilized manufacturing space, a major road slated for improvements, and an important piece of the region's cultural and economic history. These elements, combined with state-funded planning and improvements, make this corridor one of the most exciting challenges for Worcester's future. Mixed use treatment through the ASDS will help guide this transformation.

Route 146 potential

Heritage State Park future

Quinsigamond Village shares with several other areas the challenge of creative reuse of land and buildings originally constructed for heavy manufacturing. Past and current industrial uses have been a nuisance to the residents. The watercourse of the Blackstone River has suffered from a century of abuse and decline.

Implementation of an *Institutional* zone for the area currently controlled by Holy Cross (as well as colleges in other areas) will allow for timely public intervention in any expansion of the campus, as well as provide a forum for permitting changes to the buildings and uses on the campus as it now exists. Important here are issues of off-campus housing, absorption of housing stock by university offices, and protection of public access to the dramatic views afforded by the College Hill.

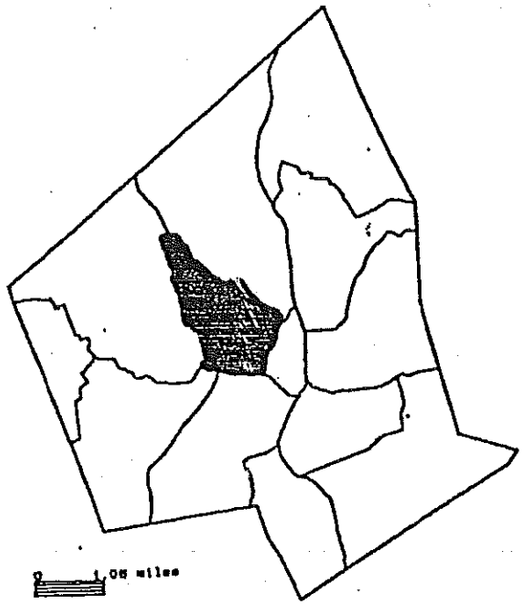
Establishing a *Holding* zone for the abandoned municipal landfill will allow for methane harvesting, soils compaction, and analysis of neighborhood and environmentally sensitive re-uses.

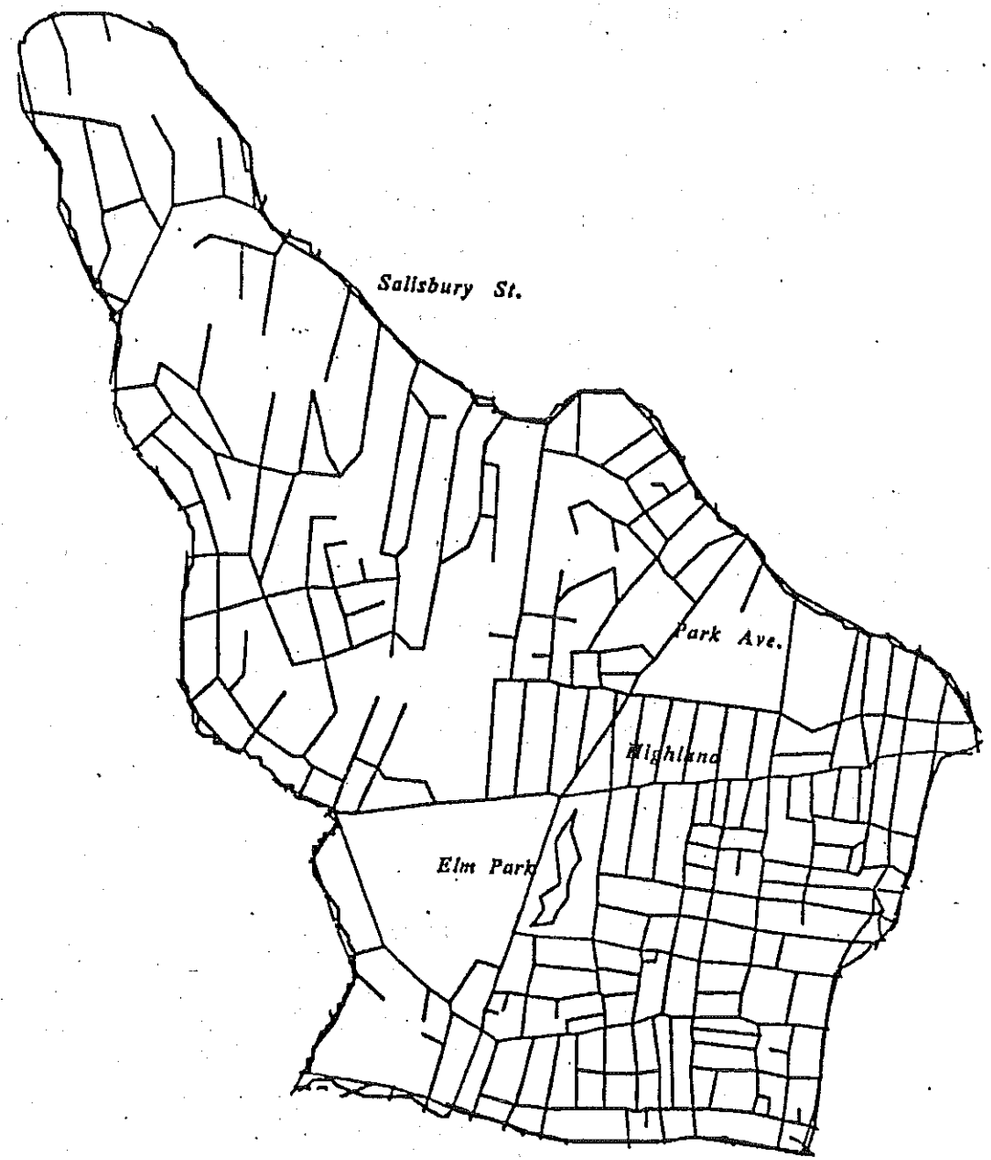
landfill as holding zone

The action strategy for Quinsigamond Village includes:

- Route 146 improvements tied to the turnpike connection and the Heritage State Park
- Implementation of Institutional and Holding Zones

SALISBURY/FLAGG/ELM PARK





The *Salisbury/Flagg/Elm Park* area has a less rolling land form than many areas of Worcester. However, the high elevation of Prospect Hill provides for dramatic viewsheds. Open spaces include Elm and Salisbury Parks, and the Public Schools Athletic Field. The most prominent natural environmental feature of the area is Elm Park itself. It has special historical prominence as the first public park in the US for which public acquisition funds were spent.

dramatic viewsheds

This area is divided into two dominant built environments. Single family, moderate density residential structures predominate in the area west and north of Park Avenue. This is a traditional residential area for Worcester executives. The area south and east of Park Avenue contains a mix of higher density uses including two and three family dwellings, and commercial buildings. This older area has many buildings and sections of historic value. The campus of Worcester Polytechnic Institute contains impressive masonry structures of a variety of types. Low rise commercial and retail structures are found along the *pathways*. A unique feature of this area is Bancroft Tower, located on Prospect Hill. This monumental stone memorial provides a connection to some of Worcester's earlier structural forms, and provides a panoramic view of Worcester from a location near its center.

Bancroft Tower panoramic view

The most important *pathway* in this area is that formed by the Highland Street/Park Avenue corridor. This stretch of the *Route 9 Greenway* is a key link in the *regional pathway* that connects the eastern and western parts of the City. Currently the *pathway* is poorly defined through the Highland/Park *node*. The historic qualities of Park Avenue are being threatened by unplanned growth. Traffic along Highland flows poorly due to on-street parking. Commercial uses cluster along this *pathway* including student oriented businesses on Highland, and increasingly intense retail and other commercial activities at the Park/Chandler *node*. This *node* also has considerable development potential, with a large vacant parcel on its southwest corner.

Park Avenue greenway

The area's dominant *node* is the developing commercial/retail/housing corridor along Park Avenue from Winfield Street north to Elm. The land on both sides is currently being developed, through variances, to one of the highest densities outside *Downtown*. Additional neighborhood *nodes* are found at Newton Square which serves a traffic routing need, and at Park/Highland which has low rise retail activity and some professional office uses.

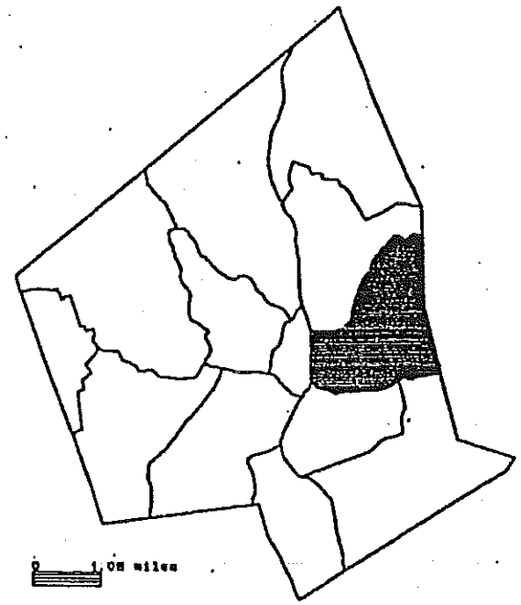
A special *node* has been identified which contains Bancroft Tower and Salisbury Park. This unused city resource has been allowed to deteriorate from its status as a unique attraction. Co-development of the grounds and structure by the City and private interests could return this resource to the status of proud civic symbol that it once enjoyed. The current *node* development along Park Avenue has proceeded through a combination of as-of-right and variance approvals, leading to an unplanned mix of uses, heights and densities. Appropriate variations of density, resonating with the city's hills and valleys, should be the quality of this regional greenway. The *Newton Square node* does not efficiently direct traffic. Better signs are necessary.

