MARKET ANALYSIS FOR A PRIMARY-HOME, RECREATIONALLY-ORIENTED RESIDENTIAL DEVELOPMENT IN HOLDEN, MASSACHUSETTS

by

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Bachelor of Arts
Amherst College
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Submitted to the Department of Architecture
in Partial Fulfillment of the Requirements of the Degree of
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ABSTRACT

This thesis analyses regional and local market support for a proposed primary-home, recreationally-oriented residential development on a 290-acre parcel of land located in the town of Holden, Massachusetts. The current proposal calls for development of a 230-unit cluster subdivision, consisting of 138 single-family homes and 92 condominiums. The recreational orientation is provided by an existing eighteen-hole golf course located on approximately 125 acres of the parcel.

The site and site context are described, and a market area is defined. The sources of housing demand and supply are discussed, overall housing demand and supply within the market area are estimated and projected forward, and the composition of this demand and supply is examined. The proposed development is then evaluated in light of this "macro" analysis, and specific market segments are identified. In conclusion, recommendations are made regarding product type and price range, and potential absorption is estimated.

Thesis Supervisor: Dr. Marc Andrew Louargand
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ACKNOWLEDGMENTS

There are many people who in many different ways contributed to the completion of this thesis. My sincere thanks to each and every one for their cooperation, interest, and support. So much help has been needed by the author--and so much has been provided to him--that it would require too much space to name all the benefactors individually. Those that follow, however, were of special importance in this thesis effort, and special thanks are extended to each one.

To those at A.J. Lane & Company--in particular to Fred Connor, project manager of the Holden Hills project--for the opportunity to use their site and proposed development plans as the subject of this thesis, and for their willing cooperation in providing helpful information and resources;

To Marc Louargand, for the multitude of graces he brought to bear on his advisee, but especially for his uplifting and enabling sense of humor;

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INTRODUCTION

A. Objective and Scope of Study

The general goal of this thesis is to develop a factual and analytical framework for evaluating the strength and character of potential market support for large residential development projects. The specific goal is to apply this framework to a particular type of development, viz., primary-home, recreationally-oriented projects, and to a particular example of such development, viz., a proposed golf-course development in the town of Holden, Massachusetts. The "bottom line" is an estimate of expected demand for housing units in the market area, and an estimate of the potential rate of absorption that can be expected in the sale of the Holden Hills project's 230 proposed units. In addition, the market segments which are expected to generate demand for this project are discussed.

In the first portion of this study, the Holden site and its context are described, laying the groundwork for the discussion of the general development concept and specific development proposal contained in Chapter Two. Also included in the second chapter is an overview of the organization of the analysis and of the sources used, as well as the initial step in the process: definition of a market area. The third

chapter focuses upon the demographic and socioeconomic characteristics of the market area population (demand), and upon the inventory and growth of the area's housing stock (supply). The interaction of these two sides of the housing equation is examined in Chapter Four, including issues of affordability, absorption, and market segmentation. Finally, the last portion of this study summarizes the analysis and offers recommendations for further analysis and action.

This thesis, then, is principally concerned with the overall demand for and supply of housing units within the market area, and with certain specific issues relating to the Holden project. It does not attempt to cover all of the many important dimensions of planning and marketing the Holden project. Product design, site planning and product configuration, financial feasibility, political and regulatory strategies, marketing and sales strategies, management strategies--all are beyond the scope of this analysis. (An overview of the complete planning process is contained in Appendix A, *Overview of Pre-Development Planning Process.*) Also beyond the scope of this analysis is any attempt to independently forecast population growth and household composition. The analysis is based upon historical data and projections believed to be most reliable from among a variety of widely divergent sources.

An organizational note: bracketed numbers (for

example, "[3]") within a chapter refer to source or explanatory notes which can be found at the end of that chapter. Attention is also drawn to the Appendices which contain useful sources of data and reference.

B. Assumptions and Limiting Conditions

Certain assumptions were relied upon in the preparation of this report. They include the following:

1. Much of the analysis is based on written and verbal information supplied by others. An attempt was made to verify this information wherever possible, but no guarantee relating to the accuracy or reliability of such information is expressed or implied herein.

2. This analysis is completed during a period of moderately strong growth in the local and regional economies. The ability to sell the proposed housing units will depend on the state of the local economy and the financial market at the time the product reaches the market. Although an attempt was made to project future general economic growth in the region, the effects of a recession, major layoffs, or expansions of individual firms could alter the outlook significantly. No attempt was made to survey individual firms about their employment needs. In addition, it is impossible to predict the full impact of a continued labor shortage on the regional economy and the proposed development.

3. All information concerning the ownership, location, and site condition of the land parcels which are the subject of this study was obtained from A.J. Lane & Company, Inc. No attempt was made to verify this information.

The use and application of this study are limited to the following conditions. Acceptance, possession, or use of this study in any manner constitutes an agreement to the following conditions:

1. Any photographs, maps, or drawings contained herein are for the purpose of visualization only, and their accuracy can not be relied upon for any other purpose.

2. The results of a survey and inventory of selected competitive residential projects in the market area is included in the analysis. This list is not intended to cover all residential projects in the market. Several conclusions about demand, price, buyers, and absorption are drawn from this survey. Although the sample was constructed to be a representative sample, it is possible that the inclusion or omission of one or more developments could alter the conclusions.

3. The estimates and projections within this study are often specified to the last digit, reflecting the mathematical basis of their derivation. They should not be assumed

accurate to that level. All such figures should be taken with a plus-or-minus range of several percentage points.

C. Background

In 1986 A.J. Lane & Company, Incorporated, a Massachusetts-based development company, acquired a large parcel of undeveloped land (155± acres) located adjacent to an eighteen-hole golf course on the outskirts of Holden, Massachusetts. Months later, the company purchased the golf course itself, bringing the total area under the corporation's control to nearly three hundred acres. An additional access point, in the form of a fifty-foot-wide former railroad easement, was acquired in mid-1987.

The developer has substantial experience in residential development, and a proven track record of successful large-scale subdivisions. As of the time of writing, Lane has submitted preliminary plans to the town for a 230-unit cluster subdivision. The plans propose preservation of the golf course operations, and a mix of 138 single-family homes and 92 condominiums on the undeveloped portions of the property. Definitive plans are due by the end of the year. Subject to the length and outcome of the approvals process, Lane hopes to commence construction by spring of 1988. Notwithstanding Lane's experience and track record, securing approvals will likely involve extended negotiations given public concerns regarding the scale and

density of the proposed development and regarding preservation of the golf course as a community amenity.

D. Summary of Findings and Conclusions

In addition to this narrative summary and conclusions, a one-page executive summary can be found in Table 1, *Holden Hills Project: Executive Summary*. Additional recommendations are contained in Chapter Five: Conclusions and Recommendations.

Location of Project

Holden is an exclusive suburb of Worcester which offers potential residents a high level of services, a strong residential character, and close proximity to both the city and the regional interstate system. The majority of its residents are above 36 years old, college-educated, relatively affluent, and if working, white collar commuters--well above market area, state, and national norms in all respects.

The Holden Hills site offers potential residents a quiet rural setting with excellent access to recreational amenities, schools, and police and fire protection. A drawback of the site location is the high level of peak hour traffic congestion that is encountered in accessing I-190 southbound. This limits the market area in several directions.

Market Area -- The market area is roughly bounded by Route 2, Interstate 495, and the Massachusetts Turnpike. It consists

Table 1
Holden Hills Project
Executive Summary

DEVELOPMENT PROPOSAL
- 230-unit cluster subdivision with existing 18-hole golf course
- mix: 138 single-family homes and 92 condominium units

LOCATION OF PROJECT
- High-service town, close to city and interstates
- Potential problem: Traffic congestion to I-190 south

MARKET AREA
- Bounded by towns along Route 2, I-495, and Mass Pike
- Area: 1,200± sq. miles; Population: 550,000±
- Employment centers: Worcester area, I-495 corridor, Leominster/Fitchburg area

OVERALL HOUSING DEMAND AND SUPPLY IN MARKET AREA THROUGH 1991
- Demand: 2,050-2,350 units annually (average)
- Supply: 2250 units annually (average)
- Forecast: a moderately strong housing market

RECREATIONAL-ORIENTATION
- Appropriate to target market and Holden population characteristics
- Strengthen and emphasize connection between subdivision and golf course

MARKET SEGMENTS
- Empty-nesters in primary (Worcester) market area
- Move-up families and first-time buyers from high-tech and service sectors (especially from I-495 area)
- Concept: family-oriented, affordable, recreational life-style

PRODUCT TYPE
- Single-family: traditional Holden product type
  - appeal to move-up families
- Condominiums: existing undersupply in Holden area
  - appeal to empty-nesters and first-time buyers
- 60:40 product mix mirrors current market offerings

PRICE RANGE
- Single-family: $225,000 to $275,000
- Condominiums: $130,000 to $175,000
- Individual unit prices to vary with floor area, location relative to golf course, and lot size

ABSORPTION
- Single-family: 25 homes/year; sellout 5.5 years
- Condominiums: 45 units/year; sellout 2 years

of thirty-seven cities and towns, with 1986 population estimated at 550,000. The total market area is divided into a primary market area centered on the city of Worcester, and a secondary market area which encompasses the I-495 corridor, the Leominster/Fitchburg area, and other towns within a forty minute commute of the site.

Overall Housing Demand and Supply -- Overall demand for housing within the market area is projected to range from 2050 to 2350 units annually through 1991. With supply projected to increase by about 2250 units annually, the market should remain moderately strong over the period.

Recreational Orientation of Project -- The recreational orientation is particularly appropriate for this project given the Holden area population characteristics. The appeal of recreational amenities is positively linked with age and level of education. Golf in particular is growing in popularity and is especially appealing to an aging population. The golf amenity should be the focal point of a strong marketing emphasis upon a recreational life-style. Given the even faster-growing popularity of skiing, proximity to Wachusett Mountain should be included in this emphasis.

Market Segments -- The greatest demand for this project will be generated by three market segments: empty-nesters in the primary market area, move-up families from the service and

high-tech sectors in both the primary and secondary market areas, and first-time buyers from the same employment sectors and market areas. Each of these segments represents a significant and growing market due to rising age cohorts, structural shifts in the area's economic base, and/or the "affordability crunch" created by high housing costs (especially in the eastern portion of the market area and in the suburban Boston towns beyond). The appeal of a family-oriented, affordable, recreational life-style unites these buyer groups.

Product Type -- The inclusion of both single-family homes and townhouse condominiums is appropriate to the expected demand. The ease of maintenance and lower cost of condominiums will appeal to the empty-nester and first-time buyer markets. The supply of this housing alternative, within the primary market and especially in Holden, is insufficient to match expected demand. For single-family units, the advantages of location (discussed above) will continue to appeal to the traditional Holden homebuyer. The 60/40 product mix (single-family/ condominium) mirrors the mix of current new construction within the primary market area.

Price Range -- Single-family homes should be priced from $225,000 to $275,000 depending upon square footage, lot size, and location relative to the golf course. Condominiums should be priced from $130,000 to $175,000 depending upon the same

factors. Commanding golf course views created by condominiums placed in the current location of the first and ninth holes could command prices 10-20% higher. (These prices are for current sale.)

Absorption -- A sales pace of from 20 to 30 homes per year may be expected for the single-family homes. For condominiums the expected pace is from 40 to 50 units per year. Using mid-range absorption estimates, the proposed program of 138 single-family homes and 92 condominiums would sell out in five and a half years and two years, respectively.

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SITE AND LOCATION FACTORS

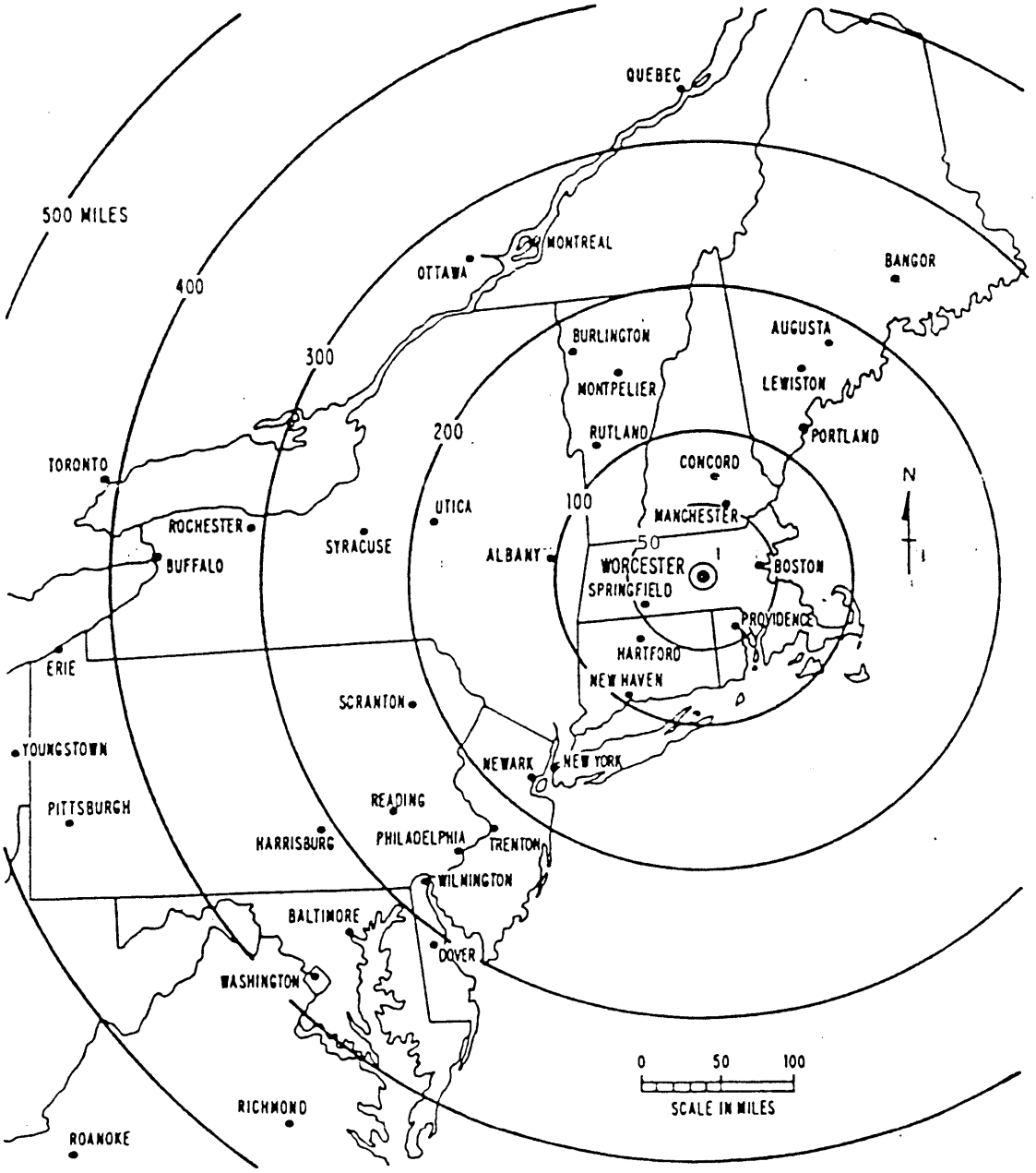
A. Regional Context

The property considered in this study is located in the northwestern portion of the town of Holden, Massachusetts. Holden, an incorporated township with about 14,000 residents, lies immediately northwest of the city of Worcester, the principal city in Worcester County and the second-most populated city in New England. Map 1, *Regional Context*, shows Worcester in relation to principal cities of the northeastern United States and Canada. Boston, Springfield, and Providence, Rhode Island all lie within a fifty-mile radius of Worcester: to the east, southwest, and southeast, respectively. New York City and Washington, D.C. lie approximately 160 and 275 miles to the southwest, respectively. The Holden site is approximately eight miles northwest of the Worcester's central business district.

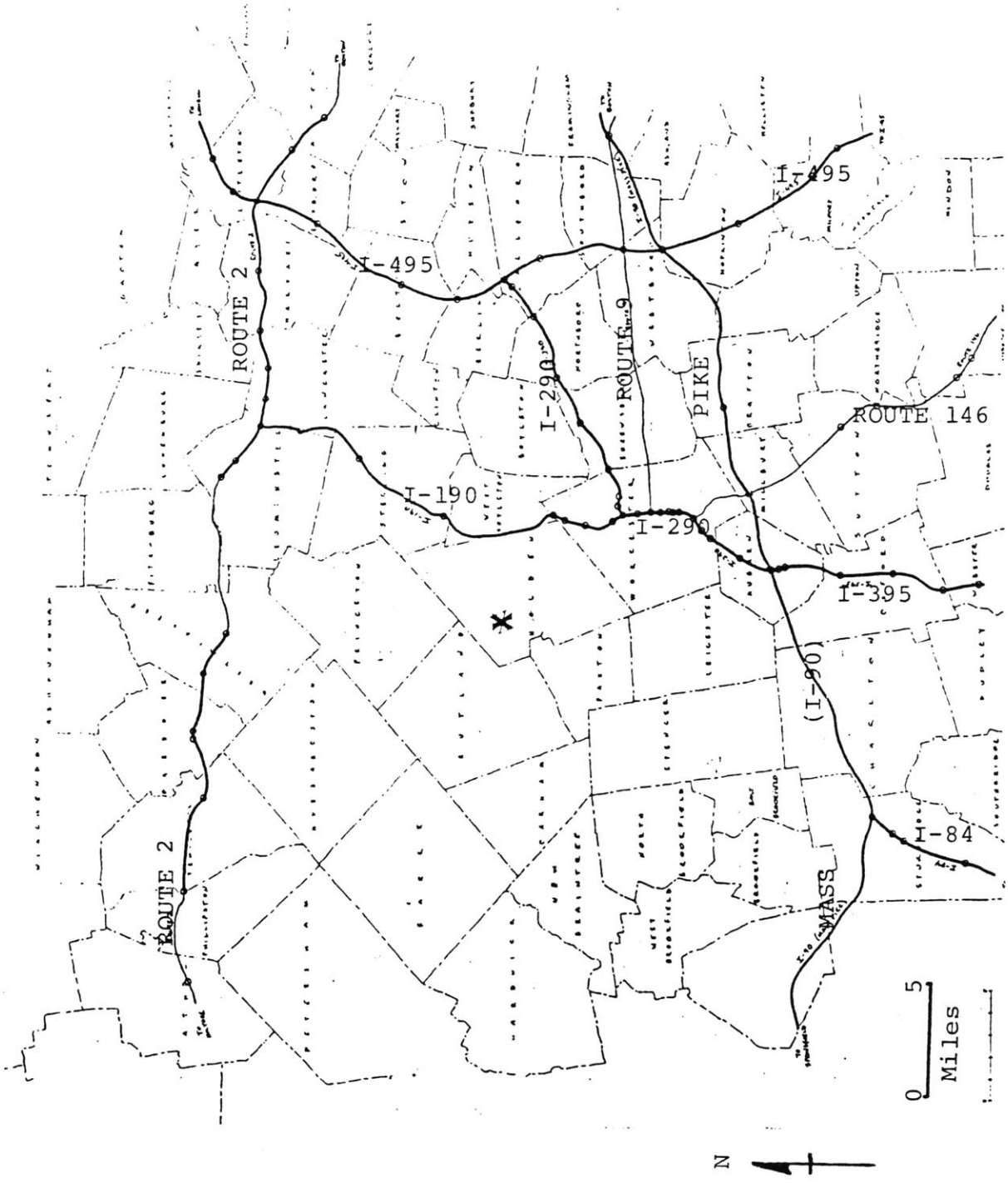
B. Access

Regional access from Holden (shown in Map 2, *Regional Access*) is provided by a network of interstate and state highways. Interstate 190 (I-190) runs along the eastern border of Holden, connecting the town with Worcester and I-290 to the south, and with Leominster and Route 2 to the north.

