MASTER PLAN 1988
FOR THE
CITY OF DOVER, NEW HAMPSHIRE

ECONOMIC DEVELOPMENT,
HOUSING AND
LAND USE

Adopted by the
Dover Planning Board
July 5, 1988

This plan was prepared by the
Dover Planning Department and
Applied Economic Research, Inc.
under the auspices of the
Dover Planning Board

Cover photographs provided by
Tom Hendle and Joni Doherty

RESOLUTION

RESOLUTION: TO ADOPT THE HOUSING, ECONOMIC DEVELOPMENT AND LAND USE CHAPTERS OF THE DOVER MASTER PLAN

WHEREAS: The Planning Board and Planning Department have written and completed in accordance with RSA 674:3, three Chapters of the Dover Master Plan entitled Housing, Economic Development and Land Use; and

WHEREAS: A concerted effort was undertaken to include participation by the general public; and

WHEREAS: A formal public hearing on said Chapters, in accordance with RSA 675:6, was held before the Planning Board on June 16, 1988.

NOW THEREFORE, BE IT RESOLVED BY THE DOVER PLANNING BOARD, THAT:

1. The Master Plan Chapters entitled Housing, Economic Development and Land Use are adopted and certified in accordance with RSA 674:4; and

2. The Planning Board Chairman is authorized to sign and label as "adopted" the final reproduced documents of said Chapters; and

3. The Planning Department is authorized to develop an abbreviated summary of the said Chapters.

July 5, 1988 — Harold Preston

Date of Planning Board Action — Planning Board Chairman

Motion to approve by: Otis Perry

Seconded by: Les Elder

Board members in favor: Seven - All Present

Board members opposed: None

TABLE OF CONTENTS

FIGURES

SECTION I: ECONOMIC AND HOUSING CONDITIONS

TABLES

SECTION I: ECONOMIC AND HOUSING CONDITIONS

SECTION II: ECONOMIC AND HOUSING PROJECTIONS

SECTION IV: LAND USE

MAPS

SECTION I: ECONOMIC AND HOUSING CONDITIONS

SECTION II: ECONOMIC AND HOUSING PROJECTIONS

SECTION IV: LAND USE

Section One

ECONOMIC AND HOUSING CONDITIONS

THE CURRENT ECONOMIC ENVIRONMENT

This section of the analysis presents an overview of the regional and city economies. Detailed data upon which the following observations are drawn are contained in Addendum A.

A Unique Regional Economy

To a large degree, the development issues Dover has and will face are structured by its regional economy--the New Hampshire portion of the Portsmouth-Dover-Rochester metropolitan area.

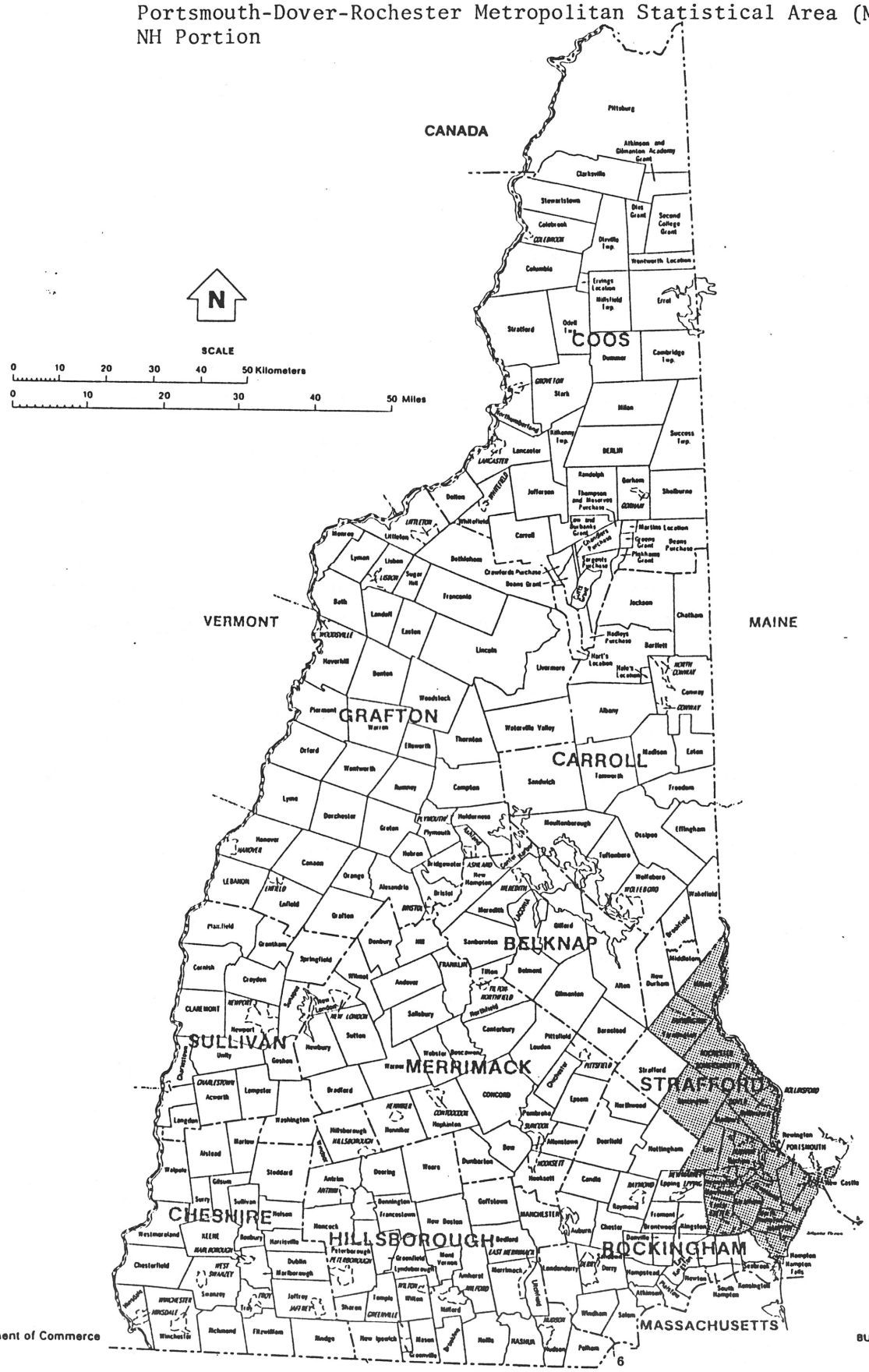
This regional economy has several distinguishing characteristics. First, unlike its counterpart metropolitan areas in northern New England (Manchester, Nashua, Portland and Burlington) there is no single community that dominates Dover's regional economy. Instead, the Dover region draws its strength as a system of smaller communities with strong economic ties and somewhat specialized functions. Portsmouth provides harborside dining, shopping and entertainment; Durham provides unparalleled educational facilities; Newington houses the region's major shopping centers, and Dover houses the county seat and a growing share of the region's manufacturing employment and population. It is because of the economic ties among the region's communities that these specialized functions can survive.

In recent years the interdependence of communities within the seacoast area has increased. As Newington has increased its inventory of retail space, its shopkeepers are more dependent on the regional economy to sustain an economic level of sales. As Portsmouth's large corporate headquarter activities grow, it necessarily draws more workers from outside its boundaries. Likewise, more than half of Dover's jobs are held by residents of other seacoast communities.

The second major characteristic of the seacoast regional economy is that measured across all major growth indicators, the regional economy has

Map 1. Market Area

Portsmouth-Dover-Rochester Metropolitan Statistical Area (MSA)
NH Portion



U.S. Department of Commerce

BUREAU OF THE CENSUS

6

been expanding at a rapid rate:

> Its current population stands at just under 170,000, in contrast to 128,000 in 1970 and 149,000 in 1980.
>
> The regional economy is fueled by over 74,000 jobs, reflecting a 10,500 increase since 1980.
>
> In 1982, area retail sales stood at $1.6 billion, reflecting a growth of $1 billion over 1972 levels.
>
> Since 1980, 10,500 new housing units have been authorized by building permit, a 20 percent increase.

The dynamic aspect of the regional economy is also reflected in the employment shifts it is experiencing. Between 1980 and 1985 when New Hampshire added nearly 6,000 new manufacturing jobs, the seacoast regional economy lost 3,000 manufacturing jobs. In 1980, 32 percent of the region's employment was in manufacturing industries. By 1985, the ratio had dropped to 23 percent--a dramatic shift in but five years. During this period, the region lost a number of manufacturing jobs in old line industries, particularly the shoe industry, and those losses more than offset employment gains experienced among existing manufacturing firms and new firms attracted to the region.

With a declining manufacturing base, the real strength of the region has been in its non-manufacturing industries. Between 1980 and 1985, the region added over 12,000 non-manufacturing jobs and almost 1,400 government jobs.

Dover's Regional Economic Role

Dover plays a number of important economic roles within this dynamic regional setting. The following paragraphs discuss the major characteristics of Dover's economy and relates those characteristics to the broader regional economic context.

Employment

The major characteristics of Dover's employment base are:

In 1985 the city had slightly in excess of 13,600 jobs.

Growth since 1980 has averaged about 400 jobs per year.

Manufacturing employment totaled just under 3,900 jobs in 1985. This represents 28 percent of total employment in the city. Manufacturing employment in the city has been holding steady in the face of a sharp regional decline since 1980.

As is true for the regional economy, non-manufacturing employment has been growing significantly faster than manufacturing employment. With manufacturing employment holding steady, all of the employment growth experienced by the city has been in the non-manufacturing categories.

Services and trade account for 60 percent of the city's employment growth.

Placing these characteristics into the regional context leads to the following conclusions:

Total employment in Dover has been growing at a slightly faster rate than the New Hampshire portion of the metropolitan area, but a bit slower than the state.

Manufacturing employment represents a slightly higher share of total employment in Dover (28%) than in the region (24%).

On an overall basis, then, the salient distinguishing characteristics of Dover's employment base, as compared to the metropolitan area's base, is that Dover has not experienced the sharp loss in manufacturing jobs that has occurred at the metropolitan level. Consequently, manufacturing employment is a larger component of the city's economy than the metropolitan area's economy, and Dover's regional role as a manufacturing center has become more pronounced.

Population

Dover's current population is estimated to be 26,100 The long term population trends indicate that between 1910 and 1950, the city's population fluctuated in a relatively narrow range of 13,000-15,000. Since 1950,

the city's population has consistently increased.

An examination of population trends since 1960 reveals that:

In the 1960s and 1970s, the city's population was growing at about half the rate of the metro area's.

Since 1980, the city's population has grown at the same rate as the metro area.

The comparative percentage increase in population experienced by the city was 9 percent in the 1960s, 7 percent in the 1970s and 14 percent during the first seven years of the 1980s.

It is clear from this data that since 1980 Dover has assumed a more prominent role in housing the region's population. Its share of the region's population growth was 10 percent during the 1960s and 7 percent during the 1970s. During the first seven years of the 1980s, the city absorbed 15 percent of the region's population growth.

This more prominent role is attributable to:

The city's prime location in the center of the metropolitan area, straddling the Spaulding Turnpike;

The availability of utilities and developable land within the city's boundaries;

The willingness of the city (despite its recently imposed moratorium) to accommodate additional residential development, while a number of other communities in the region have imposed new obstacles to residential development;

The strong regional economy.

A shift in the type of residential units built in the city. Since 1980, the city has assumed a larger share of the region's single family and condominium construction (with larger average household size).

Wages

In 1985, Dover's average manufacturing wage was just over $410 per week and its average non-manufacturing wage was just over $290 per week.

Between 1980 and 1985, manufacturing wages grew by 48 percent and non-manufacturing wages increased by 37 percent.

Dover's manufacturing wages tend to be about the same as those prevailing at the regional and state levels. Its non-manufacturing wages, however, are 17 percent lower than the state average and 8 percent lower than the metropolitan average.

Income

Dover's average household income currently stands at approximately $32,000. This is essentially the same as the estimated regional average household income. An examination of the distribution of household income reveals that there are no major distortions within the income distribution of Dover, vis-a-vis that of the region. That is, both the central point (median household income) and the proportion of households in both the high income and low income ranges is approximately the same for Dover as for the metropolitan area. Dover does, however, have a modestly higher proportion of households in the very low income categories and a modestly lower proportion of households in the very high income categories, but the differences are not pronounced.

Retail Sales

In 1982, Dover's retail sales totaled $145 million. This represented 14 percent of the metropolitan area's (including the Maine portion) retail sales.

The comparison of sales trends for Dover and for Strafford/Rockingham Counties (historic data for the metropolitan area is not available) indicates that:

> Retail sales in Dover have been growing at a significantly slower rate than in the broader economic setting. Consequently, Dover's share of the area's retail sales has declined from 13 percent in 1972 to 9 percent in 1982.
>
> This declining share of regional retail sales is

especially pronounced within the shoppers goods merchandise categories (apparel, furniture/fixture, etc.--items typically purchased in a department or specialty store). In 1972, Dover captured 20 percent of the region's shoppers goods sales. By 1982, this share had declined to 8 percent.

Dover's share of the region's convenience goods sales (food stores, drug stores, eating/drinking) has remained essentially constant at about 10 percent of the region's sales.

Dover's share of "other retail" including building materials, auto sales and gasoline service stations, has also remained essentially constant at about 10 percent of the region's share.

During the past decade, Dover's role in the regional retail market has changed markedly. Bolstered by strong population and housing growth, the city has been able to maintain a relatively constant share of the region's convenience goods and "other" retailing. Hard-hit by new concentrations of shoppers goods space in shopping centers in Newington and in outlet centers in Kittery, the city has experienced a sharp erosion of its role as a shoppers goods merchandising center. With significantly better concentrations of shoppers goods available a relatively short drive away, shoppers that traditionally supported merchants in downtown Dover and its shopping centers have been drawn to those larger concentrations. Dover is clearly exporting shoppers goods sales, despite its once strong role. In 1982, Dover captured only 8 percent of the region's shoppers goods sales despite having 15 percent of the region's population. Furthermore, Dover's shoppers goods merchants typically would draw additional support from residents of surrounding communities. This support has also drifted toward the larger concentrations in Newington and Kittery.

HOUSING MARKET TRENDS & CURRENT HOUSING CONDITIONS

This section of the analysis presents an overview of Dover's role within the regional housing market, a review of housing development and population growth patterns within the city of Dover, and statistical and visual assessments of housing need within the city based on affordability and structural conditions.

Housing Supply Growth

Dover has continued to capture a relatively consistent share of housing unit growth over the past 16 years. Between 1970 and 1980, the city absorbed 13 percent of the market area's overall household growth. It absorbed 22 percent of the increase in renters, but only seven percent of the increase in owner households. Because of the smaller size of renter households, Dover absorbed only 7 percent of the area's population growth during the period.

In the 1970s, the market area added an annual average of 1,400 households. In the recessionary years of 1980 to 1982, a period of low housing production generally, market area growth had slowed to an average of 600 units per year measured by building permits issued. In the strong growth years of housing market recovery, 1983 to 1986, the market area added 2,200 units per year on average. In both the slow and high-growth periods, Dover's share of overall activity was 14 percent and 13 1/2 percent respectively.

With the introduction of a substantial number of single family attached condominium, and increased activity in move-up buyer markets (repurchasers), Dover's share of single family activity and owner occupancy appears to be increasing. From 1980-86, the city absorbed 16 percent of single family growth, 13 percent of multi-family growth, and six percent of mobile home growth within the market area. The Metropolitan area as a whole contains a relatively small share of state's mobile home inventory with respect to its share of the state's population.

Characteristics of Recent Movers

The city's recent survey of occupants of new units constructed in the city of Dover built between 1980 and 1986 provides a number of indicators of the housing market orientation of new development in the city. Significant characteristics of the households residing in new units are:

(1) Median income of households in new units was $31,000 ($36,200 for homeowners and $26,000 for renters; excluding those listed as retired);

(2) The average household size was 2.39, with an average number of school-aged children per household of .34;

(3) Thirty-seven percent of the homeowners in new units already lived in Dover prior to buying their new home; 30 percent lived in other parts of Rockingham or Strafford County and 33 percent lived outside of the two-county area;

(4) Only 19 percent of the renters in new units previously resided in Dover; 30 percent had lived in other parts of Rockingham and Strafford County, and 51 percent lived outside of the two-county area. Renters were therefore more likely to make long-distance moves to Dover; and

(5) Eighty-eight percent of the households in new units were either retired or worked in Rockingham and Strafford Counties; 29 percent of the residents of new units were working in Dover; only one percent were commuting to Massachusetts.

The results of the survey suggest that Dover has continued to provide a source of middle-income housing within an increasingly costly housing market.

Income and Housing Cost

Income

The distribution of household income in Dover relative to the market area is influenced by the age and housing tenure mix of the population. Significant differences exist between Dover and the market area:

Approximately 33 percent of the Dover population in 1980 was age 45 and over and 12.2 percent were 65 and over, while within the market area, only 29 percent were age 45 and over, and only 10.7 percent were age 65 plus.

Forty-seven percent of Dover's households were renters in 1980 compared to only 39 percent for the total market area.

Median household income in Dover in the 1980 Census was about five percent lower than the metropolitan area; however, this appears to be due to Dover's large share of the renter population.

Homeowner median income in Dover was slightly higher than the market area median, while renter median income in Dover is substantially lower.

Dover had a relatively high share of the market area's very low-income (earning under $5,000 in 1980) households.

In 1980, 11.4 percent of Dover's population was estimated to be residing below the poverty level, significantly higher than the metropolitan area's 9.5 percent population in poverty.

Housing Cost

The median value (1980) of owner-occupied units in Dover was about seven percent lower than the metro area, while 1980 median rents were slightly higher by about three percent. During the last three years, an Applied Economic Research, Inc. sample of major rental housing projects in the city of Dover shows that contract rents increased by about 28 percent for studio apartments, 22 percent for one-bedroom apartments, and 20 percent for two-bedroom apartments. The New Hampshire Housing Finance Authority's Annual Rent Survey suggests that rents in Strafford County, dominated by the tri-city area of Dover-Somersworth-Rochester, continue to have rents more affordable than those in the Rockingham County portion of the market, although the most recent sample year a flattening out of rents could be seen in Rockingham County, while Strafford County rents continued a moderate but steady increase. With the frequency of long-distance moves by renters, the cost differentials across the rental market show less than

prices in the ownership market.

New condominiums sold in Dover during calendar year 1986 through the first quarter of 1987 had a median sales price of approximately $82,600, only about five percent less than the estimated metropolitan area median price of $87,100. However, the differential in single family home sales (non-luxury units) appears to be much wider. Based on a 1986 sample of single family sales (new and existing) by the New Hampshire Housing Finance Authority, Applied Economic Research, Inc. estimates the median sales price in Dover (1986) for a single family detached home to have been $88,000 compared to a metropolitan area median of approximately $112,000, or a differential of over 20 percent.

Both income and housing cost data for 1980 and for the current market suggest Dover is continuing to participate principally in the middle-income housing market, but is not yet participating significantly in the upper-priced single family markets. Dover's role has continued to be that of supplying a source of moderate-cost ownerhship and rental housing, within the Seacoast market.

Regional Housing Need: Low-Income Renters

The existence of housing need is increasingly emphasizing housing affordability criteria. Applied Economic Research, Inc. has prepared detailed tables on the distribution of Dover households by income, elderly/non-elderly, and owner versus renter status. (See Table 1.)