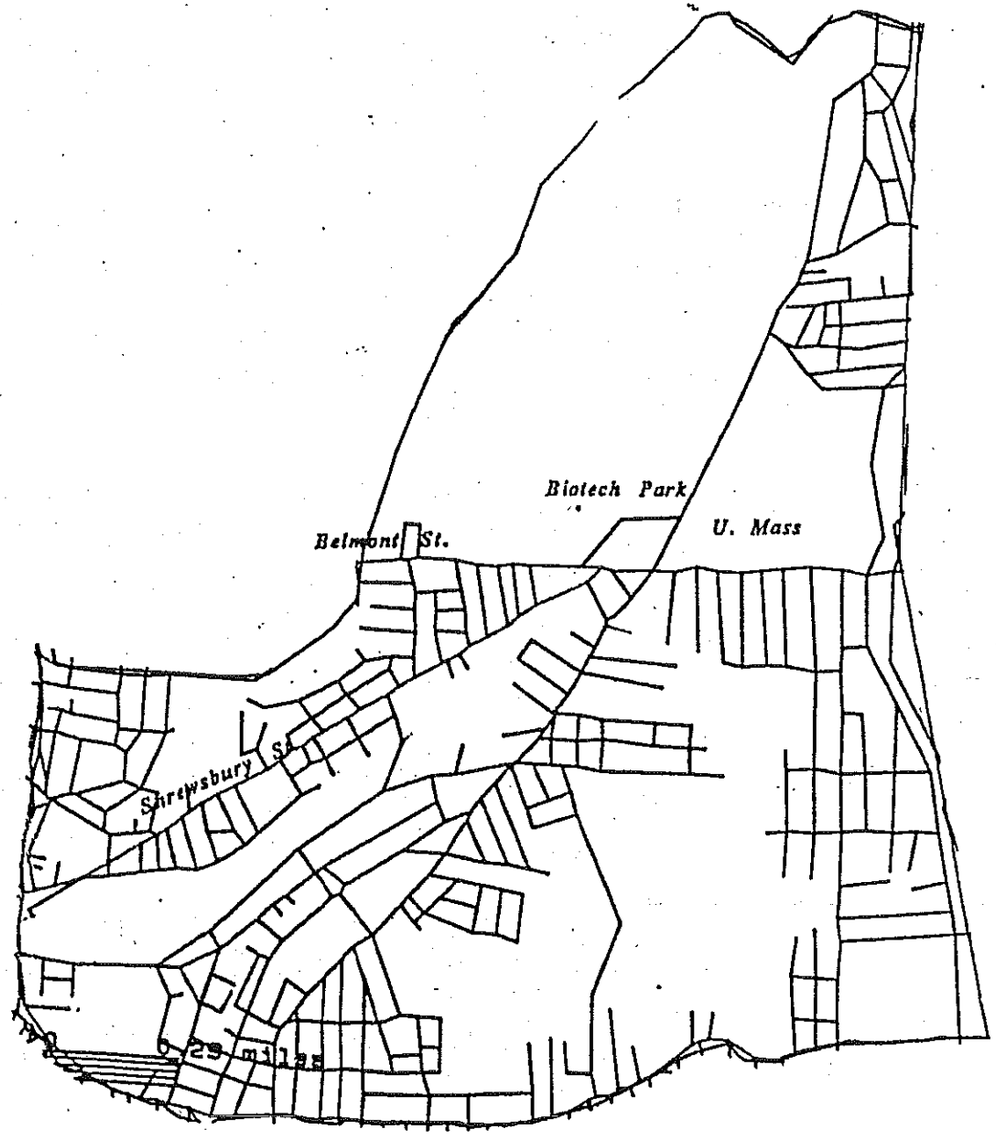
traffic improvements

The action strategy for Salisbury/Flagg/Elm Park includes:

- Re-establishment of the Boulevard/Greenway character of Park Avenue
- Improvements to Newton Square
- Neighborhood and historic preservation
- Upgrade Bancroft Tower

SHREWSBURY ST/UMASS





The *Shrewsbury St/UMass* area contains a diverse landscape, dominated on the eastern side by Lake Quinsigamond, with several large public parks and bathing beaches, and on the west side by Chandler Hill. The area contains large open space resources at Chandler Hill Park, Lake Park, Regatta Point Park, Crow Hill, and the areas surrounding the institutional uses off Belmont and Plantation Streets. It contains some of the most prominent natural features in the city, presenting a dramatic picture of Worcester's hill and valley heritage to visitors entering from the east. Much of the natural environment has been preserved because of uses by institutions, including Worcester State Hospital, Belmont Home, and Notre Dame Normal Institute.

diverse land

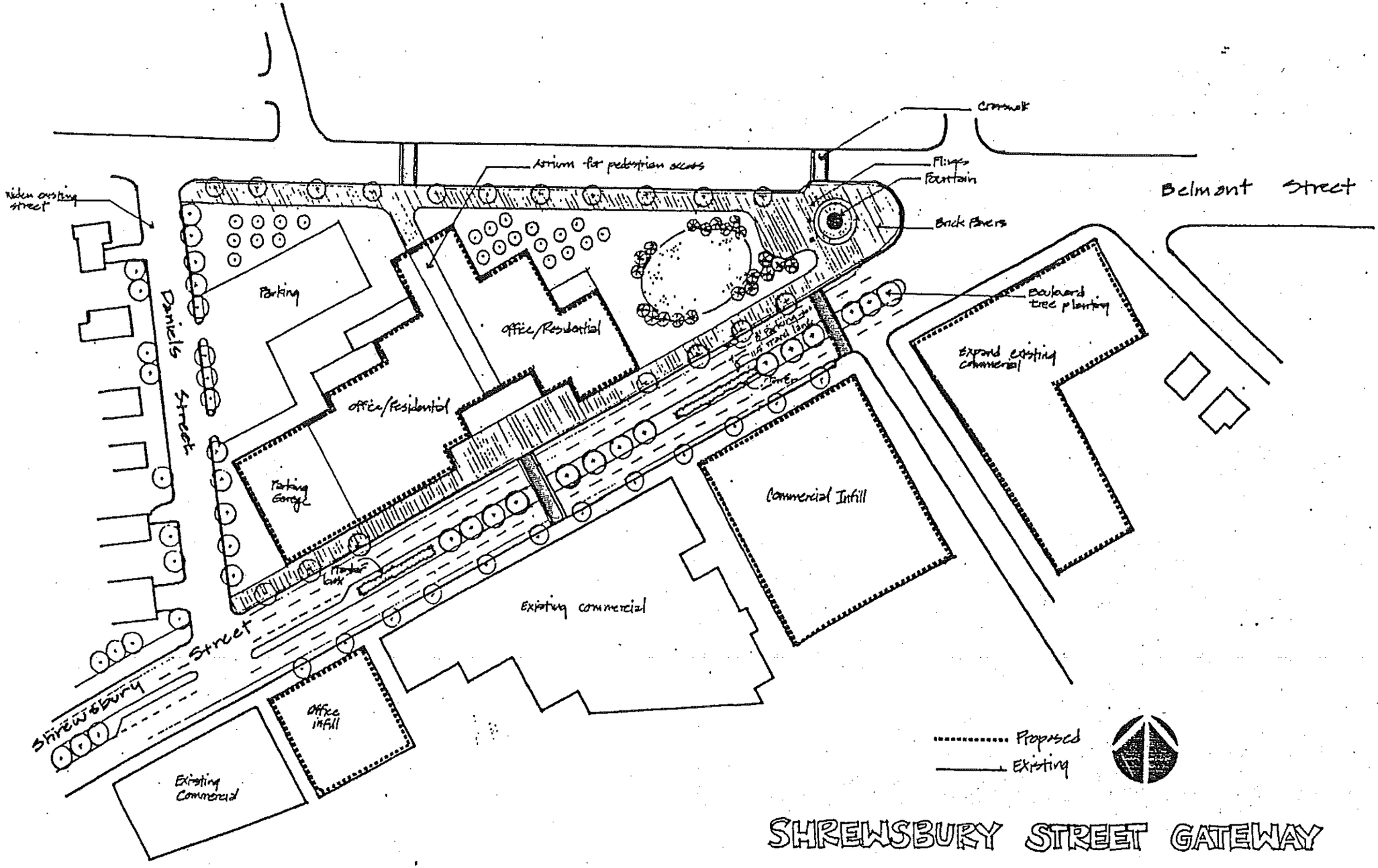
The built environment in ***Shrewsbury St/UMass*** is among the most diverse in Worcester. It includes a major older commercial/industrial area along Shrewsbury Street and the railroad right of way southeast of Shrewsbury Street, traditional three-decker neighborhoods, major city and regional institutions along Belmont Sreet, high and low rise residences along the lake, and a major new high-tech research and development park. The existence of the rail line winding its way through the area westerly and then southerly, provides a hard edge for the area. The UMass Medical Center is the major recent addition to the area. Its new parking structure continues a pattern of substantial additions to the physical stock of this regional medical complex. The UMass grounds are shared with other state agencies, including DPW and DYS. Neither of these users have upgraded the appearance of their structures to add to the general aesthetic improvements of UMass. Surprisingly, significant portions of the area, including such residential neighborhoods as Wigwam Hill, are without city sewer service.

UMass dominant built form

The character of the northeastern portion of the area is changing rapidly, with institutional expansion and development of additional high rise residential buildings along the lake and on Plantation Street. The balance of the area is devoted to residential use including a substantial stock of three-deckers, and to various forms of business use located in former manufacturing structures of significant mass. These buildings are typically three to four stories, of brick construction. They provide a mesh with the built form aesthetic of much of the rest of the inner portions of the city. The prominence of certain buildings along Shrewsbury Street will serve as a design guide to improvements, and an entry statement to Worcester that links its past, present and future.

rapid change

This area is served and heavily influenced by two *regional pathways*. Belmont Street (Route 9) crossing east/west is the traditional entry to Worcester from the east, for trips to and through Worcester. The level of traffic will increase as the build out of the Bio-Tech Park and the Medical School continues and as additional development takes place north of Belmont Street. Belmont Street feeds into *Downtown* at Lincoln Square on a steep downslope. The other *regional pathway* is Shrewsbury Street, which feeds traffic in and out of *Downtown* at Washington Square. Two *city pathways* serve the area, Plantation Street and Lake Avenue, both running north/south and serving both local and commuter needs.