Map 1
Regional Context



Map 2
Regional Access



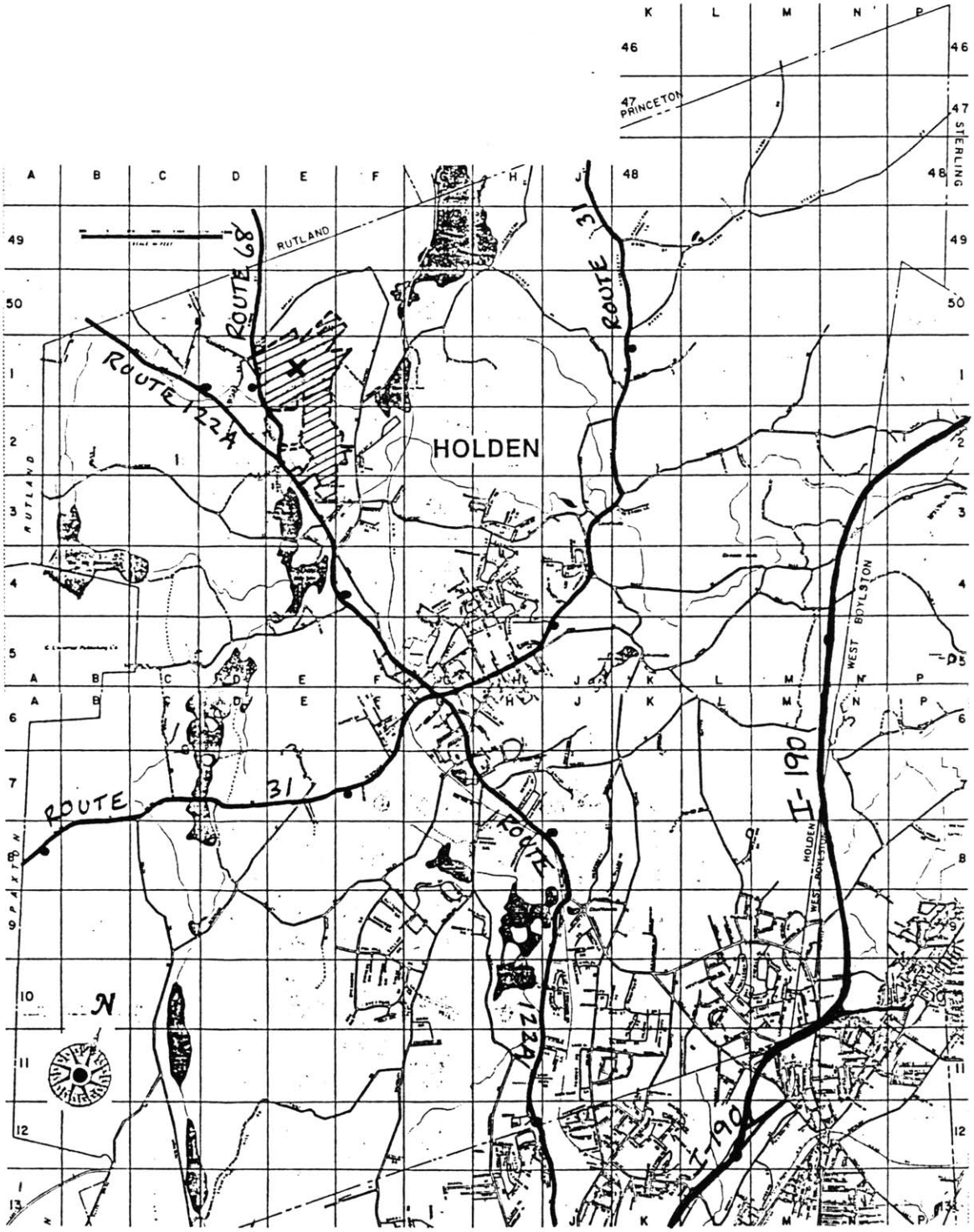
I-290 facilitates travel southward to I-90 (the Massachusetts Turnpike) and I-395 in Auburn, and eastward to I-495 in Marlborough. Route 2, a controlled-access highway (west of Acton), also offers convenient access to I-495. Via Route 2, the I-495 interchange in Littleton is approximately 35 minutes from the site. Access to the Route 128 (I-95) beltway and further into the Boston metropolitan area is most conveniently provided by I-90, but also by Route 2 and Route 9. The Back Bay in Boston is approximately 75 minutes (55 miles) from Holden. Access to more distant points west and southwest, such as Springfield or Hartford, is provided by I-90 and I-84 (via I-90 in Sturbridge).

Additional regional access is provided by train and airplane service originating in Worcester. Amtrak provides daily east-west train service to Boston and Springfield (both 70 minutes from Worcester). Eastern and Continental Airlines combine to offer daily non-stop air service from Worcester Municipal Airport to Boston (29 minutes), to New York (LaGuardia Airport, 60 minutes), and to Washington, D.C. (Dulles Airport, 80 minutes). The airport is located approximately eight miles southeast of the Holden site. Public transportation in Holden is limited to two metropolitan bus routes offering service to Worcester, and a community "elderbus" system.

Map 3, *Area Access*, shows access and circulation

Map 3

Area Access



patterns within the Holden area. Access within the area is provided primarily by three state roads--Route 122A, Route 31, and Route 68--and the town roads leading to and from I-190. Route 122A (Main Street) is Holden's primary thoroughfare, the town's most heavily traveled roadway. Most of the town's commercial activity is organized in strip fashion along this two-lane route, and the town's Industrial Park feeds directly into it. At its southern end, Route 122A is connected by town roads to two I-190 interchanges located at the juncture of Holden, Worcester, and West Boylston. Travel time from the site to these interchanges is at least ten minutes, though it may be as high as twenty during morning and afternoon rush hours. Delays are due both to the level of traffic and to the presence of eight traffic lights (nine inbound from Worcester) between the site and the interchanges. From the northern end of Route 122A, adjacent to the site, a different set of town roads leads northeast to a third I-190 interchange which is located on the Sterling/West Boylston town line, approximately twelve to fifteen minutes from the site. This interchange facilitates northbound travel on I-190.

The two other state roads, Route 31 and Route 68, intersect Route 122A and facilitate travel from the site to the towns surrounding Holden. Route 31 intersects Route 122A about 1.5 miles south of the site at the civic center of Holden, adjacent to the Town Hall and Public Library and south of most of the town's commercial activity. Route 31, a

designated scenic road, leads southwest through the towns of Paxton and Spencer and north through the towns of Princeton and Westminster. Route 68 (Broad Road) originates at the southwest corner of the site, branching off of Route 122A and running northwest through the towns of Rutland and Hubbardston to the city of Gardner.

C. Site Context

Holden, as a suburb of Worcester, is within a short drive of the advantages offered by a major metropolitan area. Notable examples of theses advantages include a variety of business and employment opportunities; cultural and social activities; and educational opportunities (Worcester has twelve colleges and universities within its borders). Holden is also within easy reach of more recreational centers of activity, most notably the popular ski area and state park at Wachusett Mountain in the neighboring town of Princeton.[1]

Holden's local advantages include a quality school system, recreation and adult education programs, hospital facilities, and a significant employment base. Regarding the school system, nearly eighty percent of graduates from the regional high school[2] go on to some form of post-secondary education (the total for graduates statewide is just over sixty percent). Per pupil expenditures at both the high school and the town's elementary/middle schools also run above the statewide average.[3]

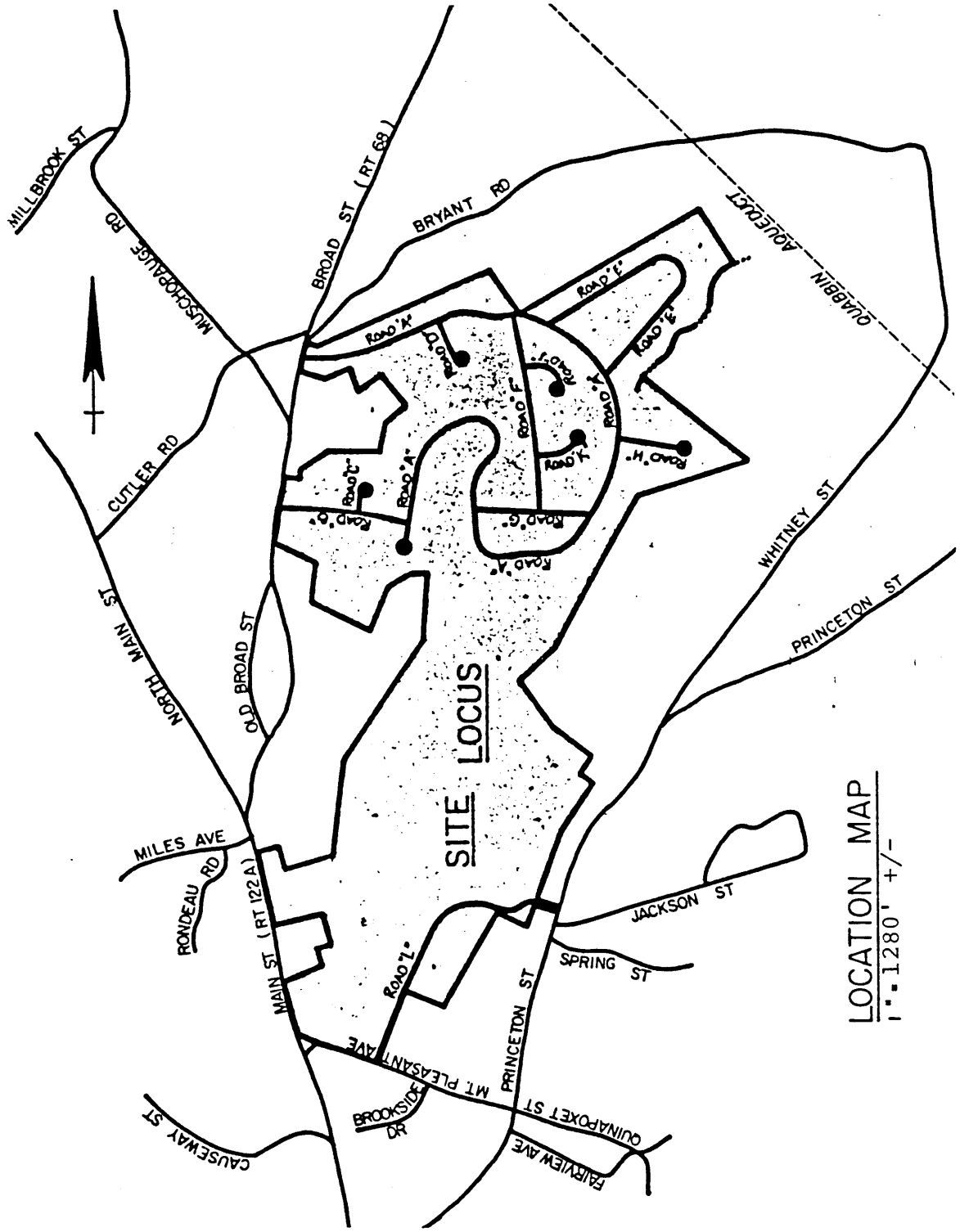
Surrounding the Holden Hills site are a variety of neighborhood contexts. The on-site golf course (discussed below), together with an adjacent restaurant, creates a social and recreational focal point for Holden and abutting towns. To the southeast of the site, in the area of Mt. Pleasant and Princeton Streets (see Map 4, *Site Map*), a neighborhood of single-family homes forms the unincorporated village of Jefferson. The Jefferson Post Office and the ECC Corporation, a manufacturer of computer circuit boards, form institutional and industrial pockets within this residential context. South of the site, along Route 122A, this mix of uses continues. One of Holden's two middle schools[4] is located just south of the Route 122A/Mt. Pleasant Street intersection, a quarter mile from the site. The town's police and fire stations and the regional high school are all located about a mile south on Route 122A.

The Eagle Lake Town Beach is located close to the site, across Route 122A to the south. Maple Spring Pond, part of Worcester's Quinapoxet reservoir system, lies across Bryant Road to the northeast of the property. North and west of the site, along Routes 122A and 68, the context is more rural.

Abutting uses include a restaurant (Boyatzi's) at the southwest corner of the site; single-family residential to the east and southeast along Mt. Pleasant and Princeton Streets; undeveloped woodland with single-family homes or

Map 4

Site Map



farmhouses to the north and west; and a nursery to the west along Route 68.

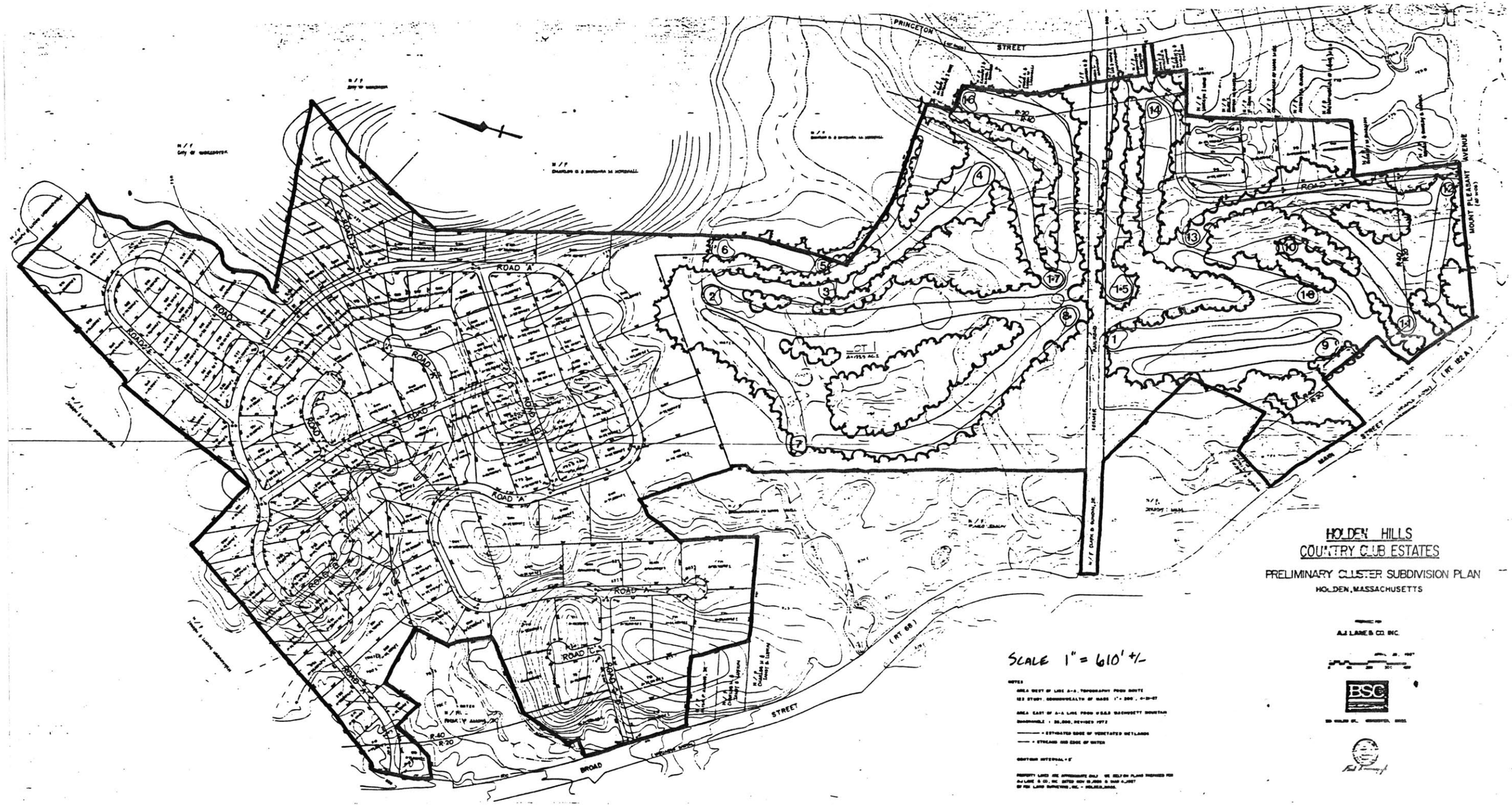
D. Survey and Physical Analysis

A physical survey of the property, together with the golf course layout and other site features, is shown in Map 5, *Proposed Development Plan*.

The property as a whole consists of approximately 290 acres, about 45 percent (125± acres) of which is occupied by the Holden Hills Country Club (HHCC), an eighteen-hole golf course with related club facilities. The remainder of the property, approximately 160 acres, is unimproved land covered by a mixture of hardwoods and softwoods. On-site elevations range from a low of 750 feet to a high of 863 feet above mean sea level, a spread of about 110 feet. The highest elevations are located along the fairways of the first and ninth holes of the golf course, and in the northwest corner of the site near Route 68. The lowest elevations are located along the green of the twelfth hole, adjacent Mt. Pleasant Street, and in the northern-most portion of the site. Approximately one quarter of the site is unofficially classified as wetlands. The northern and southeastern sections of the golf course are bordered and penetrated by streams and marshland, and numerous water hazards dot the lower elevation holes. A variety of wildlife inhabit the area, including geese, ducks, muskrats, gophers, and turtles.

Map 5

Proposed Development Plan



The property is bounded by Route 122A and Mt. Pleasant Street to the southwest and south of the site, Route 68 to the west, and Princeton Street to the east (see Maps 4 and 5). Due to the presence of numerous out-parcels, the existing road frontage is fragmented. Approximately 875 feet of continuous frontage exists along Route 68, with about 575 feet along Route 122A and about 760 feet along Mt. Pleasant Street. Almost all of the Mt. Pleasant St. frontage is occupied by the fairway and green of the twelfth hole. In addition, a forty-foot-wide unimproved access strip fronts on Princeton Street. A second access strip, 50 feet wide and 500 feet long, connects the site to Route 68. (This second strip, acquired in mid-1987, is a fragment of a former railroad easement which bisected the golf course, as shown in Map 5.) The golf course and related facilities are accessed from Route 122A and Mt. Pleasant Street via an abutting property, Boyatzi's Restaurant, which was part of the HHCC property until its sale in 1983. The entire site is served by both town water and sewer.

E. Zoning Considerations

The property is currently located within two residential zoning districts and an aquifer overlay district. The portion of the property within 300 feet of Route 122A, Route 68, and Princeton Street, and within 350 feet of Mt. Pleasant Street is located within the "R-20" district ("Residential--Suburban 1"). R-20 zoning permits residential

uses on lots with minimum area, width, and road frontage of 20,000 square feet, 100 feet, and 80 feet, respectively. The remainder of the property is located in the "R-40" district ("Residential--Rural"), which permits similar uses on lots with minimum area, width, and road frontage of 40,000 square feet, 125 feet, and 100 feet, respectively. In addition, the portion of the property within 300 feet of Princeton Street and 350 feet of Mt. Pleasant Street is subject to an aquifer overlay zoning district.

Holden's zoning bylaws also permit cluster subdivisions by special permit. Relevant requirements of Holden's residential cluster provision include:

- The maximum number of dwelling units allowed is determined by dividing eighty percent of the total gross area by the minimum required lot area;
- Total gross area is determined by subtracting certain specified areas (areas covered by water, wetlands, or undevelopable utility easements) from the total area of the parcel being subdivided. Essentially, it is developable land area;
- For single-family dwellings, the requirements (including the minimum required lot area) for lots in R-40 districts become R-20 district requirements, and the requirements for lots in R-20 districts become R-15 district requirements (the minimum required lot area in an R-15 district is 15,000 square feet);

- At least sixty percent of the dwelling units in a cluster subdivision must be single-family units;
- No more than six townhouse units per structure are allowed;
- Town water and sewer service are required for all cluster subdivisions.

F. Amenities and Operations

Existing improvements to the property consist of an eighteen-hole golf course with practice green (no driving range), a 6,000± square-foot golf clubhouse, paved parking for about 100-110 cars, a 6,000± square-foot maintenance barn, and two asphalt tennis courts in deteriorated condition. Together they comprise the Holden Hills Country Club. The club is semi-public, i.e., open to the public but also with a paying membership enjoying special benefits.[5] The eighteen holes are 5,826 yards in total length, which makes the course somewhat shorter than a full eighteen-hole course (6,000-7,200 yards), yet longer than an executive eighteen-hole course (4,500 yards).[6] A par 71 by design (par 36 for the front nine holes, and par 35 for the back nine), the course has a USGA course rating of 71.9 and a USGA slope rating of 125. These ratings place the course in a relatively high category with regard to level of difficulty. Physically, the course is characterized by tree-lined fairways, numerous water hazards, frequent changes in elevation, and moderate to distant views. (See Photo 1, *View North of 18th Green and Mt. Wachusett*, on page 4.)