The most severe housing need among households as measured in the 1980 Census would be found among those renters earning under $10,000 annual income and either residing in a sub-standard or overcrowded unit and/or spending 30 percent or more of their income on rent. In 1980, Dover had 1,400 such households (35 percent of its total renter housesholds). Of these 1,400, approximately 300 were elderly households and 1,100 non-elderly.

As of the 1980 Census, the median renter household income was approxi-

TABLE 1.

DOVER1

DOVER HOUSEHOLDS BY AGE, TENURE & INCOME

HOUSEHOLDS WITH SELECTED CONDITIONS: U S CENSUS 1980 (1)

	Homeowners			Renters			All Households		
Income Range	Age 62+	Other	Total	Age 62+	Other	Total	Age 62+	Other	Total
Under $5,000	46	4	50	204	454	658	250	458	708
$5,000- $9,999	45	0	45	88	672	760	133	672	805
$10,000-$14,999	18	59	77	17	210	227	35	269	304
$15,000-$19,999	0	60	60	0	26	26	0	86	86
$20,000 & Over	42	87	129	5	23	28	47	110	157
Total	151	210	361	314	1385	1699	465	1595	2060

TOTAL HOUSEHOLDS: U S CENSUS 1980

	Homeowners			Renters			All Households		
Income Range	Age 62+	Other	Total	Age 62+	Other	Total	Age 62+	Other	Total
Under $5,000	178	117	295	408	474	882	586	591	1177
$5,000- $9,999	272	149	421	186	829	1015	458	978	1436
$10,000-$14,999	315	321	636	79	769	848	394	1090	1484
$15,000-$19,999	175	539	714	48	545	593	223	1084	1307
$20,000 & Over	302	2084	2386	41	541	582	343	2625	2968
Total	1242	3210	4452	762	3158	3920	2004	6368	8372

Source: 1980 Census, Summary Tape File 4

(1) Footnote: For renters, "selected conditions" mean that the household: pays 30% or more of income to rent; or resides in an overcrowded unit; or resides in sub-standard unit (lacking complete plumbing facilities).
For homeowners, "selected conditions" mean that the household: resides in a sub-standard unit (lacking complete plumbing); or resides in an overcrowded unit; or resides in a unit built prior to 1940 and which has low market value (under $30,000 in 1980).

TABLE 2.

TOTAL METROPOLITAN AREA (CURRENT DEFINITION OF MSA)
HOUSEHOLDS WITH SELECTED CONDITIONS: U S CENSUS 1980

	Homeowners			Renters			All Households		
Income Range	Age 62+	Other	Total	Age 62+	Other	Total	Age 62+	Other	Total
Under $5,000	234	78	312	988	2038	3026	1222	2116	3338
$5,000- $9,999	285	103	388	530	2789	3319	815	2892	3707
$10,000-$14,999	144	265	409	107	1133	1240	251	1398	1649
$15,000-$19,999	82	229	311	21	365	386	103	594	697
$20,000 & Over	169	760	929	13	250	263	182	1010	1192
Total	914	1435	2349	1659	6575	8234	2573	8010	10583

DOVER SHARE OF METRO AREA HOUSEHOLDS WITH SELECTED CONDITIONS

	Homeowners			Renters			All Households		
Income Range	Age 62+	Other	Total	Age 62+	Other	Total	Age 62+	Other	Total
Under $5,000	19.66%	5.13%	16.03%	20.65%	22.28%	21.74%	20.46%	21.64%	21.21%
$5,000- $9,999	15.79%	.00%	11.60%	16.60%	24.09%	22.90%	16.32%	23.24%	21.72%
$10,000-$14,999	12.50%	22.26%	18.83%	15.89%	18.53%	18.31%	13.94%	19.24%	18.44%
$15,000-$19,999	.00%	26.20%	19.29%	.00%	7.12%	6.74%	.00%	14.48%	12.34%
$20,000 & Over	24.85%	11.45%	13.89%	38.46%	9.20%	10.65%	25.82%	10.89%	13.17%
Total	16.52%	14.63%	15.37%	18.93%	21.06%	20.63%	18.07%	19.91%	19.47%

Source: 1980 Census, Summary Tape File 4 and AER, Inc. selected conditions as defined in Table 1.

mately $10,000 in Dover; median renter income was about half that of owner median income. Renters earning under $10,000 had a significantly higher incidence of housing affordability and quality problems.

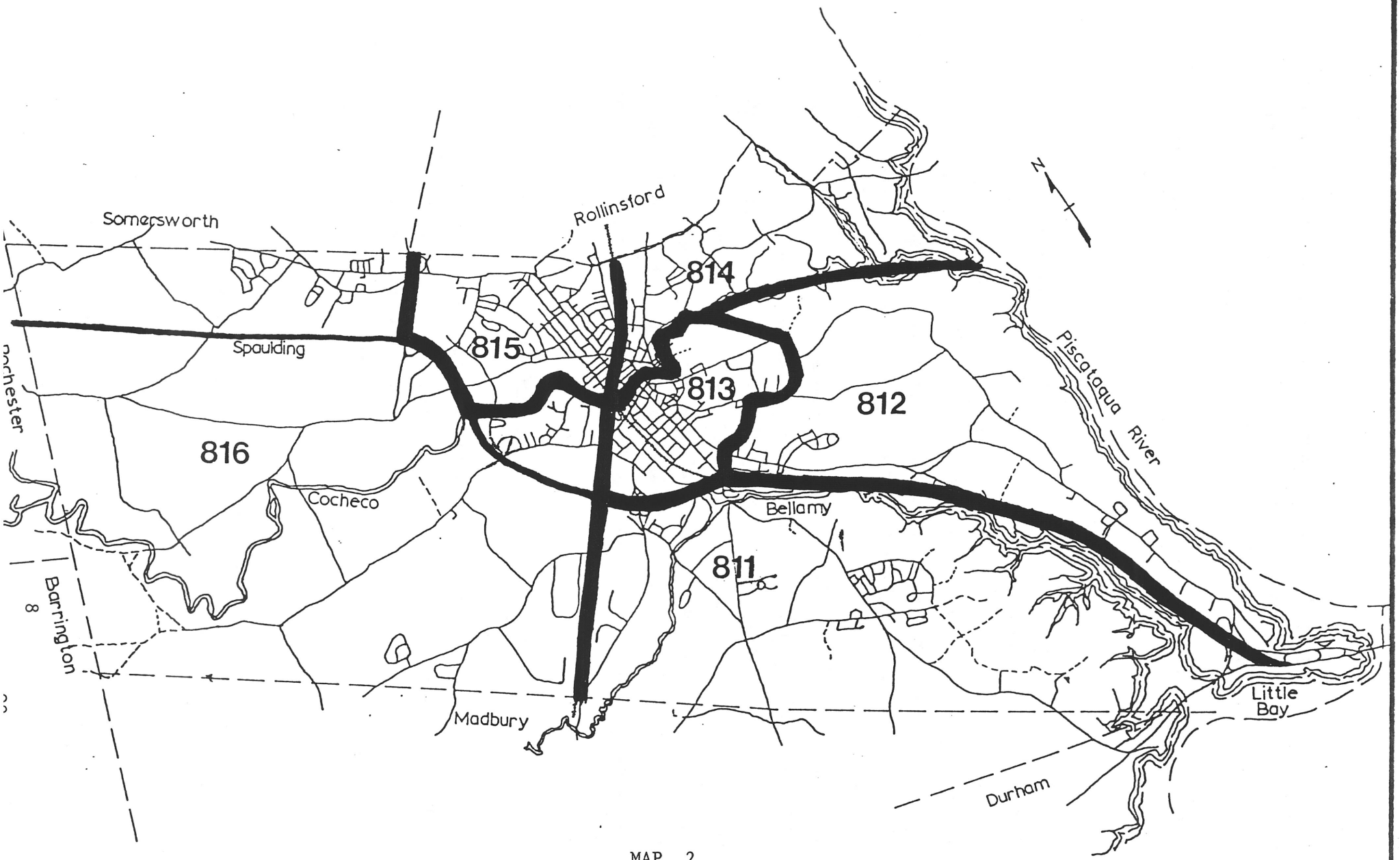
Dover has a relatively high share of the market's renters in low to moderate-income households with sub-standard housing and over-payment problems. (See Table 2.)

Because of the existence of subsidy programs, Dover has a somewhat lower share of the region's very low-income renters with housing problems, since households residing in assisted units in 1980 paid less than 30 percent of income for rent. Within the market area in 1980, there were approximately 2,300 assisted housing units with subsidies committed to specific structures. Dover had 686 of these units, or 30 percent of the region's total. As of 1987, Dover's subsidized housing inventory had increased to 740, representing about 27 percent of the area's estimated 2,700 total units. Subsidized housing units in Dover account for 31 percent of the assisted family structures of the region and 25 percent of the elderly units. These figures do not include the additional Section 8 Existing and voucher subsidies made available to lower-income households. Dover's overall share of the region's assisted housing units sees its share of market area population (15 percent) and its share of low-income housing needs as measured in Table 2.

Housing Trends Within the City

Using the 1980 Census Tract definitions (see Map 2) for the city of Dover, Applied Economic Research, Inc. has examined and summarized 1970, 1980, and 1987 (estimated) data for housing and population growth within the city. A review of the data contained in Figures 12 through 18 suggest that:

> The southwestern portion of the city (Tract 811) continues to absorb the bulk of new housing growth and population as well as the bulk of proposed new housing units (this area is the most closely oriented to best access to the Spaulding Turnpike));
>
> Population growth remains strongly related to housing



MAP 2

CITY OF DOVER, N.H.

CENSUS TRACTS - 1980

type. Areas with significant single family/condominium growth or owner-occupied orientation will tend to absorb significantly greater shares of net population increase.

The orientation of new movers toward factors of "location" and housing availability and cost suggest that the principal reasons for Dover's surging housing growth has been its relative accessibility and its relative housing costs, rather than the attraction of particular services offered by the city.

Housing Need Within the City

The 1980 Census provides detailed information on housing condition and the relationship of housing cost to income. Table 3 illustrates the distribution of various factors measuring sub-standard conditions and the distribution of low-income renter households paying excessive amounts for housing. Eighty percent of the overall housing need illustrated in Table 3 may be found within the built-up areas of the central city. Generally, programs oriented toward dealing with housing needs are those which either provide benefits principally to low to moderate-income households, or which improve infrastructure in lower-income neighborhoods. A combination of 1980 statistical measures available from the Census and a windshield survey by AER, Inc. in July suggest that the current Community Development Block Grant target area for Dover represents only a portion of the area in which housing need is concentrated within the city. (See Map 3.)

Our impression of current conditions is that highly visible properties on the major thoroughfares have shown significant improvement in recent years. In addition, there has been in-fill development of new housing units in otherwise below-average quality neighborhoods by virtue of the increase in achievable rents within the market, and also by the improvements made in the city's CDBG Program.

The areas containing the city's lowest-quality housing, as measured by statistical indicators of need, suggest about the same pattern as they did in 1970. While properties in the more visible, well-traveled streets have shown significant improvement, the valuation of streets off the major thoroughfares finds continued evidence of housing and infrastructure

problems.

Conclusions

(1) Dover has absorbed a fairly consistent proportion of the market area's housing growth since 1970, though in the most recent years of 1985 to 1986 its share declined;

(2) Dover has been a significant source of low to moderate-income housing with the regional economy;

(3) The mix of housing types developed in Dover since 1980 evidences a shift away from a predominantly rental housing role for the city and into an increased single family/condominium role;

(4) Within the city, housing development and population growth from 1970 to 1980 and 1980 to 1987 has been highly concentrated in the southwestern portion of the city oriented toward the Spaulding Turnpike commuter access;

(5) Housing cost differentials and good accessibility to the region's job market have made Dover highly attractive to the middle-income housing market;

(6) The current CDBG target area in the city represents only a portion of the areas in which housing need is concentrated within Dover. While the more well-traveled streets present the image of high degree of market activity in housing rehabilitation, significant needs may be found on the less well-traveled streets of the city;

(7) While there has been significant household growth in the city's center and its built-up areas, a lower number of persons per household and concentration of rental housing means that population increases have not been as great;

(8) Population growth remains strongly related to housing type as areas with significant single family/condominium growth or owner-occupied orientation will receive significantly greater shares of net population increase than those areas oriented more toward rental or multi-family growth; and

(9) The orientation of new movers toward factors of "location" and housing availability and cost and high growth within this particular section of the city suggest the principal reasons for Dover's housing growth have been relative accessability and housing cost.

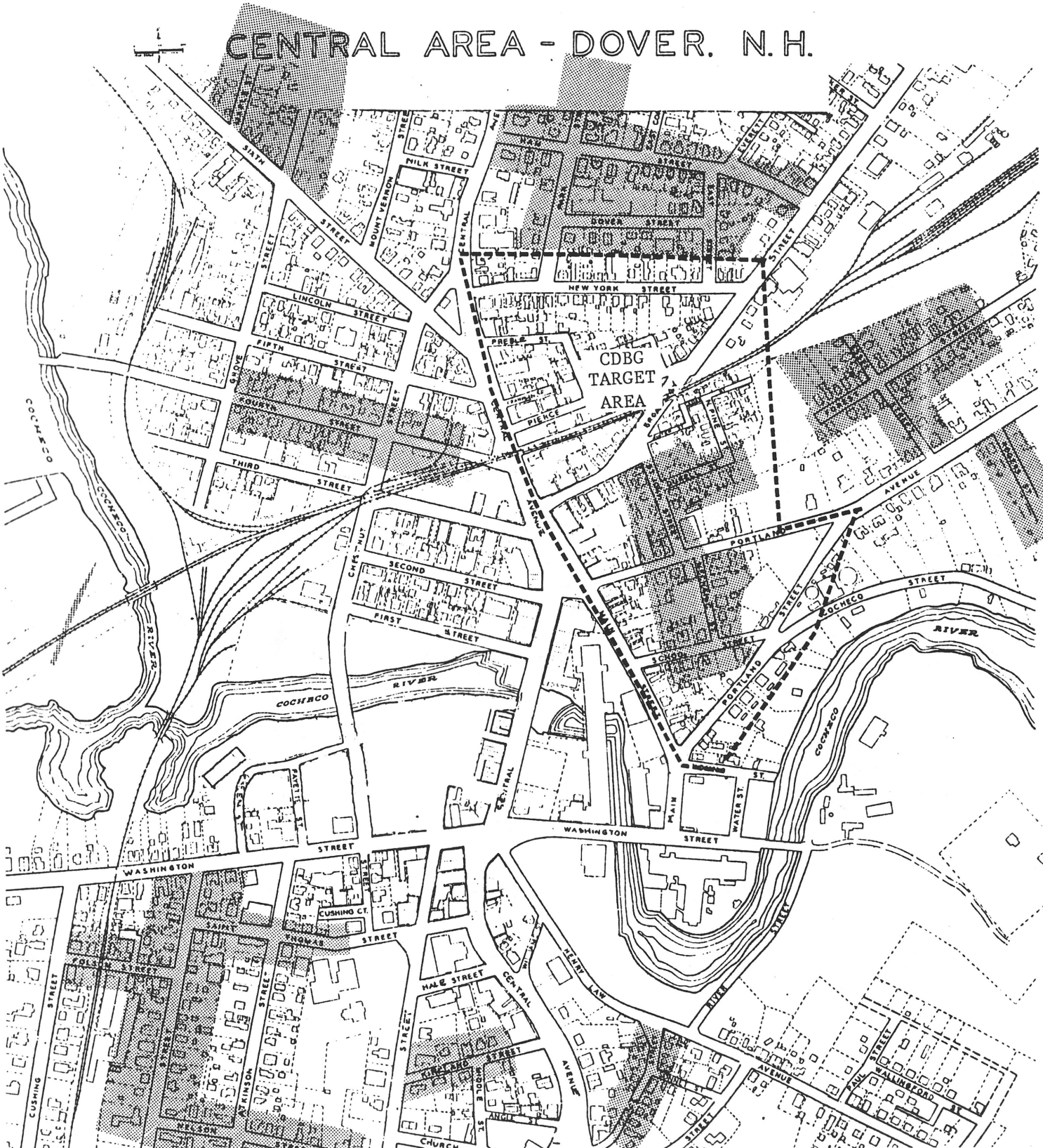
TABLE 3.

file: cityneed

CITY OF DOVER: NEIGHBORHOOD HOUSING NEED CRITERIA

		Housing Condition Criteria						Low Income, Overpayment			
Tract	Block Group	Substd Plumbing	Substd. Heating	No Complete Kitchen	Pre-1940 Renter Occupied	Total	Percent % of City	Renters <$10,000 Spend 35% +	Percent Of City	Share Of City Need Composite Percent	Rank
811	1	9	40	9	7	65	2.43	145	12.12	5.43	6
811	2	0	75	0	18	93	3.48	72	6.02	4.27	8
812	1	6	18	6	29	59	2.21	39	3.26	2.53	11
812	2	7	70	7	42	126	4.72	0	.00	3.26	10
813	1	57	19	41	427	544	20.37	140	11.71	17.69	2
813	2	25	40	25	309	399	14.94	161	13.46	14.49	4
814	1	32	25	32	269	358	13.41	117	9.78	12.29	5
815	1	31	11	20	297	359	13.45	206	17.22	14.61	3
815	2	37	4	37	374	452	16.93	236	19.73	17.80	1
816	1	7	49	7	13	76	2.85	53	4.43	3.34	9
816	2	7	44	7	81	139	5.21	27	2.26	4.29	7
City Total		218	395	191	1866	2670	100.00	1196	100.00	100.00	

Source: U.S. Census Block Grant Data, Summary Tape File 1A, 3A



MAP 3
CONCENTRATION OF HOUSING & NEIGHBORHOOD IMPROVEMENT NEEDS

Windshield Survey & 1980 Block Group Data. Shaded are streets on which 20% or more of residential structures are in poor condition & within Census defined statistical areas of high housing need (based on Table 3).

TABLE 4.