SHREWSBURY STREET GATEWAY

Because of its prominence on the *regional pathway/node* system, *Shrewsbury St/UMass* is a high priority activity area. The area contains one of the seven Areas of Special Development Significance. The ASDS encompasses most of the area north of Belmont Street including the hospital lands and the bio-medical facilities. This area is appropriate for such treatment because of its location, accessibility, development potential, and because it contains the type of information-dependent and service oriented facilities that will lead to job creation in Worcester through the end of the century. Employers in the area, especially UMass, should consider van pools for late-shift workers, and on-site day care for all shifts.

The establishment of an ASDS at the bio-medical complex which encompasses the two *nodes* on Belmont Street will encourage a mix of uses while providing the City with greater powers of review over uses and built form. The key *node* in this area is the **gateway** at Belmont/Lake. Improvements include banners, road surface improvements, improved traffic signals and signage. Both Belmont and Shrewsbury Streets are recommended for *pathway* improvements. The Belmont improvements should focus on improving traffic flow into and past *Downtown*, while the Shrewsbury improvements will consider the needs of existing businesses and residential neighborhoods. (See the illustration on page 48.) Preliminary study on beautification of the Shrewsbury corridor has been completed by the City.

Worcester already has a disproportionate share of elderly residents and the number of both well and frail elders will continue to grow. There are several parcels in the area which would be appropriate to the development of Continuing Care Retirement Communities.

This area contains substantial amounts of older 1-3 unit family housing in need of upgrading. The City's housing grant/loan programs can be targeted at preserving the existing stock by offering financial incentives and technical assistance. Benefits could be increased for those adding units to the stock or those making subsidized units available to low income renters. The *Owner-Occupant Sales and Purchase Assistance* initiative would create a technical assistance and financing source for those three-decker owners who wish to convert these structures to condominiums or sell the building to an existing tenant.

Nearly all of the Wigwam Hill neighborhood is without sanitary sewers. This not only reduces the value of these properties, it poses a serious environmental threat to the Coal Mine Brook watershed and to the bathing beaches at Lake Quinsigamond. Many of the streets in this neighborhood are unpaved private ways.The existing Conrail freight yards are between East Worcester Street and Franklin Street . They are presently used for break-in-transport freight activity. They offer an opportunity to develop an in-town industrial park suitable for Bio-tech spinoffs and other incubator uses, should Conrail determine to change its activities.

The action strategy for *Shrewsbury St/UMass* includes:

- Adoption of the ASDS Overlay
- Gateway improvements at Lake Quinsigamond
- Implementation of family housing stabilization programs
- Implementation of the Shrewsbury Street beautification program
- Infrastructure improvements, especially for septic system areas
- Upgrade Chandler Hill Park

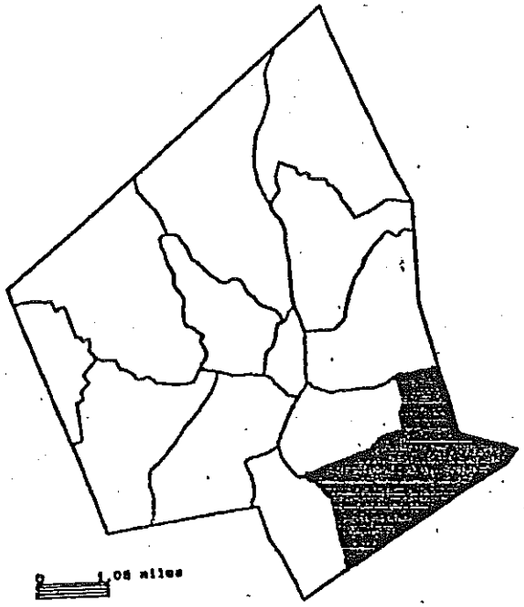
Area of Special Development Significance

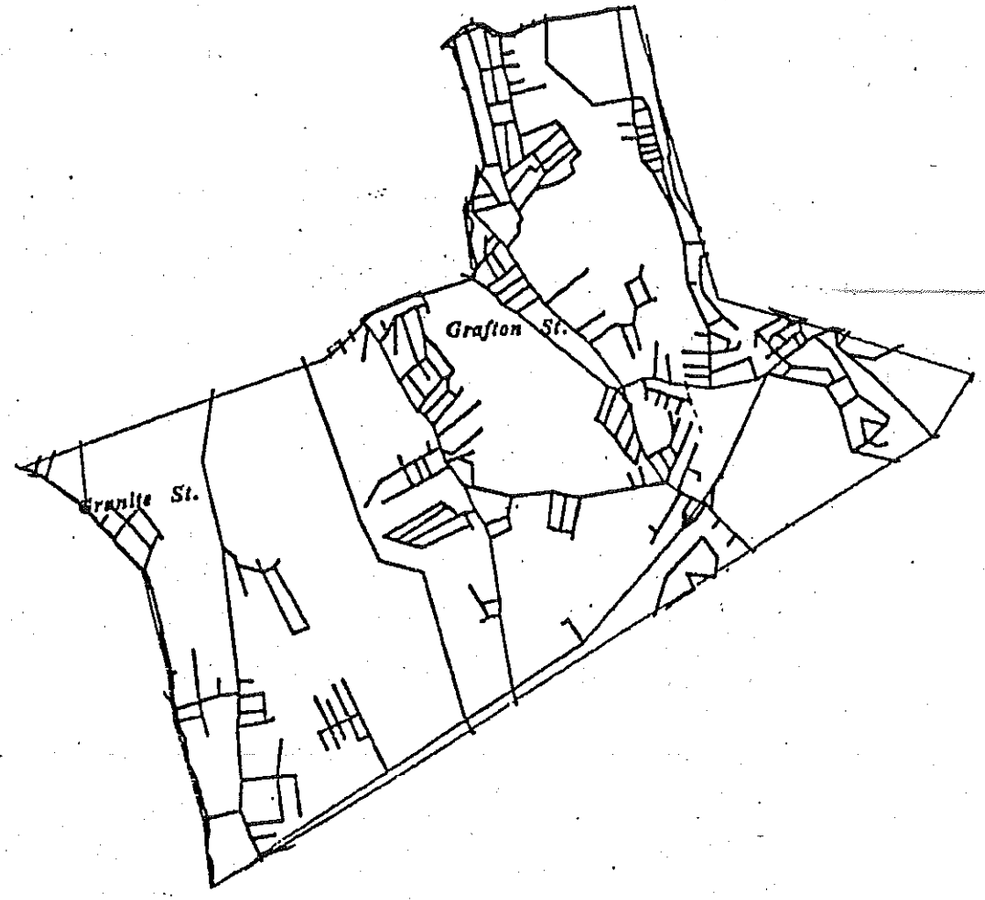
Continuing Care Retirement Communities

upgrade triple deckers

watershed protection

SUNDERLAND/MASSASOIT





Sunderland/Massasoit is defined primarily by two north/south valleys, containing Broad Meadow Brook and Lake Quinsigamond. These valleys are bracketed by two sets of hills, the easterly lying between Blithewood Avenue and Massasoit Road, and the westerly including Oakland Heights. The two water bodies are quite different in use and character. Lake Quinsigamond is developed for active recreational use and adjoins a moderate density, low rise residential neighborhood. The Broad Meadow Brook watershed remains relatively undeveloped, with some new residential activity on the eastern side. Both water bodies are threatened by the consequences of unplanned development.

valleys define area

Building types in *Sunderland/Massasoit* fall generally into two categories. Low to moderate density residential buildings are found along the lake and in the Sunderland/Massasoit Road neighborhood. Relatively low value commercial uses exist on the Route 20 and Route 122 corridors. Several new residential developments in the Sunderland/Massasoit area have added both single and multi-unit dwellings to the residential stock. Commercial growth along Route 20 has been minimal, reflecting the mismatch between manufacturing zoning and the nature of new commercial activity in Worcester. More growth is evidenced along Route 122, though with varying forms. The large amount of undeveloped land in this area means that it has a very low density compared to most of Worcester. Two large parcels of undeveloped land are the Broadmeadow Brook environs and the city-owned site known as Perkins Farm, off Grafton Street.

both low and moderate density

Perkins Farm as ASDS

Sunderland/Massasoit includes all three levels of *pathways*. Route 20 (Southwest Cutoff) serves as a *regional pathway*, including large volumes of commercial traffic. Grafton Street which connects *Downtown* with the Turnpike in Millbury and also serves as a major collector for neighborhood traffic. Lake Avenue, a *city pathway* on the east side, serves relatively few residences and provides an alternate route for commuter traffic. *Neighborhood pathways* are Massasoit and Sunderland Roads. Levels of service have deteriorated as residential development has increased. There is one *regional node* at Grafton/Route 20. This *node* is developed at a low level due to the grade separation between the two routes. Consequently it functions only as a major point of redirection for traffic and it does that poorly. The *city node* at Lake/Sunderland has a similar traffic routing function. The *neighborhood node* at Grafton/Sunderland has small retail businesses.

elaborate pathway network

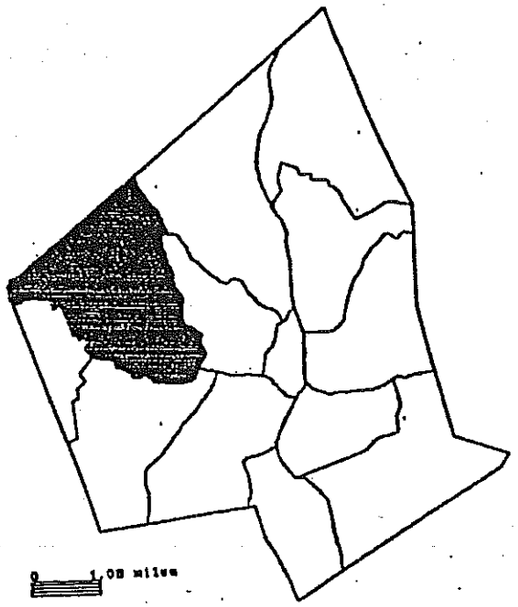
Key open space potential lies within the Broad Meadow Brook watershed. It is an ideal TDR sending zone. The system serviced by the sewage pumping station at Whitla Avenue has frequent problems at peak demand resulting in overflow into Lake Quinsigamond. Resolution of this situation is critical. The City has commissioned a study to this end. Development proposals for the Perkins Farm site must carefully assess environmental and infrastructure capacity impacts. The major recommended *pathway improvement* is at Route 20. Since this road is likely to remain a major commercial route for Central Massachusetts, steps should be taken to buffer its impact from surrounding areas, and to improve traffic safety. The City should require that the current State effort to find solutions to the safety problem for portions of Route 20 west of Worcester be extended to include the portion of the route within the city.