The golf clubhouse is located behind Boyatzi's Restaurant, adjacent to the first and tenth tees, and ninth, eleventh, and eighteenth greens. It is a two-story, 6,000 square-foot structure, built into the side of a small hill leading to the first tee. The lower floor is unfinished and is used primarily for golf cart storage. A ground-level entrance into the upper floor serves as the main clubhouse entrance. The upper floor houses a pro shop, staff office, informal meeting room, and lavatory facilities. The parking lot is located between the clubhouse and the restaurant. The 6,000 square-foot maintenance barn, also of concrete block construction, lies about 500 feet northwest of the clubhouse, on the far side of the restaurant property. It houses tractors and other equipment used to maintain the golf course. The defunct tennis courts, enclosed by chain-link fencing, lies between the barn and the restaurant, adjacent to an unused, fenced-in swimming pool belonging to the restaurant.

Off-site recreational amenities include the town beach on Eagle Lake (less than a mile from the site) and the Wachusett Mountain ski area and state park (about 13 miles north of the site, in the town of Princeton).

G. Summary of Key Points

Holden is an exclusive suburb of Worcester which offers potential residents:

- a high level of services, including above average schools;

- a strong residential character; and,
- close proximity to both the city and the regional interstate system.

The Holden Hills site offers potential residents:

- a quiet rural setting;
- excellent access to recreational activities, most notably to golf at the on-site course but also to swimming at the nearby town beach and to skiing and hiking at Wachusett Mountain;
- excellent access to six-years-worth of schools (grades 7-12), and to police and fire protection.

The most significant disadvantage presented by the site's location is the high level of peak hour traffic congestion that is encountered in accessing I-190 southbound.

H. Notes to Chapter One

[1] The proximity of Holden to Wachusett Mountain should be emphasized. In 1986 Wachusett attracted the fifth largest number of skiers of any ski area in New England, an extraordinary success given the shorter snow season in Massachusetts. The area offers day and night skiing on all slopes, and has comprehensive snow-making facilities. In addition, the recently constructed base lodge offers dining, entertainment, and shopping. The ski area is about 13 miles north of the site.

[2] Wachusett Regional High School, grades 9-12, is located in Holden and serves the towns of Holden, Paxton, Princeton, Rutland, and Sterling.

[3] For regular day programs at WRHS in 1984-85, per pupil expenditure was $2,876, slightly above the statewide average of $2,738. For Holden's regular day program at the elementary and middle school level (grades 1-8) the comparable figure was $2,700, slightly above the statewide average of $2,550. Kindergarten expenditures in Holden were about twenty percent below the statewide average. (See bibliography reference #66)

[4] Jefferson Middle School (JMS), grades 7-8. Plans exist to convert the JMS to elementary level, grades K-6.

[5] These special benefits include: no greens fees, greater advance reservation privileges, preferred starting times, and tournament eligibility. There are nine categories of membership fees, ranging from $1,500 per year for families to $400 for those under 18. As of July 1987 there were about 190 memberships accounting for about 275 members. The great majority of these were in the "male over 35 years old" category (annual dues = $1,000 per year).

[6] For those not familiar with the game, definitions of golf terms used in the text follow:

- Par: the number of shots a given hole or course is designed to require from start to finish;
- Tee: the area from which the first shot is taken;
- Green: the area in which the hole is located;
- Fairway: the area between the tee and the green.
- Front nine: the first nine holes of an 18-hole course;
- Back nine: the last nine holes of an 18-hole course
- Executive 18-hole course: a shorter course designed for more rapid play; popular with elderly golfers;
- USGA course rating: the average number of shots an expert golfer will require to play a particular 18-hole course;
- USGA slope rating: a factor which adjusts a player's handicap for the difficulty of a particular course;
- Handicap: the average number of shots above par a given player will require to play an 18-hole course;

- II -

OVERVIEW, SOURCES, AND DEFINITIONS

A. Introduction

1. Organization and Sources

The analysis of market support for the proposed Holden Hills project begins in this chapter with a discussion of the underlying development concept and a description of the proposed development plan. A market area is defined for the project, based on commute time and the location of potential employers.

The determinants of housing demand and supply within the market area are discussed in Chapter Three. Demographic and socioeconomic data are analyzed, including the level and growth of population and households, age and income distributions, education levels, and the area's employment base. The existing housing stock within the market area is analyzed, including its size, composition, and historical rate of growth. Future trends are considered, and overall housing demand and supply within the market area are then estimated and projected forward.

Chapter Four examines past and present housing costs within the market area, and addresses the issue of

affordability. A survey is made of projects currently on the market, and the level and characteristics of sales in these projects are discussed. Chapter Five presents conclusions drawn from the analysis regarding market segments, price range, and potential absorption. In addition, several recommendations are presented regarding marketing strategy and the need for further analysis.

The primary sources of data used in this analysis include Federal Census reports; collections of regional planning agencies; estimates and projections from Urban Decision Systems (UDS), a private data service; forecasts by the New England Economic Project; employment information from the Massachusetts Division of Employment Security; sales data published by Banker and Tradesman, and by the Massachusetts Association of Realtors; permit data from state and town authorities; and numerous interviews with area brokers, developers, and market analysts. In addition, numerous secondary sources have been used. These include economic and housing analyses published by state, regional, and municipal agencies; as well as a studies and articles from a variety of periodicals. A complete bibliography of written sources is contained in Appendix B, *Bibliography*.

2. Development Concept

The concept of primary-home, recreationally-oriented

residential development combines the attractions of more traditional primary-home development with those of vacation-oriented, second-home communities. As such, the concept seeks to capitalize upon several trends apparent in today's residential and recreational marketplace. These trends include:

- o Increased participation in active forms of recreation. Based on the results of a long-term behavioral study conducted by the Federal Census Bureau[1], this increase in participation has been most pronounced among older and better-educated people. For example, while golf participation increased only marginally over the study period, it increased by 50% among the 45-64 age group. An even more striking example, participation in skiing (all ages) more than doubled over the same period.

- o Increased preference for more varied forms of housing. The subject of a recent article in the Boston Globe Magazine (6/7/87) this shifting preference is in part rooted in the changing composition of the typical household, away from the traditional two-parent/single-income family. It is also rooted in the in the fact that for many "the old standard of a detached house has slipped out of their financial grasp."

- o Increased preference for a more clustered, leisure-oriented life-style. A recent front-cover article in the New York

Times Magazine (6/28/87) highlighted this trend, which is closely related to those described above. The article, which focused extensively upon the Greater Boston area, emphasized the increased attraction of today's typical homebuyer to a "maintenance-free resort-like environment ...composed of both joined and detached units grouped together in an almost campus-like formation." In the words of one Boston executive, "Coming home is like going on vacation."

- Renewed suburban migration patterns. This trend has been discussed under a variety of names such as the "new heartland" and "penturbia". As discussed in a recent article in American Demographics (April 1987), it refers to the renewed migration into suburban metropolitan areas and out of central cities. The shift is due in part to the desire of baby-boomer parents "to raise their children in a place where there are backyards,...safe streets, and better schools." More importantly, the article states, it is due to the replacement of inner-city manufacturing industries by "white-collar factories", i.e., high-tech companies, in the suburbs. The areas of greatest attraction for this group are "mixture[s] of urban, rural, and suburban living that [occur] within the boundaries of metropolitan areas."

3. Current Development Proposal

The Holden Hills project is an example of such a

development concept. The preliminary development plan submitted to the town (shown again as Map 5 on the following page), involves preservation of the eighteen-hole golf course together with a cluster subdivision of 138 single-family lots and sixteen "townhouse" lots. Six-unit structures are planned for most of the multifamily lots. However, in order to conform to the town's cluster zoning provisions (the 'sixty percent single-family' provision) some structures will have less than six units.[2] In all, ninety-two townhouse units are proposed, which together with the 138 units planned for the single-family lots brings the total number of proposed dwelling units to 230. Current plans call for the development and sale of the townhouse units as condominiums. (A summary of the proposed development program is contained in Table 2, *Proposed Development Program.*)

As a basis for comparison, under the standard zoning provisions the entire parcel (including the golf course area) could be subdivided into about 225-250 single-family lots. This estimate should be used with caution, however, as it is based upon only a rough estimate of the size of wetlands areas or otherwise unbuildable areas.

All of the proposed single-family lots and eleven of the townhouse lots are located in the northern portion of the site, north of the golf course. Access to these lots would be along a loop road entering and exiting Route 68 at two points

Map 5

Proposed Development Plan

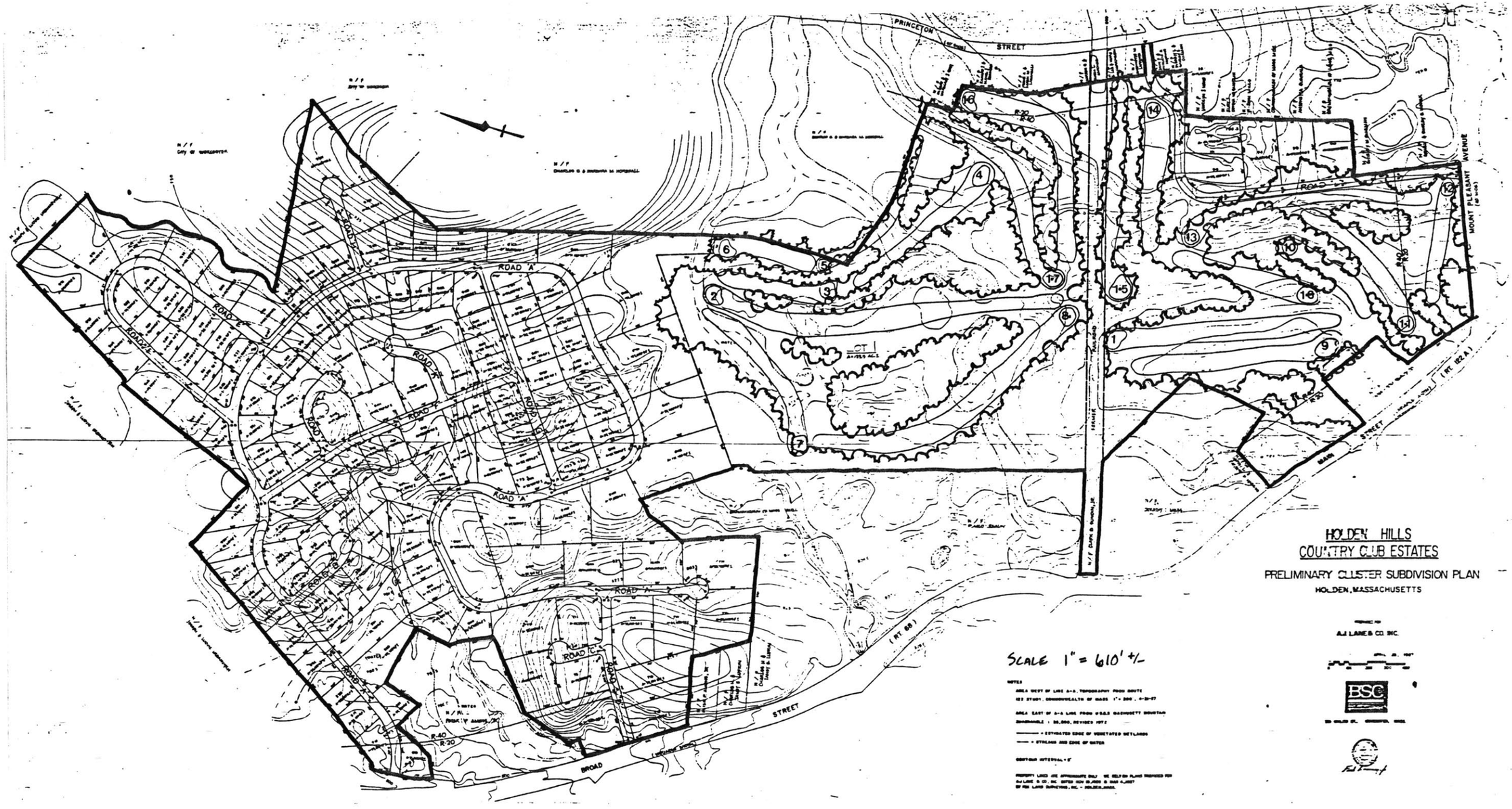


Table 2
Proposed Development Program
Holden Hills

Product Mix

Type	Lots #	Lots %	Units #	Units %
Single-family	138	89.6%	138	60.0%
Townhouse	16	10.4%	92	40.0%
Total	154	100.0%	230	100.0%

Lot Size

Type	Area Low	Area High	Area Mean	Area Median
Single-family				
Sq.Ft.	18,815	194,100	37,021	26,925
Acres	0.43	4.46	0.85	0.62
Townhouse				
Sq.Ft.	47,700	91,500	65,353	60,850
Acres	1.10	2.10	1.50	1.40

Density

Type	Units	Acres	Density (un/ac)* Net	Density (un/ac)* Gross
Single-family	138	117.3	1.2	N/A
Townhouse	92	24.0	3.8	N/A
Total	230	141.3	1.6	0.8

* Net Density excludes right-of-way and open space
  Gross Density includes right-of-way and open space

Source: A.J. Lane & Company, Inc.
The BSC Group
William A. Swiacki, Jr.

approximately 1,250 feet apart. The eleven townhouse lots would be clustered around the southernmost of these two access points. Several cul-de-sacs and smaller loops would branch off the main loop to provide access to interior lots. The total length of the proposed road system would be approximately 15,000 linear feet, nearly three miles. The five remaining townhouse lots are located in the southeastern corner of the site, along the thirteenth and fourteenth fairways of the golf course. Due to the site topography and the concentrated configuration of the course, these are the only lots with any significant views of the golf course. An additional 2200± linear feet of proposed roadway would serve these townhouse units with access from Mt. Pleasant Street to the south and Princeton Street to the east.

Single-family lot sizes range from just under 19,000 square feet to over 194,000 square feet, with the majority in the 25,000 range (0.43, 4.50, and 0.57 acres, respectively). The townhouse lots range in size from 47,700 square feet to 91,500 square feet, with the majority in the 60,000 square foot range (1.10, 2.10, and 1.38 acres, respectively).

Two changes to the course (not shown on Map 5) are being considered by the developer. The first is the possible relocation of the first and ninth holes to the undeveloped portion of the parcel. This would open up to development one of the highest elevations in the site, an area with commanding

views of the golf course and horizon. The relocation would also extend the course into the new subdivision, creating additional course views. The second change would involve construction of a new central clubhouse, perhaps in the western portion of the site near the eighth fairway.

B. Definition of Market Area

On the basis of the following observations and analysis, a market area encompassing thirty-seven municipalities has been defined for the Holden Hills project. The area falls roughly within a twenty-mile radius of the site, and contains approximately 1,200 square miles. This market area has been divided into two components, a primary and a secondary market area. The primary market area consists of Holden, the city of Worcester, and five townships which abut Holden. The secondary market area comprises thirty towns and cities roughly bounded by the Route 2 corridor to the north, the I-495 corridor to the east, the Massachusetts Turnpike (I-90) corridor to the south, and four additional towns to the west. The thirty-seven municipalities which form the market area are listed below in Table 3, *Holden Hills Market Area*, and are shown on Map 6, *Holden Hills Market Area*.

Table 3
Holden Hills Market Area
(Worcester County unless otherwise indicated)

Primary Market Area (7 Municipalities)

Holden	Sterling
Paxton	West Boylston
Princeton	Worcester
Rutland	

Secondary Market Area (30 Municipalities)

Acton *	Grafton	Millbury
Auburn	Harvard	Northborough
Ayer *	Hubbardston	Oakham
Berlin	Hudson	Oxford
Bolton	Lancaster	Shirley *
Boxborough *	Leicester	Shrewsbury
Boylston	Leominster	Southborough
Clinton	Littleton *	Spencer
Fitchburg	Lunenburg	Westborough
Gardner	Marlborough *	Westminster

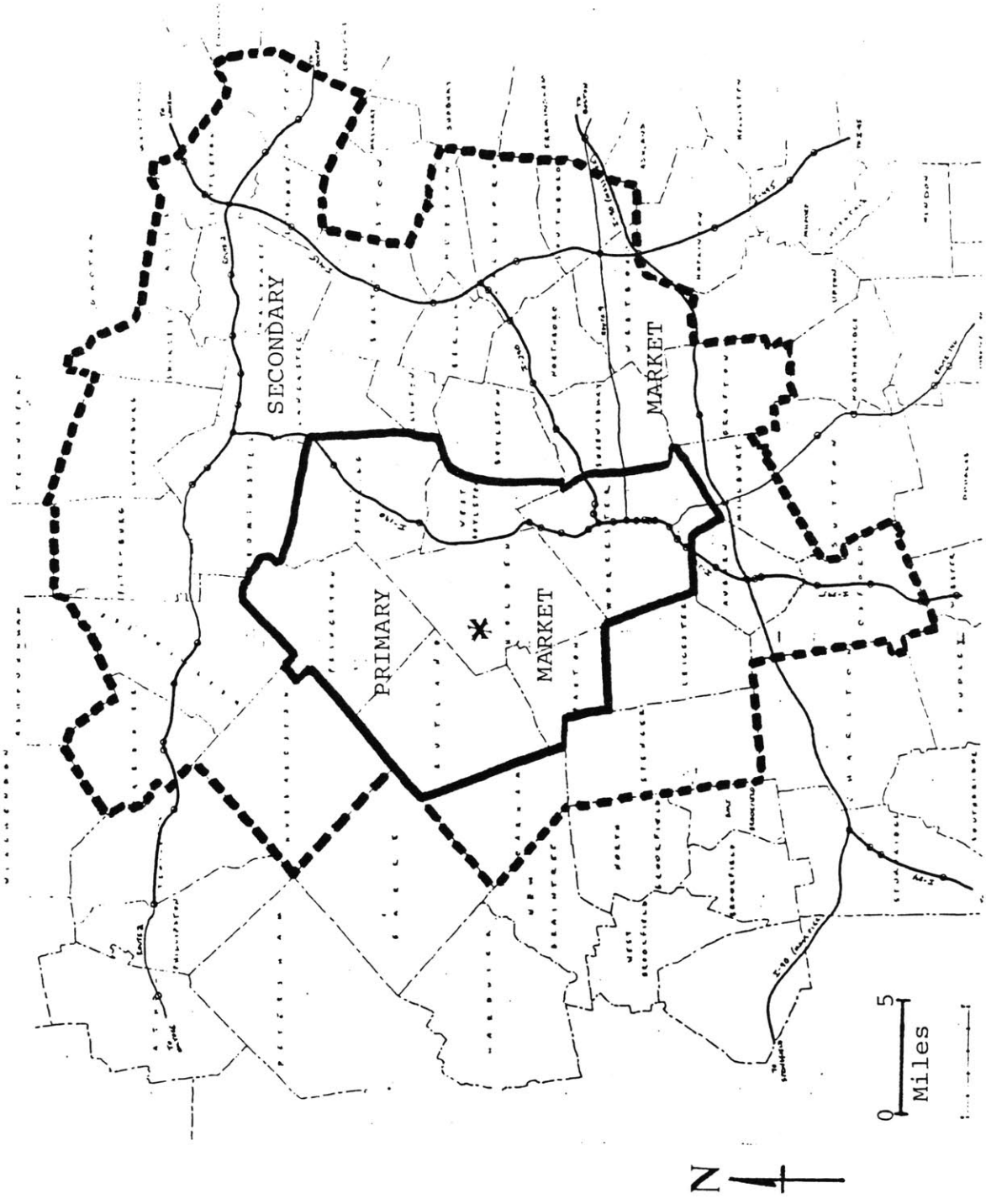
* Middlesex County

The extent of a regional market area for primary homes tends to be constrained by two factors: first, how much time potential residents are willing to spend commuting, and second, how far they can travel in that amount of time.