CITY OF DOVER

DISTRIBUTION OF ELDERLY (AGE 65+) PERSONS & HOUSEHOLDS

Comparative Characteristics of Block Groups

Tract	Population	% Of City	Households	% Of City	Age 65+ Population	% of Pop Elderly	% Of City Eld.	Elderly (Head Owner	Households Age 65+) Renter	Total	Elderly % Of Households
811	1095	4.89	436	5.20	77	7.03	2.87	39	7	46	10.55
811	2510	11.22	863	10.30	186	7.41	6.93	86	27	113	13.09
812	1486	6.64	498	5.94	148	9.96	5.52	89	8	97	19.48
812	1376	6.15	484	5.78	228	16.57	8.50	97	10	107	22.11
813	1925	8.60	836	9.98	319	16.57	11.89	53	192	245	29.31
813	2553	11.41	1068	12.75	333	13.04	12.41	117	117	234	21.91
814	1623	7.25	668	7.97	175	10.78	6.52	57	67	124	18.56
815	2118	9.47	846	10.10	268	12.65	9.99	99	60	159	18.79
815	3267	14.60	1255	14.98	479	14.66	17.85	157	82	239	19.04
816	1889	8.44	689	8.22	146	7.73	5.44	69	27	96	13.93
816	2535	11.33	735	8.77	324	12.78	12.08	77	14	91	12.38
Total	22377	100.00	8378	100.00	2683	11.99	100.00	940	611	1551	18.51

Source: 1980 Census, Summary Tape File 1A, 3A,
Block Group Data

FIGURE 21

DOVER SHARE OF ROCKINGHAM/STRAFFORD COUNTY SALES

	1972	1977	1982	Share of Growth 1972-77	Share of Growth 1977-82
SHOPPERS GOODS					
General Merchandise	21.8%	13.5%	6.8%		
Apparel	17.5%	9.3%	8.0%	.3%	6.6%
Furniture/Fixtures	22.8%	18.3%	13.6%	11.3%	6.4%
Misc. Shoppers Goods	11.5%	11.7%	7.8%	11.9%	.7%
Shoppers Goods	20.1%	13.2%	8.6%	2.3%	
CONVENIENCE GOODS					
Food Stores	8.5%	6.3%	8.3%	3.4%	12.6%
Drug Stores	13.8%	8.9%	9.9%	5.6%	11.1%
Eating and Drinking	14.9%	10.9%	11.3%	7.6%	12.0%
Convenience Goods	10.0%	7.5%	9.2%	4.7%	12.3%
OTHER RETAIL					
Building Materials	5.7%	8.6%	6.6%	12.7%	2.1%
Misc. Stores and Mail Order	14.7%	13.5%	9.1%	11.8%	2.3%
Automotive Dealers	12.3%	7.4%	9.2%	1.7%	12.6%
Gasoline Service Stations	11.5%	9.6%	12.2%	6.0%	15.0%
Other Retail	11.9%	9.6%	9.3%	6.5%	8.8%
Total	13.1%	9.6%	9.1%	5.0%	8.2%
Shoppers Goods	20.1%	13.2%	8.6%		

DOVER'S MARKET SHARE
STRAFFORD/ROCKINGHAM SHOPPERS GOODS SALES

ADDENDUM A

FIGURE 1

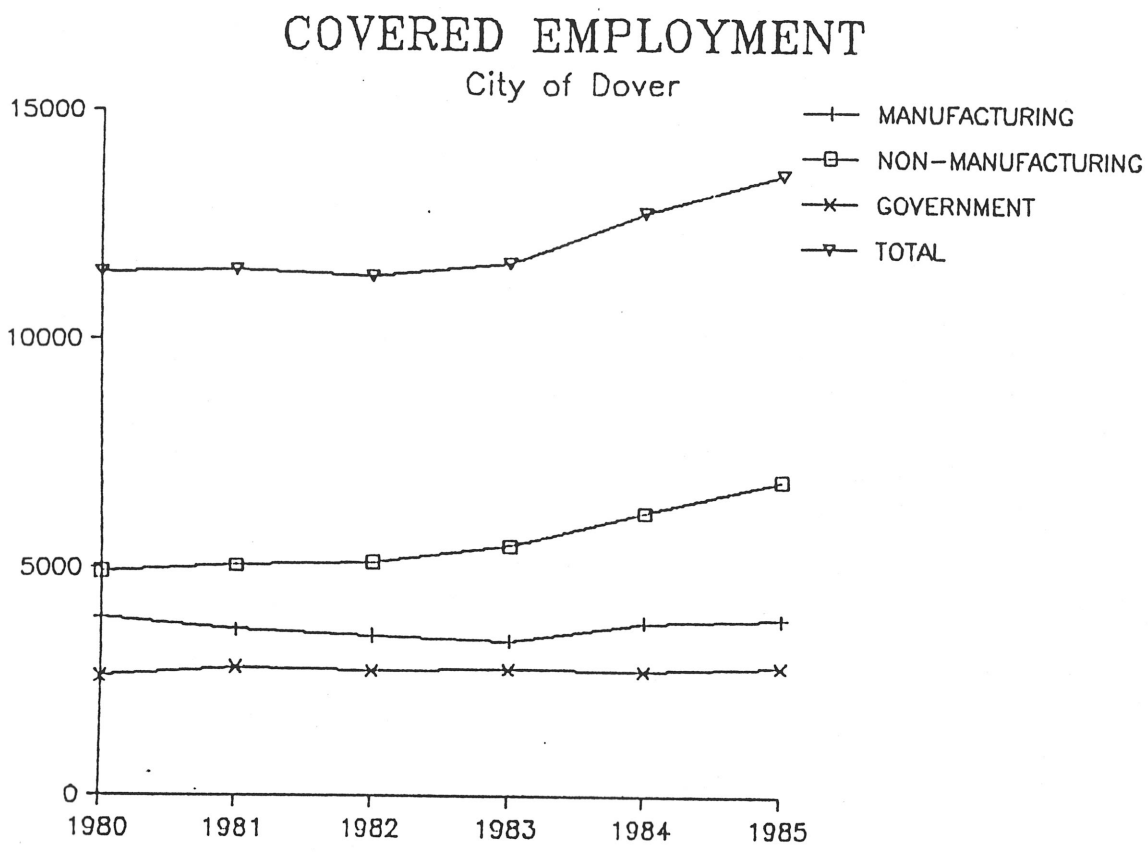
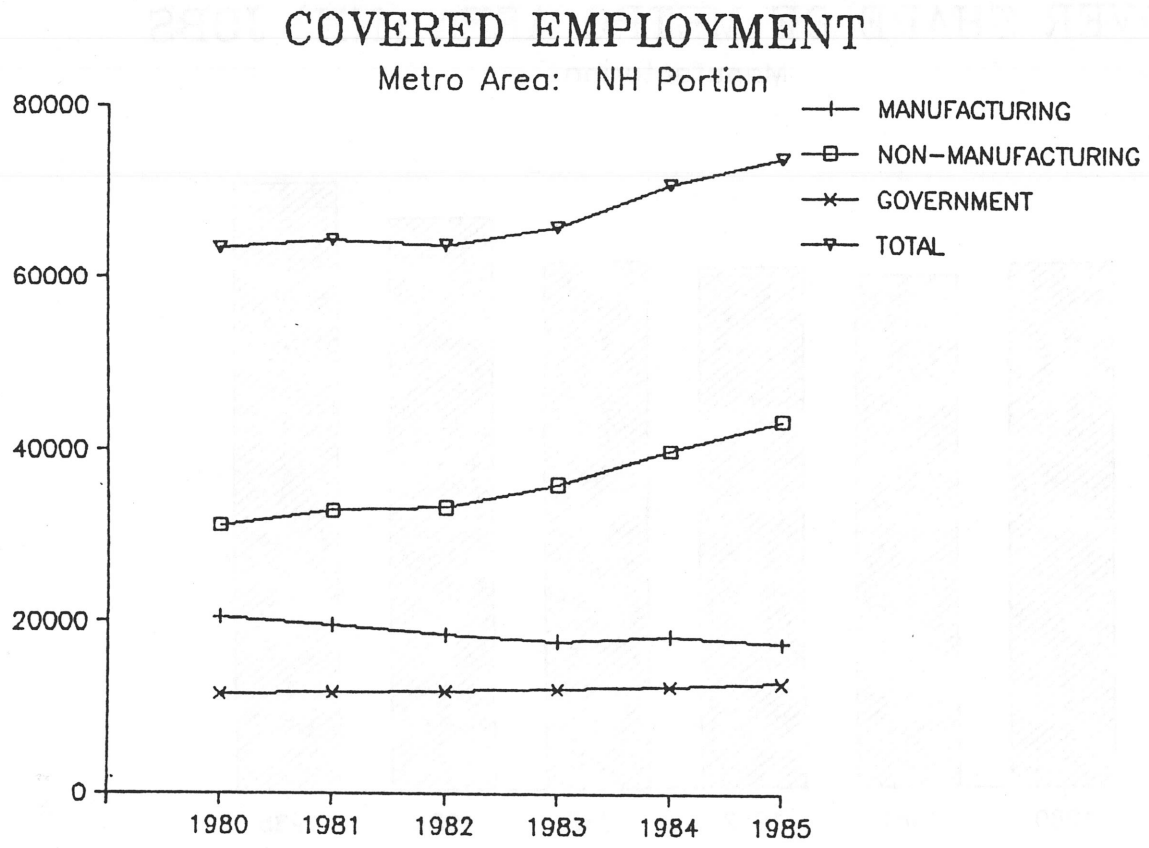


Table COMPARATIVE 1980-85 EMPLOYMENT GROWTH RATES,
DOVER, NH PORTION OF METRO AREA AND STATE OF NEW HAMPSHIRE

	DOVER	METRO	STATE
Manufacturing	-1.0%	-14.7%	5.0%
Non Manufac.	40.1%	39.0%	34.5%
Government	7.9%	12.0%	5.0%
Total	18.9%	16.7%	21.2%

FIGURE 2


COVERED EMPLOYMENT
Metro Area: NH Portion
MANUFACTURING
NON-MANUFACTURING
GOVERNMENT
TOTAL
80000
60000
40000
20000
0
1980
1981
1982
1983
1984
1985

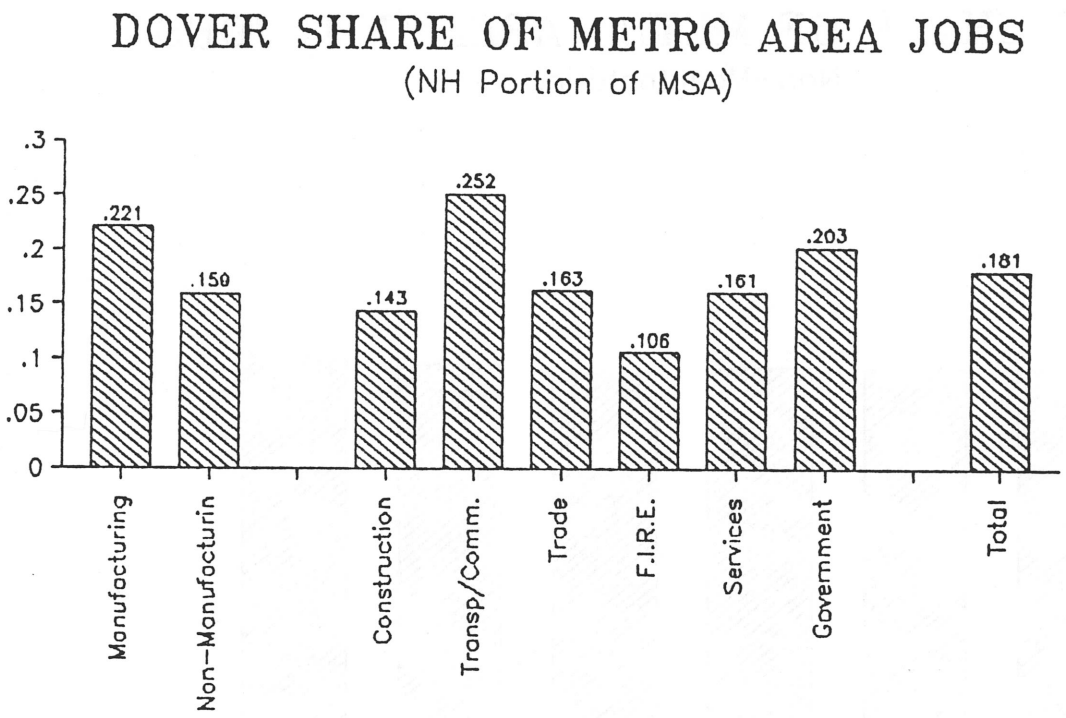
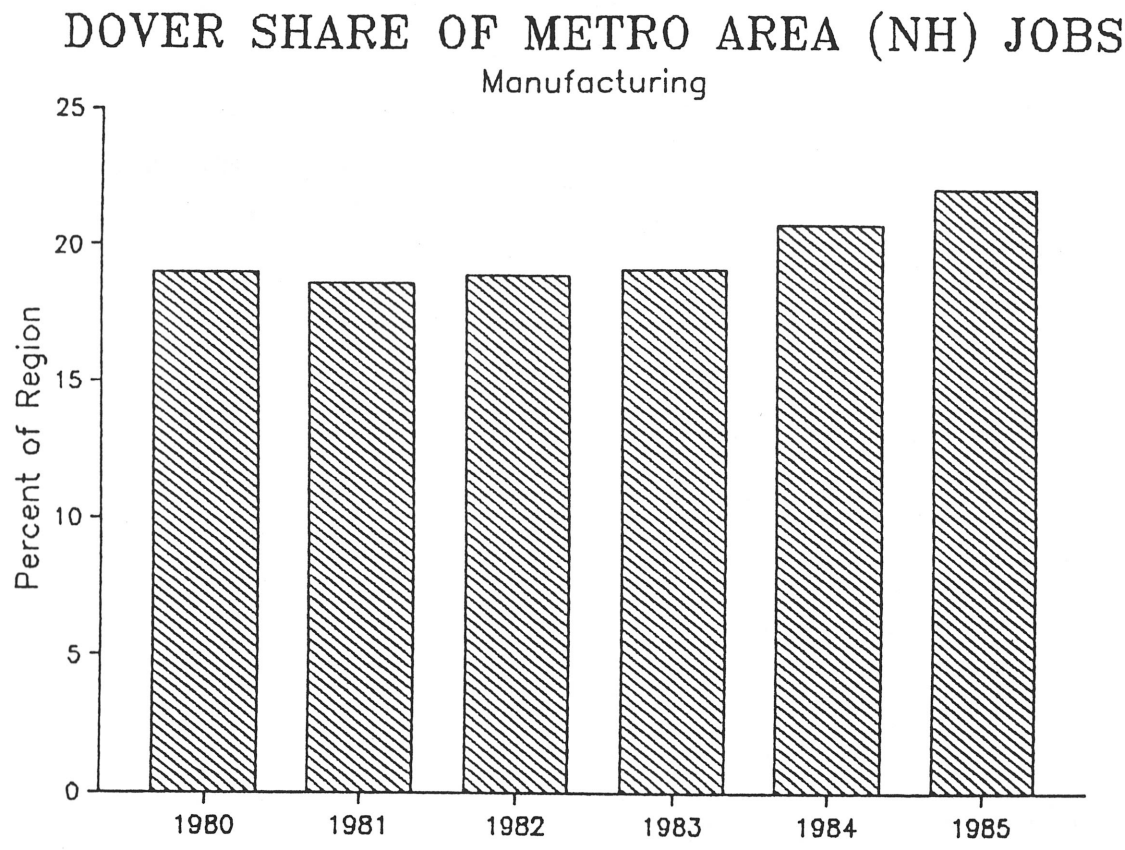

DOVER SHARE OF METRO AREA JOBS
(NH Portion of MSA)
.3
.25
.2
.15
.1
.05
0
.221
.150
.143
.252
.163
.106
.161
.203
.181
Manufacturing
Non-Manufacturin
Construction
Transp/Comm.
Trade
F.I.R.E.
Services
Government
Total

FIGURE 3


DOVER SHARE OF METRO AREA (NH) JOBS
Manufacturing
Percent of Region
25
20
15
10
5
0
1980
1981
1982
1983
1984
1985

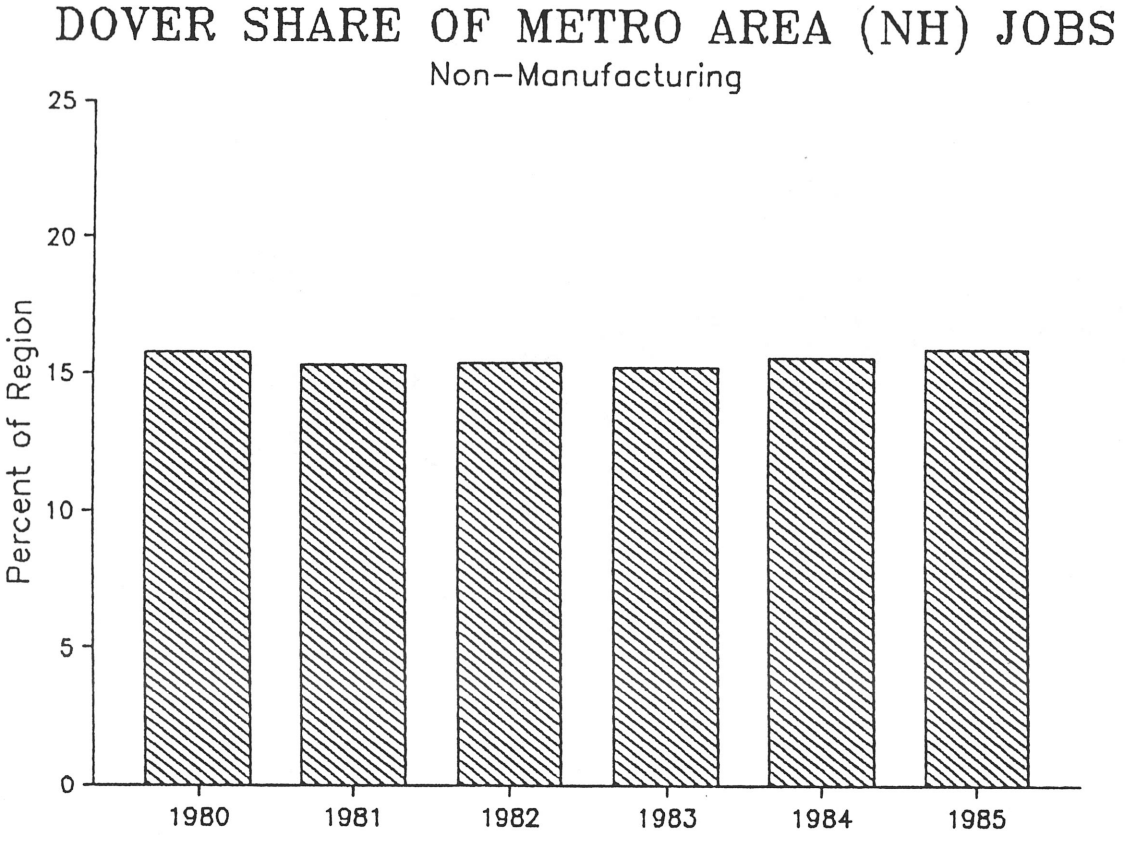
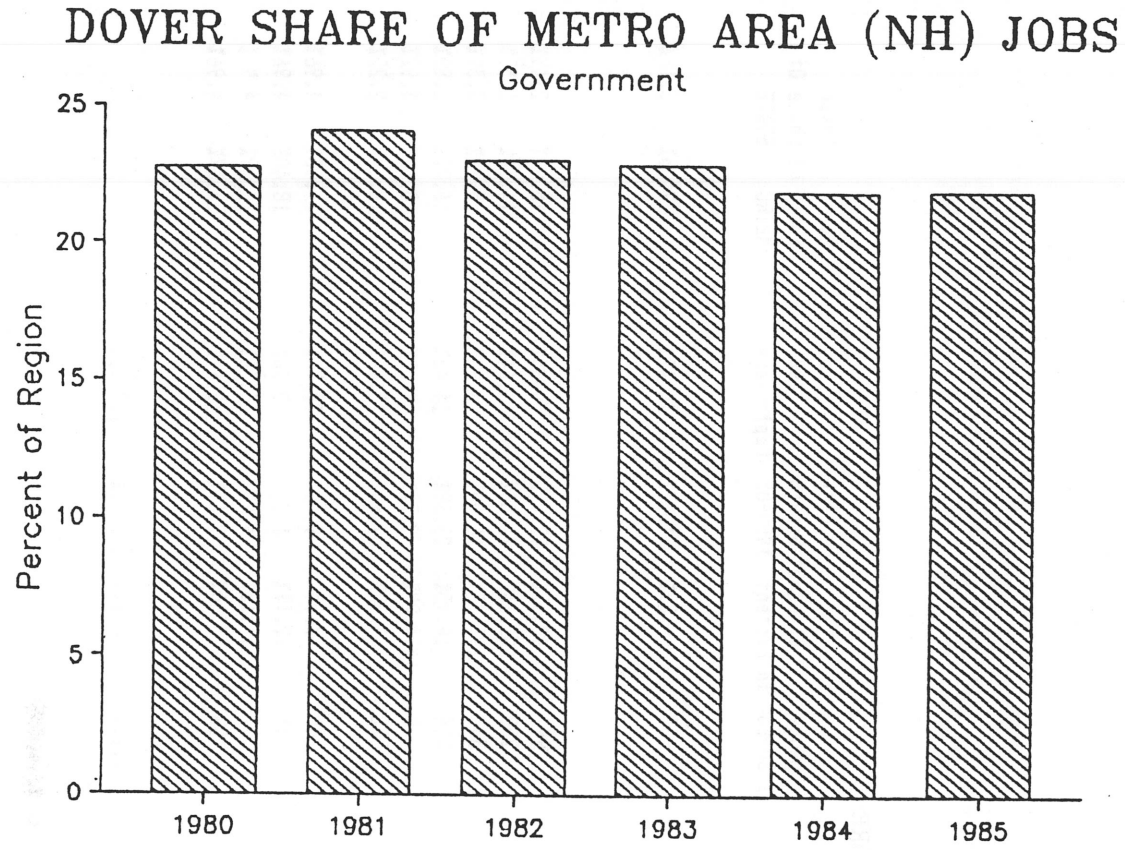