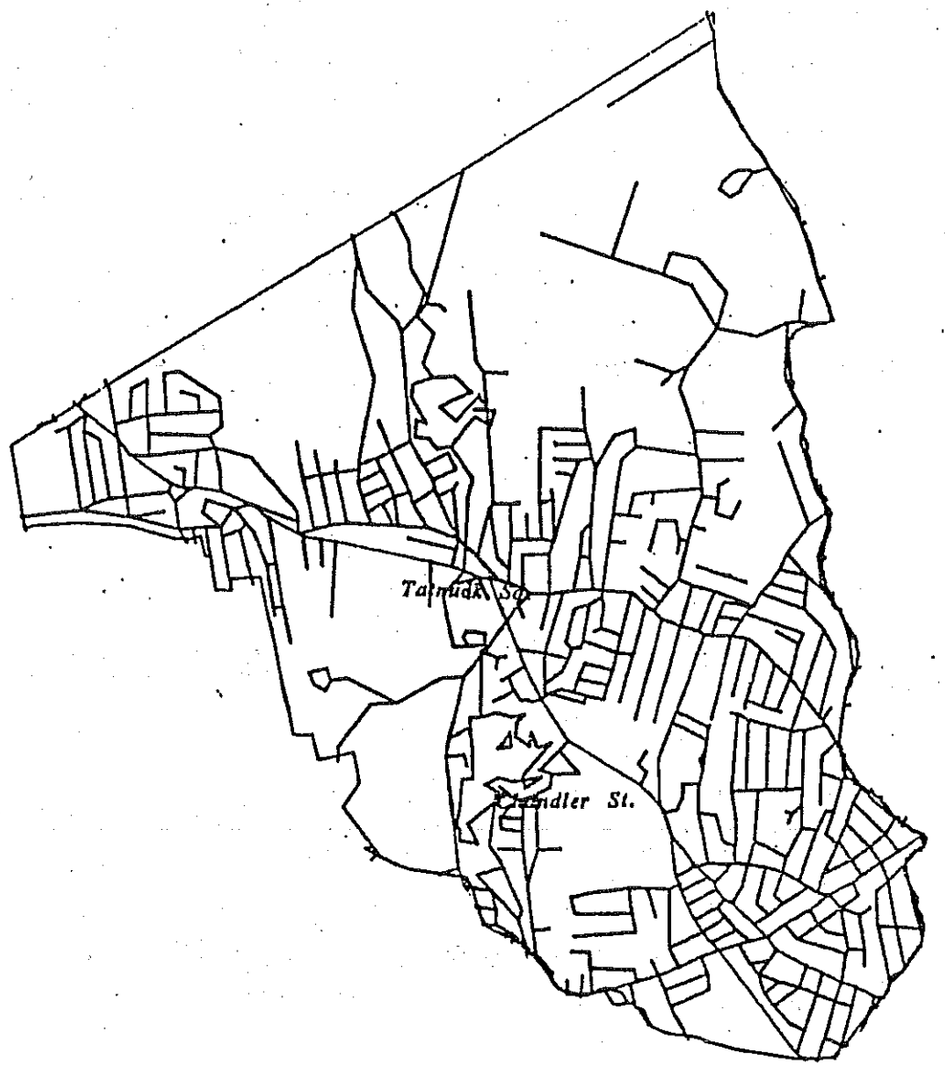
a TDR sending zone

The action strategy for Sunderland/Massasoit includes:

- Pathway and node improvements, especially along Rte. 20/Rte. 122
- Monitor environmental impacts of the resource recovery plant
- Open space preservation
- Designation of Perkins Farm as an Area of Special Development Significance
- Pumping station rehabilitation

TATNUCK





Tatnuck contains the largest amount of undeveloped land of any of the areas. Several large tracts of open space lie along the city boundary to the northwest, including the areas around the Cascade and adjacent to Cook Pond. The topography of the area is rugged, with several large hills including Moreland Hill and Salisbury Hill. A precipitous slope contains the Cascade, a seasonal waterfall. Several large waterbodies are found, notably Cook Pond and Patch Reservoir along the Tatnuck Brook system.

much undeveloped land

The predominant built feature is low rise, low density residential dwellings. These are primarily single family detached structures of wood and masonry construction. Increasing numbers of moderate density residential buildings have appeared; a number of new developments are planned. Two and three family residential buildings are found in the vicinity of June Street in the southern portion of the area. Commercial structures are concentrated at Tatnuck Square, and are primarily low rise modern structures including some conversions from residential use.

low density residential

Chandler Street, a *regional pathway*, runs northwesterly through the area. This *pathway* serves as the main route for traffic to and from *Downtown* for the towns to the north and west of the city. *City pathways* in this area are Mill Street, Pleasant Street, and a portion of Airport Drive. These *pathways* serve as local collectors and feed traffic onto Chandler Street. May Street acts as a *neighborhood pathway* serving the eastern portion of this area. Mill, Chandler, and Pleasant Streets all converge at Tatnuck Square, making this the important *regional node* for the area, though one of considerable confusion.

Because of its location and accessibility Tatnuck Square serves this area and the adjacent towns as a major retail and professional services focal point. This *regional node* itself is divided into two areas, one along Pleasant Street, and the other, separated by a sharp change in grade, nearly parallel, along Chandler Street. The Pleasant Street side contains retail and professional uses in a variety of building types. The Chandler portion is dominated by a low rise shopping center. Two important intersections are devoted to gas stations. The lack of building and facade uniformity detracts from the visual character of Tatnuck Square. Uses are inappropriately proliferating. Roadways do not function for the importance of their purposes. *Neighborhood nodes* at Chandler/Airport and June/Chandler serve primarily a traffic routing function.

Tatnuck Square as ASDS

An important action for the City to take is to allow more intensive development at Tatnuck Square, especially of the gas station sites. Facade improvements should be encouraged programmatically along both Chandler and Pleasant streets. Uses need to be consolidated in the two sections, returning the upper grade area to residential uses, potentially of mid-rise density. Appropriate traffic improvements should be made.

Tatnuck Square roadway improvements

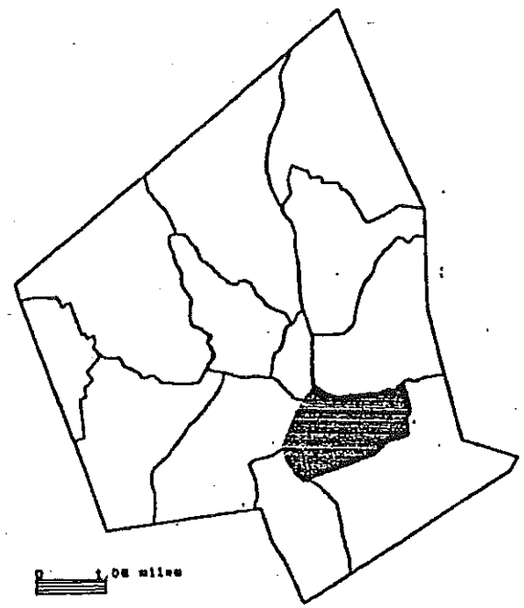
The Conservation Commission has identified three large parcels in this area for acquisition--Cascades East and West, and the Borggard/Higgins property, east and north of Tory Fort Lane. These areas are important because of their size and biological diversity. The remaining potential residential development parcels in this area are characterized by slope, soil and other environmental conditions which will allow development only under stringent site review standards.

3 conservation parcels

The action strategy for Tatnuck includes:

- Designation of Tatnuck Square as an Area of Special Development Significance
- Open space preservation
- TSM improvements

VERNON HILL/GRAFTON HILL



Vernon Hill/Grafton Hill is dominated by the two hills which encompass nearly the entire area, with Vernon Hill on the west and Grafton Hill on the east. Between these hills lies the source of Broadmeadow Brook, and the beginning of the environmentally sensitive area described in the *Sunderland* Planning Area. The hillsides provide for dramatic viewsheds. Open space resources are limited in scale and are found primarily in City parks. Portions of the Broad Meadow Brook lie within this area; some wildife habitat is available.

hills dominate

The *Vernon Hill/Grafton Hill* built environment is nearly exclusively wood frame buildings of moderate height and moderate to high density. Three-deckers are the primary built form. These buildings are aging, and require increased maintenance expenditures to retain their character and function. Low rise retail and commercial structures are found at the *nodes*.

There are two *regional pathways* serving this area. *I-290* forms the western boundary, and is an impediment to east/west flow of traffic. *Grafton* Street runs southeasterly. The *Route 146/I-290 node* is a major interchange in this area at Brosnihan Square, providing both access and development opportunities. Grafton Street is heavily traveled at all hours since it serves as a commuter route to Downtown and the Turnpike, and as the main shopping street for some neighborhoods. Grafton Street has several local business districts, schools and churches along its route, contributing to traffic and safety problems.

node improvement needed

A *city pathway* along Millbury and Ballard Streets defines the south-western edge of this area. The *pathway* serves to direct traffic to Brosnihan Square and I-290, and will become more important after the Route 146/Turnpike interchange is completed.Several *neighborhood pathways* are also found. These are Vernon Street on the west, Hamilton Street on the northern border, Sunderland Road and Massasoit Road from Rice Square southeast, and Plantation Street from Rice Square northerly. These *pathways* all serve as collectors for traffic flowing to and from *Downtown*.

strong regional pathways

This area contains a number of *nodes* as a result of the density of population and the number of intersecting pathways. Rice Square, a *regional node*, needs significant improvement.. Grade separation is a possible solution. Billings Square would benefit from improved clarity of movement and signage. Improvements at the edge *nodes* on Route 146 will emerge from the Heritage State Park study now underway by DEM. The Route 146 corridor (identified as an ASDS) will play a critical role in shaping Worcester's future.