The first factor involves a variety of subjective attitudes and preferences which render it difficult to quantify. It may be seen as a function of the following interrelated issues:

(a) The cost of land and housing -- in general, the price per square foot of space falls as one moves away from metropolitan centers of employment. Given rapid

Map 6
Holden Hills Market Area



escalations in metropolitan area housing costs this becomes a powerful incentive to locate in less expensive market areas, even though these may be located farther from the workplace;

(b) Other trade-offs -- the advantages of increased safety, better school systems, open space and recreational amenities, improved "quality of life" for the commuters and/or their families, versus the advantages of increased proximity to urban centers of activity--business, social, cultural, educational, etc.;

(c) What one is used to -- inmigrants from New York and from southern and western states such as Texas and California are generally accustomed to commuting long distances;

(d) What others are doing -- in terms of social behavior patterns, neighbors and work colleagues may influence one's willingness to commute;

(e) The quality and compensation of the job itself -- according to U.S. Census data[3], commuting time in general appears positively related to income, i.e., the higher one's income, the longer one is willing to commute. Other socioeconomic characteristics, such as age or education, may also influence commuting patterns;

(f) The cost of commuting -- an obvious inverse relationship;

(g) The quality of the commute -- perceived commuting time may differ from actual commuting time. Ten minutes of uncongested freeway driving may feel shorter than five minutes in bumper-to-bumper traffic.

The second factor is more easily quantified than the first. Most simply, travel distance is a function of speed. Speed is a function of congestion and mode of travel, i.e., auto, bus, rail, etc.

An historical perspective on the commuting patterns of Holden residents may be obtained from Table 4, *Mean Commute Time from Holden: 1980*, shown below. Based on U.S. Census data, the table distributes Holden's working residents (as of 1980) into three categories based on the mean times of their commutes to work. According to these 1980 figures, over eighty-seven percent of Holden's working residents commuted less than twenty minutes to work. This percentage reflects the large proportion of 1980 residents who worked either within town or in the neighboring city of Worcester.[4] For those residents working within Holden, average commuting time was about nine minutes. Commuting time to Worcester was just over seventeen minutes.[5] Well over ninety percent of working residents commuted forty minutes or less to work, while less than eight percent commuted more than

forty minutes. Clearly, Holden's commuting activity in 1980 revolved around local and Worcester-based employment opportunities.

Table 4
Mean Commute Times from Holden
1980

Mean Commute Time (minutes)	# Workers	% of Total
Less than 20	5606	87.2%
20 - 40	337	5.2
More than 40	486	7.6
TOTAL	6429	100.0%

Source: Central Massachusetts Regional Planning Commission
William A. Swiacki, Jr.

Despite this historical pattern of commuting times below twenty minutes, there is evidence that the commuting patterns of Holden area residents have changed over the past seven years. Though specific employment and commuting data is not available, numerous interviews with brokers, appraisers, and developers[6] suggest that while Worcester remains the primary center of employment for Holden, a growing number of residents are working beyond the Holden/Worcester area, especially eastward along the I-495 corridor. This would suggest longer commutes on average than in 1980 in terms both of distance and of time. Several reasons, again interrelated, may be offered to explain this change in commuter behavior.

These reasons include:

(a) The context of the 1980 data -- the years preceding the 1980 Census saw the nation in the midst of the oil crisis, amid concerns of U.S. dependence upon foreign oil suppliers and amid perceptions of continued high fuel costs. Occupational and locational decisions made during this period may have reflected these concerns and led to shorter commutes on average in 1980;

(b) Improved regional access -- the completion of Interstate 190 improved Holden's connection to the north and south, and especially to the I-495 corridor to the east via links with Route 2 and I-290;

(c) Structural and locational shifts in employment patterns-- the pronounced growth in the FIRE[7] and Service sectors of the regional economy, together with the continued strength of the "High-Tech" manufacturing sector, have led to start-ups and expansions outside the traditional urban industrial centers and milltowns. The growth that in 1980 was centered along the Route 128 corridor--beyond the easy reach of Holden commuters--has today established itself along the I-495 corridor and is migrating still further westward with the likes of Digital Equipment Corporation into towns like Shrewsbury, Westminster, and Lancaster;

(d) The "spillover effect"[8] -- inmigration from the east is increasing as potential homebuyers in the Boston metropolitan area are pushed westward by record-high price levels. A analysis of 440 residential sales in northern Worcester County in 1986 found that nearly half of the buyers had moved from east of I-495.[9]

Another reason to expect commuting times above the historical average derives from the nature of the proposed Holden Hills project itself. The integration of the proposed development with the existing eighteen-hole golf course, and the development of a central clubhouse as the focal point for this large recreational amenity, would create market appeal above and beyond that of a more standard residential subdivision. It stands as a strong incentive for those weighing the above-mentioned trade-offs between improved quality of life and proximity to work.

Based on the above information, observations, and analysis a travel time contour of approximately twenty minutes was chosen as defining the extent of the primary market area, with the city of Worcester being the focal point of this area. Similarly, taking I-495 as the focal point of the secondary market area, a travel time contour of about forty minutes was chosen to define the extent of this secondary area. The exact location of the contours themselves was determined in several ways. Emphasis was placed upon the level of employment in a

given area, i.e., the contours were not indiscriminately extended in every direction (this is particularly evident in the areas west of the site). Regional employment nodes were located and maps studied to determine the most likely commuting routes from the Holden site to these key locations. Travel logs were compiled along several of these routes to evaluate road conditions and to more accurately estimate actual commute time (the results of these logs are shown below in Table 5, *Driving Distances and Times from Holden: 1987*). Finally, the contours were fit to the nearest town or city boundary line in order to facilitate the process of data gathering and analysis.

Table 5
Driving Distances and Times from Holden
1987

From Holden Site* To: \	Miles	Minutes
Junction of Rte 122A and Rte 31	1.7	3.0
Jnctn of Rte 122A and Shrewsbury St.	3.4	7.5
Entrance to I-190 South (Exit 2)	7.1	14.0
I-190, I-290 Interchange	9.3	16.5
I-290, I-495 Interchange	21.7	29.5
I-495, Rte 20 Interchange	23.5	31.5
I-495, Rte 9 Interchange	27.0	35.5
(Wed 7/8/87 -- moderately heavy traffic)		
I-190 Sterling Entrance (Exit 5)	6.4	12.0
I-190 / Rte 2 Interchange	16.0	22.0
Rte 2 / I-495 Interchange	27.5	34.0
(Wed 7/8/87 -- light traffic)		
Wachusett Mt. Lodge Entrance	11.5	18.0
(Sun 6/28/87 -- very light traffic)		

* Intersection of Route 122A and Mt. Pleasant St.

Source: William A. Swiacki, Jr.

The resulting market area reflects these considerations. The primary area is limited to seven towns both by the market dominance of Worcester and by the congested level of rush-hour traffic between the site and I-190. The relatively greater eastward expansion of the secondary market reflects the improved travel conditions of the interstate system (and Route 2). The employment centers encompassed by the primary and secondary market area are discussed further in the section on employment. Several significant employment nodes lie just outside market area. These nodes include the Mass Pike/Route 9 intersection in Framingham, the Maynard/Stow area, the Webster/Dudley area off I-395, and the Mass Pike/I-84 area in Sturbridge. For reasons of access and travel time, these areas are considered to be beyond the expected commuting range of potential Holden Hills residents. However, given a continuation of the employment and housing trends discussed above, the commuting range from Holden may continue to expand. If it does, these are the nodes to which the market area will most likely expand.

C. Notes to Chapter Two

[1] See reference #38, in the bibliography, for a discussion of this federal study.

[2] See the discussion of relevant zoning provisions in Chapter One.

[3] See reference #60, in the bibliography.

[4] In 1980, over one quarter of Holden's working residents were employed within the town. Well over half were employed in the City of Worcester.

[5] Mean commuting times from Holden to Holden and to Worcester are from 1980 U.S. Census data compiled by CMRPC.

[6] Interviews conducted in July of 1987 by the author and by Mary Lou Boutwell.

[7] Finance,Insurance, and Real Estate sector.

[8] Chamberlayne, A Seller's Market: Housing in Worcester in the 1980's, March 1986, p.31.

[9] Analysis by the Montachusett Regional Planning Commission (MRPC), based on 440 residential sales in 1986 in Leominster (298 sales), Fitchburg (58), Gardner (71), and Westminster (13). Sales and buyer data from a single brokerage agency handling approximately a twenty-percent share of area sales in 1986, according to the MRPC. All four municipalities are in the secondary market area of the present Holden area market analysis.

- III -

HOUSING DEMAND AND HOUSING SUPPLY

A. The Determinants of Housing Demand

1. Demographic Characteristics

Population and Household Formation

Table 6A, *Population: 1980-1986*, and Table 6B, *Households: 1980-1986*, show trends in population growth and household formation from 1980 to 1986. The figures for 1980 are from the U.S. Census of that year, while the figures for 1986 reflect estimates formulated by Urban Decision Systems, Inc., a private data service.

To begin with, the tables give an idea of the relative sizes of the areas shown. In terms of the 1986 population estimates, the total market area for the Holden project contains about ten percent of the state population, and is about eighty-five percent the size of Worcester County. The primary and secondary market areas respectively encompass roughly one-third and two-thirds of the total market area. The town of Holden accounts for about seven percent of the primary market area (2.5% of the total). Though not shown individually in the table, the city of Worcester accounts for about a quarter of Worcester County and just under thirty percent of the total market area. The city dominates the

Table 6A
Population: 1980-1986

Area	1980 (Census)	1986 (Est.)	Net Change 1980-1986 Total Number	Net Change 1980-1986 % Annual
Holden	13,336	13,924	588	0.72%
Primary Market Area	197,300	195,169	-2,131	-0.18
Secondary Market Area	357,440	367,336	9,896	0.46
Total Market	554,740	562,505	7,765	0.23%
Worcester County	646,352	657,091	10,739	0.28
Massachusetts	5,737,037	5,836,831	99,794	0.29

Source: U.S. Census Bureau
Urban Decision Systems, Inc.
William A. Swiacki, Jr.

Table 6B
Households: 1980-1986

Area	1980 (Census)	1986 (Est.)	Net Change 1980-1986 Total Number	Net Change 1980-1986 % Annual
Holden	4,536	4,929	393	1.39%
Primary Market Area	70,401	71,822	1,421	0.33
Secondary Market Area	123,047	131,376	8,329	1.10
Total Market	193,448	203,198	9,750	0.82%
Worcester County	225,323	237,137	11,814	0.86
Massachusetts	2,032,717	2,144,244	111,527	0.89

Source: U.S. Census Bureau
Urban Decision Systems, Inc.
William A. Swiacki, Jr.

primary market area, containing over eighty percent of its population.

From 1980 to 1986, population growth at both the state and county level averaged just under three-tenths of a percent annually. During the same period, population in the nation as a whole (not shown) grew at an annual rate of one percent, three times higher than the state and county. Though a bit slower, the growth of the total market area was comparable that of the state and county. Within the total market area, however, the growth rates varied widely. While the secondary market grew at twice the total market area rate, the primary market area experienced a net loss of over two thousand people, an average annual decline of nearly two-tenths of a percent. Yet Holden's population[1], grew at over three times the rate of the total market area rate.

During the same period, area households were forming at a rate two times to three and a half times higher than population (see Table 6B). Most striking, is the positive rate of household formation found in the primary market area (.33%), given the area's loss in population. In general, this is explained by the decline in the average number of persons per household in each area. In the primary market area, for example, households contained an average of 2.54 persons in 1986, down three percent from the 1980 average of 2.62.

Table 7A, *Population: 1986-1991 (UDS Scenario)*, and Table 7B, *Households: 1986-1991 (UDS Scenario)*, show population and household trends projected from 1986 to 1991. The figures for 1986 are again the UDS estimates, while those for 1991 represent UDS projections. In general, UDS projects average annual growth rates for the five-year period that are well above those observed for the preceding six-year period. The projected state and county growth rates are five and a half times higher than the 1980-86 rates, and the total market area rates six and a half times higher than the preceding period. The projected turnaround in the primary market, from a .18% decline in population to a 1.15% gain, is the area most responsible for the high rates in the total market area. Both Holden and the secondary market remain the highest growth areas in this period, though at lesser multiples (2.7 and 3.7 respectively) of the previous period's rates. The relative ranking of the areas is unchanged with one exception: growth in all the areas is now projected to exceed the projected national average of .83%.

The growth in households is projected to again surpass the growth in population, though by a lesser margin than in the previous period. UDS has uniformly applied a multiplier of 1.3 to the 1991 projected rate of growth in population in order to arrive at a projection for total households in 1991. These projections again rest upon a projected continued decline in the average number of persons

Table 7A
Population: 1986-1991
(UDS Scenario)

Area	1986 (Est.)	1991 (Proj.)	Net Change 1986 - 1991 Total Number	Net Change 1986 - 1991 % Annual
Holden	13,924	15,317	1,393	1.93%
Primary Market	195,169	206,678	11,509	1.15
Secondary Market	367,336	399,388	32,052	1.69
Total Market	562,505	606,066	43,561	1.50%
Worcester County	657,091	709,142	52,051	1.54
Massachusetts	5,836,831	6,302,996	466,165	1.55

Source: Urban Decision Systems, Inc.
William A. Swiacki, Jr.

Table 7B
Households: 1986-1991
(UDS Scenario)

Area	1986 (Est.)	1991 (Proj.)	Net Change 1986 - 1991 Total Number	Net Change 1986 - 1991 % Annual
Holden	4,929	5,572	643	2.48%
Primary Market	71,822	77,593	5,771	1.56
Secondary Market	131,376	146,535	15,159	2.21
Total Market	203,198	224,128	20,930	1.98%
Worcester County	237,137	261,895	24,758	2.01
Massachusetts	2,144,244	2,371,495	227,251	2.04

Source: Urban Decision Systems, Inc.
William A. Swiacki, Jr.

per household, from 2.54 to 2.48 (a 2.4% decline) in the primary market area.

As an alternative to the rapid growth presented by the UDS projections, a scenario of more moderate growth is presented in Table 8A, *Population: 1986-1991 (NEEP-Based Scenario)* and Table 8B, *Households: 1986-1991 (NEEP-Based Scenario)*. This scenario is based upon forecasts for the state as a whole through 1989. The forecasts were developed by Data Resources, an econometric forecasting service which is a member of the New England Economic Project. These forecasts have been projected forward to 1991 and applied at the market area level, based on the area distribution patterns and population-to-household ratios presented in the UDS scenario.

This NEEP-based scenario shows population growing at about half as fast as in the UDS scenario. Nonetheless, the growth is moderately strong and presents an encouraging picture for the five-year period. The key figures are those for total number of households shown in Table 8B.

Age Characteristics

Table 9, *Age Distribution: 1980*, profiles the age distributions of the 1980 populations of Holden, the primary and secondary market areas, and Worcester County as a whole. The most striking feature of the table is the median age of Holden's population relative to those of the larger areas.

Table 8A
Population: 1986-1991
(NEEP-Based Scenario)

Area	1986 (Est.)	1991 (Proj.)	Net Change 1986 - 1991 Total Number	Net Change 1986 - 1991 % Annual
Holden	13,924	14,591	667	0.94%
Primary Market	195,169	200,695	5,526	0.56
Secondary Market	367,336	382,836	15,500	0.83
Total Market	562,505	583,531	21,026	0.74%
Worcester County	657,091	682,104	25,013	0.75
Massachusetts	5,836,831	6,062,028	225,197	0.76

Source: New England Economic Project
Urban Decision Systems, Inc.
William A. Swiacki, Jr.

Table 8B
Households: 1986-1991
(NEEP-Based Scenario)

Area	1986 (Est.)	1991 (Proj.)	Net Change 1986 - 1991 Total Number	Net Change 1986 - 1991 % Annual
Holden	4,929	5,238	309	1.22%
Primary Market	71,822	74,475	2,653	0.73
Secondary Market	131,376	138,618	7,242	1.08
Total Market	203,198	213,093	9,895	0.96%
Worcester County	237,137	248,925	11,788	0.98
Massachusetts	2,144,244	2,252,284	108,040	0.99

Source: New England Economic Project
Urban Decision Systems, Inc.
William A. Swiacki, Jr.

Table 9
Age Distribution
1980

	Holden		Primary Market		Secondary Market		Worcester County	
Age Group	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0-5	929	7.0%	14,001	7.1%	28,411	7.9%	49,910	7.7%
6-17	2,896	21.7%	34,450	17.5%	72,642	20.3%	126,330	19.5%
18-24	1,058	7.9%	30,920	15.7%	46,968	13.1%	85,911	13.3%
25-34	1,861	14.0%	28,384	14.4%	59,411	16.6%	99,673	15.4%
35-54	3,334	25.0%	37,415	19.0%	78,555	22.0%	133,011	20.6%
55+	3,258	24.4%	52,131	26.4%	71,422	20.0%	151,553	23.4%
Total	13,336	100.0%	197,301	100.0%	357,409	100.0%	646,388	100.0%
Median Age	34.6		31.4		30.0		31.0	

Source: 1980 U.S. Census
Urban Decision Systems, Inc.
William A. Swiacki, Jr.

Table 10
Median Age
1980-1991

Area	1980 (Census)	1986 (Est.)	1991 (Proj.)
Holden	34.6	36.8	38.0
Primary Market	31.4	32.8	33.8
Secondary Market	30.0	32.2	34.2
Worcester County	31.0	32.6	33.8
Massachusetts	31.2	33.0	34.3

Source: Urban Decision Systems, Inc.
William A. Swiacki, Jr.

The median age of Holden residents in 1980 was 34.6 years, compared with 31.4 years for the primary market area, 30 for the secondary market area, and 31 for Worcester County.

Holden's "college-age" cohort (age 18-24) captured about eight percent of total population in 1980, a percentage forty to fifty percent lower than in other areas. This is a major factor contributing to the town's high median age, and may be explained by the high percentage of high school graduates continuing their education outside Holden, which has no colleges or universities within its borders. By contrast, the primary market, dominated by Worcester with its twelve colleges and universities, has the highest proportion of college-age residents. The "move-up buyer" cohort (age 35-54) captured a quarter of Holden's total population, higher than the other areas by as much as a third.

Table 10, *Median Age: 1980-1991*, shows the median ages for the same areas projected from 1980 to 1986 and 1991. The key point to notice is the significant increase in age across all areas. The median age is again significantly higher in the Holden area, where by 1991 the majority of Holden's population will be above age 38. These trends reflect the maturing of the "baby boom" generation (commonly defined as those born between 1946 and 1961). For the entire market area, but especially in Holden, they signal increasing middle-aged, empty-nester, and elderly populations that will

be demanding housing and related services.

2. Socioeconomic Characteristics

Income Characteristics

The income characteristics of the market area are similar in pattern to those of age. Table 11, *Median Household Income: 1980-1991*, shows the median incomes of households in the market area in 1980, 1986 (estimated), and 1991 (projected). The relative affluence of the town of Holden is evident. A majority of households in Holden earn incomes well above the state median. Another key point relates to the relative growth in incomes over the next five years. The median income in the primary market as a whole is projected to rise nearly twice as fast as the secondary market and the state. While a majority of households in the primary market area in 1980 earned significantly less than the state median, by 1991 the primary market will rank above the state. Holden itself is also projected to grow increasingly affluent relative to the state as a whole.

Table 12, *Income Distribution of Households: 1980-1991*, shows a breakdown of market area households by income. The relevance of this data is in determining the size of a particular housing market segment on the basis of income. In the primary market area, for example, there are currently an estimated 1,719 households with income above $70,000. Fifteen percent of these households are located in Holden,

Table 11
Median Household Income
1980-1991

Area	1980	1986	1991	% Annual Change '80-86	% Annual Change '86-90
Holden	$24,055	$29,554	$39,992	3.5%	6.2%
Primary Market	15,486	20,586	31,301	4.9%	8.7%
Secondary Market	19,200	26,939	34,079	5.8%	4.8%
Worcester County	17,182	23,102	29,290	5.1%	4.9%
Massachusetts	17,575	23,753	30,047	5.1%	4.8%

SOURCES: Urban Decision Systems, Inc.
William A. Swiacki, Jr.