DOVER SHARE OF METRO AREA (NH) JOBS
Non-Manufacturing
Percent of Region
25
20
15
10
5
0
1980
1981
1982
1983
1984
1985

FIGURE 4


DOVER SHARE OF METRO AREA (NH) JOBS
Government
Percent of Region
25
20
15
10
5
0
1980
1981
1982
1983
1984
1985

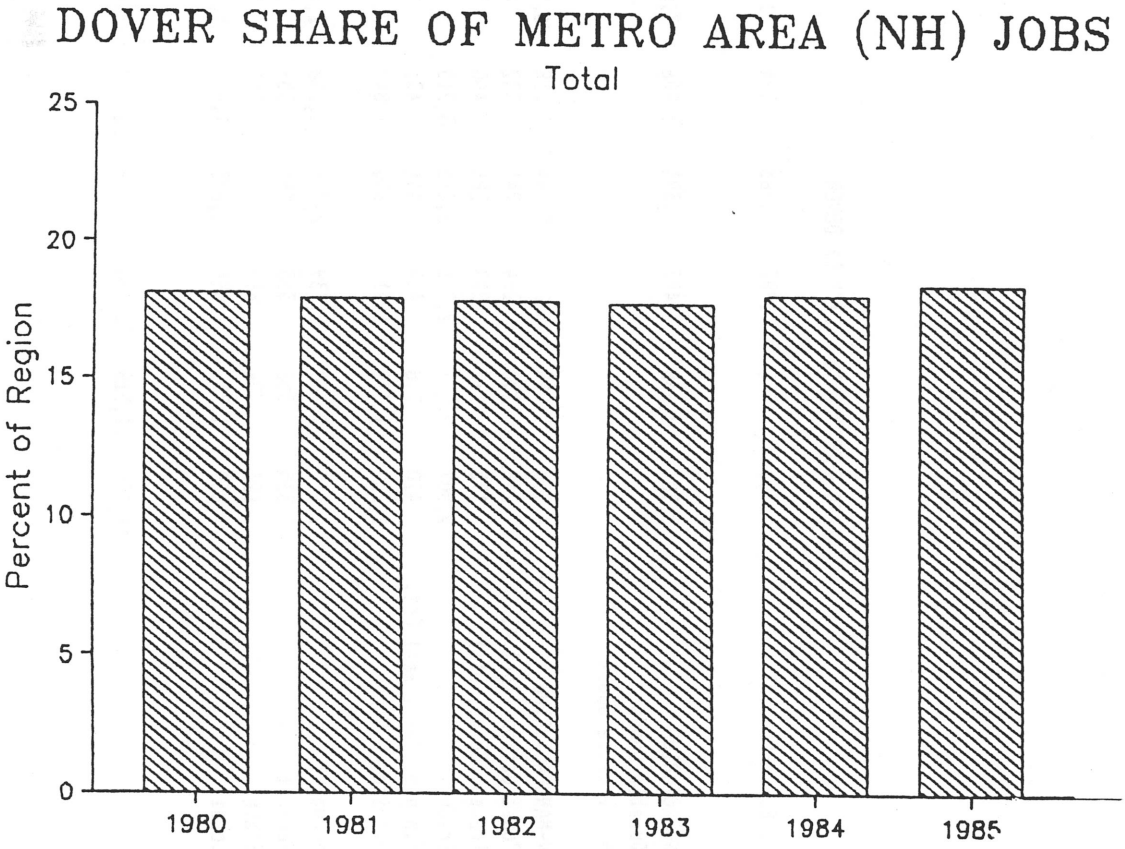

DOVER SHARE OF METRO AREA (NH) JOBS
Total
Percent of Region
25
20
15
10
5
0
1980
1981
1982
1983
1984
1985

FIGURE 5

COVERED EMPLOYMENT: CITY OF DOVER

COVERED EMPLOYMENT	1980	1981	1982	1983	1984	1985	Change 1980-85	Change In Percent	Percent Growth 1980-85	% of 1985 Employment	Dover Share of METRO	Dover Share Of STATE
MANUFACTURING	3,904	3,638	3,497	3,394	3,806	3,870	-34	-.87%	-1.57%	28.42%	22.05%	3.16%
Durable Goods												
Non-Durable Goods												
NON-MANUFACTURING	4,928	5,058	5,129	5,494	6,218	6,925	1,997	40.52%	92.09%	50.85%	15.92%	2.49%
Construction (Incl.Mining	246	190	204	241	332	496	250	101.63%	11.53%	3.64%	14.34%	1.59%
Transp.,Comm., Util.	175	172	263	286	400	522	347	198.29%	16.00%	3.83%	25.19%	3.32%
Trade	2,807	2,927	2,726	2,873	3,215	3,325	518	18.45%	23.89%	24.42%	16.27%	2.98%
Finance, Ins., Real Est.	420	398	419	444	431	480	60	14.29%	2.77%	3.52%	10.62%	1.92%
Services & Other	1,280	1,371	1,517	1,650	1,840	2,102	822	64.22%	37.90%	15.44%	16.14%	2.22%
GOVERNMENT	2,618	2,820	2,739	2,771	2,748	2,823	206	7.85%	9.48%	20.73%	21.93%	4.96%
Federal	335	357	363	365	359	376	41	12.17%	1.88%	2.76%	18.40%	4.96%
State	623	726	690	713	719	730	107	17.13%	4.92%	5.36%	16.19%	4.96%
Local	1,659	1,736	1,685	1,693	1,670	1,717	58	3.50%	2.67%	12.61%	27.17%	4.96%
	11,450	11,516	11,365	11,659	12,772	13,618	2,169	18.94%	100.00%	100.00%		

FIGURE 6

COVERED EMPLOYMENT PORTSMOUTH-DOVER MSA (NH PORTION)

COVERED EMPLOYMENT	1980	1981	1982	1983	1984	1985	Change 1980-85	Change In Percent	Percent Growth 1980-85	% of 1985 Employment
MANUFACTURING	20,567	19,621	18,529	17,765	18,354	17,549	-3,018	-14.67%	-28.56%	23.74%
Durable Goods						10,155				13.74%
Non-Durable Goods						7,394				10.00%
NON-MANUFACTURING	31,297	33,019	33,386	36,035	40,005	43,509	12,212	39.02%	115.56%	58.85%
Construction (Incl.Mining						3,459				4.68%
Transp.,Comm., Util.						2,072				2.80%
Trade						20,436				27.64%
Finance, Ins., Real Est.						4,520				6.11%
Services & Other						13,020				17.61%
GOVERNMENT	11,500	11,720	11,900	12,124	12,553	12,874	1,374	11.95%	13.00%	17.41%
Federal	1,650	1,670	1,700	1,748	1,967	2,045	395	23.94%	3.74%	2.77%
State	3,900	3,950	4,050	4,192	4,376	4,509	609	15.62%	5.76%	6.10%
Local	5,950	6,100	6,150	6,184	6,210	6,320	370	6.22%	3.50%	8.55%
TOTAL	63,364	64,360	63,815	65,924	70,912	73,932	10,568	16.68%	100.00%	100.00%

Metro Area: NH Portion

	1983	1984	1985
govt/total	.1839087	.1770222	.1741330

FIGURE 7

COVERED EMPLOYMENT: STATE OF NEW HAMPSHIRE

COVERED EMPLOYMENT	1980	1981	1982	1983	1984	1985	Change 1980-85	Percent Change In Percent	Of Growth 1980-85	% of 1985 Employment
MANUFACTURING	116,595	116,491	111,661	113,398	123,315	122,462	5,867	5.03%	7.34%	26.76%
Durable Goods	74,155	74,831	72,398	73,118	82,675	84,152	9,997	13.48%	12.51%	18.40%
Non-Durable Goods	42,440	41,660	39,263	40,280	40,640	38,310	-4,130	-9.73%	-5.17%	8.38%
NON-MANUFACTURING	206,632	216,927	222,178	235,315	255,069	277,876	71,244	34.48%	89.12%	60.77%
Construction (Incl.Mining	19,827	20,759	23,189	25,257	25,701	31,231	11,404	57.52%	14.26%	6.83%
Transp.,Comm., Util.	13,569	13,911	14,226	14,559	15,126	15,732	2,163	15.94%	2.71%	3.44%
Trade	85,431	88,943	88,460	94,908	104,616	111,709	26,278	30.76%	32.90%	24.43%
Finance, Ins., Real Est.	19,280	20,110	20,466	21,105	22,883	24,947	5,667	29.39%	7.09%	5.46%
Services & Other	68,525	73,204	75,837	80,296	86,743	94,617	26,092	38.08%	32.66%	20.69%
GOVERNMENT	54,134	54,710	54,395	54,889	55,832	56,907	2,773	5.12%	3.47%	12.45%
Federal	6,936	6,933	7,212	7,233	7,293	7,583	647	9.33%	.81%	1.66%
State	12,890	14,095	13,714	14,118	14,606	14,716	1,826	14.17%	2.29%	3.22%
Local	34,308	33,682	33,469	33,538	33,933	34,608	300	.87%	.38%	7.57%
Total	377,361	388,128	388,234	403,602	434,216	457,245	79,884	21.17%	100.00%	100.00%

fed/state	.5380915	.4919766	.5258660	.5123247	.4993153	.5152895
state/local	.3757141	.4184728	.4097523	.4209553	.4304364	.4252196

FIGURE 8

DOVER'S SHARE OF METROPOLITAN COVERED EMPLOYMENT, 1985

	DOVER	METRO	Dover Sha
Manufacturing	3,870	17,549	22.05%
Non-Manufacturing	6,925	43,509	15.92%
Construction	496	3,459	14.34%
Transp/Comm.	522	2,072	25.19%
Trade	3,325	20,438	16.27%
F.I.R.E.	480	4,520	10.62%
Services	2,102	13,020	16.14%
Government	2,618	12,874	20.34%
Total	13,413	73,932	18.14%

DOVER SHARE OF METRO AREA JOBS
(NH Portion of MSA)

FIGURE 9

DOVER'S SHARE OF METROPOLITAN EMPLOYMENT, 1980-1985

DOVER SHARE OF NH METRO JOBS	1980	1981	1982	1983	1984	1985
MANUFACTURING	19	19	19	19	21	22
NON-MANUFACTURING	16	15	15	15	16	16
GOVERNMENT	23	24	23	23	22	22
TOTAL	18	18	18	18	18	18

0 DOVER SHARE OF METRO AREA (NH) JOBS
25 Total
Percent of Region

FIGURE 10

POPULATION TRENDS, DOVER AND PORTSMOUTH-DOVER-ROCHESTER AREA (NH PORTION)

8/7/1987

					CHANGE			PERCENT CHANGE		
	1960	1970	1980	1987	1960-70	1970-80	1980-87	1960-70	1970-80	1980-87
DOVER	19,130	20,850	22,400	26,100	1,720	1,550	3,700	9.0%	7.4%	16.5%
METRO AREA	110,900	127,700	148,500	169,900	16,800	21,200	21,000	15.1%	16.6%	14.1%
DOVER'S SHARE OF METRO	17.2%	16.3%	15.0%	15.4%	10.2%	7.3%	17.6%			

Source: US Bureau of the Census and State of NH (1985 estimate)

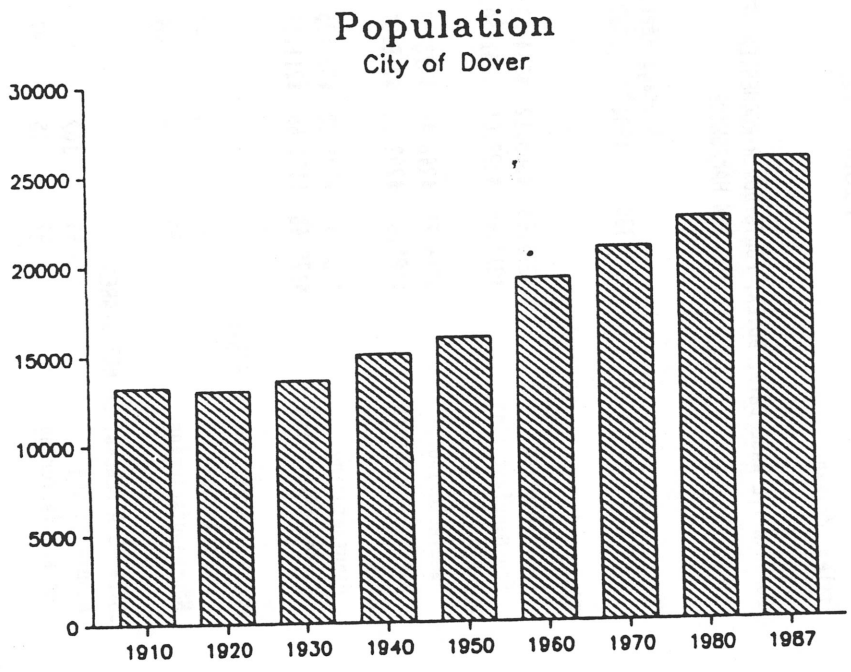


FIGURE 11

file: doveap

COMPARATIVE WAGE DATA, DOVER, PORTS-DOVER-ROCHESTER METRO AREA (NH PORTION) AND NEW HAMPSHIRE

	Average Weekly Wages						Change 1980-85	Change 1980-85
	1980	1981	1982	1983	1984	1985	Dollars	Percent
STATE								
Manufacturing	$277.86	$305.12	$334.32	$358.37	$380.65	$411.85	$133.99	48.2%
Non-Manufacturing	$211.49	$229.06	$251.50	$266.45	$272.58	$290.84	$79.35	37.5%
PDR-MSA								
Manufacturing	$266.76	$298.46	$323.57	$354.91	$379.61	$416.03	$149.27	56.0%
Non-Manufacturing	$185.63	$202.24	$218.81	$232.05	$241.70	$260.47	$74.84	40.3%
DOVER								
Manufacturing	$263.31	$304.22	$323.25	$368.66	$391.09	$402.88	$139.57	53.0%
Non-Manufacturing	$179.48	$192.66	$211.37	$218.80	$229.95	$240.16	$60.68	33.8%
DOVER AS A PERCENT OF STATE								
Manufacturing	95	100	97	103	103	98		
Non-manufacturing	85	84	84	82	84	83		
DOVER AS A PERCENT OF METRO AREA								
Manufacturing	99	102	100	104	103	97		
Non-manufacturing	97	95	97	94	95	92		

FIGURE 12

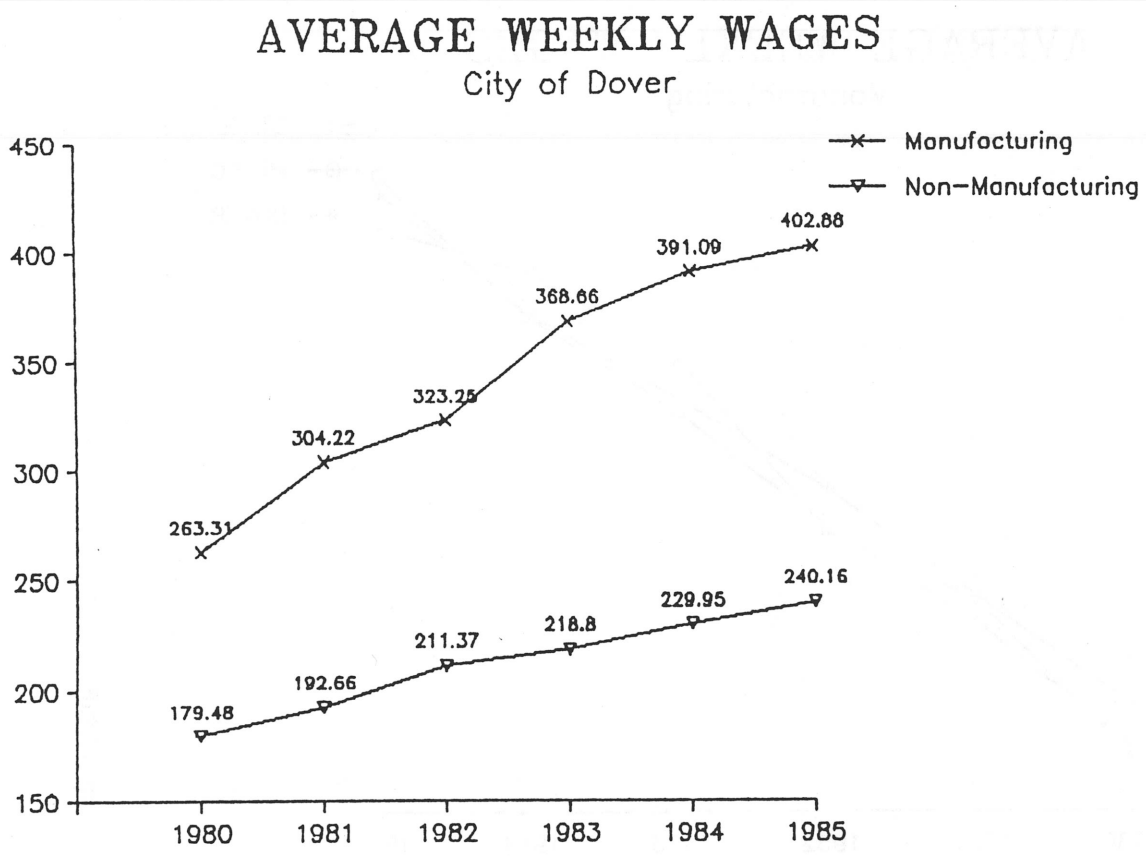
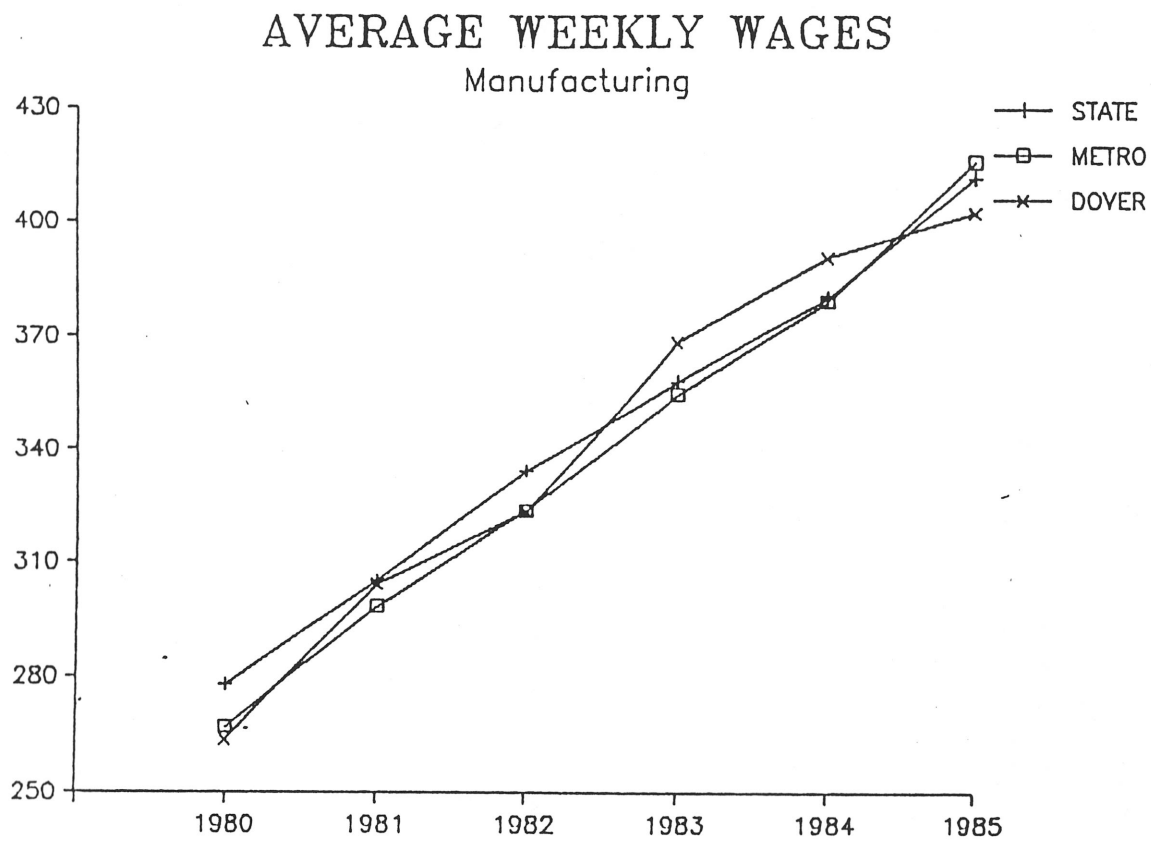