Route 146 as critical to future

The most signficant effort by the City should be to stabilize the three-decker stock, with owner-occupants drawn from the existing tenant population. The *Owner-Occupant Sales and Purchase Assistance* program is especially appropriate in this area. With the signficant contribution of three-deckers in establishing a built form for the City, consideration should be given to establishing Neighborhood Preservation Districts in this area. With relatively high density, careful analysis of infill possibilities should be conducted.

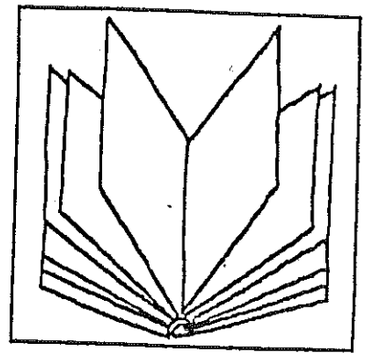
stabilize housing stock

The action strategy for Vernon Hill/Grafton Hill includes:

- Housing stabilization programs targeted to owner-occupied buildings
- Kelly Square node improvements
- Neighborhood Preservation District implementation

IMPLEMENTATION

IMPLEMENTATION



new revenue sources

The City is faced with a wide range of public service demands. Some demands are for maintenance and improvement of existing systems, others are for new services made necessary by the type and scale of Worcester's recent development. Among the services considered important are the provision of clean water, open space, affordable housing, police and fire protection, quality education, safe roadways and effective wastewater treatment.

The City must respond to these needs within the context of Proposition 2 1/2, which places a cap on revenues through real estate taxation. As the City acts to provide modern services, it is important that it also modernize its resource and revenue creation methods. Because land is contained within cities, it has been the cornerstone of resource generation to pay for municipal services. However, *taxing real property is* a revenue generation method *appropriate to agrarian economies*, where wealth is measured in numbers of acres, pigs and cows. States and the federal government captured *taxation of income*, a method *appropriate to industrial economies*. Transfer of funds from the state and federal governments to cities (through such programs as Community Development Block Grants, and general and specific purpose state aid) balances the general inability of cities to tap income directly. Worcester is neither an agrarian nor an industrial economy. **Worcester's economy is firmly rooted in the *information age*.** This move from an *industrial* to an *information* economy has happened in the last 15 years, and is evidenced by the increase in the City's service sector labor force to nearly half of all jobs. There has been a parallel decrease in manufacturing jobs from half to only a quarter of the total. The currency of exchange in an information age is a *transaction*, and wealth is generated by *fees*. Thus the **appropriate method to raise public revenues is to match *fees* with transactions.** In most cases the fee structure is specific to the transaction, and symmetrical with the importance of the transaction to the parties involved. In situations involving a ***public merit good*** (such as open space or free public libraries) a generalized fee is appropriate. Such fees reserve the rights of the public in general and each particular individual benefits from the *availability* of the transaction.

The types of appropriate fees emerge from review of the sorts of service demands a city faces, and could include at least the following:

- **Benefit fees**
- **Development review processing fees**
- **Full cost pricing for water and sewer services**
- **Leasehold fees**
- **Payment *in lieu* of taxes**
- **Real estate transfer tax**

Of course existing revenue sources (such as real estate tax and state aid) will continue, though each will be finite and faced with limitations imposed by both economic and institutional environments.

benefit fees

Worcester has a substantial investment in its infrastructure and operating systems, including water and sewer, roads, schools, parks, airport, fire and police, and stock of public buildings. New, expansion and/or rehabilitation development in the city is obtaining the benefit of what the City has already created. The City could consider requiring that developments buy into this existing system. The fee associated should be proportionate to the amount of benefit, modified by any special benefits, costs or impacts which the development will occasion for the City. The site-specific development review process provides the opportunity to determine appropriate fees. This process shifts the costs of new public service demands from the general taxpayer to those who will specifically benefit, whether residential or non-residential. The City can adjust the fee based on the extent that the new development provides general benefits, such as dedication of public open space.

development review processing fees scaled to project complexity

The City has a very basic interest in being certain that the nature of development proposed and undertaken is consistent with its policies and the broader public good. With most of the probable development (both new and rehabilitation) occurring in sensitive contexts, it is even more vital that the City give adequate and thorough review to all such proposals. This is at the heart of the broad coverage for site plan review. It is important that the City also be able to fund its review activities. A good way is to have *development review processing fees* be appropriate to the nature and complexity of the development. Agencies with appropriate technical capabilities should be credited in their budgets with revenues based on time spent in review functions. This also prompts sound management practices.

Worcester's singular and growing competitive advantage

It is important to understand that both *benefit* and *development review processing fees* serve to contribute to not detract from the City's relative position in the region and state. Competent and responsible municipal services and staff are among the most highly rated of factors influencing either business or residential location. Worcester's already singular advantage in Central Massachusetts in terms of its existing environments--natural, built, institutional and economic--will only be enhanced by the additional and continuing capability for which such fees will provide.

full-cost W&S pricing

The single largest area of capital requirements in the City is upgrading the water and sewer systems. The City is presently subsidizing approximately 40% of the costs of these systems through general revenues. Given that general revenues are capped, this severely constrains the ability to respond to the real needs of these systems. **A separate Water and Sewer Authority could be established, with a rate structure based on full-cost pricing.** It would be primarily a financial entity, setting rates and raising funds. It would contract with the Department of Public Works for system operation. Roughly 80% of the use of the system is by non-residential entities (colleges, businesses, office buildings and so on). These users are both price sensitive and capable of adapting. Increasing their direct water and sewer costs will prompt them to conservation practices, to alter production technologies and/or to pass-along increased costs to their customers.

development rights fees

Many of the development strategies for Areas of Special Development Significance, and *Nodes* and *Pathways* involve City participation via either land or air rights. The City could provide for a continued flow of revenue by negotiating **long-term leasehold fees for development rights,** rather than an outright sale. Such fees could be similar in structure to many private sector arrangements, with a base income and a percentage of revenue above specified plateaus. This type of arrangement both provides a hedge against inflation and allows the City to benefit in direct proportion to the success of its development strategies. These arrangements are also popular with private developers, as they minimize *upfront* costs. A variation on this approach is the use of the Ch 121A redevelopment statute, which permits a revenue payment as a direct proportion of income. It applies when land and/or buildings are redeveloped using this City's development powers. A *Municipal Development Authority* could be a useful tool to implement various financing and operational strategies involving City participation.

Many of the city's non-profit institutions (most especially the private colleges and hospitals) make substantial use of City services. Negotiations could be opened to establish equitable Payments *in lieu* of taxes. PILOT should be separate from any *in-kind* contribution (such as recreation space), as these are variable in type and specific as to beneficiary.

payment in lieu of taxes

Two significant concerns of the City and its residents are the preservation of open space and the provision of affordable housing. Legislation pending at the State House would provide for a real estate transfer tax, to be imposed at local option. The proceeds from this tax would be made available to the municipality to be used for open space acquisition and for meeting affordable housing needs. At least 20% of the funds must go to each of these purposes, with the remaining 60% divided between uses according to locally-determined priorities.

real estate transfer tax for open space and housing

Any programmatic initiative of the city must be well managed, and have adequate support systems. There are a number of *procedural* improvements for the City, including...

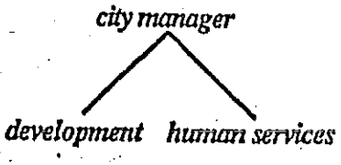
- *Increase clarity of application forms and processes for development*
- *Update rules and regulations governing regulatory activities*
- *Improve ease of access to critical information, including use of the Geographic Information System (GIS) used as part of the Master Plan process*
- *Improve staff capabilities through broader use of computers*
- *Coordinate and focus staff and line agencies*

improve procedures

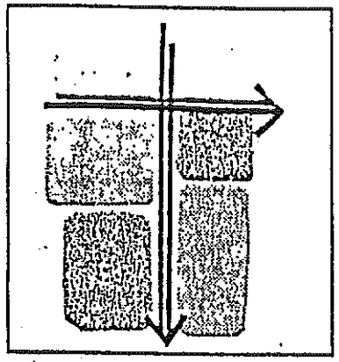
Equally important as the individual procedural elements is the clarity in City policy and its management. Functions need to be assigned to entities with clear and consistent missions. The various initiatives identified as critical to Worcester's future need to be assigned to operating agencies which are structured and staffed to successfully accomplish the goals and objectives. In particular the two major objectives of the City - ***Development*** and ***Human Services*** - need to have clear organizational and reporting forms. Each of these primary functions needs to have a structure of responsibility and reporting relationships that allows maximum achievement of the City's goals. This structure needs to recognize the difference between staff functions (such as law, finance/budget and planning) and line functions (such as public works, schools, hospitals, police, fire, cultural affairs, community development, economic development, parks and recreation). The specific form appropriate to Worcester must evolve out of its history and the disposition and energy of its policy and decision makers toward creating new institutional arrangements.

staff needs

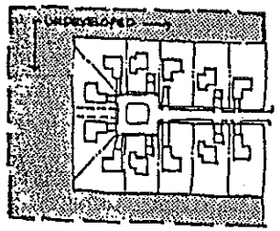
In addition to improvements in procedure, it is important that there be adequate staff to manage the City's increased development functions. Each development proposal should have a project review manager. Agencies in City government which provide technical services as part of a development proposal review should have their budgets credited with fee payments reflecting their level of effort. This will enable agency managers to adequately staff for these responsibilities. Based on estimated development review needs, the City will need to increase its professional staff by four planners, one engineer, one landscape architect/soil scientists, one environmental planner, one transportation planner and one fiscal planner. Additionally there is a need to provide services for creation of specific and regularly updated plans for each Planning Area. In many instances this can be done in conjunction with neighborhood groups and centers. A regular program to provide these services is appropriate.