Table 12
Income Distribution of Households
1980-1991

Holden Household Income ($)	Households 1980 (Hist.) Number	Percent	1986 (Est.) Number	Percent	1991 (Proj.) Number	Percen
Less than 25,000	2,377	52.5%	2,020	41.0%	1672	30.0%
25,000-34,999	1,192	26.3%	896	18.2%	788	14.1%
35,000-49,999	661	14.6%	1,101	22.3%	962	17.3%
50,000-74,999	197	4.3%	653	13.2%	1327	23.8%
75,000+	104	2.3%	260	5.3%	822	14.8%
Total	4,531	100.0%	4,930	100.0%	5,571	100.0%
Primary Market						
Less than 25,000	52,632	74.8%	42,900	59.7%	37772	48.7%
25,000-34,999	10,357	14.7%	12,298	17.1%	13124	16.9%
35,000-49,999	5,298	7.5%	9,818	13.7%	11735	15.1%
50,000-74,999	1,460	2.1%	5,089	7.1%	10013	12.9%
75,000+	654	0.9%	1,719	2.4%	4949	6.4%
Total	70,401	100.0%	71,824	100.0%	77,593	100.0%
Secondary Market						
Less than 25,000	82,502	67.06%	60,447	46.01%	51,565	35.19%
25,000-34,999	22,605	18.37%	24,891	18.95%	23,955	16.35%
35,000-49,999	12,816	10.42%	23,001	17.51%	25,927	17.69%
50,000-74,999	4,116	3.35%	15,230	11.59%	25,218	17.21%
75,000+	992	0.81%	7,807	5.94%	19,869	13.56%
Total	123,031	100.0%	131,376	100.0%	146,534	100.0%

SOURCES: Urban Decision Systems, Inc.;
William A. Swiacki, Jr.

despite the fact that the town accounts for under seven percent of total households in the primary market. For the total market area, the number of $70,000+ households rises to above 9,500. Also of interest is the pattern of income distribution of households in Holden relative to the market areas. While in the primary and secondary markets the number of households falls with each rise in income level, in Holden there is a rise in the percentage of households in the $35,000 to $49,000 income group. This indicates that the roots of Holden's affluence lie in both the relative abundance of upper-middle- class households and the relative scarcity of households with incomes below $25,000.

Education

According to data reported in the 1980 census, Holden's population on average had a higher level of education than the rest of the market area or the state. Over half of the town's residents had completed one or more years of college, as compared with a third of residents in the other areas.

Employment

The revitalization and resurgence of the state's economy over the past decade has been dubbed the "Massachusetts miracle". For years the state had undergone a process of deindustrialization, during which time the state's manufacturing sector declined as a share of its own economy

and of the nation's. Then, in the latter half of the 1970's, employment growth in the emerging high-tech manufacturing sector began to counterbalance the continuing employment decline in "old line" industries. As Dr. Benjamin Chinitz of the New England Economic Project writes, "Massachusetts stopped deindustrializing...."[2] But, as Dr. Chinitz points out, it is the growth of the state's non-manufacturing sector in the 1980's that has been responsible for the superior performance of the Massachusetts economy relative to the nation (in terms of overall employment growth). High-tech employment growth has slowed over the period, no longer matching the continued declines in "old line" industries. With a net manufacturing decline of eight percent from 1980 to 1986, the non-manufacturing sector grew by twenty percent over the same period. Chinitz concludes,

> The non-manufacturing sector has long exhibited its capacity to grow in the face of declines in manufacturing employment. What this recent experience suggests is that the capacity has been strengthened.[3]

As a result of these divergent growth rates, the state's economy in the 1980's has shifted away from the manufacturing sector towards the non-manufacturing sector. Table 13A, *Employment Patterns: Massachusetts 1980-1985*, shows the change in statewide employment by major industry division from 1980 to 1985, together with the change in each industry's share of total employment.[4] In 1980, the manufacturing sector was the primary source of employment in the state,

Table 13A
Employment Patterns
Massachusetts: 1980-1985
('000's omitted)

Industry	1980 Number	1980 % Share	1985 Number	1985 % Share	Change 1980-1985 Total Number	Change 1980-1985 % Annual	Change 1980-1985 % Share
Manufacturing	676.8	25.5%	654.3	22.4%	-22.5	-0.7%	-3.1%
Construction	77.4	2.9	109.4	3.7	32.0	7.2	0.8
Trans/Comm/Utilities	121.6	4.6	125.4	4.3	3.8	0.6	-0.3
Wholesale/Retail Trade	574.5	21.7	681.4	23.3	106.9	3.5	1.6
F.I.R.E.	159.0	6.0	188.1	6.4	29.1	3.4	0.4
Services & Mining	632.6	23.9	784.7	26.8	152.1	4.4	3.0
Government	410.3	15.5	381.3	13.0	-29.0	-1.5	-2.4
TOTAL	2,652.2	100.0%	2,924.6	100.0%	272.4	2.0%	311.5%

Source: Division of Employment Security
William A. Swiacki, Jr.

Table 13B
Employment Patterns
City of Worcester: 1980-1985
('000's omitted)

Industry	1980 Number	1980 % Share	1985 Number	1985 % Share	Change 1980-1985 Total Number	Change 1980-1985 % Annual	Change 1980-1985 % Share
Manufacturing	28.3	28.0%	22.1	22.4%	-6.2	-4.8%	-5.6%
Construction	2.3	2.3	3.0	3.1	0.7	5.3	0.8
Trans/Comm/Utilities	3.6	3.6	3.9	3.9	0.3	1.6	0.4
Wholesale/Retail Trade	22.6	22.4	22.2	22.6	-0.4	-0.3	0.1
F.I.R.E.	7.6	7.5	8.5	8.6	0.9	2.3	1.1
Services & Mining	23.5	23.3	28.2	28.7	4.7	3.7	5.4
Government	12.9	12.8	10.5	10.7	-2.4	-4.0	-2.1
TOTAL	100.8	100.0%	98.4	100.0%	-2.4	-0.5%	0.0%

Source: Division of Employment Security
William A. Swiacki, Jr.

employing over a quarter of the state's active labor force. The service sector[5] and trade sector were second and third in employment share, each with just under a quarter of state workers. By 1985, however, manufacturing had fallen behind both services and trade in overall employment share. This was due in part to the loss of 22,500 manufacturing jobs, but in greater part to the strong gains in services (152,100 jobs) and trade (106,900 jobs). In addition, employment growth in both the construction sector and the finance, insurance, and real estate (FIRE) sector exceeded the loss in manufacturing. The construction sector was the most dynamic, its 7.2% annual growth rate far exceeding even the strong growth rates of the service, trade, and FIRE sectors. Government was the biggest loser both in terms of absolute level and in terms of percent annual change (29,000 jobs lost, a 1.5% decline). This latter decline reflects the effects of cutbacks in spending at the federal level (under the Reagan administration) as well as at the state and local level (under Proposition 2 1/2, which limited increases in property taxes).

Another significant characteristic of the state's economic resurgence has been the growth in labor force relative to the growth in employment. While overall employment in Massachusetts grew twelve percent from 1980 to 1986, the state's labor force grew by only seven percent, according to NEEP figures. This disparity has led to record low unemployment rates throughout the state. It has also led

to increased wages as a growing number of workers are chased by an even faster-growing number of jobs. Rising wages in turn have led to increases in labor force participation and inmigration, thus increasing the number of active workers. But with unemployment rates at record lows, labor force participation rates at historic highs, and record high housing costs creating a strong disincentive for potential inmigrants, shortages in the supply of labor have become an issue of major concern throughout the state.

In comparison to the economic resurgence of the state as a whole, employment in the market area grew more slowly. As shown in Table 14, *Employment Patterns by Sub-Region 1980-1985*, market area employment grew about half as fast as the state. As with population, however, there was a wide divergence in employment growth rates within the market area. The secondary market area experienced the fastest growth, most particularly in the towns surrounding the intersection of Interstate 495 and Route 2 (labeled "I-495 North" in the table). Total employment in these towns grew over three times as fast as the state, adding an average of 1,000 jobs annually over the five-year period. Further west on Route 2, however, employment declined marginally, reducing the secondary market's overall growth rate to just above the state level. Employment growth in the primary market area mirrored the 'Route 2 West' decline. Within the primary area, however, Worcester was the only municipality to

Table 14
Employment Patterns by Sub-Region
1980-1985

Area	-- Total Employment -- 1980	1985	%AnCh	-- Average Wages* -- 1980	1985	%AnCh	# of Establishments 1980	1985	%AnCh
Holden	4,084	4,459	1.8%	$11,346	$15,882	7.0%	229	276	3.8%
Worcester	100,891	98,625	-0.5	13,324	18,424	6.7	3,820	3,900	0.4
Primary Market	109,535	108,575	-0.2	13,199	18,156	6.6	4,438	4,616	0.8
Secondary Market	129,547	144,273	2.2	13,232	18,710	7.2	6,680	8,066	3.8
Total Market	239,082	252,848	1.1	13,217	18,472	6.9	11,118	12,682	2.7
I-495 North	10,368	13,036	4.7	12,091	20,581	11.2	596	725	4.0
I-495 South	42,544	48,229	2.5	14,400	20,682	7.5	1,638	2,186	5.9
Route 2 West	44,264	44,030	-0.1	13,065	17,205	5.7	2,123	2,332	1.9
Massachusetts	2,595,707	2,871,065	2.0	13,815	19,612	7.3	124,159	142,419	2.8

* Average Wages are weighted average wages except in State of Massachusetts figure

Area Definitions:
I-495 North = Littleton, Boxborough, Acton, Harvard, Ayer
I-495 South = Northborough, Marlborough, Southborough, Westborough, Hudson, Berlin
Route 2 West = Fitchburg, Leominster, Westminster, Gardner

Sources: Division of Employment Security
Mary Lou Boutwell
William A. Swiacki, Jr.

experience negative employment growth. Nonetheless, the magnitude of decline (2,266 jobs) in the city overshadowed the growth in neighboring towns (1,306 jobs). (A breakdown of these employment trends by municipality is shown in Appendix C, *Employment Trends by Municipality.*)

A more encouraging picture is presented by the pattern of employment in Worcester over this period. The employment decline during the overall period resulted almost entirely from the loss of 7,000 jobs from 1981 to 1982. From 1983 to 1985, employment in the city grew by nearly three percent per year, a net increase of over 5,600 jobs. Most of this gain was split between the FIRE and service sectors on the one hand, and the Trade sector on the other.

Average wages in the market area grew more evenly over the period, with all areas experiencing increases of about six to nine percent. Again, the strongest growth was in the I-495 areas. 1985 wage levels were highest in the 'I-495 South' area and lowest, surprisingly, in Holden. Given the relatively high median income in Holden, this suggests that most of the town's upper income residents work elsewhere.

The number of establishments grew in a similar pattern, with all areas showing at least marginal gains. Once more, the strongest growth occurred in the I-495 areas, where the number of establishments increased by 784 over the period.

Notwithstanding Worcester's overall negative employment growth from 1980 to 1985, the structural shifts in the city's economy were similar to those observed at the state level. As shown in Table 13B, *Employment Patterns: Worcester 1980-1985* (above), the city's manufacturing sector lost so many workers that its drop in percent share of total employment--and the service sector's rise--was even more pronounced than the state's. While growth in the city's service sector was a bit slower than the state's, Worcester's manufacturing sector declined eight times faster. The rate of decline in government employment was also significantly greater at the city level. As at the state level, the construction sector exhibited the strongest rate of growth.

Holden's niche within this overall employment picture is that of a white-collar-commuter suburb with a significant economic base of its own. Total employment in the town was about 4,500 in 1985, while the town's resident labor force was about 7,000.[6] In 1980, about three quarters of the labor force commuted beyond the town's borders to work, and about seventy percent of the total were employed in white-collar professions. Both the continuing expansion of the high-tech industry into the suburbs and the shift toward non-manufacturing employment since 1980 make it likely that these percentages are even higher today.

Looking forward to 1989, NEEP forecasts continued

growth in overall employment for the state, similar in pattern and rate to the past five-year period period. The non-manufacturing sector should continue to increase its share of the employment pie, with strong growth in the face of relatively constant manufacturing employment. In particular, the service and FIRE sectors are again projected to experience the strongest growth.

The market area growth patterns are expected to mirror those of the state as a whole. A recent analysis of Worcester's economic base[7] forecasts a healthy economy into the 1990's, with the city combining strong growth in the service industries with a stable manufacturing base. The analysis points to the location of the Massachusetts Biotechnology Research Park in Worcester as a new direction for the city, and sees a substantial positive impact generated by the addition of an estimated 3,000 new jobs. Overall, the analysis projects an additional 12,000 new jobs created in the city by 1990. A potential shortage in the available labor supply within the city of about 9,000 workers (due to the employment and housing trends discussed above) will generate a significant demand for additional workers from surrounding areas both within and outside the market areas.

The growth of the I-495 area and the migration of firms westward into central Massachusetts suburbs is expected to continue through the period. The prime example of this

growth and expansion is Digital Equipment Corporation, which recently revealed plans to open a new plant in Lancaster, expected to generate approximately 2,000 new jobs. Digital also operates in Shrewsbury and Westminster, with combined employment of almost 3,000. The North Central Massachusetts Chamber of Commerce (which represents businesses in the Leominster/Fitchburg area) recently launched a five-year, 1.25 million dollar economic development campaign aimed in large part towards further encouraging such expansion.

A partial list of employers within the region can be found in Appendix D, *Selected Regional Employers*.

B. Housing Supply

Table 15A, *Existing Housing Stock, 1970-1986*, shows the level of the existing housing stock in the market area as reported in the 1970 and 1980 federal censuses. Also shown is an estimate of the housing stock level as of 1986, based on building permits issued by municipal authorities from 1981 through 1986. Table 15B, *Additions to Inventory, 1970-80 and 1980-86*, highlights additions to the stock during each period. In each table the proportion of single-family homes is also identified for 1970 and 1980 (also from census data; in general, this information was unavailable for 1981-1986).

Perhaps the most striking fact revealed by the tables is the strong single-family character of the town of

Table 15A
Existing Housing Stock
1970-1986
(showing proportion of single-family units (%S/F))

Area	1970 Tot.#	1970 %S/F	1980 Tot.#	1980 %S/F	1985 Tot.#	1985 %S/F
Holden	3,846	90%	4,670	88%	5,178	N/A
Primary Market	66,256	40%	73,834	42%	79,523	N/A
Secondary Market	99,305	59%	129,570	59%	140,842	N/A
Total Market	165,561	51%	203,404	53%	220,365	N/A

Table 15B
Additions to Inventory
1970-80 and 1980-86
(showing proportion of single-family units (%S/F))

Area	1970-1980 Tot.#	1970-1980 %S/F	1980-1985 Tot.#	1980-1985 %S/F
Holden	824	81%	508	N/A
Primary Market	7,578	63%	5,689	N/A
Secondary Market	30,265	57%	11,272	N/A
Total Market	37,843	58%	16,961	N/A

SOURCES: Massachusetts Municipal Data Bureau
U.S. Department of Commerce
1970 and 1980 U.S. Census
Urban Decision Systems, Inc.
Central Massachusetts Regional Planning Commission
Mary Lou Boutwell
William A. Swiacki, Jr.

Holden. Nine-tenths of the housing units in the town were single-family homes in 1970, and though slightly less skewed, new construction during the 1970's maintained this proportion. Even though ninety-five percent of the building permits issued in 1986 were for single-family homes[8], there is evidence that the town's housing stock is gradually diversifying. For example, a 68-unit condominium development is currently being marketed in the town. This project alone represents over thirteen percent of 1980-1986 additions.

In the surrounding market areas, the composition of the stock is much more varied. In large part, this reflects the presence of cities like Worcester and Fitchburg whose stock has historically included many two-families and three-deckers. Though the table reveals that (in Worcester at least) a greater proportion of single-family homes were built in the 1970's, a recent analysis of the Worcester housing market[9] showed that as of March 1987, only twenty percent of outstanding building permits were for single-family homes.

The increasing popularity of a clustered life-style (discussed in Chapter Two) is also evident in the current market. In the analysis of current permit activity in Worcester, condominiums represented nearly twice the amount of single-family homes, with rental apartments accounting for the majority of the remaining activity. An analysis of 1,305 sales in Leominster[10] in 1985 and 1986 revealed an increase

of 141% in condominium sales (from 153 to 369) as compared to a slight decrease in single-family sales (from 417 to 416). As a percent of the total 1,305 sales, condominiums nearly doubled in share over the one-year period (from a 27% to a 47% share).

C. Projections of Overall Demand and Supply

Table 16, *Projected Housing Requirement: 1986-1991*, shows the projected annual demand for all housing units from 1986 through 1991. The projected demand is shown both for the moderate-growth scenario based on the NEEP forecasts and for the high-growth scenario projected by UDS. The key figures are the projected number of households ("Households"), and an estimated vacancy rate for each area. These are used to estimate and project the size of the overall housing stock ("Housing Units"). The annual rate of growth in housing units, based on the growth in households, is then calculated.

The household and population projections were discussed earlier in the chapter. The projected vacancy rates are based on the rates established by the 1980 census. Each rate may be described as the number of vacant units required to insure the smooth functioning of that particular housing market. Accurate estimates of an all-units residential vacancy rate are extremely difficult at best, and most methodologies (such as electric meter data) are seriously flawed. Use of the 1980 rates was judged to be the most

Table 16
Projected Housing Requirement
1986-1991

	Estimated	Projected	
Primary Market	1986 (UDS)	1991 (NEEP-Based)	1991 (UDS)
Population	195,169	200,695	206,678
Households	71,822	74,475	77,593
Housing Units*	75,324	78,107	81,377
Annual Hsg Requirement	248	556	654
Secondary Market			
Population	367,336	382,836	399,388
Households	131,376	138,618	146,535
Housing Units*	138,339	145,965	154,302
Annual Hsg Requirement	1,462	1,525	1,667
Total Market			
Population	562,505	583,531	606,066
Households	203,198	213,093	224,128
Housing Units*	213,655	224,059	235,662
Annual Hsg Requirement	1,709	2,081	2,321

* Assumes historical vacancy rate based on 1980 Census
Primary = 4.65% Secondary = 5.03% Total = 4.89%

Source: 1980 U.S. Census
Urban Decision Systems, Inc.
New England Economic Project
William A. Swiacki, Jr.

reasonable estimate available, given the constraints of this analysis.

Looking ahead to 1991, then, the overall demand for housing units in the total market area is projected to average from 2,080 to 2,320 units annually. The secondary market area is expected to generate about seventy percent of this demand, or from about 1,520 to 1,670 units per year. The average annual projections for the primary market area range from 560 to 650 units.

Overall housing supply over the same period is projected to increase on average by 2,250 units annually. Looking at the projections for both demand and supply suggests a moderately strong housing market through 1991, with supply within the range of expected demand.

The supply projection is based upon building permit data for the years 1981-1986 (included here as Appendix E, *Building Permits Issued: 1981-1986*). The number of permits issued in 1984 was used to project the future rate of supply. Although at first glance this may appear low, in the author's opinion it represents a reasonable estimate of future building activity. The extraordinarily high number of permits issued in 1985 and 1986 reflected a reaction to the pent-up demand that had accumulated in times of higher interest rates. This demand has in large part been satisfied and is not expected to

occur again in the foreseeable future. The years prior to 1984 were felt to be unrepresentative also, this time on the low side. Furthermore, the nature of the data itself argues against using a high-year estimate. For several reasons, permit data generally overestimate the actual level of supply. The consistency and quality of recordkeeping and reporting varies widely from town to town. Totals often include additions and renovations as well as new construction. Also, building permit data are not occupancy permit data. A significant number of building permits may never result in completed construction. Use of the 1984 permit level will in some measure compensate for this potential overstatement of supply.

D. Summary of Key Points

The market area is continuing to share in the economic resurgence of the state as whole. Despite some declines in the manufacturing sector, employment has been growing throughout the area since 1983. The structure of the area's economic base is shifting towards non-manufacturing industries, especially within the service and FIRE sectors. These trends are forecasted to continue through 1991, although slower growth may result if the shortage of available labor becomes severe.

Overall demand for housing within the market area is projected to range from 2050 to 2350 units annually through

1991. With supply projected to increase by about 2250 units annually, the balance between supply and demand should act to maintain a moderately strong market.

Within the market area, some of the reasons for Holden's reputation as a desirable, exclusive suburban town are now evident. The majority of the town's residents are above 36 years old, college-educated, relatively affluent, and if working, white collar commuters--well above market area, state, and national norms in all respects.