AVERAGE WEEKLY WAGES
City of Dover
Manufacturing
Non-Manufacturing
450
400
350
300
250
200
150
263.31
304.22
323.25
368.66
391.09
402.88
179.48
192.66
211.37
218.8
229.95
240.16
1980
1981
1982
1983
1984
1985

FIGURE 13


AVERAGE WEEKLY WAGES
Manufacturing
STATE
METRO
DOVER
430
400
370
340
310
280
250
1980
1981
1982
1983
1984
1985

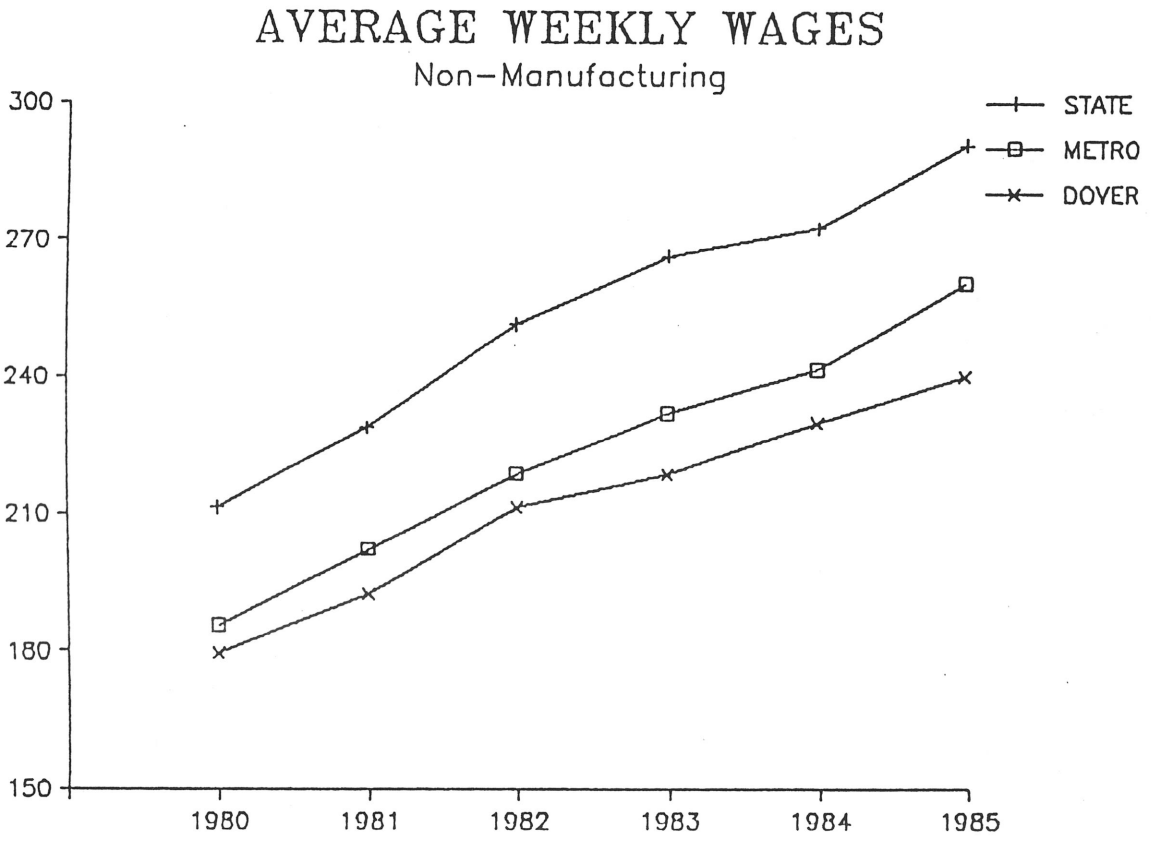
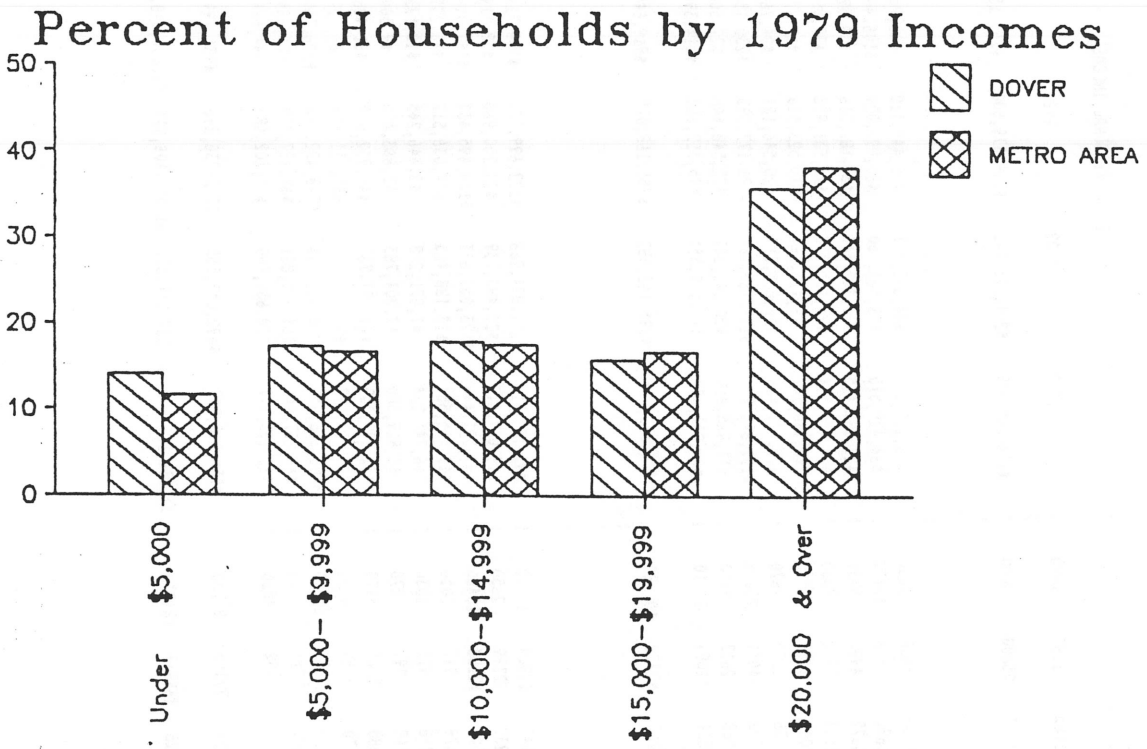

AVERAGE WEEKLY WAGES
Non-Manufacturing
STATE
METRO
DOVER
300
270
240
210
180
150
1980
1981
1982
1983
1984
1985

FIGURE 14


Percent of Households by 1979 Incomes
50
40
30
20
10
0
DOVER
METRO AREA
Under $5,000
$5,000- $9,999
$10,000-$14,999
$15,000-$19,999
$20,000 & Over

file: dovretl

FIGURE 15

TRENDS AND PROJECTIONS IN PER CAPITA AND TOTAL PERSONAL INCOME, DOVER REGION, 1979-1987 (CURRENT DOLLARS)

	PER CAPITA INCOME						POPULATION						GROSS PERSONAL INCOME				
	1979	1980	1982	1983	1985	1987	1980	1982	1983	1985	1987	1990	1980	1982	1983	1985	1987
DOVER	6626	7445	8815	9500	11275	12741	22377	22833	23061	23517	25600	28000	$166,603,079	$201,275,043	$219,079,500	$265,152,588	$326,161,248
BALANCE OF MARKET PRIMARY (STRAFFORD COUNTY TOWNS)																	
S BARRINGTON	6699	7527	8992	9725	11542	13042	4404	4926	5188	5710	5838	6030	$33,150,266	$44,300,337	$50,449,410	$65,904,651	$76,141,686
S DURHAM	5383	6049	7050	7551	8962	10127	10652	11143	11389	11680	11976	12120	$64,429,575	$78,561,750	$85,996,829	$106,466,078	$121,278,843
S FARMINGTON	5321	5979	6745	7128	8460	9560	4630	4647	4655	4672	4995	5480	$27,682,415	$31,342,547	$33,182,266	$39,523,998	$47,751,758
S LEE	7579	8516	10157	10977	13028	14722	2111	2280	2364	2533	2732	3030	$17,977,524	$23,155,258	$25,951,823	$32,999,640	$40,216,230
S MADBURY	7340	8248	9615	10299	12223	13812	987	1010	1022	1045	1159	1330	$8,140,347	$9,713,264	$10,523,518	$12,773,258	$16,008,376
S MILTON	5648	6346	7601	8229	9766	11036	2438	2477	2497	2536	2670	2870	$15,472,416	$18,830,317	$20,546,167	$24,767,756	$29,461,988
S ROCHESTER	6301	7080	8144	8676	10297	11636	21560	21877	22035	22352	24051	26600	$152,646,892	$178,165,367	$191,177,395	$230,158,107	$279,849,852
S ROLLINSFORD	6511	7316	8649	9316	11057	12494	2319	2387	2420	2488	2617	2810	$16,965,950	$20,642,549	$22,548,446	$27,508,709	$32,694,056
S SOMERSWORTH	6556	7367	8556	9150	10860	12271	10350	10424	10460	10534	11084	11910	$76,244,589	$89,179,551	$95,712,660	$114,394,397	$136,019,781
TOTAL PRIMARY (INCL.DOVER	---	7080	8275	8875	10538	11924	81828	84004	85091	87267	92722	100180	$579,313,054	$695,165,982	$755,168,015	$919,649,182	$1,105,583,818
SECONDARY (ROCKINGHAM COUNTY TOWNS)																	
R EXETER	7393	8268	9787	10547	12518	14145	11024	11430	11634	12040	12860	14090	$91,149,710	$111,874,268	$122,699,579	$150,711,287	$181,902,515
R GREENLAND	7588	8486	9904	10613	12596	14233	2129	2170	2191	2232	2399	2650	$18,067,512	$21,493,939	$23,250,960	$28,114,004	$34,148,640
R HAMPTON	8299	9282	11291	12296	14593	16490	10493	10898	11101	11506	12288	13460	$97,391,446	$123,053,623	$136,495,437	$167,910,776	$202,628,117
R NEW CASTLE	10905	12196	14442	15565	18473	20875	936	913	902	879	947	1050	$11,415,551	$13,188,465	$14,036,517	$16,237,843	$19,776,585
R NEWFIELDS	7381	8255	9490	10108	11997	13556	817	829	836	848	921	1030	$6,744,234	$7,871,248	$8,446,245	$10,173,056	$12,482,436
R NEWINGTON	7392	8267	9880	10687	12684	14333	716	729	736	749	797	870	$5,919,300	$7,204,783	$7,863,495	$9,500,096	$11,428,805
R NEWMARKET	6700	7493	8670	9259	10989	12417	4290	4809	5069	5588	5701	5870	$32,146,039	$41,697,767	$46,932,019	$61,406,003	$70,789,473
R NORTH HAMPTON	9433	10550	12888	14057	16683	18852	3425	3523	3572	3670	3850	4120	$36,133,147	$45,404,217	$50,211,604	$61,227,856	$72,580,869
R PORTSMOUTH	6416	7176	8641	9374	11125	12572	26254	26422	26507	26675	28729	31810	$188,388,858	$228,321,463	$248,472,868	$296,769,813	$361,172,144
R RYE	9175	10261	13187	14650	17387	19647	4508	4648	4719	4859	5211	5740	$46,257,841	$61,298,881	$69,127,490	$84,484,078	$102,390,773
R STRATHAM	8272	9251	11143	12089	14348	16213	2507	2749	2871	3113	3492	4060	$23,193,177	$30,636,900	$34,702,683	$44,664,229	$56,612,004
TOTAL SECONDARY	---	8298	10012	10868	12905	14585	67099	69123	70135	72159	77195	84750	$556,806,817	$692,045,555	$762,238,898	$931,199,041	$1,125,912,360
TOTAL MARKET AREA	---	7629	9059	9775	11609	13133	148927	153127	155226	159426	169917	184930	$1,136,119,870	$1,387,211,537	$1,517,406,913	$1,850,848,223	$2,231,496,178