ZONING

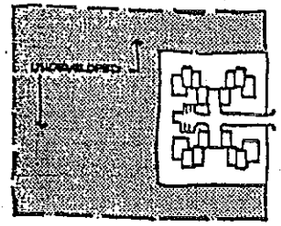


Single Family Detached - Cluster



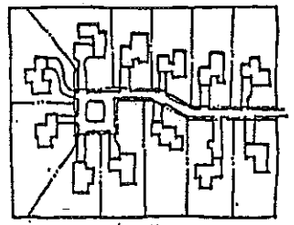
2 DU/AC GROSS
4 DU/AC NET
12 DWELLING UNIT
3 acres

Single Family Attached - Cluster



2 DU/AC GROSS
8 DU/AC NET
12 DWELLING UNIT
1.5 acres

Single Family Detached - Tradiitonal Subdivision



2 DU/AC GROSS
2 DU/AC NET
12 DWELLING UNIT
6 acres

The twin themes of *tolerance* and *flexibility* serve to structure the development management scheme for Worcester. *Tolerance* stresses ensuring that activities *fit* into the existing fabric of the city, most especially its built-up neighborhoods. The guiding standard is *accommodation* of new and/or rehabilitation initiatives, coming from the public or private sector. *Flexibility* enables the City to guide new developments in a way which is responsive to site-specific conditions. This is especially important given that many of the heretofore undeveloped sites are difficult to develop. There are a number of specific development management strategies which are appropriate for Worcester. They include...

- *Site-specific development proposal review*
- *Cluster development*
- *Transfer of development rights*
- *Airport environs controls*
- *Historic and neighborhood preservation districts*

Site-specific development proposal review applies appropriate physical, social, economic and institutional standards to proposed development. It increases the likelihood of efficient and pleasant developments, minimizes adverse impacts on the environment, reduces traffic hazards and deterioration of the transportation system, allows for mitigation of impacts on the immediate and surrounding community, permits assessment of benefit fees and is a way of effectively channeling growth. Because so much of Worcester's potential development is in sensitive locations (either built-up areas needing an evaluation of *tolerance*, or undeveloped but difficult areas requiring *flexibility*), **every important site development proposal should be adequately reviewed.** Any one of several threshold conditions should prompt a site plan review, with those conditions varying according to development type. Critical factors which prompt a review include scale, lot characteristics and lot location. The extent of the review needs to be matched with the intensity and importance of development. Smaller, uncomplicated proposals can be handled with brief conferences and short review periods. Larger, more complicated proposals will need longer time and more extensive information.

Clustering **involves allowing the configuration of elements (lots or structures) closely together.** It is understood in comparison with conventionally permitted development. It typically involves smaller lots, creation of dedicated open space and, in some instances, the clustering of structures on single lots. Such clustering allows for efficient use of the natural amenities of the land, preserves open space for community benefit, and reduces development and community service costs. Importantly, clustering concentrates houses, streets and utilities on the most buildable part of a site. Provision of open space means less environmental disturbance. Successful clustering also involves structures designed to fit the site. Use of clustering in Worcester's new zoning scheme should ...

- Provide flexibility in site design, including dimensional controls
- Provide for use of zero-lot line construction
- Allow cluster subdivisions and clustering of units
- Require a minimum dedication of open space
- Hold at gross underlying density, except for incentives to achieve affordable housin ; objectives.

Preservation of open space, focus of development in preferred locations, and limiting development in airport environs can be achieved through **transferable development rights**. The *TDR* idea is based on establishing the right to develop land as an independent aspect of land ownership. The objective of *TDR* is to ensure that economic equities are maintained. By designating specific zones from which and to which development rights may be transferred, *TDR* makes it possible to steer the course of private development toward public objectives at no cost to the public purse. *TDRs* establish a mechanism by which it becomes possible to buy and sell development rights. A *development right certificate* is created, with transfers managed through a City-operated *Development Rights Bank*, and is recordable at the *Registry of Deeds*. Two zones are established:

- *Sending zones*, which are areas in which the City wishes to minimize and/or exclude development. For Worcester these would include Airport Environs, open space preservation areas, historic preservation areas/buildings, and the Balance of the City (excluding receiving zones).
- *Receiving zones*, which are areas where the City wishes to promote and/or concentrate development. For Worcester these would include the Areas of Special Development Significance.

A scheme based on *unused density* is proposed for Worcester. Each combination of a sending and receiving zone has an associated *TDR conversion factor* which is based on the degree to which development intensity is to be encouraged in the receiving zone and discouraged in the sending zone.

transferable development rights
protects economic equities
promotes public policy

The Worcester Airport is poised for significant expansion. It is important that this growth be compatible with the City's plan to provide for public health, welfare and safety in its development. For Worcester Airport this means **minimizing noise and hazard impacts while responding to the air transportation needs of the City.** Airport noise must be considered since it impacts unpleasantly on the quality of life of the affected areas. Continued ~~exposure to noise above~~ the 60db range can cause hearing loss. An approach to permitting sensible airport activity, without causing harm from noise, is to implement *noise attentuation* requirements in structures within a noise impact zone. A performance standard which is appropriate is a Community Noise Equivalent Level (CNEL) of 45. CNEL is a performance standard that assesses noise impacts, accounting for the disruptions to normal human activity during early evening and night. It is used in a number of airport situations and is included as a condition of approval for Wildwood Estates, a subdivision within the Worcester airport environs.

minimize airport noise

A second approach is to obtain ***avigation easements*** for properties in the Airport Environs Zone. These legally-binding documents have the property owner acknowledge the activity of aircraft *overhead*, and commit him/her not to pursue legal challenges to that activity. Both *noise attentuation* and *avigation easements* are appropriate in the *Airport Environs* based on noise contour maps prepared by the Airport's engineering consultants.

avigation easement

historic preservation

Worcester has an important and special historic heritage. The city's emergence in the late 19th century as a major manufacturing center was unusual. Rather than one major industry developing, there were many different industries. It is important to preserve, for contemporary and future use, important elements of the city's heritage. Worcester has some 650 buildings, sites and structures on the National Register of Historic Places. The City is currently creating a historic preservation plan, and is making other major overtures towards an active preservation program. Three forms of regulatory strategies are appropriate...

- **Local Historic Districts,** which protect buildings from dramatic exterior changes which would adversely effect the visual image, congruity and sense of place created by the collection of buildings and surrounds. The existing Massachusetts Avenue Historic District is an example.
- **Neighborhood Preservation Districts,** which protect neighborhoods from "out of scale" new construction and detailing. Portions of Grafton Hill and Vernon Hill are examples of appropriate Preservation Districts.
- **Open Space Districts,** which protect especially valuable public parks. Elm Park is an example.

A related regulatory tool is a ***demolition ordinance.*** This provides a time period for review of proposed structure demolitions to assess the historic value and to work with owners for alternatives to demolition. Worcester's valuable *Mechanics Hall* was spared from demolition only by unusual energy and intervention. Other important structures need more routinized review.

eliminate septic systems

An estimated 8% of the streets in Worcester are not serviced by sanitary sewers, leaving an estimated 10% of the residential properties to rely on private domestic waste disposal, virtually all by septic tanks. The density of the city and the amount of surface water both argue for the **elimination of the use of septic systems.** A program to find, test, certify or condemn, register and regularly retest existing septic and well systems should be initiated. A parallel objective should be the elimination of all such private systems. Applications for new septic permits should be denied. Incentives to decommission existing systems and hook-up to the City's sewer system should be developed.

Many of the families in the city who live in a three-decker do so for reasons of both preference and affordability. This is an extremely important concept in formulating a housing strategy for the city. As a critical component of Worcester's existing housing stock, three-deckers provide a rich mixture of type and style. They also provide a tradition of owner occupancy, at affordable standards. Finally they are a resource which is presently at risk, structurally and economically.

It is critically important that the City undertake an aggressive program aimed at preserving its existing housing, in terms of owner-occupancy, affordability and structural quality. These objectives can be met in part through the proposed **Owner-Occupant Sales & Purchase Assistance** program. It meets the legal, technical, structural and financial needs of this housing and its present owners. The need for this program is immediate, as much of this housing stock is vulnerable to investor purchase, given the present intensity of market conditions.

Inclusionary zoning is an effective mechanism to achieve a variety of public policy objectives, not just affordable housing. It is also aimed primarily at new construction, though it includes substantial rehabilitation projects as well. Inclusionary zoning includes the *bonusing* provisions of cluster and TDR. It also would requires that all residential developments of ten or more units set aside at least 10% of the units for low-moderate income households. Linking affirmative marketing requirements with the units assists the City in achieving its deisolation objectives, assuring that it can be in compliance with the state's Racial Balance law. This will ensure that the City obtains the 90% state funding for new schools, which is fiscally essential.

There are a number of related important new housing initiatives which could be implemented, including...

- **Accessory apartments**
- **On-campus housing for students**
- **Downtown housing**
- **Infill housing**

These expand on existing housing programs, such as WHIP. The number and scale of housing programs will require a significant commitment by the City, primarily in staff capacity for technical assistance and coordiantion. It will be necessary to create a large resource pool for both investment and operating purposes. Such an effort necessarily and appropriately involves the private sector, notably the lending community.

A potential location for housing, as well as for certain economic development initiatives, is the large amount of space in existing underutilized older manufacturing buildings. At least 2 million square feet of space exist in this category. Another source of recyclable space is older school buildings. Twenty-two of Worcester's schools are 75 or more years old. These types of buildings could provide over 2,500 units of housing. It is probable that the City will have to *prime the pump* for much of this adaptive reuse, especially in areas which historically have been mainly industrial. This will include changes in zoning and financial incentives.

PROGRAMS

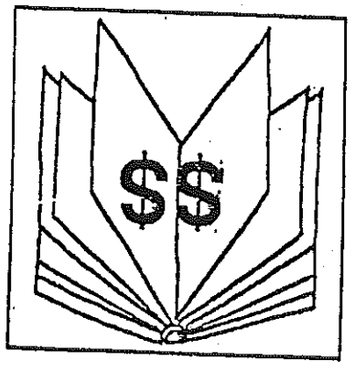
owner-occupant sales & purchase assistance

inclusionary zoning

housing initiatives

recycle old buildings

BUDGET



19:1 leveraging

public & private investment

benefit fees

new schools

achievable and sound

A significant outcome of any Master Plan process is change in the built environment. New structures, water, sewer and roadway improvements and alterations to the city's open space and recreation resources are the most evident results of sound planning. They also represent substantial investments from both the public and private sectors.