E. Notes to Chapter Three

[1] Here and throughout the analysis Holden is individually compared to the primary and secondary markets, and to the larger areas of Worcester County and Massachusetts. Note, however, that the primary market area includes Holden. Also note that the secondary market area does not include the primary market area. Table 3 lists the towns in each market area; these areas are also shown on Map 6.

[2] Chinitz, Benjamin; (see bibliography, reference #11). Dr. Chinitz is Dean of the College of Management at the University of Lowell.

[3] Ibid.

[4] Employment statistics for Tables 13 (A and B) and 14 are from the state's Division of Employment Security (DES) and reflect only employment which is subject to unemployment compensation.

[5] The DES lumps the services and mining sectors together. In all the areas examined here, mining employment is negligible and has thus been omitted from the discussion.

[6] Labor force figures from the DES.

[7] See bibliography reference #68

[8] Report of the Building Inspector, Town of Holden, Annual Report, 1986.

[9] A Seller's Market, Housing in Worcester in the 1980's, March 1986. (See bibliography reference #9.) See also Update #6 March 1987. This report is highly recommended to the reader interested in the city's current and future housing market.

[10] Montachusett Regional Planning Authority, an analysis of Leominster Assessor's property sales reports.

- IV -

PRICES, AFFORDABILITY, AND COMPETITION

A. Comparable Sales

In order to gain a perspective on the level and trend of current housing prices within the market area, several groups of sales and market data have been assembled. Mean prices for all deed sales within the market area in 1986 are shown by town in Appendix F, *Sales Data: All Sales 1986*. A sample of over 2,700 single-family home sales within the market area in 1986 is shown by town in Appendix G, *Sales Data: Single-Family Sales 1986*. Finally, 140 sales of new single-family homes and new condominiums in the first half of 1987 (Worcester area only) are individually shown in Appendix H, *Sales Data: New Construction 1987*.

Table 17, *Sales Prices: 1986-1987 (Summary Table)*, summarizes this sales price data. The table highlights several kinds of price differentials within the market area. For example, the 1986 figures highlight the difference in price between the primary and secondary market areas (15-20% higher in the secondary market). The 1986 single-family figures indicate the relationship between Holden and the primary market as a whole (about 15% higher in Holden, on a par with the secondary market).[1]

Table 17
Sales Prices 1986-1987
(Summary Table)

Year	Type of Sale		Market Area: Holden	Primary	Secondary	Total
1986	All Sales	Avg Price ($)	137,922	154,923	180,203	172,882
		# Sales	385	4,159	10,203	14,362
1986	Single-Family (All)	Avg Price ($)	153,077	135,310	153,882	149,685
		# Sales	121	615	2,106	2,721
1987*	Single-Family (New Const'n)	Avg Price ($)	228,536	174,385	N/A	215,320
		# Sales	5	44		102
1987*	Condominium (New Const'n)	Avg Price ($)	150,600	95,074	N/A	113,763
		# Sales	3	23		38

* Greater Worcester MLS, January-June only (incomplete Secondary Market)

Sources: Banker and Tradesman County Review
Multiple Listing Services (Greater Bost., Greater Worc., Northern Worc.)
Boutwell/Swiacki

Table 18
Affordability Index

Assumptions

Mortgage Type:	Fixed rate
Mortgage Amount:	80% of purchase price
Mortgage Term:	30 years
Debt/Income Ratio:	28%

Purchase Price ($)	Interest Rate: 8%	9%	10%	11%	12%
100,000	25,379	27,810	30,308	32,864	35,470
125,000	31,724	34,763	37,885	41,080	44,337
150,000	38,069	41,716	45,463	49,296	53,204
175,000	44,414	48,668	53,040	57,512	62,072
200,000	50,759	55,621	60,617	65,728	70,939
225,000	57,103	62,573	68,194	73,944	79,807
250,000	63,448	69,526	75,771	82,160	88,674
300,000	76,138	83,431	90,925	98,593	106,409
350,000	88,827	97,336	106,079	115,025	124,144
400,000	101,517	111,242	121,233	131,457	141,878

Source: William A. Swiacki, Jr.

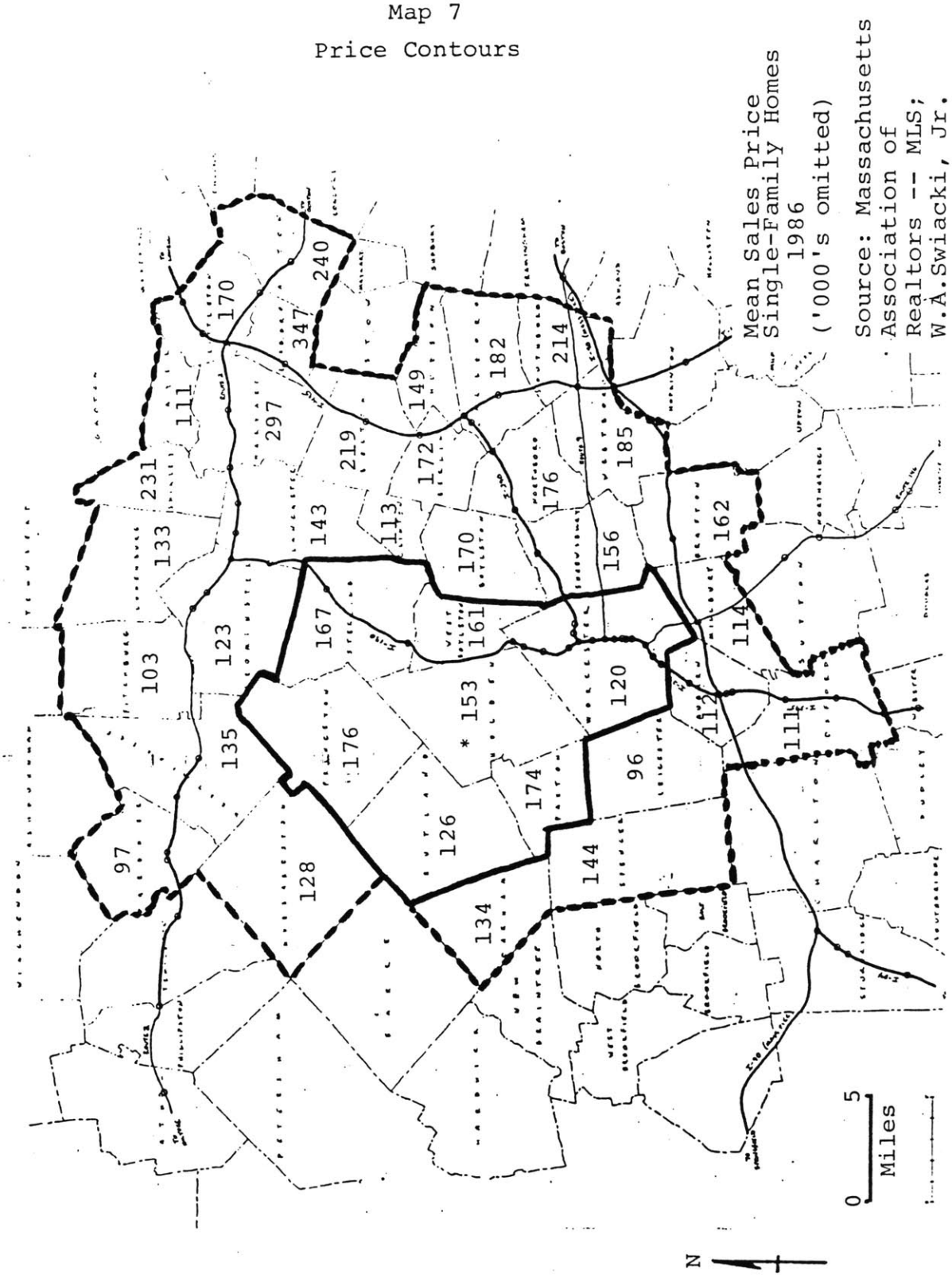
The pattern of 1986 single-family home prices across the market area is shown graphically in Map 7, *Price Contours*. Two general patterns are evident. The first shows prices descending from high levels in the eastern portion of the market area to lower levels in the western portion. The second shows the higher prices found in the suburban towns close to Worcester, relative to those in the city itself.

The 1987 figures show price levels for new construction in Holden and in the greater Worcester area as a whole. Based on these figures (published by the Greater Worcester Multiple Listing Service) the average sales price of a new single family home in Holden is currently about $230,000, 30% higher than the primary market as a whole at $175,000. New condominiums are nearly 60% more expensive, selling for over $150,000 in Holden and about $95,000 in the primary market area.

In order to compare prices within type categories (e.g., single-family homes), the 1986 data must first be appreciated forward one year. According to information supplied by the Massachusetts Association of Realtors (Boston Globe, 6/19/87), housing in Worcester County prices rose approximately ten percent from 1986 to 1987. Applying this rate to the primary market 1986 average price of $135,310, the adjusted 1987 price of all single-family homes is just under $150,000. Using this adjusted figure, we can say that new

Map 7

Price Contours



single-family homes are selling for about 20% more than the single-family market as a whole. Repeating the same process for the town of Holden, the premium is about 36%.

Several rules-of-thumb can be developed from these sales data regarding the primary market area housing market:

(1) new construction sells at a premium of about 20%-30% over the market as a whole;

(2) new single-family homes sell at a premium of from 50%-80% over new condominiums;

(3) New single-family homes in Holden sell at a premium of about 30% over new single-family homes in the primary market as a whole. For condominiums in the same areas the premium is about 60%.

In addition, a general sense of the east-west price differential can be obtained from the price-contour map. From Harvard to Holden, for example, the average price of a single-family home drops by nearly 50%. All else being equal, this indicates a <u>rough</u> upper limit on the home prices that will attract I-495 commuters to Holden. As this limit is approached, the incentive to relocate (and commute a longer distance to work) disappears.

B. <u>Affordability</u>

Given a perspective on the level of both income

and housing prices in the market area, the current concern surrounding the issue of affordability becomes readily understandable.

Table 18, *Affordability Index*, (shown above) illustrates the gross annual income necessary to purchase a home given different combinations of home price and mortgage interest rate. The mortgage payment is based on a fixed-rate mortgage for eighty percent of the purchase price with an amortization period of thirty years. A twenty-eight percent housing-debt-to-gross-income ratio (the maximum under the Federal Home Loan Bank Board standards) was used in the calculation of required income. From the table, we find that the purchase of a $250,000 home under current rates of ten percent would require over $75,000 in annual income. Seen a different way, the affordability crunch becomes particularly evident. For example, the table shows that a household in Holden earning the median income of $29,554--an income significantly higher than the market area median--is priced out of even the $100,000 market at current fixed rates.

Several factors mitigate this crunch. First is that only fixed-rate mortgage scenarios are shown. Variable mortgage rates are often 2-3% below the fixed rate. This helps, but not a lot. The median-income household in Holden could now buy a $100,000 home, but nothing more. A second factor is the pent-up equity that has accumulated for existing

homeowners in the eastern portion of the market area and in the Boston suburban area. As these homeowners look to relocate further west, they are able to translate the higher equity in their existing homes into higher downpayments on their new home. The same principle applies to "empty nesters" who move into smaller homes or condominiums after their children have left. Yet another related factor is the use of savings or other non-housing investments as increased downpayment in order to minimize the mortgage loan amount, a common occurrence among elderly buyer groups.

C. Competition

An survey of single-family and condominium projects being actively marketed at the time of writing is contained in Appendix I, *Survey of Current Market: July 1987.*[2] Projects are grouped by market area and product type. Within these groupings, projects are listed individually by name, location, and developer or broker. The high and low asking prices and square footage are given for each project, and a per-square-foot price range derived. Number of bedrooms and bathrooms, lot size, and the presence or absence of recreational amenities are also identified (where ascertainable). Project size, number of units sold, and date of sales opening are listed, and a monthly absorption rate derived. Finally, general buyer profiles are given, based on conversations with the project developer or broker. Table 19, *Competition: July 1987 (Summary Table)* summarizes a portion of this data.

Table 19
Competition: July 1987
(Summary Table)

Summary A

Primary Market Averages *	--- Ranges (from/to) ----- Price($)	Area(SF)	$/SF	#BR	#Bth	# Units Proposed (Total)	# Sold (Total)	Absorption (Units/Mo)
Single-Family (all units)	309,867	2,324	111	4	2.2	643	118	1.6
(not inc. $1,000,000 unit)	250,950	1,996	11#					
Condominiums (all units)	252,829	1,666	144	2.2	2.2	375	86	3.5
(not inc. $1,200,000 unit)	179,405	1,475	127					
Secondary Market Averages *								
Single-Family (all units)	195,580	1,859	110	3	2.2	225	67	1.7
Condominiums (all units)	129,908	1,426	99	2.1	1.9	1043	347	4.4

Summary B
Units Currently on Market

	Holden		Primary Market		Secondary Market	
	S/F	Condo	S/F	Condo	S/F	Condo
# of Projects Listed	1	1	7	7	6	7
Total # Units Proposed	154	68	643	375	225	1043
Total # Units Sold	12	5	118	86	67	347
Total # Units on Market	142	63	525	289	158	696

* These averages and totals reflect only the partial survey contained in Appendix I.

Sources: The Boston Globe
The Sunday Telegram (Worcester)
Interviews with Brokers and Developers
Mary Lou Boutwell
William A. Swiacki, Jr.

Rather than attempting to cover all the information contained in this appendix in narrative form, several observations on the data follow in bullet-point form.

- Buyer profiles -- The difference between single-family homebuyers and condominium buyers is striking, though with a different emphasis in each market area. In the primary-area condominium market, the key word is empty-nester. Although other groups are also identified as buyers, such as "yuppies" and divorcees, the empty-nester buyer group appears to dominate this market. In the secondary-area condominium market, the dominant group appears to be the first-time buyer working in the I-495 area. Single-family homebuyers in both market areas, on the other hand, are typically move-up families, often with children. Some are young families, but the majority are headed by professionals or executives in their late thirties and fourties--prime earning years. In the primary market area, about half appear to commute away from Worcester to the I-495 region.

- Affordability -- The first-time buyers in the secondary-market-area projects illustrate the degree to which this group is willing to trade off commute time for affordable housing costs. Many are buying in Gardner, where prices are significantly lower than in the rest of the market, and commuting as far as the Route 128 region.

- Product type -- According to the data, approximately sixty percent of the total units proposed in the primary market area are single-family. The ratio for units sold is nearly identical.

- Absorption -- The data present a general feel for maximum and average absorption rates experienced by projects currently on the market. Within the primary market, the maximum absorption for single-family projects (excluding lots) has been about 32 homes per year, or just under three per month. The average absorption has been about 20 homes per year. For those projects with some form of recreational amenity, the average rate rose to about 23 homes per year. For primary market area condominiums, the maximum was about 60 units per year (five per month), and the average about 40. Those projects with some form of recreational amenity again sold faster, averaging about 46 units per year. For each housing type, the presence of a recreational amenity was associated with about a fifteen percent increase in absoption rate.

- Price range -- Asking prices for single-family homes within the primary market area range from a low of $150,000 for a two bedroom home in Worcester to $1,000,000 for a five bedroom home in Princeton. However, most of the projects fall in the range of from $200,000 to $250,000 for three to four bedroom homes. Prices in Holden are on the high end

of this range. Per-square-foot costs on average are $110. Condominium projects in the primary market area (most of which are located in Worcester), show significantly higher per-square-foot costs than the single-family homes, reflecting the fact that many of these projects were aimed at a high-end market. Two suburban condominium projects, in Holden and Sterling, showed per-square-foot costs similar to the single-family construction. Prices in the primary area condominium market vary widely, but few are below $130,000 or above $200,000. Average condominium prices in the Holden area are in the middle of this range.

In sum, developers of new homes in the Holden area can expect: single-family prices in the range of $230,000 and condominium prices in the range of $150,000; average absorption of from 2-3 units per month; and sharply segmented buyer groups. Due both to affordability and life-style preference, the single-family buyer is clearly distinct from the condominium buyer.

D. Notes to Chapter Four

[1] The "All Sales" category includes sales of all real estate associated with a deed, including land sales, commercial and industrial properties, etc. As a measure of absolute housing price level it therefore presents a distorted view of the housing market. The figure for Holden, for example, is significantly lower (relative to other areas) than any other measure of price for the town. This may be explained by an unusually large number of lot sales in the town in 1986. In any event, this measure for Holden has not been used in the analysis. In general, the "All Sales" category is used in this analysis only to establish relative price levels between large areas.

[2] Appendix I presents information received during phone interviews with the developers or brokers of the projects. Though efforts were made to acquire reliable data, the information was not verified. It should therefore be used primarily to develop a general sense of the current market. It should not be regarded as definitive or comprehensive.

- V -

CONCLUSIONS AND RECOMMENDATIONS

Market Area -- The market area for the Holden Hills project consists of thirty seven towns and cities and is bounded approximately by Route 2, Interstate 495, and the Massachusetts Turnpike. The primary market area, which is focused upon the employment center of Worcester, should generate about half of total demand for this project. The remaining half will stem primarily from the growing employment corridor along I-495, and to a lesser degree from the Leominster/Fitchburg area and the towns to the south of Worcester, all of which make up the secondary market area.

Overall Demand and Supply -- Based on the analysis of demographic and socioeconomic patterns, the increase in overall demand for housing units within the market area is projected to range from an average of 2050 to 2350 units annually through 1991. The overall supply of housing units within the market area in this period is projected to increase at an average rate of about 2250 units annually, based on an analysis of permit activity since 1980. This suggests a relatively stable growth pattern for the market area as a whole over the next several years, with overall supply in the range of overall demand.

Product Type -- The inclusion of both single-family homes and townhouse condominiums is appropriate to the expected demand. The ease of maintenance and lower cost of condominiums will appeal to the empty-nester and first-time-buyer markets. The supply of this housing alternative within the primary market, and especially in Holden, is insufficient to match expected demand. For single-family units, the advantages of location will continue to appeal to the traditional Holden homebuyer. The 60/40 product mix (single-family/condominium) mirrors the mix of new construction currently for sale in the primary market area.

Recreational Orientation of Project -- The recreational orientation is particularly appropriate for this project given the Holden area population characteristics. The appeal of recreational amenities is positively linked with age and level of education. Golf in particular is growing in popularity and is especially appealing to an aging population. The golf amenity should be the focal point of a strong marketing emphasis upon a recreational life-style. Given the even faster-growing popularity of skiing, proximity to Wachusett Mountain should be included in this emphasis.

Market Segments -- The greatest demand for this project will be generated by three market segments: empty-nesters in the primary market area, move-up families from the service and high-tech sectors in both the primary and secondary market

areas, and first-time buyers from the same employment sectors and market areas. Each of these segments represents a significant and growing market due to rising age cohorts, structural shifts in the area's economic base, and/or the "affordability crunch" created by high housing costs (especially in the eastern portion of the market area and in the suburban Boston towns beyond). The appeal of a family-oriented, affordable, recreational life-style unites these buyer groups.

Price Range -- Single-family homes should be priced from $225,000 to $275,000 depending upon square footage, lot size, and location relative to the golf course. Condominiums should be priced from $130,000 to $175,000 depending upon the same factors. Commanding golf course views created by condominiums placed in the current location of the first and ninth holes could command prices 10-20% higher. (These prices are for current sale.)

Absorption -- A sales pace of from 20 to 30 homes per year may be expected for the single-family homes. For condominiums the expected pace is from 40 to 50 units per year. Using mid-range absorption estimates, the proposed program of 138 single-family homes and 92 condominiums would sell out in five and a half years and two years, respectively.

Recommendations for Further Analysis

- Traffic analysis of existing circulation levels and patterns, and impact of proposed project.
- Analysis of market impact of site design and product configuration, especially as it relates to the proposed relocation of the first and ninth holes of the golf course and construction of condominiums in their place; also as it relates to level of proposed site design and landscaping in the project as a whole.

Other Recommendations

- Minimize the negative marketing impact of the traffic problem:
  - Emphasize alternate routes to I-190. For example, a back-road shortcut exists from Mt. Pleasant St. to the I-190 interchange in Sterling.
  - Schedule showings and on-site sales office hours around peak travel times. Potential buyers' first impressions should relate to the quality of the development, not the congestion of the roads.