FIGURE 16

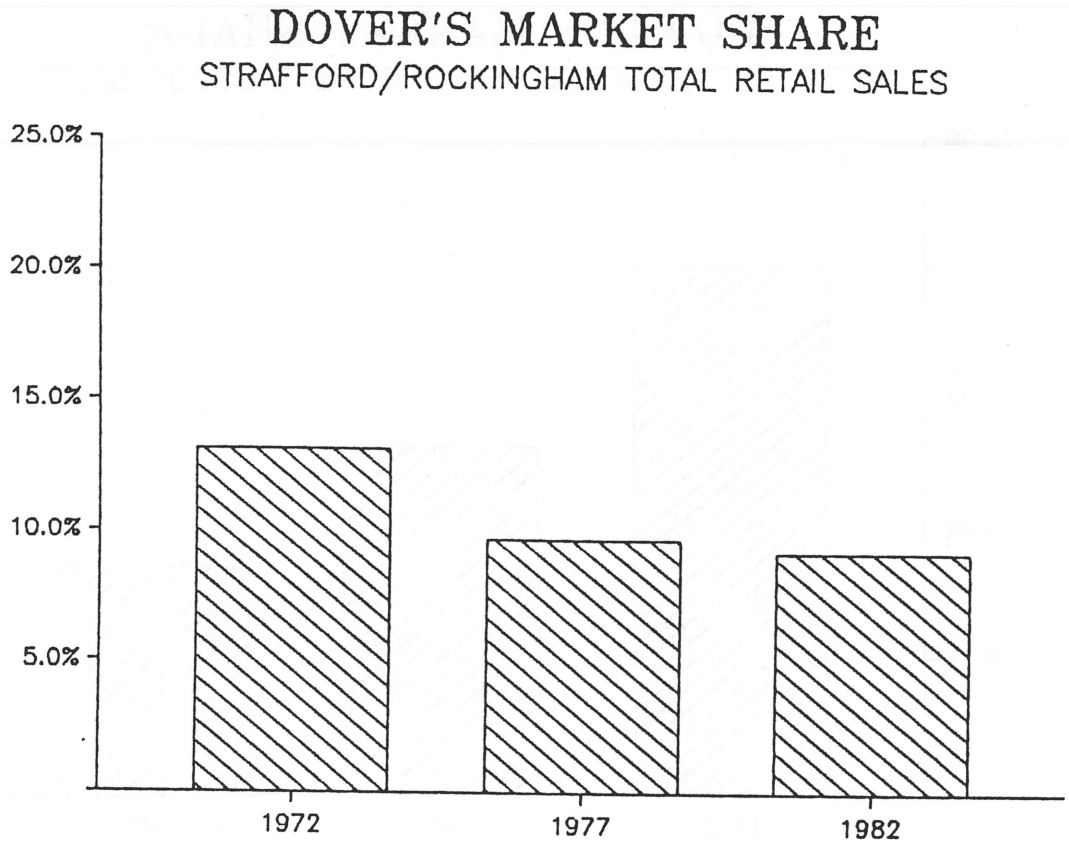

DOVER'S MARKET SHARE
STRAFFORD/ROCKINGHAM TOTAL RETAIL SALES
25.0%
20.0%
15.0%
10.0%
5.0%
1972
1977
1982

FIGURE 17

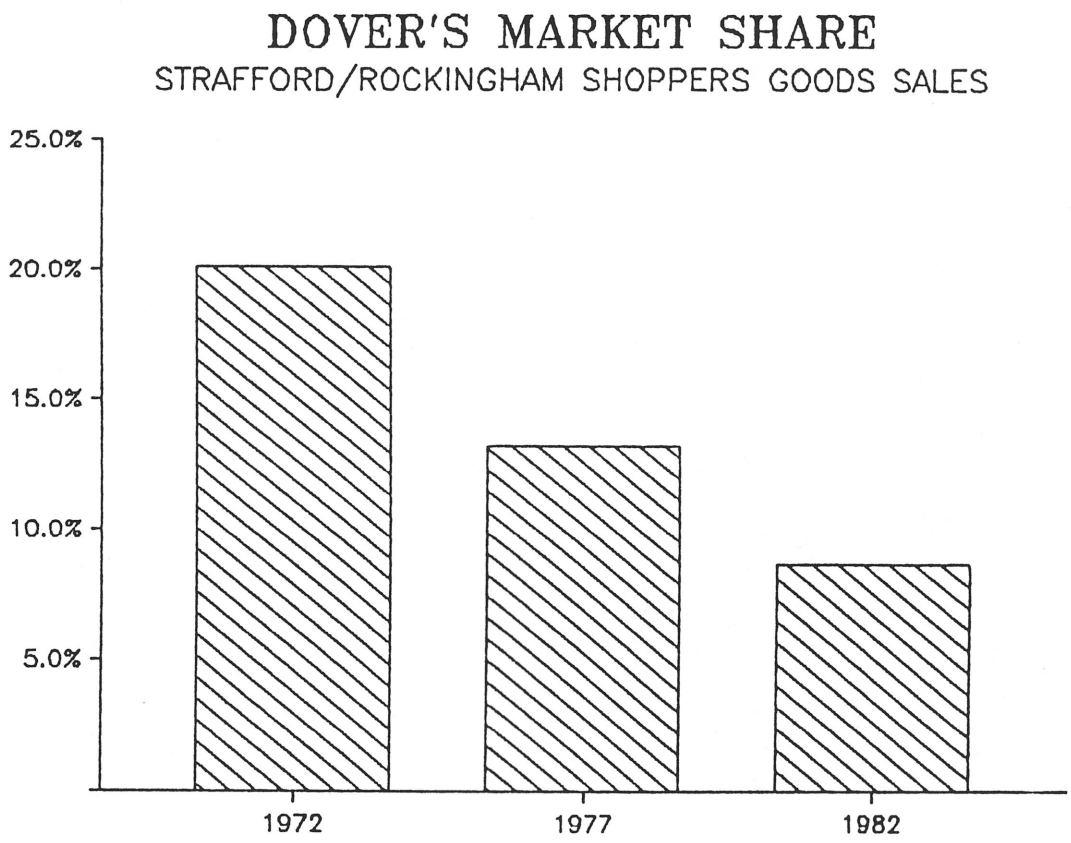
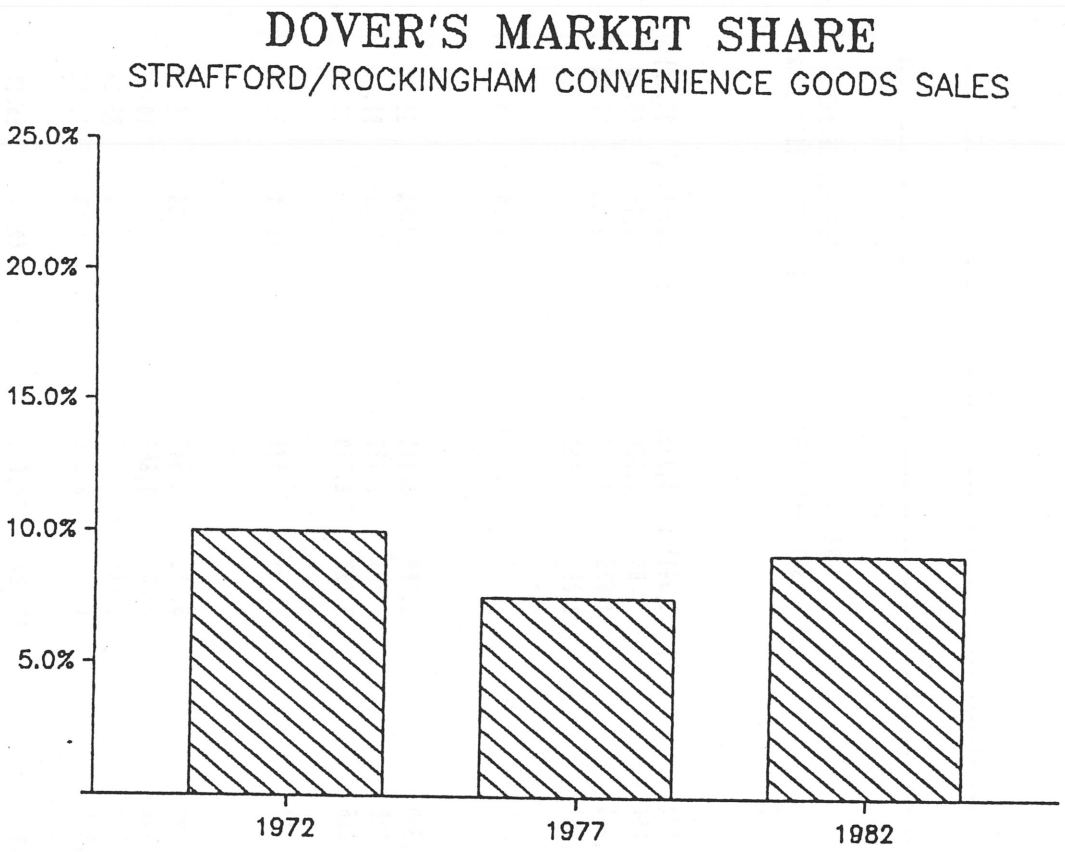

DOVER'S MARKET SHARE
STRAFFORD/ROCKINGHAM SHOPPERS GOODS SALES
25.0%
20.0%
15.0%
10.0%
5.0%
1972
1977
1982

FIGURE 18


DOVER'S MARKET SHARE
STRAFFORD/ROCKINGHAM CONVENIENCE GOODS SALES
25.0%
20.0%
15.0%
10.0%
5.0%
1972
1977
1982

RETAIL SALES TRENDS,DOVER,1977-82

8/ 7/1987

FIGURE 19

Disk: BussAT SC4\SCDATA
File:DOVRET1

CURRENT DOLLARS IN THOUSANDS

	DOVER CITY			CHANGE		PERCENT CHANGE	
	1972	1977	1982	1972-1977	1977-1982	1972-1977	1977-1982
SHOPPERS GOODS							
General Merchandise	15,576	13,635	8,500	(1,941)	(5,135)	(12.5%)	(37.7%)
Apparel	3,835	3,900	6,254	65	2,354	1.7%	60.4%
Furniture/Fixtures	5,209	6,845	8,406	1,636	1,561	31.4%	22.8%
Misc. Shoppers Goods	1,648	3,734	3,857	2,086	123	126.6%	3.3%
Shoppers Goods	26,268	28,114	27,017	1,846	(1,097)	7.0%	(3.9%)
CONVENIENCE GOODS							
Food Stores	12,713	15,501	31,650	3,788	15,149	29.8%	91.8%
Drug Stores	1,376	2,181	4,308	805	2,127	58.5%	97.5%
Eating and Drinking	5,403	8,836	15,096	3,433	6,260	63.5%	70.8%
Convenience Goods	19,492	27,518	51,054	8,026	23,536	41.2%	85.5%
OTHER RETAIL							
Building Materials	2,283	5,851	6,500	3,568	649	156.3%	11.1%
Misc. Stores and Mail Order	11,070	17,271	19,122	6,201	1,851	56.0%	10.7%
Automotive Dealers	12,913	14,441	27,188	1,528	12,747	11.8%	88.3%
Gasoline Service Stations	4,731	6,057	14,861	1,326	8,804	28.0%	145.4%
Other Retail	30,997	43,620	67,671	12,623	24,051	40.7%	55.1%
Total	76,757	99,252	145,742	22,495	46,490	29.3%	46.8%

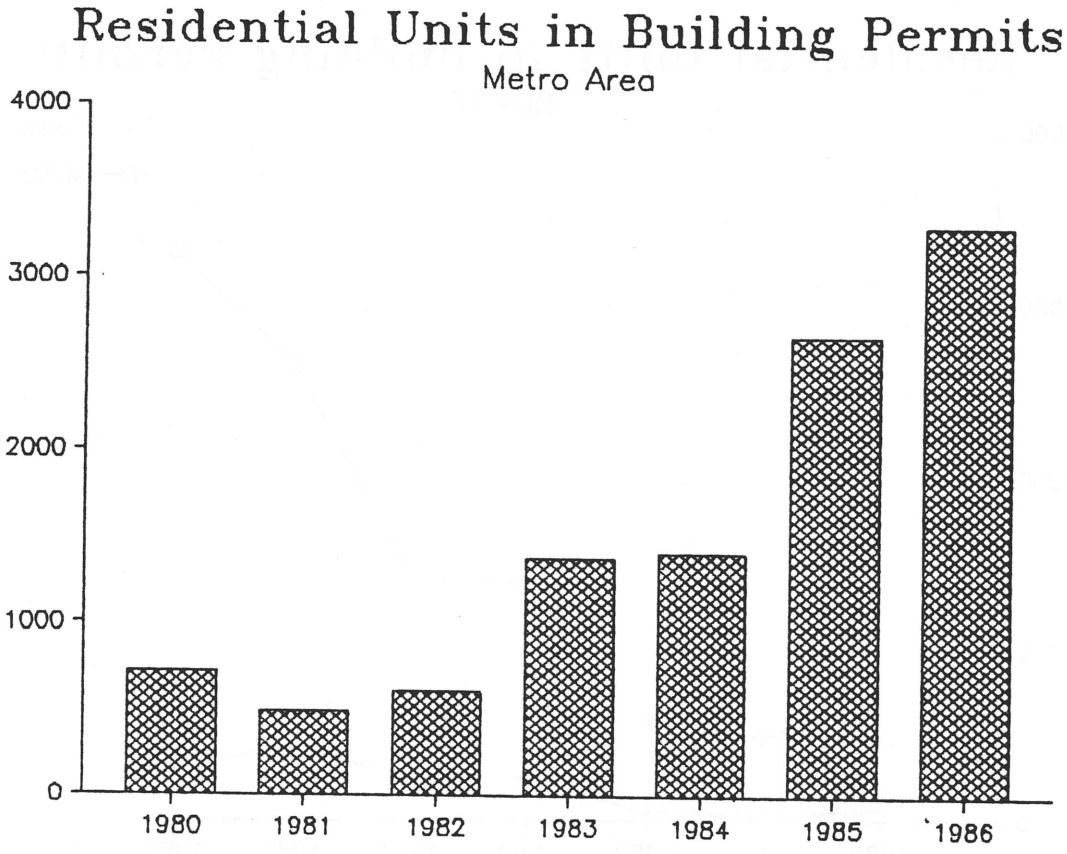
FIGURE 20

RETAIL SALES TRENDS--STRAFFORD/ROCKINGHAM COUNTIES

	1972	1977	1982	CHANGE 1972-1977	CHANGE 1977-1982	PERCENT CHANGE 1972-1977	PERCENT CHANGE 1977-1982
SHOPPERS GOODS							
General Merchandise	71,487	100,865	124,144	29,378	23,279	41.1%	23.1%
Apparel	21,893	42,080	77,884	20,187	35,804	92.2%	85.1%
Furniture/Fixtures	22,880	37,406	61,768	14,526	24,362	63.5%	65.1%
Misc. Shoppers Goods	14,378	31,911	49,257	17,533	17,346	121.9%	54.4%
Shoppers Goods	130,638	212,262	313,053	81,624	100,791	62.5%	47.5%
CONVENIENCE GOODS							
Food Stores	149,154	260,985	381,173	111,831	120,188	75.0%	46.1%
Drug Stores	9,943	24,380	43,484	14,437	19,104	145.2%	78.4%
Eating and Drinking	36,185	81,080	133,169	44,895	52,089	124.1%	64.2%
Convenience Goods	195,282	366,445	557,826	171,163	191,381	87.6%	52.2%
OTHER RETAIL							
Building Materials	39,760	67,878	99,042	28,118	31,164	70.7%	45.9%
Misc. Stores and Mail Order	75,526	127,998	210,183	52,472	82,185	69.5%	64.2%
Automotive Dealers	104,729	194,755	295,677	90,026	100,922	86.0%	51.8%
Gasoline Service Stations	41,052	63,240	121,950	22,188	58,710	54.0%	92.8%
Other Retail	261,067	453,871	726,852	192,804	272,981	73.9%	60.1%
Total	586,987	1,032,578	1,597,731	445,591	565,153	75.9%	54.7%

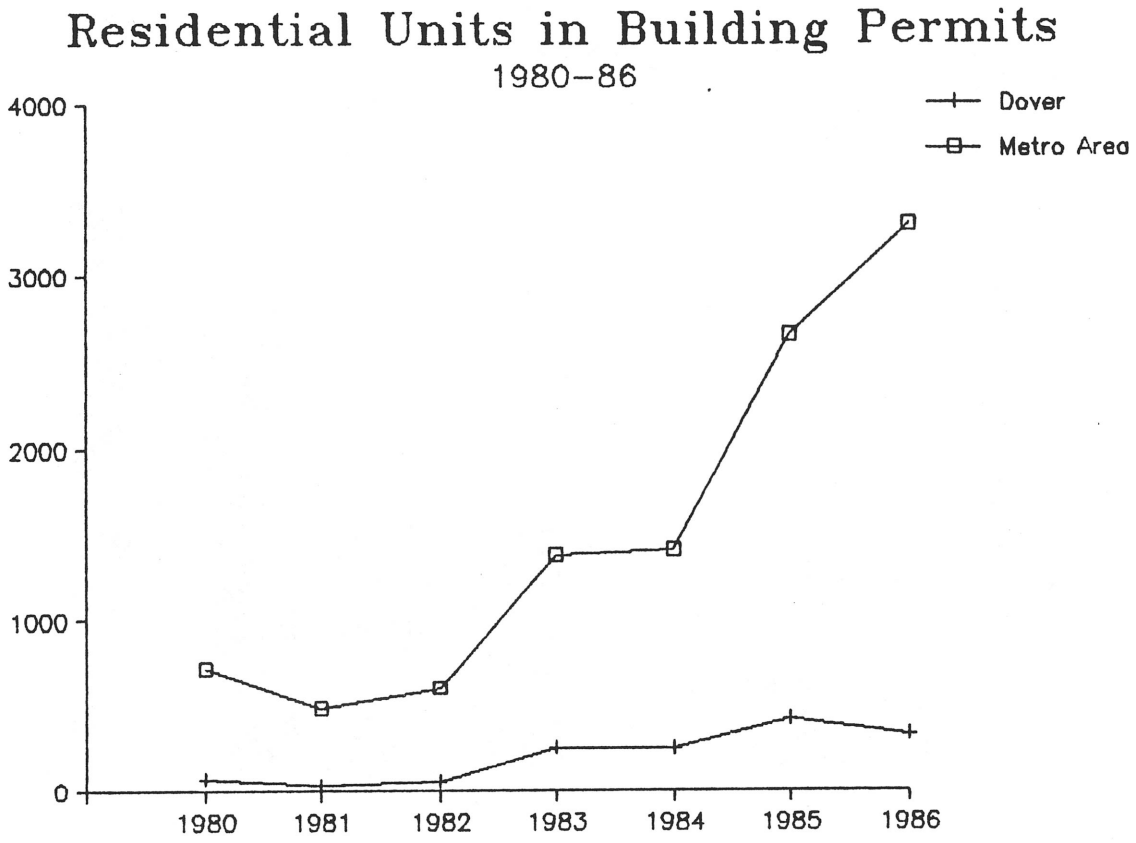
ADDENDUM B

FIGURE 1.



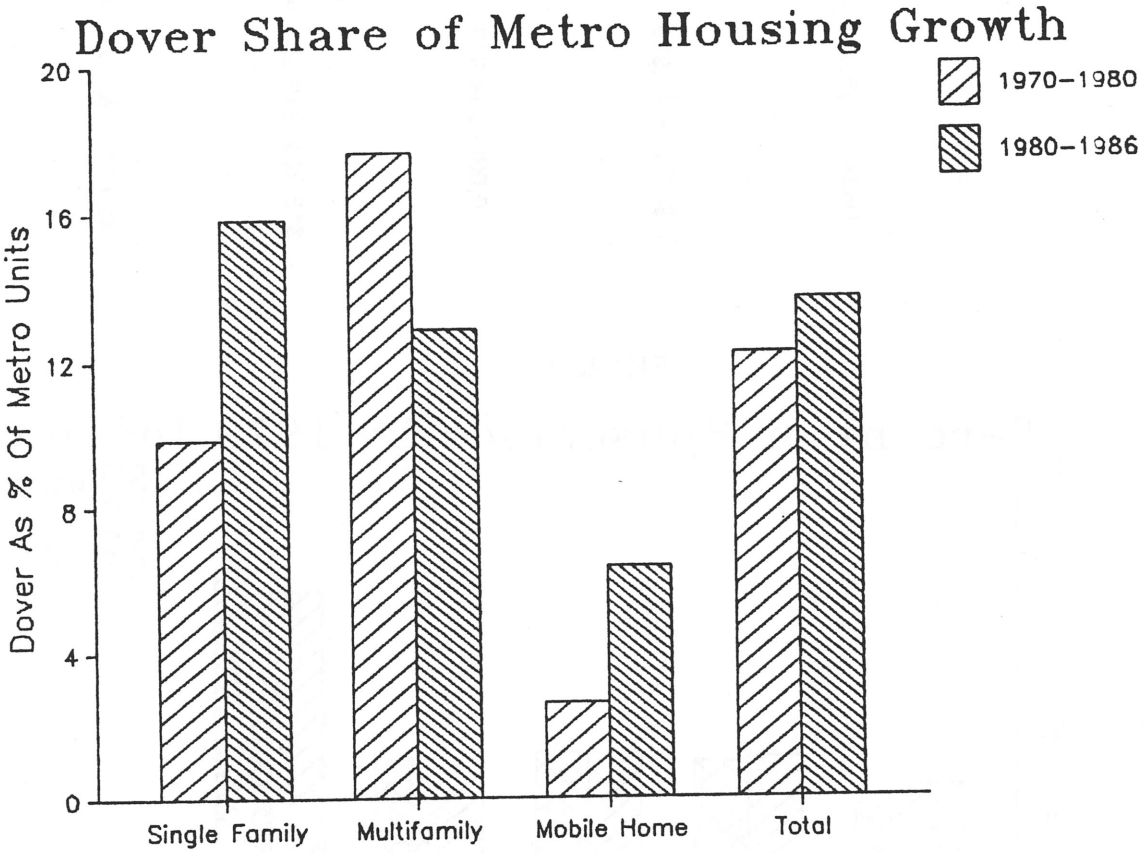
Source: N.H. Office of State Planning;
U.S. Census C-40 Reports
and AER, Inc.

FIGURE 2.



Source: N.H. Office of State Planning;
U.S. Census C-40 Reports
and AER, Inc.

FIGURE 3.



Source: U.S. Census, 1970 and 1980; 1980-86, N.H. Office of State Planning, U.S. Census C-40 Reports

FIGURE 4.