The adjoining table is an estimate of capital investment which will be generated within the next ten years based on the development management strategy of the Master Plan. A total of nearly $1 billion is estimated, with two-thirds of the amount coming from private sources. This represents a major leveraging of City resources, at a 19:1 ratio when funds from the state and federal governments are included.

The largest capital expenditures will come in office and residential development. The City's investment in major *Downtown* initiatives such as depressing the railway and improving I-290 access will generate $235 million of construction activity in excess of the already programmed $48 million investment in the conversion of Union Station to a convention center. This investment will also serve to significantly change the face of *Downtown*. As much as 1,000,000 square feet of new office space will be developed, and 1,000 new downtown residential units. Other residential and business investment, almost entirely by the private sector, would total nearly $300 million.

The City's investment of a relatively small amount of funds in the *nodes* and *pathways* system would substantially aid the residents and users of Worcester in comprehending and enjoying the city. Equally important is initial small investment in banners and related prominent improvements which will make a strong statement about the way Worcester sees itself and its future. For others to be willing to invest in Worcester, the City must take the lead.

There are a number of inescapable expenditures to upgrade and make current Worcester's water, sewer and road system. Some of these funds will come from state and federal sources. A substantial amount could be bondable by a Water and Sewer Authority. A significant portion of these funds could also be forthcoming from developers as *benefit* and *impact fees*.

Major capital expenditures must be made to bring Worcester's schools current with contemporary educational needs, as 22 schools are 75 years or more in age, and the school population is increasing. Meeting the state's racial balancing objectives will yield a 90% state reimbursement for these capital costs.

Some of the costs associated with open space and recreation acquisition can be funded through resources generated by a Land Transfer Tax, Transfer of Development Rights and other ways to create dedicated revenues.

While this is an ambitious program, it is entirely attainable. It represents a sound investment of the City and its people in a solid and creative future.

CITY OF WORCESTER
MAJOR CAPITAL IMPROVEMENT PROJECTS
MASTER PLAN

PROJECT NAME	ESTIMATED CAPITAL COST (in $millions) IMMEDIATE	LONG TERM	ESTIMATED TIME FOR COMPLETION (in years)*	FUNDING SOURCE CITY	STATE	FEDERAL	PRIVATE
Convention Center	2.0	46.0	7	X	X		
City Hall	2.0	0.0	3	X			
Washington Square Ramps	0.0	4.0	5			X	
Depress Railway	0.0	15.0	5		X	X	
Air Rights Decking	0.0	20.0	5	X	X	X	X
Downtown Office	2.0	93.0	8		X	X	X
Downtown Residential	2.0	98.0	6	X	X	X	X
Other Business/Manufacturing	3.0	77.0	10	X	X	X	X
Other Residential	6.0	185.0	8	X	X	X	X
Nodes & Pathways	0.6	3.0	5	X	X		
Rte. 146 Roadway	0.5	30.0	9	X	X		
Water Filtration Plant	0.5	49.5	6	X		X	
Sewer & Water Pipe Rehab	10.0	240.0	10	X		X	
Schools (90% state)	2.0	98.0	10	X	X	X	
Park & Rec. Improvements	2.0	8.5	5	X	X		
Open Space Acquisition	3.0	59.0	5	X	X	X	X
Fire Station	0.0	2.0	5	X	X	X	X
Fire Trucks	0.5	4.5	10	X			
Police	0.5	2.0	5	X			
TOTAL (in million $)	36.6	1034.5		47.1	170.0	146.0	708.0

Worcester Master Plan

ANNOTATED INDEX

page	Topic	Type	Purpose	Implementor	Content
81	Administration	Program	Resource Mgt	City Mgr	Coordinate and focus staff/line agencies
81	Administration	Program	Resource mgt	City Mgr	Clarity of application forms and procedurs (involve all relevant departments)
81	Administration	Program	Dev Mgt	City Mgr	Project review manager
81	Administration	Program	Dev Mgt	City Mgr	Update rules and regulations (Planning Bd, ZBA, Lic Bd, Law Dept, OPCD)
81	Administration	Program	Resource Mgt	City Mgr	Improve access to information; use GIS for planning, other; includes OPCD, Fire, Police, School, Code, BLUC, Law, P&R, other
87	Administration	Program	Dev Mgt	City Manager	Budget & financial resources for all aspects of Master Plan - $1 billion 2/3s private.
39	Culture	Program	Quality of life	City Council	Arts set-aside in development (capital and operating)
39	Culture	Policy	Quality of life	City Mgr	Link downtown cultural institutions (organizational, access, promotional, etc.)
52	Culture	Program	Quality of life	Cultural Comm	Murals in downtown (Denholm building, Shawmut Parking Garage, other)
26	Econ Dev	Program	New resources	OPCD	Downtown housing to expand economic/social vitality
26	Econ Dev	Program	Resource mgt	OPCD	Selective conversion of old manufacturing facilities as for incubator industries
27	Econ Dev	Program	Resource mgt	WMA	Terminal, parking, access improvements
27	Econ Dev	Policy	Resource mgt	City Mgr	Expand on medical/service based industry as key economic development policy; consolidate existing manufacturing base; incubate/incrementalize new
37	Econ Dev	Policy	Resource mgt	Voc Ed	Economy-responsive labor force preparation; continuing education
38	Econ Dev	Policy	Quality of life	Cultural Comm	Foster development of the arts as part of citys amenity package
52	Econ Dev	Program	Quality of life	Planning Board	On-site day care as work benefit
36	Education	Program	New resources	School Dept	New school construction, with 90% state reimbursement; replace those 75+ years olds via adaptive reuse; capture funds
36	Education	Policy	Quality of life	School Dept	Racial balance policy, alternatives: magnet schools, redistrict, busing, open enrollment, new school construction
37	Education	Program	New resources	City Mgr	Payments in lieu of taxes
37	Education	Policy	New resources	City Mgr	Involve colleges in leadership role in city development
36	Health	Policy	Resource mgt	City Mgr	Retain/improve City Hospital
17	Housing	Policy	Stability	OPCD	Encourage owner occupancy
17	Housing	Policy	Special Users	City Council	Accessory apartments permitted
17	Housing	Policy	Affordability	OPCD	Preserve three-deckers at affordable costs
17	Housing	Program	Affordability	OPCD	Owner-Occupant Sales & Purchase Assistance program
18	Housing	Policy	Affordability	City Council	Inclusionary zoning @ 10% of units or value
18	Housing	Policy	Resource mgt	OPCD	Assess stock; devise new uses via adaptable reuse of schools, manufacturing, existing housing
18	Housing	Policy	New construction	OPCD	Facilitate downtown housing via ASDS and other mechanisms
18	Housing	Program	Special Users	Colleges	On-campus student housing
18	Housing	Policy	Affordability	City Council	Density bonus
19	Housing	Policy	New construction	Plng Bd	Encourage in-fill housing
19	Housing	Program	Special Users	OPCD	Technical and financial assistance (direct or coordinating) for special populations with housing needs (elderly, homeless, low-income, mentally disabled/retarded, artists)
82	Housing	Program	New Const	Planning Board	Clustering of site/structures, efficient use of space, preserve open space
20	Open Space	Policy	Quality of life	Planning Board	Open space serves multiple objectives; forms shape of city
22	Open space	Program	Resource mgt	P&R	Street tree maintenance/replacement
22	Open space	Program	New resources	City Mgr	Implement acquisition/protection for 8+ open space sites (coordinatesOPCD, P&R, Cons Comm, Plng Bd, City Council, etc.)
10	Physical Form	Policy	Dev Mgt	Planning Board	Areas of Special Development Significance (ASDS)--flexible zoning, concentrate attention; encourage mixed uses
11	Physical Form	Program	Dev Mgt	City Mgr	Focused pathway/node enhancement (signs, banners, paving, landscaping, etc.) involving DPW, P&R, Plng Bd, Trans, etc. (also p. 20)
20	Physical Form	Program	Dev Mgt	City Mgr	Route 9 Greenway as key in-city regional pathway; priority action
47	Physical Form	Program	Resource mgt	City Mgr	Node/Pathway improvement at I-290/Plantation St
52	Physical Form	Program	Dev mgt	City Mgr	Main St as discovery pathway; Worcester Center Blvd as commerce Pathway
52	Physical Form	Program	Dev mgt	City Mgr	Air rights development in downtown
57	Physical Form	Program	Resource mgt	City Mgr	Node enhancement at West Boylston/Gold Star
59	Physical Form	Policy	Dev Mgt	Planning Board	Clark and CNE as development anchors for So. Worcester subareas
61	Physical Form	Program	Resource mgt	City Mgr	Main St pathway enhancement as So. Worcester "spine"; Main/Maywood & Main/May node enhancement
61	Physical Form	Program	Dev Mgt	Planning Board	Webster Square ASDS
63	Physical Form	Program	Dev Mgt	Planning Board	Route 146 ASDS; Heritage State Park
65	Physical Form	Policy	Dev Mgt	Planning Board	Park Avenue built form resonant with natural quality of hills and valleys
65	Physical Form	Program	Resource mgt	City Mgr	Node/pathway improvements for Park Ave; Newton Square; Bancroft Tower
68	Physical Form	Program	Resource mgt	City Mgr	Node enhancement--Belmont/Shrewsbury; Pathway enhancement--Shrewsbury