- Strengthen and emphasize the connection between the golf course and the residential development:
  - Examine more closely the possibility of relocating the first and ninth hole. This would not only open up commanding views of the golf course and horizon, but create course views within the subdivision itself.

Relocation of the holes within viewing distance of one of the major subdivision roads would greatly increase the perceived integration of the amenity, as well as the actual penetration of the course into the development. As a (very) rough estimate, relocation may be expected to cost $100,000 per hole.

- Examine more closely the possibility of constructing a central clubhouse as the social focal point of the golf/recreational amenity.
- Structure a preferential club membership system for residents, with options designed for each buyer group.

- Emphasize the proximity of the site to Wachusett Mountain

In sum, the recreational amenity package offered by Holden Hills, properly managed and marketed, will give the project a significant advantage over its competitors. The project presents a tremendous opportunity to meet a variety of needs and desires within the current marketplace.

APPENDICES

Appendix A
Overview of Pre-Development Planning Process *

Outline of Components

I. MANAGEMENT ANALYSIS
individual/company resources and needs--financial, physical, human; in-house analysis versus outside consultants; management strategy; project ownership structure; threshold rate of return; timeframe;

II. SITE ANALYSIS
description; historical and physical context; topography; geology; hydrology; climate; orientation; vegetation; wildlife; views; circulation; zoning; existing improvements; hazardous waste; opportunities and constraints;

III. MARKET ANALYSIS

IV. PRODUCT ANALYSIS
use; type; mix; density; design; configuration; materials; amenities; parking; traffic implications; cost/benefit trade-offs; construction implications;

V. POLITICAL ANALYSIS
zoning; approvals process--federal, regional, state, and local; special interest groups; environmental impact; other legal issues; timeframe; approvals strategy;

VI. FINANCIAL ANALYSIS
equity/ownership structure; debt structure; tax analysis; phasing; hard and soft costs; contingincies; developer profit; stabilized proforma analysis; discounted cash flow projections; sensitivity analysis; portfolio analysis; sources and uses of funds;

VII. MARKETING STRATEGY
timing; advertising; promotions; leasing and sales;

IX. ASSET/PROPERTY MANAGEMENT ANALYSIS

X. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS
(DEVELOPMENT STRATEGY)

* Note: This is a general outline of a complex process. Although the components are ordered above, in practice the process is often iterative and non-sequential. Actual analysis will also vary in depth and focus given a particular developer and a particular project.

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Appendix C
Employment Trends by Municipality
1980-1985
(ranked by percent annual change in employment by market area)

Market Area	Town	Employment -- Total Employment -- 1980	1985	%AnCh	-- Average Wages -- 1980	1985	%AnCh	# of Establishments 1980	1985	%AnCh
1	Princeton	218	462	16.2%	$6,781	$9,876	7.8%	35	45	5.2%
1	Rutland	531	944	12.2	10,427	15,649	8.5	51	58	2.6
1	Paxton	580	674	3.0	8,655	11,476	5.8	59	61	0.7
1	Holden	4,084	4,459	1.8	11,346	15,882	7.0	229	276	3.8
1	West Boylston	2,424	2,564	1.1	13,874	17,495	4.7	149	168	2.4
1	Sterling	807	847	1.0	11,775	13,552	2.9	95	108	2.6
1	Worcester	100,891	98,625	-0.5	13,324	18,424	6.7	3,820	3,900	0.4
2	Acton	5,365	8,304	9.1	11,431	19,006	10.7	418	544	5.4
2	Hubbardston	213	309	7.7	9,417	14,226	8.6	27	30	2.1
2	Oakham	54	76	7.1	8,819	12,001	6.4	10	21	16.0
2	Spencer	1,855	2,573	6.8	10,967	15,379	7.0	169	205	3.9
2	Boylston	1,049	1,412	6.1	12,071	15,971	5.8	66	75	2.6
2	Harvard	628	824	5.6	11,248	16,069	7.4	75	108	7.6
2	Hudson	5,224	6,792	5.4	12,711	22,156	11.8	288	342	3.5
2	Westborough	11,736	15,038	5.1	16,097	23,842	8.2	324	477	8.0
2	Auburn	6,000	7,617	4.9	12,746	15,516	4.0	328	385	3.3
2	Berlin	298	378	4.9	8,299	13,448	10.1	45	62	6.6
2	Ayer	4,714	5,969	4.8	13,152	17,600	6.0	178	214	3.8
2	Lancaster	1,536	1,878	4.1	9,111	16,033	12.0	88	97	2.0
2	Oxford	1,344	1,643	4.1	11,616	14,815	5.0	141	165	3.2
2	Bolton	1,022	1,239	3.9	13,406	20,451	8.8	62	65	0.9
2	Littleton	2,837	3,412	3.8	13,075	20,687	9.6	143	190	5.8
2	Leicester	1,142	1,338	3.2	11,286	14,971	5.8	125	156	4.5
2	Lunenburg	1,105	1,288	3.1	13,618	18,343	6.1	109	123	2.4
2	Boxborough	558	645	2.9	10,511	19,725	13.4	50	66	5.7
2	Millbury	2,528	2,903	2.8	12,673	16,455	5.4	192	217	2.5
2	Grafton	3,270	3,744	2.7	14,828	19,699	5.8	203	239	3.3
2	Shrewsbury	6,237	7,007	2.4	12,584	16,845	6.0	376	487	5.3
2	Northborough	3,172	3,429	1.6	12,798	17,998	7.1	183	251	6.5
2	Fitchburg	17,469	18,080	0.7	13,105	16,854	5.2	906	973	1.4
2	Leominster	14,051	14,443	0.6	12,824	16,001	4.5	745	855	2.8
2	Westminster	2,858	2,918	0.4	16,417	25,648	9.3	71	94	5.8
2	Clinton	5,315	5,158	-0.6	12,464	16,919	6.3	270	282	0.9
2	Marlborough	13,483	12,907	-0.9	13,996	21,630	9.1	496	698	7.1
2	Southborough	3,439	3,269	-1.0	16,264	22,883	7.1	129	161	4.5
2	Shirley	1,159	1,091	-1.2	9,545	15,370	10.0	62	74	3.6
2	Gardner	9,886	8,589	-2.8	12,367	17,100	6.7	401	410	0.4

Sources: Massachusetts Division of Employment Security
Mary Lou Boutwell
William A. Swiacki, Jr.

Appendix D
Selected Regional Employers
(arranged alphabetically by town)

Organization	Location	# Employees	Product/Service	Source
CML Group Inc.	Acton	674	Holding Group	1,3
Haartz Corp.	Acton	N/A	Coated Fabrics Mfr	2
Rex Lumber Co.	Acton	N/A	Whl Lumber	2
Imperial Distributors Inc.	Auburn	N/A	Whl Hlth & Beauty Aids	2
Sears Roebuck & Co.	Auburn	411	Whl/Retail Trade	7
Temple Stuart Co.	Baldwinville	400	Furniture	6
Genrad Inc.	Bolton	* 2126		1
Comet Products	Chelmsford	N/A	Disp.Plast.Tumbler Mfr	2
GCA Corp	Chelmsford	* 2300		1
Kelly's Plastics	Clinton	150	Injection Molding	8
LFE	Clinton	350	Injection Molding	8
NYPRO, Inc.	Clinton	700	Injection Molding	8
Genrad Inc.	Concord	* 2126		1
Welch Foods Inc.	Concord	N/A	Grape Foods Product Mfr	2
Asher Co.	Fitchburg	300	Clothing	6,8
Bee Plastics Manufacturing	Fitchburg	200	Picnic Ware	6
Burbank Hospital	Fitchburg	850	Health Care	6,8
Dennison Manufacturing Co.	Fitchburg	175	Plastic Cable Wires	1
Fitchburg Gas And Electric Co.	Fitchburg	N/A		3
General Electric Co.	Fitchburg	730	Compressors	6,8
James River Fitchburg	Fitchburg	115	Paper	6,8
James River Mass Corp.	Fitchburg	320	Furniture	1,6,8
Machine Tools	Fitchburg	120	Special Machinery	6
Sanitoy Inc.	Fitchburg	150	Toys	6
Seaboard Folding Box Co.	Fitchburg	100	Folding Boxes	6
Simonds Cutting Tools	Fitchburg	500	Cutting Tools	6,8
Technographics Inc.	Fitchburg	144	Paper Products Mfr	2,6,8
Badger Steel & Wire	Fitchburg+		231 Park & Mont.Indus.Pk	8
Baystate Curtain	Fitchburg+		231 Park & Mont.Indus.Pk	8
Cano Corp	Fitchburg+		231 Park & Mont.Indus.Pk	8
ChemDesign Corp.	Fitchburg+		231 Park & Mont.Indus.Pk	8
Moduform, Inc	Fitchburg+		231 Park & Mont.Indus.Pk	8
Spectro, Inc.	Fitchburg+		231 Park & Mont.Indus.Pk	8
(Total of Fitchburg+ Firms)	Fitchburg+	1000	231 Park & Mont.Indus.Pk	8
Alloy Computer Products	Framingham	N/A	Computer Peripherals Mfr	4
Consolidated Group	Framingham	N/A	Employee-Benefits Plans	2,4
Dennison Manufacturing Co.	Framingham	2300		1
Eaton Financial Corp.	Framingham	N/A		3
Framingham Auto Sales Inc.	Framingham	N/A	Ret New & Used Autos	2
General Motors Corp.	Framingham	* 6237		1
Holmes Transportation Inc.	Framingham	N/A	Common Carrier	2
International Data Group	Framingham	N/A	Magazine Publisher	2
International Paper Co.	Framingham	* 1969		1
Perini Corp.	Framingham	N/A		3
R.H. Long Motor Sales Co.	Framingham	N/A	New & Used Auto Sales	2
Thomas Taylor & Sons	Framingham	125	Mfr Clothing	8

Appendix D
(cont')

Organization	Location	# Employees	Product/Service	Source
Layre Corp.	Framingham	* 12000		1,3
Bose Corp.	Fram/Hopk'tn	900	Hi-Fi Speaker Syst. Mfr	2,8
Prime Computer Inc	Fram/Natick	3700		1,8
Collier Keyworth Co.	Gardner	450	Furniture	6
Conant Ball Co.	Gardner	N/A	Furniture	6
Gem Co.	Gardner	183	Mfr Furniture	8
Modern Contract Furniture Inc.	Gardner	100-249	Furniture	6
Nichols Co.	Gardner	300	Mfr Furniture	8
Simplex Time Recorder Co.	Gardner	1000	Fire Alarm Systems	2,6
S. Bent & Bros. Inc.	Gardner	300	Chairs	6,8
Wood-Tek	Gardner	100-249	Furniture	6
Wyman-Gordon Co.	Grafton	* 2100		1
ECC Corp.	Holden	120	Mfr Computer Circuit Brds	8
Reed Plastics	Holden	122	Mfr (High Tech)	8
Reed Rollthread Die Co.	Holden	N/A	Mfr Machine Tools	8
Stuarts Department Stores Inc.	Hopkinton	N/A		3
Digital Equipment Corp.	Hudson	2000		1,8
Sterling Manufacturing Inc.	Lancaster	120	Injection Molding	6
Millbrook Distributors, Inc.	Leicester	* 500	Distributors	8
Amarin Plastics Inc.	Leominster	150	Plastics	6
ART Plastics Co. Inc.	Leominster	100	Plastic Products	6
Bamberger Polymers Corp.	Leominster	200	Plastic Resins	6
Foster Grant	Leominster	250	Sunglasses	6,8
Gary Chemical Corp.	Leominster	N/A	Specialty Chemical Mfr	2
Harrington Kingman, E.B. Co.	Leominster	250	Plastics	6
Omnirel Corp.	Leominster	30	Mfr Circuitry (High Tech)	8
Paragon Plastics Inc.	Leominster	125	Plastic Caps	6
Peterborough Oil Co.	Leominster	N/A	Whl & Ret Petroleum	2
Plastican Inc.	Leominster	200	Plastic Pails	6
Polysar Inc.	Leominster	100	Rubber Laytex	6
Rand Whitney	Leominster	300	Folding Boxes	6
R&M Manufacturing Corp.	Leominster	150	Ladies Garments	6
Star Containers Corp.	Leominster	150	Corrugated Cartons	6
Tilton & Cook Co.	Leominster	111	Plastic Barrets	6
Tucker Housewares	Leominster	250	Plastic Housewares	6
Union Products	Leominster	200	Plastic Lawn Ornaments	6
UPS	Leominster	* 1057	Delivery Service	8
Vertiple Inc.	Leominster	130	Coated Materials	6
Victory Button Co.	Leominster	220	Plastic Hangers	6
Victory Distributors Inc.	Leominster	N/A	Retail Supermarkets	2
Raytheon Co.	Lexington	* 34000		1
Unitrode Corp.	Lexington	* 2200		1
Digital Equipment Corp.	Littleton	* 37700		1
New England Apple Products	Littleton	N/A	Fruit Drinks Sales & Mfr	2
Albert H. Notini & Sons Inc.	Lowell	N/A	Tobacco Jobbers & Buyers	2
Colonial Gas Co.	Lowell	N/A		3
Conifer Group Inc.	Lowell	* 1979		1

Appendix D
(cont')

Organization	Location	# Employees	Product/Service	Source
M/A-COM Inc.	Lowell	* 3400		1
Prince Co. Inc.	Lowell	N/A	Pasta Products, etc	2
Raytheon Co.	Lowell	* 34000		1
Wang Laboratories	Lowell	* 14000		1
Digital Equipment Corp.	Marlborough	* 37700		1
New England Critical Care	Marlborough	191	In-Home Infusion Therapy	5
Rockport Co.	Marlborough	N/A		2
Stratus Computer	Marlborough	1,069	Computer Mfr & Mktg	5
Digital Equipment Corp.	Maynard	* 37700		1
Wyman-Gordon Co.	Millbury	* 2100		1
H.J. Stabile & Sons Inc.	Nashua, NH	N/A	Residential Home Builder	2
Teradyne Inc.	Nashua, NH	* 3500		1
EMC	Natick	392	Computer Product Mfr	5
Scandinavian Design	Natick	N/A	Home Furnishings	2
Sears Roebuck And Co.	Natick	* 20546		1
Cardiodata	Northborough	N/A	Medical Electronics Mfr	4
Norton Co.	Northborough	135	R&D Ceramics Divison	8
Raytheon	Northborough	750	Manufacturing (High Tech)	MLB
The Hope Group	Northborough	123	Mfr Industrial Equipment	8
Webster Spring Co. Inc.	Oxford	N/A		2
James River Corp.	Pepperell	* 5600		1
Belden Corp.	Shrewsbury	200	Mfr (High Tech)	8
Digital Equipment Corp	Shrewsbury	1250	Mfr (High Tech)	8
Elkay Products Co., Inc.	Shrewsbury	268	Mfr Hlth & Med.Products	8
R.W. Granger & Sons Inc.	Shrewsbury	N/A	Gen.Cntrctrs, Const Mgrs	2
Spag'S Supply Inc.	Shrewsbury	N/A		2
UPS	Shrewsbury	* 1057	Delivery Service	8
Worcester Fndtn F/ Exper.Biol.	Shrewsbury	205	Services	7
Commonwealth Energy System	Southborough	* 2451		1
Commonwealth Gas	Southborough	525	Utilities	7
Data General Corp.	Southborough	* 7000		1
Americal Optical	Southbridge	1400	Manufacturing	7
American Optical Corp.	Southbridge	N/A	Ophthalmic Lenses,Frames	2
Flexcon Co. Inc.	Spencer	N/A	Plastic Film Prod. Mfr	2
Saxonville Whls.Lumb.Wrhs.Co.	Sudbury	N/A	Whl.Dist.Of Us-Made Lumb	2
Demoulas Supermarkets Inc	Tewksbury	N/A	Retail Supermarkets	2
Wang Laboratories	Tewksbury	* 14000		1
Embroidery Manufacturing	Townsend	100	Needlecraft Supplies	6
Sterlite Corp.	Townsend	350	Plastic Housewares	6
Raytheon Co.	Wayland	* 34000		1
Commerce Insurance Co.	Webster	511	Insurance	2
Cranston Print Works Co.	Webster	500		1
Astra Pharmaceutical Products	Westborough	550	Manufacturing	7
Bay State Abrasives	Westborough	800	Manufacturing	7
Data General	Westborough	4500	Manufacturing (High Tech)	7
Data General Corp.	Westborough	* 7000		1
GTE	Westborough	875	Manufacturing (High Tech)	7

Appendix D
(cont')

Organization	Location	# Employees	Product/Service	Source
New England Electric System	Westborough	5,000		1,3
Smith Valve Corporation	Westborough	240	Manufacturing	7
Digital Equipment Corp.	Westminster	1500		1,6
W.E. Aubuchon Co. Inc.	Westminster	N/A	Retail Hardware Store	2
Aft-Davidson Company	Whitinsville	250	Manufacturing	7
Ami Cos.	Worcester	N/A	Auto/Truck Sls,Lsg,Rntl	2
Anderson Products	Worcester	125	Manufacturing	7
Barry Wright Corp.	Worcester	* 1642		1
Boston Beef Co. Inc.	Worcester	N/A	Whlsl Meat Distributor	2
Central Mass. Health Care	Worcester	N/A	Hmo	4
Cincinnati Milacron	Worcester	760	Manufacturing	7
Clark University	Worcester	520	Services	7
Combustion Engineering Inc.	Worcester	* 4500		1
Conifer Group Inc.	Worcester	* 1979		1
Coppus Engin. Corp.	Worcester	216	Services	7
Cutler Associates Inc.	Worcester	N/A	Const'N & Engin'G	2
C.K. Smith & Co. Inc.	Worcester	N/A	Whl & Ret Petroleum Prod	2
David Clarke Co., Inc.	Worcester	320	Manufacturing	7
Dining And Kitchen Admin.	Worcester	* 2000		1
Guaranty Bank And Trust	Worcester	600	FIRE	7
Hanover Ins.	Worcester	805	FIRE	7
Holy Cross College	Worcester	700	Services	7
Home Federal Savings Bank	Worcester	100	FIRE	7
Iandoli'S Supermarkets	Worcester	1300	Whl/Retail Trade	7
Jamesbury Corp	Worcester	845	Manufacturing	7
Johnson Steel & Wire Co.	Worcester	150	Manufacturing	7
Lawrence R. Mccoy & Co. Inc.	Worcester	N/A	Forest Products Mktg	2
Mass Electric Company	Worcester	1486	Utilities	7
Mechanics Bank	Worcester	225	FIRE	7
Memorial Hospital	Worcester	1800	Services	7
Micro Networks Corp	Worcester	377	Manufacturing (High Tech)	7
Morgan Construction	Worcester	596	Construction	7
New England Telephone Co.	Worcester	1610	Utilities	7
Norton Co.	Worcester	3187	Manufacturing	7
Parker Affiliated	Worcester	292	Manufacturing	7
Parker Manufacturing	Worcester	387	Manufacturing	7
Paul Revere Life Insur.	Worcester	1258	FIRE	7
Rand-Whitney Container	Worcester	225	Manufacturing	7
Robinson Thread	Worcester	102	Manufacturing	7
Shawmut Worcester County Bank	Worcester	892	FIRE	1,7
Sprague Electric	Worcester	785	Utilities	7
Standard Foundry	Worcester	115	Manufacturing	7
State Mutual Life Assurance	Worcester	2038	FIRE	1,7,8
The Fair	Worcester	1000	Whl/Retail Trade	7
The Worcester Group	Worcester	100	Mfr Machine Tools	8
Thom Mcann Shoe Co.	Worcester	800	Manufacturing	7
Travelers Corp.	Worcester	* 13900		1

Appendix D
(cont')

Organization	Location	# Employees	Product/Service	Source
Unitrode Corp.	Worcester	* 2200		1
Univ. Mass Medical School	Worcester	4000	Services	7
Walker Magnetics Group Inc.	Worcester	N/A	Magnetic Device Mfr	2
Wonder Market Cos. Inc.	Worcester	N/A	Retail Supermarkets	2
Wonder Mkt. Comp.	Worcester	2000	Whl/Retail Trade	7
Worcester, City of	Worcester	6069	Government	7,8
Worcester Cnty Inst.F/ Savings	Worcester	353	FIRE	7
Worcester Controls	Worcester	130	Manufacturing	7
Worcester Hahnemann Hospital	Worcester	1150	Services	7
Worcester Polytechnic	Worcester	600	Services	7
Worcester Telegram	Worcester	916	Communications	7
Wright Line, Inc.	Worcester	625	Manufacturing	7
Wyman-Gordon Company	Worcester	764	Manufacturing	7
Wyman-Gordon Co.	Worcester	* 2100		1
Zayre Corp	Worcester	* 12000		1
Zayre/Newton Buying Co.	Worcester	900	Whl/Retail Trade	7