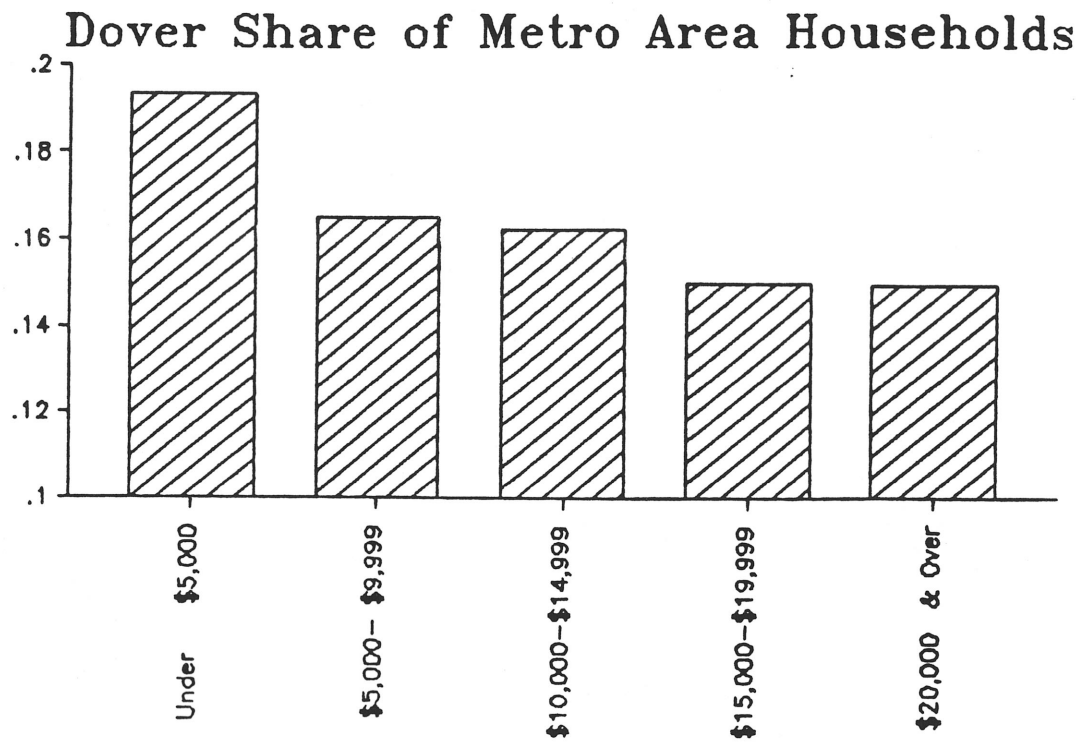
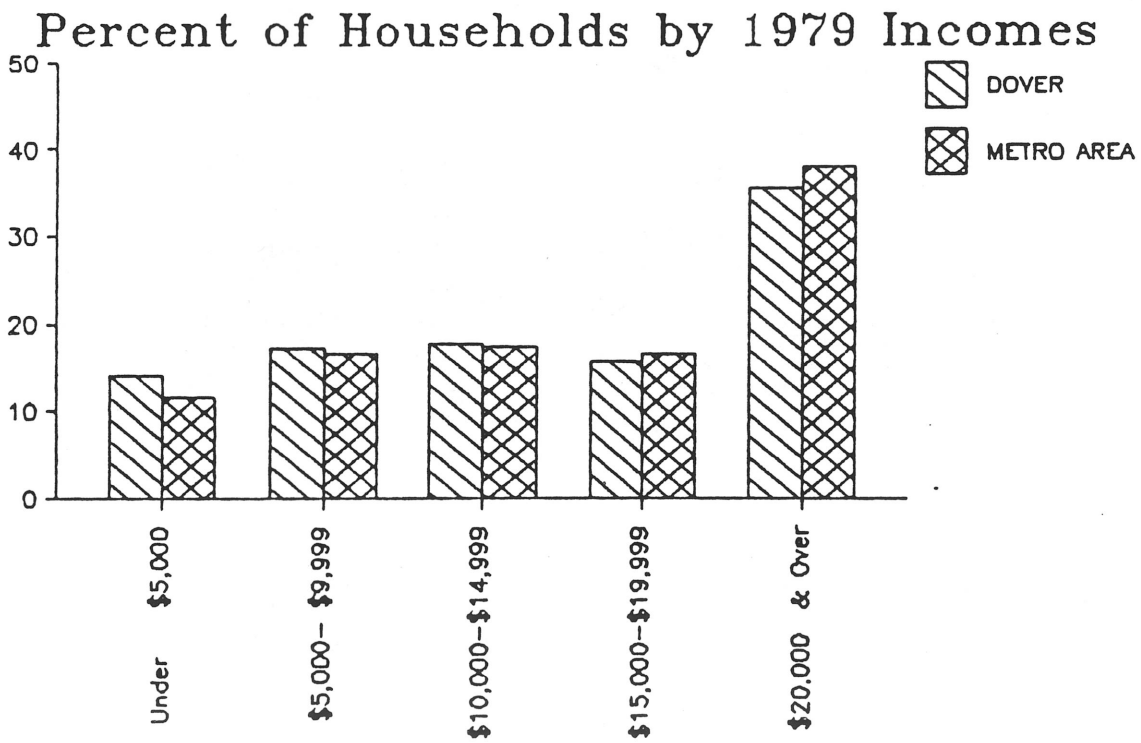
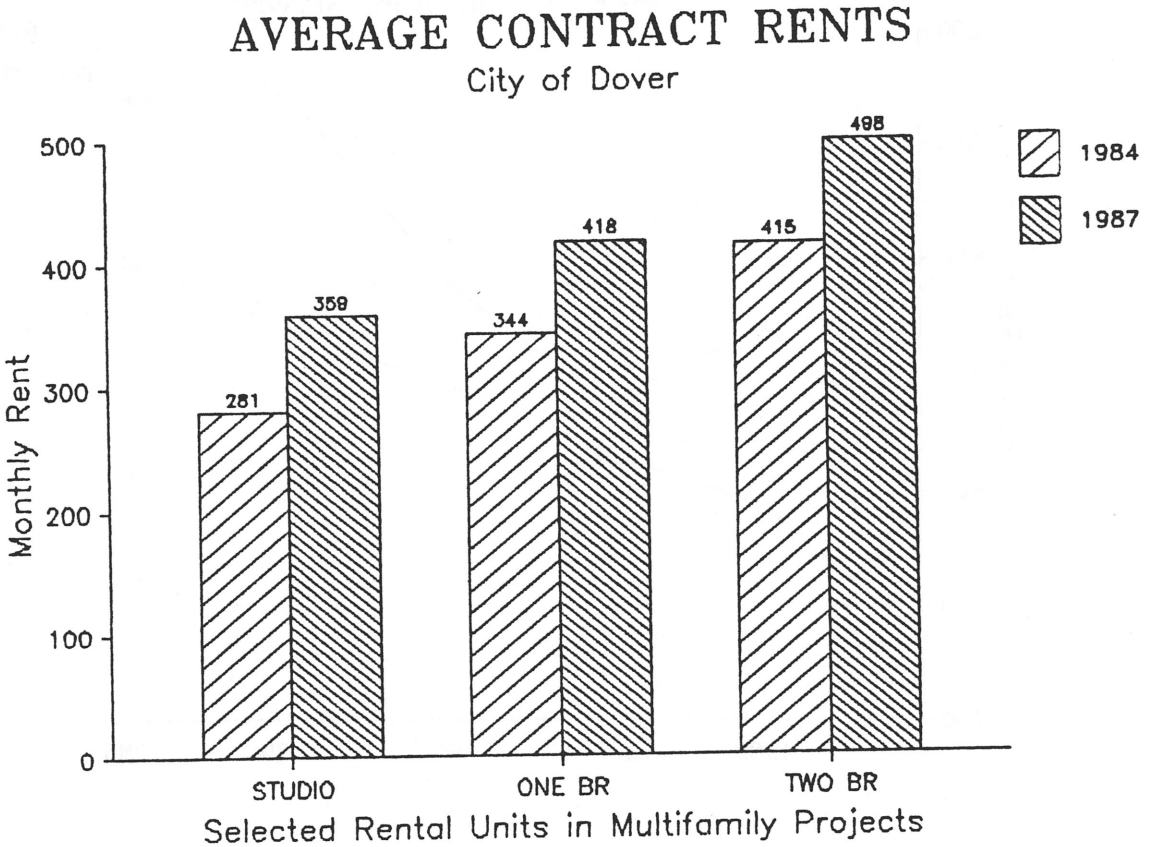


FIGURE 5.



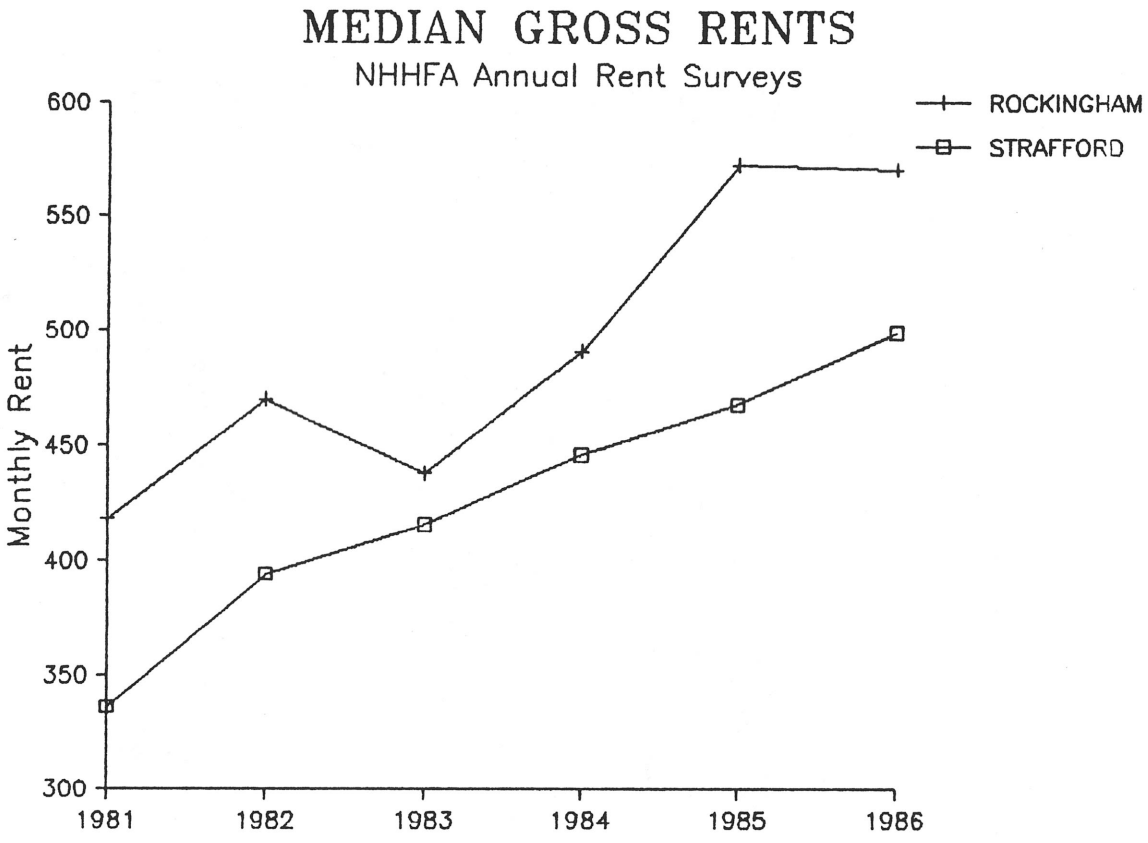
Source: 1980 Census, Summary Tape File 4, and AER, Inc.

FIGURE 6.



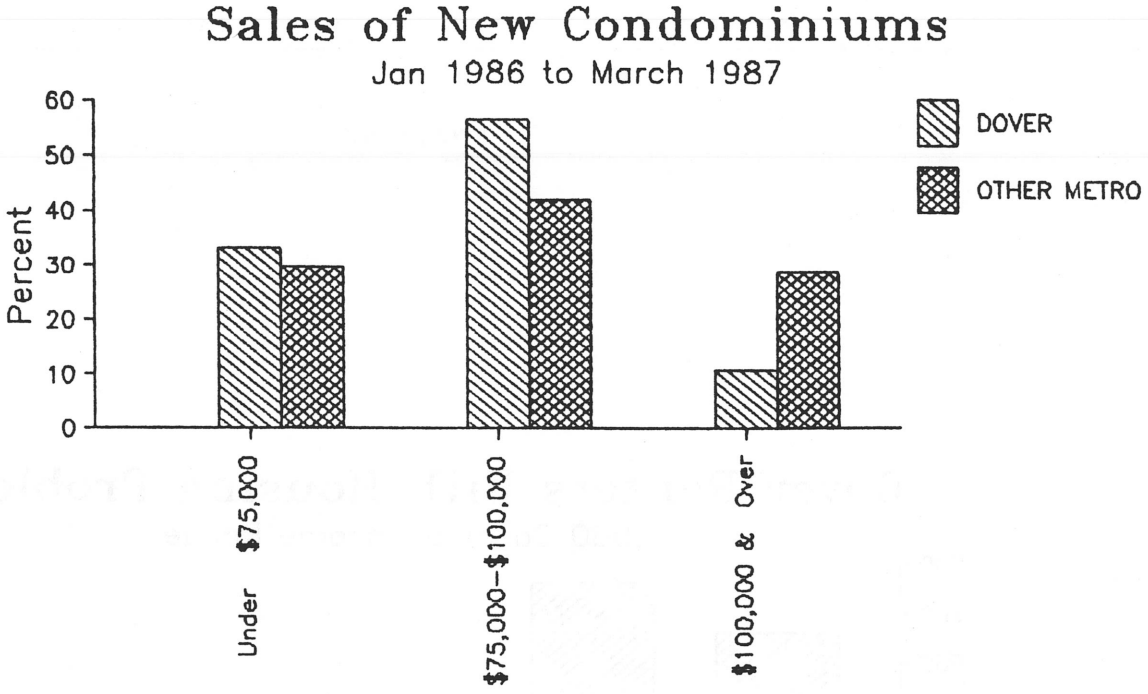
Source: AER, Inc. survey of nine major rental housing complexes in Dover, July 1984 and 1987.

FIGURE 7.

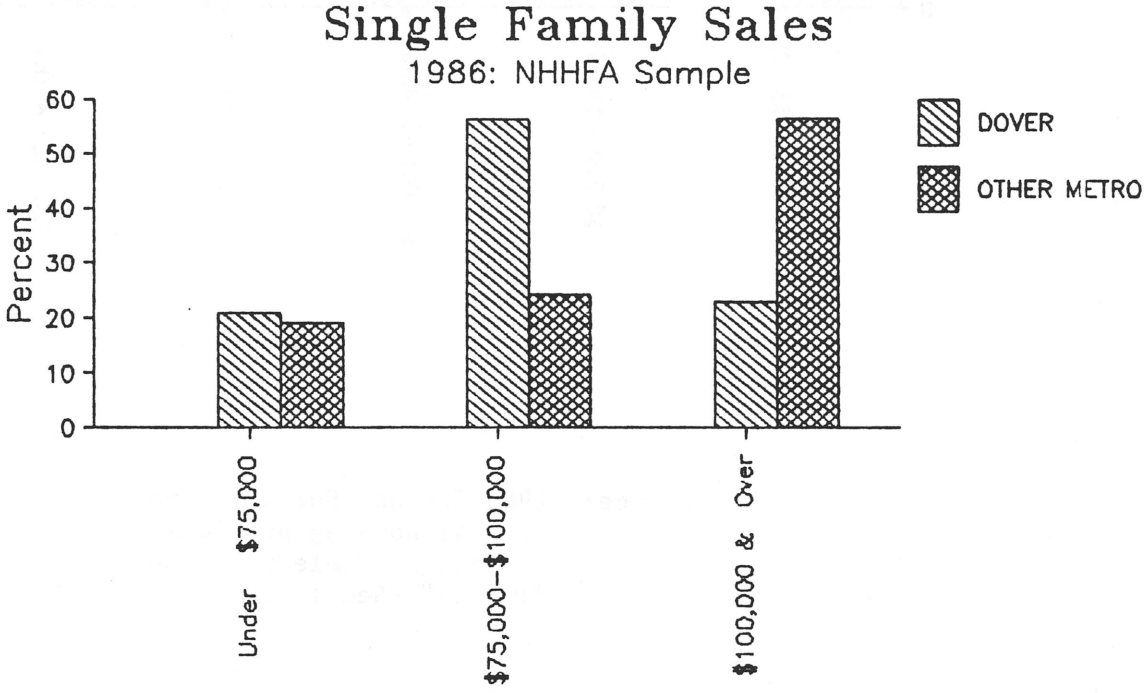


Source: N.H. Housing Finance Authority,
Annual Rent Surveys

FIGURE 8.



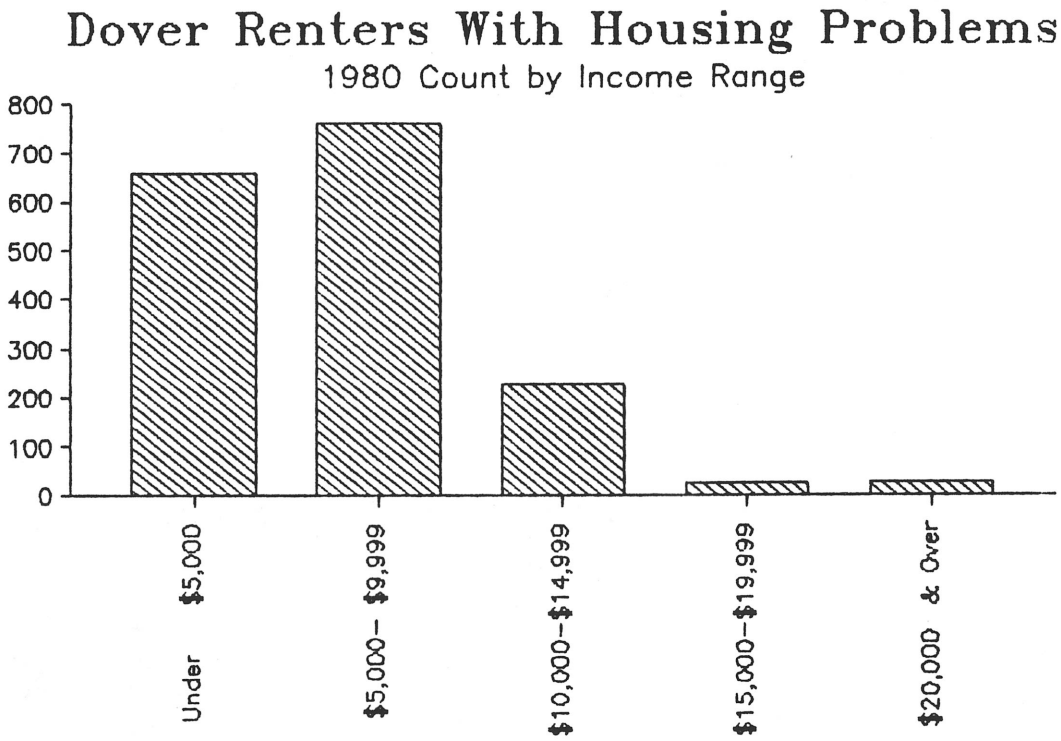
Source: AER, Inc. compilation of new residential condominium closings



Percent of Sales by Price Range

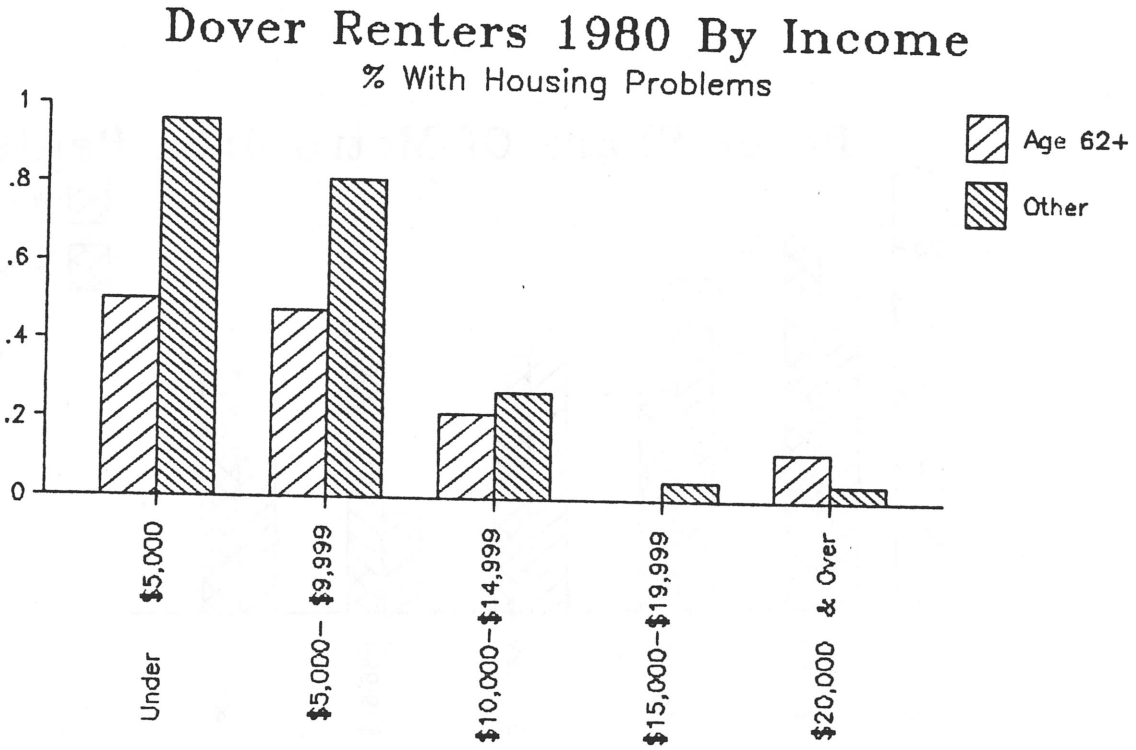
Source: AER, Inc. analysis of New Hampshire Housing Finance Authority, sample of

FIGURE 9.