page	Topic	Type	Purpose	Implementor	Content
71	Physical Form	Program	Dev Mgt	City Mgr	Route 20 pathway/node improvements; expand scope of State study
73	Physical Form	Program	Dev Mgt	City Mgr	Tatnuck Square node improvements (traffic, zoning, development)
75	Physical Form	Program	Dev Mgt	City Mgr	Node enhancement at I-290/Rte 146; Rick Square, Billings Square,
8	Physical Form	Policy	Dev Mgt	Planning Board	Nodes and Pathways--regional, city, neighborhood-- as organizing mechanism
25	Physical From	Program	Dev Mgt	City Mgr	Washington Square/Downtown as key node; obtain state/federal funds + private investment; air rights; new ramps & I-290 system study; depress/bridge railroad;
14	Planning	Program	Dev Mgt	OPCD	Planning Area Plans--broad participation in policy and implementation at area level
14	Planning	Policy	Dev Mgt	Planning Board	13 Planning Areas--to manage planning efforts; focus of service delivery
20	Planning	Program	Dev Mgt	OPCD	ASDS detail plans; development coordination (Boards, agencies, state/federal/private)
45	Planning	Program	Dev Mgt	Law Dept	Avigation easement for construction in Airport Zone
75	Preservation	Program	Resource Mgt	City Council	Neighborhood Preservation Districts in Vernon Hill/Grafton Hill
84	Preservation	Program	Quality of Life	City Council	Local Historic Districts, Neighborhood Preservation Districts, Open Space, Demolition Ordinance
84	Preservation	Policy	Quality of Life	City Council	Historic Preservation Plan
36	Public safety	Program	Resource mgt	Fire Dept	Computerization of recordkeeping and analysis
36	Public safety	Program	Resource mgt	Police Dept	Computerization of recordkeeping and analysis
21	Recreation	Program	New resources	P&R	Greenbelt system
22	Recreation	Program	Resource mgt	P&R	Computerization of maintenance management; expand on new programs
22	Recreation	Program	New resources	P&R	Park expansion --Kendrick, Beaver Brook, Oread Castle
22	Recreation	Program	New resources	P&R	City vista park/facilities at Bancroft Tower
22	Recreation	Program	Resource mgt	P&R	Improve/maintain parks and facilities
22	Recreation	Program	Resource mgt	P&R	Cooperative maintenance programs
23	Recreation	Program	New resources	P&R	Urban heritage park at Coes Pond/Park Avenue
79	Revenue	Program	New resources	City Mgr	Leasehold fees for development rights; use of 121A as variation for flow of new revenues in development projects
80	Revenue	Program	New resources	City Mgr	Development review processing fees based on nature and complexity of project; cover costs
81	Revenue	Program	New resources	City Council	Real estate transfer tax, for open space/housing
81	Revenue	Program	New resources	City Mgr	Payments in lieu of taxes (PILOT) by non-profits
33	Transportation	Program	Resource mgt	Traf Eng	Management plan for downtown parking (peak prohibition, loading zone times, fine structure) + required new off-street parking for new construction
35	Transportation	Program	New resources	Traf Eng	Bio-Tech area roadway improvements
35	Transportation	Program	New resources	OPCD	Employer-provided van service for non-economic WRTA destinations
35	Transportation	Program	Resource mgt	Traf Eng	Transportation systems management plan
28	Water	Policy	Resource mgt	City Mgr	Groundwater resources management plan; capacity
28	Water	Program	New resources	DPW	Acquire new watersheds; use in-city groundwater for industrial "non-drinking" standard uses (Also p. 53)
29	Water	Program	Resource mgt	DPW	Reduce/control demand through pricing, loss detection, education for conservation
30	Water	Program	Resource mgt	DPW	Improve quality, construct filtration plan
30	Water & Sewer	Program	Resource mgt	DPW	Upgrade/extend water and sewer lines; link with pathways/nodes, ASDS, other planning initiatives; OPCD and Budget link
30	Water & Sewer	Policy	New resources	City Mgr	Benefit fees to tap into existing system ; mitigate impacts
31	Water & Sewer	Program	New resources	City council	Create independent water & sewer authority; full-cost pricing
84	Water & Sewer	Policy	Res Mgt	City Manager	Locate, test, certify & eventually eliminate septic systems.
61	Water and Sewer	Program	Resource mgt	DPW	Upgrade pumping capacity; water main develoment in Greendale/Brittan Square Planning Area
13	Zoning	Policy	Dev Mgt	Planning Board	Performance zoning--flexibility and tolerance
19	Zoning	Policy	Special Users	Planning Board	Provide for congregate living arrangements (SRO, group homes, shelters, continuing care retirement communities) (Also p. 51)
45	Zoning	Policy	Dev Mgt	Planning Board	Airport Environs Overlay Zone--protection from noise impacts
63	Zoning	Policy	Dev Mgt	Planning Board	Holding Zone for municipal landfill
63	Zoning	Policy	Dev Mgt	Planning Board	Institutional Zone for Holy Cross (also other colleges)
82	Zoning	Program	Dev Mgt	Planning Board	Site-specific development proposal review; review all important proposals; time/cost based on complexity
82	Zoning	Program	Dev Mgt	Planning Board	Transfer of Development Rights (TDR)
83	Zoning	Program	Dev Mgt	Planning Board	Receiving Zones (ASDS)
83	Zoning	Program	Quality of Life	City Council	Local Historic Districts, Neighborhood Preservation Districts, Open Space, Demolition Ordinance
83	Zoning	Program	Dev Mgt	Planning Board	Airport Environs - Noise attenuation, avigation easements
83	Zoning	Program	Dev Mgt	Planning Board	Sending Zones (Airport, Open Space and historic preservation areas, and balance of city)
84	Zoning	Policy	Dev Mgt	Planning Board	Tolerance and flexibility as guiding concepts

REFERENCES & ACKNOWLEDGEMENTS

MASTER PLAN
INVENTORY OF DOCUMENTS

These documents contain extensive presentation of data and analysis for the Master Plan. The are included by reference.

TITLE	DATE	NO. OF PAGES
1987 Parks and Open Space Five Year Action Plan	June,1987	97
1987 Parks and Open Space Five Year Action Plan/Draft	February,1987	68
1987 Parks and Open Space/Draft Parks Inventory	February,1987	104
1987 Parks and Open Space/Inventory	June,1987	187
Accessory Apartments/Briefing Paper	February,1987	15
Airport/Briefing Paper	January,1987	17
Building Reuse/Briefing Paper	February,1987	6
Charette Briefing Book	August,1986	126
Cluster Zoning/Briefing Paper	January,1987	10
Community Facilities/1st Draft Report	October,1986	38
Community Facilities/2nd Draft Report	January,1987	39
Cultural Institutions/Draft Report	January,1987	10
Demographics/1st Draft Report	September,1986	37
Demographics/2nd Draft Report	January,1987	47
Economic Development/1st Draft Report	October,1986	37
Economic Development/2nd Draft Report	January,1987	38
Historic Preservation/Briefing Paper	January,1987	22
Housing Affordability for Special Populations/Briefing Paper	February,1987	7
Housing/1st Draft Report	November,1986	45
Housing/2nd Draft Report	February,1987	53
Impact Fees/Briefing Paper	January,1987	9
Infrastructure/1st Draft Report	September,1986	30
Infrastructure/2nd Draft Report	January,1987	24
Land Transfer Tax: Land Bank & Housing Fund/Briefing Paper	January,1987	7
Land Use/1st Draft Report	May,1987	51
Land Use/2nd Draft Report	June,1987	75
Nodes/Pathways and Areas of Special Development Significance/Briefing Paper	February,1987	8
Open Space and Recreation/1st Draft Report	October,1986	46
Open Space and Recreation/2nd Draft Report	February,1987	36
Performance Zoning/Briefing Paper	January,1987	7
Septic Systems and Wells/Briefing Paper	January,1987	16
Site-Specific Development Proposal Review/Briefing Paper	January,1987	16
Subdivision Rules and Regulations/Briefing Paper	January,1987	3
Transfer of Development Rights/Briefing Paper	January,1987	15
Transportation/1st Draft Report	September,1986	29
Transportation/2nd Draft Report	February,1987	18

ACKNOWLEDGEMENTS

The Reports, Briefing Papers and other materials which have been prepared as part of Worcester's Master Plan process are the work of the City and its consultants. Four organizations were involved in helping the City develop its Master Plan--ON-SITE INSIGHT (OSI), Abt Associates, Inc. (AAI), DJK and Associates (DJK) and the Social Services Planning Corporation (SSPC). Gretchen S. Schuler was separately retained to prepare an Historic Preservation Plan for the City. She has also worked with the Master Plan team by coordinating her work, and preparing materials for the Master Plan process. The parks, recreation and open space plans received the benefit of study, analysis and reports prepared by the Conservation Commission's Open Space Committee. As is typical of a collaborative effort among organizations, and between consultants and clients, the work produced is the result of the efforts of many individuals. We here acknowledge those from the City who carry primary responsibility for the Master Plan process, and those from the consultant team by noting the topical area and work products for which each carried major responsibility.

CITY OF WORCESTER

John Anderson, Mayor (1986)
Timothy Cooney, Mayor (1987)
William J. Mulford, City Manager
Office of Planning and Community Development -- Michael S. Latka (Director), Phillip S. Hammond, William Picard
Bureau of Land Use Control -- Francis J. Donahue
Planning Board -- Ralph D. Crowley, Frank DeFalco, Deborah A. Kaufman, John F. Keaney, Joan Sadowsky
Conservation Commission , Open Space Committee -- Kevin Powers (Chairman)
Dr. Robert Bertrin, Deborah Cary, Ted Conna, Joseph McGinn

CONSULTANTS

OSI --Dr. Thomas E. Nutt-Powell, AICP, Project Director (Master Plan, Zoning)
Edward J. Daly (Infrastructure, Well and Septic Monitoring, Land Use, Master Plan,Zoning, Land Use)
Mark Duperron (Transfer of Development Rights, Land Transfer Tax)
Professor Leo Jakobson, Project Guru
Sharon Murphy (Open Space and Recreation)
Jeffry R. Powell (Cluster Zoning)
Warren Steinberg (Impact Fees, Capital and Operating Budget)
Richard Worthen (*GIS*)
Pamela Kinahan, Reena Sobelman, Dee Ramee, Linda Molloy, Terry Mahoney, Kirsten Nutt, Nan Nutt (Support)
Sharon Murphy, Judy Spicehandler, Robert Rogers (Graphics)
AAI --Dr. James Wallace, AAI Project Director
Robert Bensetler (Housing)
Larry Forgy (Housing)
Barbara Kessner (Community Facilities and Services, Culture, Citizen Participation, Accessory Apartments)
John Tilney (Economic Development, Building Reuse)
Beth Griffin, Claudette Piper, Dan Fitzgerald (Support)
DJK --Dermot J. Kelley (Transportation)
SSPC --Donald Chamberlayne (Demographics)