* denotes firm-wide employment (including all plant locations)

SOURCE KEY:
1 = "Top 150 Employers in New England, New England Business Magazine, 10/7/85
2 = "Top 250 in Sales, New England Private Companies", New England Business Magazine, 5/4/87
3 = "Top 150 in Sales, New England Service Companies", New England Business Magazine, 5/18/87
4 = "Top 500 in Sales Growth" (nationwide), Inc. Magazine 12/85
5 = "Top 100 in Sales Growth, Small Public Companies" (nationwide), Inc. Magazine, 5/87
6 = North Central Massachusetts Chamber of Commerce, 1987
7 = Greater Worcester Chamber of Commerce, 1987
8 = Worcester Telegram and Gazette, 1/9/87

List compiled 6/18/87 Compiled by William A. Swiacki, Jr.
Revised 7/14/87 and Mary Lou Boutwell

Appendix E
Building Permits Issued
1981-1986

Primary Market	1981	1982	1983	1984	1985	1986
Holden	45	32	60	65	207	99
Paxton	5	6	9	24	21	
Princeton	16	16	32	37	78	
Rutland *	50	10	7	25	48	
Sterling		35	65	59	155	
West Boylston	2	25	30	34	83	
Worcester	638	116	214	207	907	2227
Total	756	240	417	451	1499	2326
Secondary Market						
Acton		28	53	79	344	92
Auburn	13	38	43	176	190	48
Ayer			9	17	83	
Berlin	1	5	8	9	30	
Bolton		16	25	28	59	
Boxborough		4	15	27	66	8
Boylston		8	11	9	45	
Clinton		3	6	32	174	
Fitchburg		48	36	53	482	151
Gardner		35	18	37	262	210
Grafton	28	63	97	62	165	238
Harvard		28	45	42	80	27
Hubbardston		15	15	20	80	
Hudson		52	110	88	304	66
Lancaster		7	17	22	50	
Leicester	19	27	24	28	104	
Leominster		76	73	143	773	363
Littleton		27	40	35	7	15
Lunenburg		13	32	43	146	
Marlborough		105	135	144	162	149
Millbury	33	44	43	85	198	30
Northborough	50	45	86	161	248	127
Oakham		10	17	34	45	
Oxford *		43	50	50	119	
Shirley		10	17	20	52	
Shrewsbury	50	53	99	176	324	359
Southborough		28	37	63	83	
Spencer *	12	14	21	50	150	
Westborough	38	28	46	42	180	66
Westminster		16	19	30	133	
Total	244	889	1247	1805	5138	1949

Sources: Mass. Municipal Data Service
Swiacki/Boutwell

* Estimated for 1984

Appendix F
Sales Data: All Sales
1986

Primary Market	# Sales	Avg Price
Holden	385	$137,922
Paxton	103	207,736
Princeton	113	121,590
Rutland	239	495,137
Sterling	180	140,908
West Boylston	126	139,644
Worcester	3,013	131,030
Total Primary	4,159	$154,923
Secondary Market		
Acton	635	$220,434
Auburn	377	123,653
Ayer	134	107,395
Berlin	52	206,464
Bolton	88	208,278
Boxboro	388	130,260
Boylston	88	154,957
Clinton	285	125,214
Fitchburg	911	114,452
Gardner	652	97,400
Grafton	354	116,646
Harvard	140	255,857
Hubbardston	151	68,424
Hudson	490	145,452
Lancaster	119	129,194
Leicester	206	82,551
Leominster	1,208	139,678
Littleton	183	224,195
Lunenburg	245	120,758
Marlborough	871	193,653
Millbury	270	157,523
Northborough	397	199,849
Oakham	69	64,499
Oxford	310	86,643
Shirley	176	100,267
Shrewsbury	608	354,977
Spencer	239	93,374
Westborough	389	824,118
Westminster	168	101,440
Total Secondary	10,203	$180,671

Sources: Banker and Tradesman: "County Review"
Swiacki/Boutwell

Appendix G
Sales Data: Single-Family Sales
1986

Primary Market	# Sales	Mean Price
Holden	121	153077
Paxton	18	174495
Princeton	19	176275 ±
Rutland	13	126977
Sterling	42	167016
West Boylston	32	161327
Worcester	370	119934 +
Total Primary	615	$135,310

Total Market Area	# Sales	Mean Price
	2,721	$149,685

Secondary Market	# Sale	Mean Price
Acton	59	240207
Auburn	65	111869
Ayer	32	110688 *
Berlin	8	172500
Bolton	21	219230 *
Boxborough	5	347350
Boylston	15	169633
Clinton	20	112833 *
Fitchburg	174	103147 *
Gardner	80	96990 *
Grafton	73	161884
Harvard	53	296845 *
Hubbardston	12	128200 *
Hudson	152	148834
Lancaster	30	143120 *
Leicester	37	96164
Leominster	269	122621 *
Littleton	18	169133 *
Lunenburg	83	133157 *
Marlborough	284	181791
Millbury	44	113946
Northborough	115	175895
Oakham	4	134250
Oxford	21	110724
Shirley	17	231112 *
Shrewsbury	162	156187
Southborough	71	214409
Spencer	35	143749
Westborough	104	184526
Westminster	43	135080 *
Total Secondary	2,106	$153,882

± excludes 5 sales @ $40,000
+ See Worcester detail below
* includes condominium sales, if any.

Sources:

Greater Boston Multiple Listing Service
Greater Worcester Multiple Listing Service
Northern Worcester Multiple Listing Service
Mary Lou Boutwell
William A. Swiacki, Jr.

Appendix H
Sales Data: New Construction
Jan-Jun 1987

Primary Market		Single-Family		
Sale Location	Price	Sq.Ft.	BR	Bth
Holden	153000	1872	3	1.5
Holden	227000	2288	4	2.5
Holden	229800	2352	4	2.5
Holden	244800	2370	4	2.5
Holden	288080	2682	4	2.5
Paxton	206000	2600	3	2.5
Paxton	310000	2700	4	2.5
Princeton	152500	1275	3	2.0
Princeton	178000	1872	4	2.5
Princeton	215900	1976	3	2.5
Princeton	236500	2184	4	2.5
Princeton	325000	2500	4	2.5
Sterling	241000	2226	4	3.0
Sterling	255900	2800	4	2.5
Sterling	349900	4000	5	3.0
Worcester	90000	1080	2	1.5
Worcester	98000	1091	2	1.5
Worcester	98900	1000	2	1.5
Worcester	100000	1104	3	1.5
Worcester	104900	1000	2	1.5
Worcester	106500	2320	3	1.5
Worcester	109900	1104	3	1.5
Worcester	110000	800	2	1.0
Worcester	116000	1350	3	1.5
Worcester	116000	1350	3	1.5
Worcester	116900	1350	3	1.5
Worcester	116900	1350	3	1.5
Worcester	117200	1350	3	1.5
Worcester	126500	1500	3	1.5
Worcester	129900	1560	3	1.5
Worcester	129900	1500	3	1.5
Worcester	132000	1536	3	1.5
Worcester	133000	1536	4	1.5
Worcester	135000	1118	3	1.5
Worcester	135000	1050	3	1.0
Worcester	142000	1750	4	2.0
Worcester	180000	1352	3	3.0
Worcester	190000	1700	3	2.0
Worcester	192900	2000	4	2.5
Worcester	200000	1900	3	2.5
Worcester	200000	1900	3	2.5
Worcester	203180	1944	4	2.5
Worcester	204000	2300	4	2.5
Worcester	225000	2250	3	2.5

Primary Market		Condominiums		
Sale Location	Price	Sq.Ft.	BR	Bth
Holden	149900	1450	2	2.5
Holden	149900	1500	2	2.5
Holden	152000	1300	2	1.5
Worcester	75000	782	2	1.0
Worcester	76000	782	2	1.0
Worcester	76900	840	2	1.0
Worcester	77000	1000	1	2.0
Worcester	82900	800	2	1.0
Worcester	84500	1000	2	2.0
Worcester	84900	800	2	1.0
Worcester	84900	850	2	1.5
Worcester	85500	1000	2	2.0
Worcester	85900	800	2	1.5
Worcester	85900	800	2	1.0
Worcester	85900	800	2	1.0
Worcester	85900	800	2	1.0
Worcester	85900	952	2	2.0
Worcester	87000	1000	2	2.0
Worcester	87900	800	2	1.5
Worcester	89000	800	2	1.0
Worcester	100000	1104	3	1.5
Worcester	101900	800	2	1.5
Worcester	112000	1000	3	1.5

(See last page for totals)

Appendix H
(cont')

Secondary Market — Single-Family

Sale Location	Price	Sq.Ft.	BR	Bth
Auburn	137500	1200	4	1.0
Auburn	140000	1400	3	2.0
Berlin	435000	4000	4	3.0
Boylston	140900	1300	2	1.5
Clinton	138500	1248	3	1.0
Grafton	172500	1536	3	1.5
Grafton	200000	1976	4	2.5
Grafton	210000	2100	3	2.5
Grafton	230000	2240	4	2.5
Grafton	239900	2300	4	2.5
Grafton	243000	2400	4	2.5
Hubbardston	129900	1350	3	1.5
Hubbardston	141900	1104	3	2.0
Hubbardston	165000	1400	3	2.0
Hubbardston	175000	1000	3	2.0
Hubbardston	182500	1680	4	2.5
Leicester	113500	1200	2	1.0
Leicester	118500	1200	2	1.0
Leicester	136000	1300	2	1.0
Leicester	136000	1300	2	1.0
Leicester	195000	1976	3	2.5
Marlborough	193900	1728	4	2.5
Marlborough	205000	1352	3	2.0
Marlborough	222000	1872	3	2.0
Marlborough	248400	1970	4	2.5
Marlborough	259900	1970	4	2.5
Marlborough	279900	2308	4	2.5
Marlborough	309900	2352	4	2.5
Marlborough	475000	4200	4	2.5
Northborough	250000	2160	4	2.5
Northborough	276500	2400	4	2.5
Northborough	279900	2610	4	2.5
Northborough	359900	2701	4	2.5
Northborough	595000	3794	4	2.5
Shrewsbury	200000	1800	4	1.5
Shrewsbury	222500	1976	3	2.5
Shrewsbury	222500	1152	3	1.5
Shrewsbury	234300	2160	3	2.5
Shrewsbury	242500	2240	4	2.5
Shrewsbury	245000	2080	4	2.5
Shrewsbury	257900	2040	4	2.5
Shrewsbury	267900	2040	4	2.5
Shrewsbury	279900	2640	4	2.5
Shrewsbury	284900	2040	4	2.5
Shrewsbury	289900	2240	4	2.5
Shrewsbury	299900	2240	4	2.5

Secondary Market — Condominiums

Sale Location	Price	Sq.Ft.	BR	Bth
Auburn	99000	700	2	1.5
Auburn	133500	1260	2	2.0
Boylston	117500	1150	2	2.0
Clinton	143000	2000	2	2.0
Grafton	117500	1200	2	1.5
Grafton	124900	1080	2	1.0
Grafton	124900	978	2	1.0
Grafton	124900	978	2	1.0
Grafton	126900	978	2	1.0
Northborough	137500	1270	3	1.5
Northborough	139000	1100	2	1.5
Shrewsbury	142900	1500	3	2.0
Shrewsbury	144900	1500	4	2.0
Shrewsbury	225000	1760	2	2.5
Shrewsbury	234900	1760	2	2.5

(See last page for totals)

Appendix H
(cont')

Secondary Market	Single-Family			
Sale Location	Price	Sq.Ft.	BR	Bth
Southborough	393000	3500	4	2.5
Westborough	238900	2048	4	2.5
Westborough	245900	2240	4	2.5
Westborough	255900	2240	4	2.5
Westborough	276900	2684	4	2.5
Westborough	278900	2684	4	2.5
Westborough	278900	2290	4	2.5
Westborough	280000	2624	4	2.5
Westborough	294900	2888	4	2.5
Westborough	294900	2600	4	2.5
Westborough	303425	2620	4	2.5
Westborough	365000	3090	4	2.5

Secondary Market	Condominiums			
Sale Location	Price	Sq.Ft.	BR	Bth

Single-Family Totals				
Holden				
Mean values	$228,536	2,313	3.8	2.3
# sales	5			
Primary Area				
Mean values	$174,385	1,792	3.3	2.0
# sales	44			
Total Listed				
Mean Value	$215,320	1,977	3.5	2.1
# sales	102			
No Secondary Totals (incomplete area)				

Condominium Totals				
Holden				
Mean Value	$150,600	1,417	2.0	2.2
# sales	3			
Primary Area				
Mean values	$95,074	946	2.0	1.5
# sales	23			
Total Listed				
Mean Value	$113,763	1,078	2.1	1.6
Total # sales	31			
No Secondary Totals (incomplete area)				

Sources:
Greater Worcester Multiple Listing Service
Mary Lou Boutwell
William A. Swiacki, Jr.

Appendix I
Survey of Current Market
Primary and Secondary Market Areas
July 1987

PRIMARY MARKET

A. Single-Family Project Name	Location	Developer/ Broker	Price ($)	Ranges (from/to) Area(SF)	$/SF	#BR	#Bth	Lot Size (Acres)	Recreational Amenities	# Units Proposed	# Sold	Sales Opened	Absorption (Units/Mo)	Buyers
1. Fox Hill	Holden	C.B. Blair	250,000 325,000	2,300 2,400	109 135	3 4	2.0 2.0	0.5	No	154	12	12/77	0.1	Move-ups, high tech, employed in Framingham area
2. Hawthorne Hill	Rutland	C.B. Blair	150,000 260,000	1,200 2,100	125 124	3 4	1.5 1.5		Borders Conser. land	134	50	7/84	1.4	Move-ups, young families, 1200-1300 SF split entry for $160,000 most popular
3. The Clearings	Princeton	Ernest Foster	480,000 1,000,000	3,500 7,500	137 133	4 5	2.5 3.0	1 8	Common Land	12	5	7/86	0.4	Families with children, 30-45, executives from Gardner, Fitchburg, Worc., out-of-state
4. Pheasant Hollow at Snow Pond	Princeton	Vanasse		Land, $125,000 - $200,000 per lot				3 5	Pond Boating	14	8	5/87	4.0	Executives, 40+, Manufacturers from Worcester, Fitchburg, Marlboro
5. Hidden Farm Estates	Worcester	Domicile, Inc.	196,000 250,000	2,000 2,400	98 104	3 4	2.5 2.5		No	100	15	7/86	1.3	Move-ups, transferees, 50% professionals, from Worcester, Northboro, Shrewsbury
6. Stonegate	Worcester	Security Homes Napoli RE	149,900 209,000	2,000 2,900	75 72	2 3	2.0		No	91	16	1/87	2.7	Empty-nesters: 50's-60's, Yuppies in high tech on Rt. 290, 495; move-ups
7. The Village at Indian Hill	Worcester	Mass. Develop. Corporation	198,500 250,000	1,730 2,508	115 100	3 4	2.0 2.5		No	138	12	7/86	1.1	Professionals commuting to Worcester Boston, Marlborough, 30's-50's.
B. Condominiums														
1. Oakwood Farms	Holden	Charter Dev't	152,900 171,900	1,332 1,655	115 104	2 2	2.0 2.5		No	68	5	2/87	1.0	Empty-nesters, retirees, selling old houses and paying cash, 50+ age
2. Stillwater Meadows	Sterling	James Simpson AM Real Estate	125,000 160,000	1,250 1,250	100 128	2 2	1.5 2.5		Conservation land	60	33	9/86	3.3	Empty-nesters, singles and families in high tech moving 2-3 towns west
3. The Lakeshore	Worcester	Lane Homes	275,000 1,200,000	1,305 3,650	211 329	2	2.0		Lakefront, pool boating, fitness center	100	4 depo	7/87	0.0	Empty-nesters in 50's-70's, 2nd home in Florida; hope to get medical prof.in Worc.
4. Pointe Rok Estates	Worcester	Mass. Develop. Corporation	175,000 360,000	1,035 2,650	169 136	2 3	2.0 3.5		Beach, Boating	80	40	6/86	3.3	Empty-nesters, Yuppies commuting to Rt. 495 and Worcester
5. Rolling Oaks	Worcester	Metropolitan; Condo. Collab.	130,000 150,000			2 2	2.5 2.5		Tennis, pool					
6. Salisbury Green	Worcester	Charter Development	167,900 225,900	1,400 2,000	120 113	2 3	2.5 2.5		Tennis, pool, club, pond	229	25	2/87	5.0	Empty-nesters from Salisbury St. area Prof. couples/divorcees from Worcester
7. Woodland Hills	Worcester		119,500 126,500	1,200 1,260	100 100	2 2	1.5 1.5		No	66	21	9/86	2.1	Prof. from Worcester to Boston, commute up to 1 hour; 20's-30's, no children

SECONDARY MARKET

A. Single-Family Project Name	Location	Developer/ Broker	Price ($)	Ranges (from/to) Area(SF)	$/SF	#BR	#Bth	Lot Size Acres	Recrea. Amenities	# Units Proposed	# Units Sold	Sales Start Dat	Absorption (Units/Month)	Buyers
1. Brigham Hill Estates	Hudson	Lane Homes	199,900 259,000	1,300 2,388	154 108	3 4	2.5 2.5	0.5 0.75	No	42	32	7/86	2.7	
2. Candlewood Farms	Shrewsbury	M.J.Casa	219,000 275,000	2,040 2,700	107 102	3 4	2.5 2.5		No	12	9	9/86	0.9	Transferees, families, mid-30's Digital, Bio-tech Research, Medical
3. Legate Estates	Leominster	Ojala Const. Codman RE	160,000 190,000	1,650 1,900	97 100	3	1.5 2.5	0.75	No	86	22	9/86 1/87	2.2 2.8	First-time (50%) and Move-up (50%) buyers, Digital, Littleton, Westborough
4. Pierce Farm	Fitchburg	Klondike Corp.	129,900 180,000	1,000 1,750	130 103	2 3	1.0 3.0		No	50				
5. Whittemore St.	Leicester	M.J. Casa	179,000	2,000	90	3	1.5		No	7	1	2/87	0.2	
6. Woodruff Heights Estates	Clinton		164,000 179,000			3	2.0	0.25 0.5	No	28	3	4/87	1.5	Young families working on Rt. 495; alternative to Ridgefield condos next door
B. Condominiums														
1. Chapman Place	Leominster	Domicile, Inc.	103,000 121,900											
2. Fairway Woods	Oxford		119,900						Golf Course Racquetball					
3. Residence at the Falls	Northborough	Copley Real Estate Inv.	108,900 179,000	675 1,400	161 128	1 2	1.5 1.5			40	4 depo	6/87	0.0	Buyers live and work in the Northboro area
4. Ridgefield	Clinton	Albro Const. Finch Group	128,000 173,500	1,051 1,894	122 92	2 2	1.0 2.5		Tennis, pool, jogging, bicycling	360	188	6/85	7.8	Young couples working in Boston and on Rt. 495
5. South Meadow	Shrewsbury	J.J. O'Brien Development	169,000 189,000	1,800 2,500	94 76	2.5 2.5	2.5 2.5		Tennis, Pool, Playgrd., Basketball	86	66	7/86	5.5	First-time buyers, professionals from east, work from Rt. 495 to Cambridge
6. Westminster Woods	Gardner	Napoli Real Estate, Inc.	83,900 86,900	1,020 1,020	82 85	2 2	1.5 1.5		No	250	65	1/86	3.8	First-time buyers from Acton, Marlboro, Commuting to 495, mid-late 20's.
7. Wilderbrook Village	Gardner	Napoli Real Estate, Inc.	91,900 133,900	1,200 1,700	77 79	2 3	2.0 2.0		No	307	28	1/87	4.7	First-time buyers commuting to Rts. 495/128; Empty-nesters

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