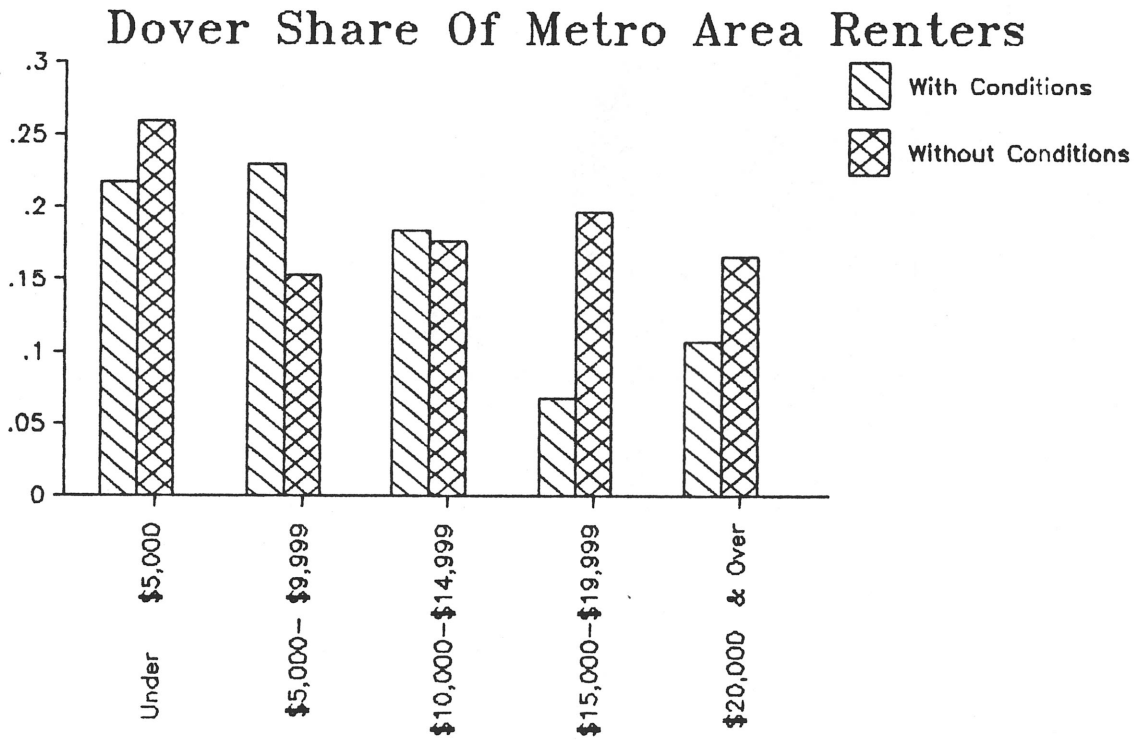
Source: 1980 Census, Summary Tape File 4; housing problems defined by "selected conditions" (See Table 1.)

FIGURE 10.



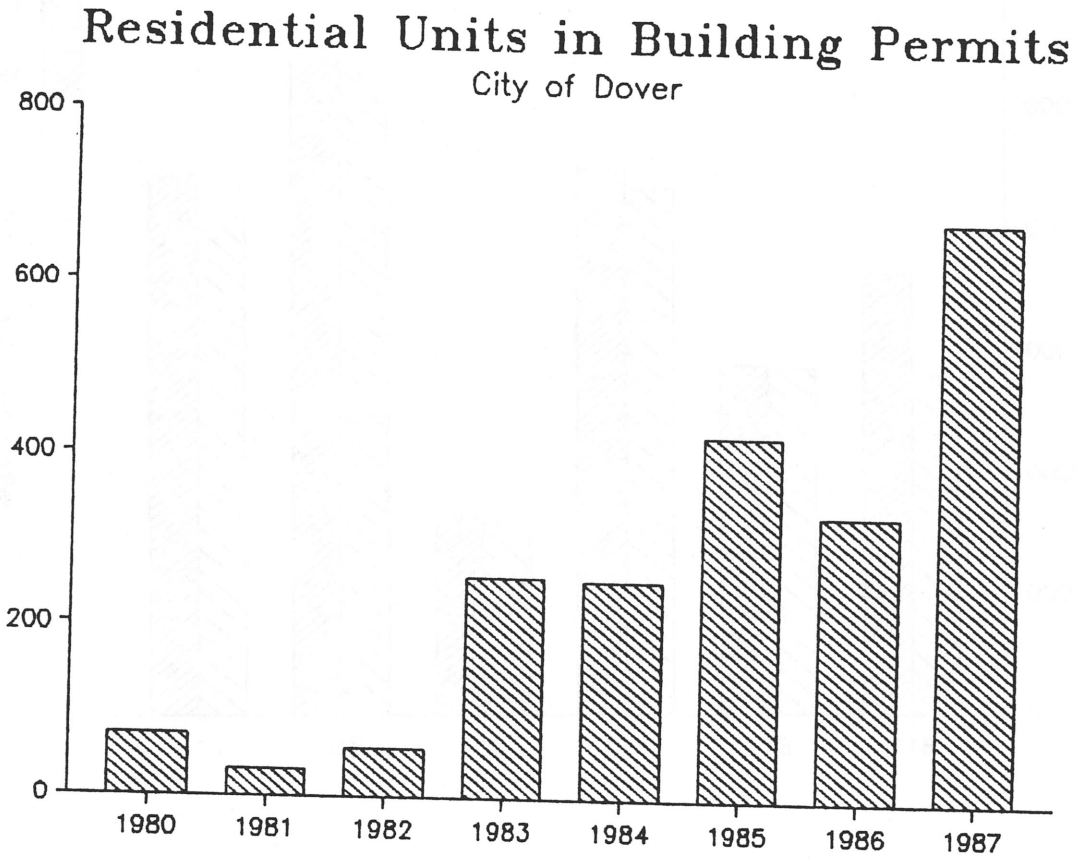
Source: 1980 Census, Summary Tape
File 4 (See Table 1.)

FIGURE 11.



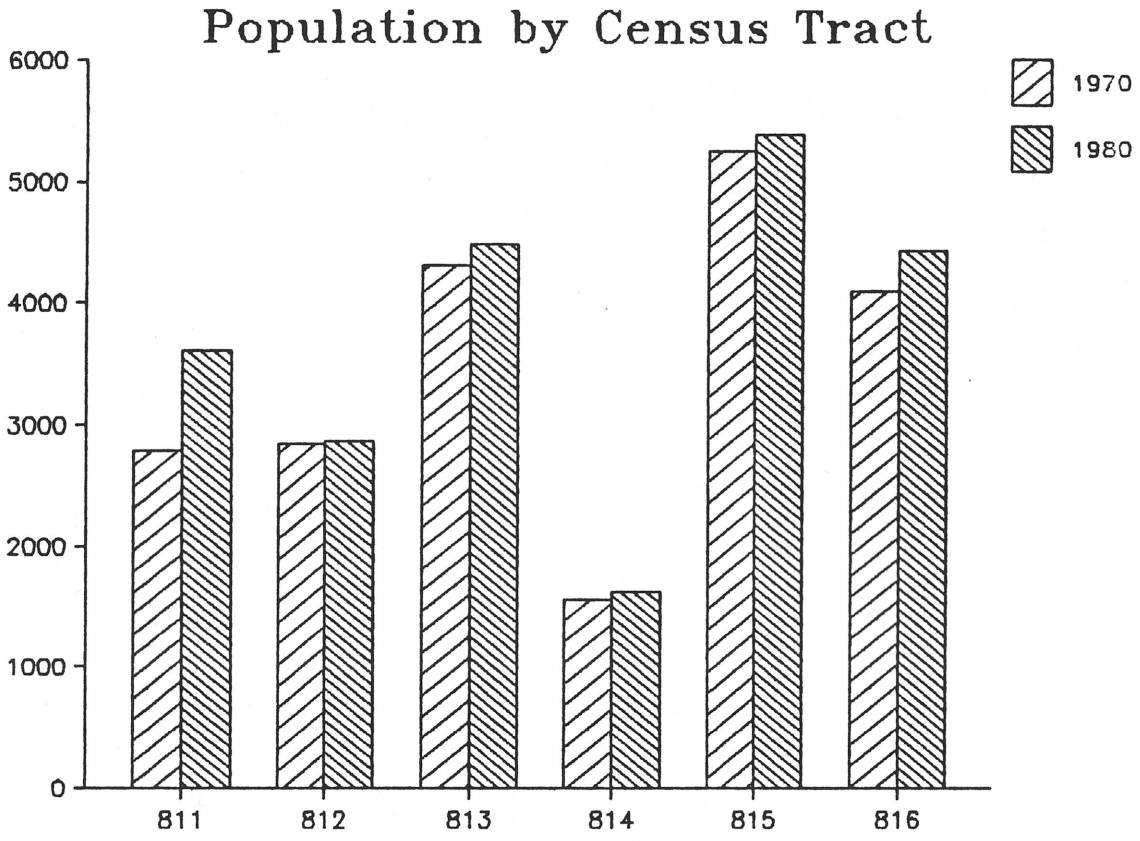
Source: U.S. Census, Summary Tape File 4

FIGURE 12.



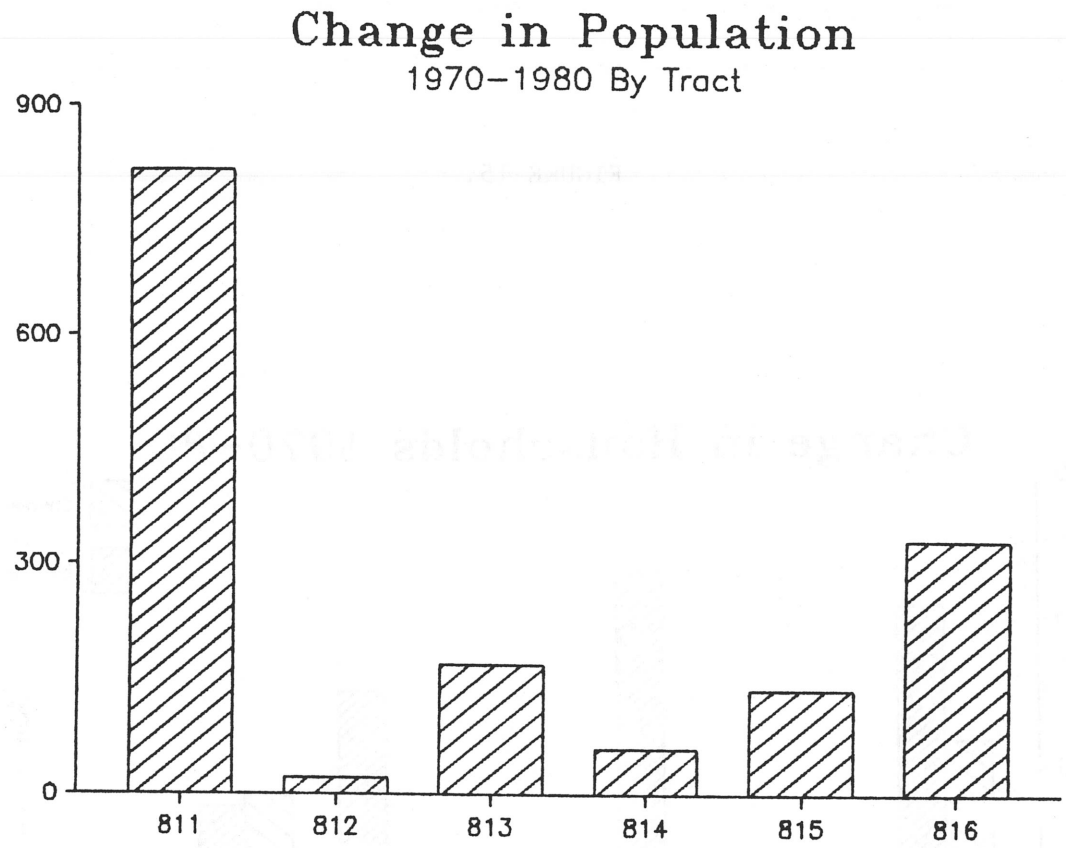
Source: AER, Inc. compilation of Building Permit records, City of Dover

FIGURE 13.



Source: 1980 Census; conversion of 1970 Census to 1980 Tracts by AER, Inc.

FIGURE 14.


Change in Population
1970–1980 By Tract
900
600
300
0
811
812
813
814
815
816

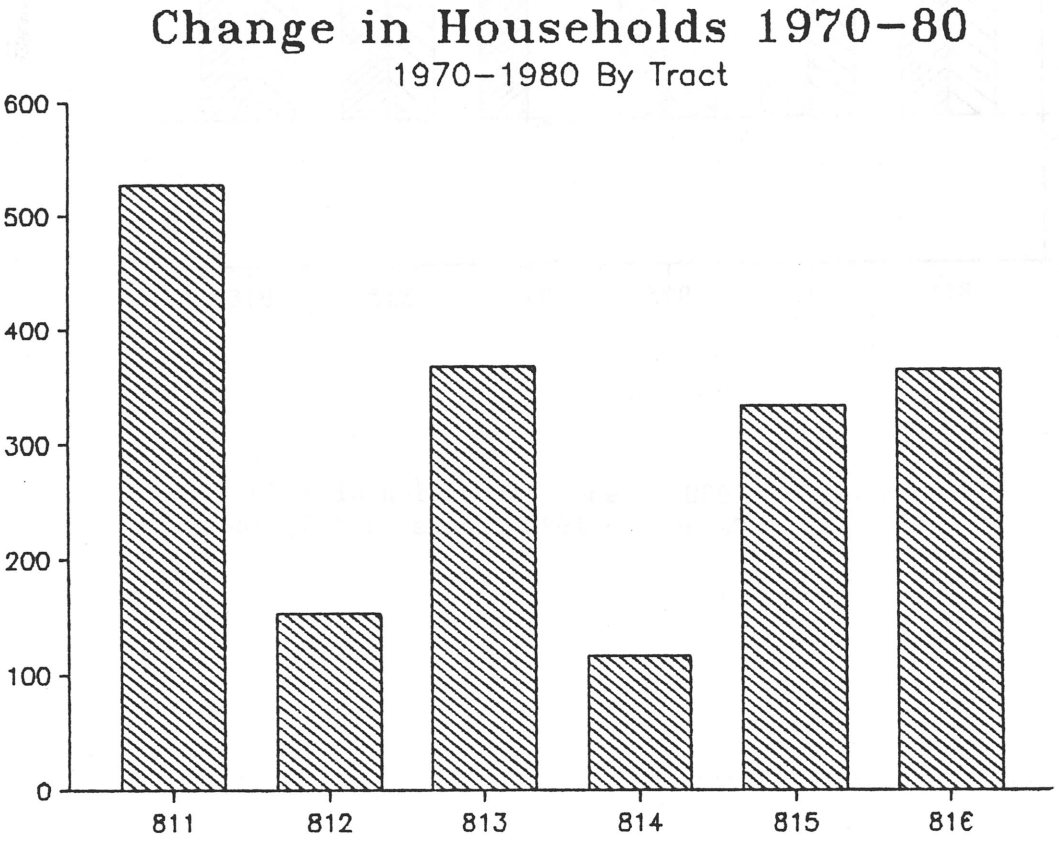
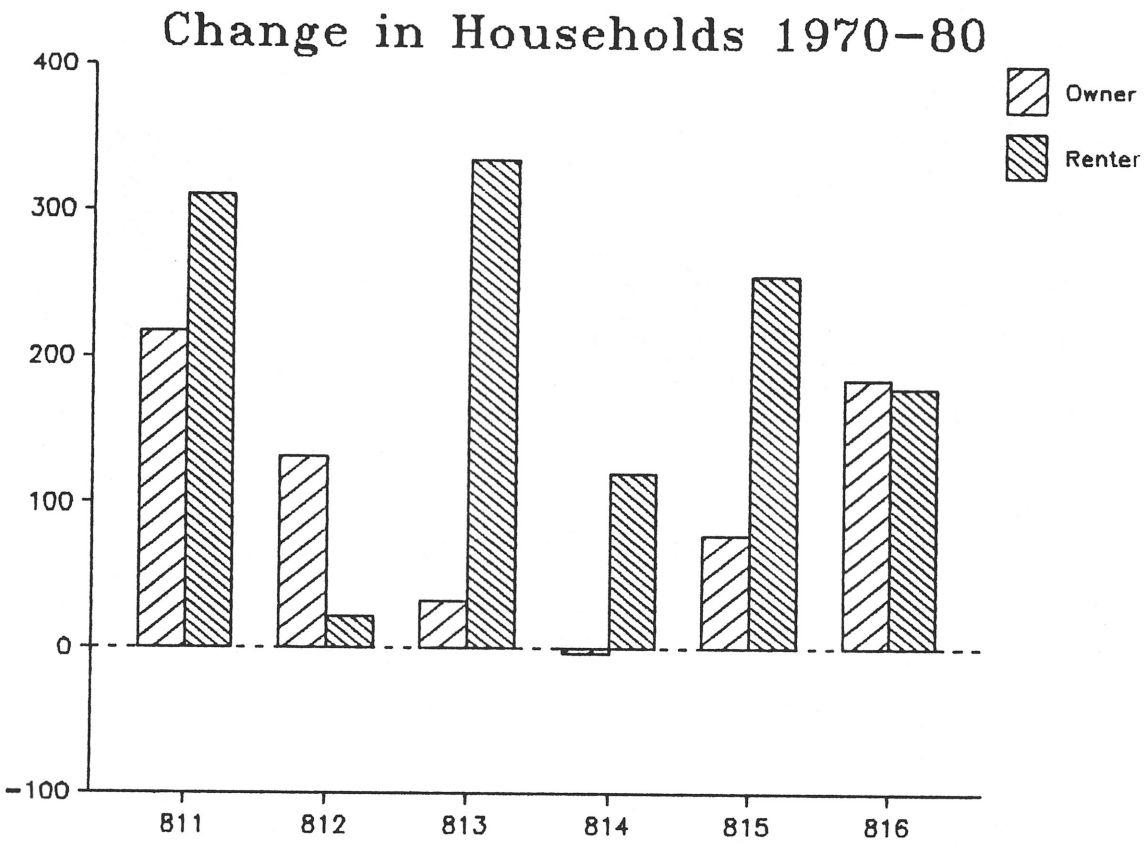
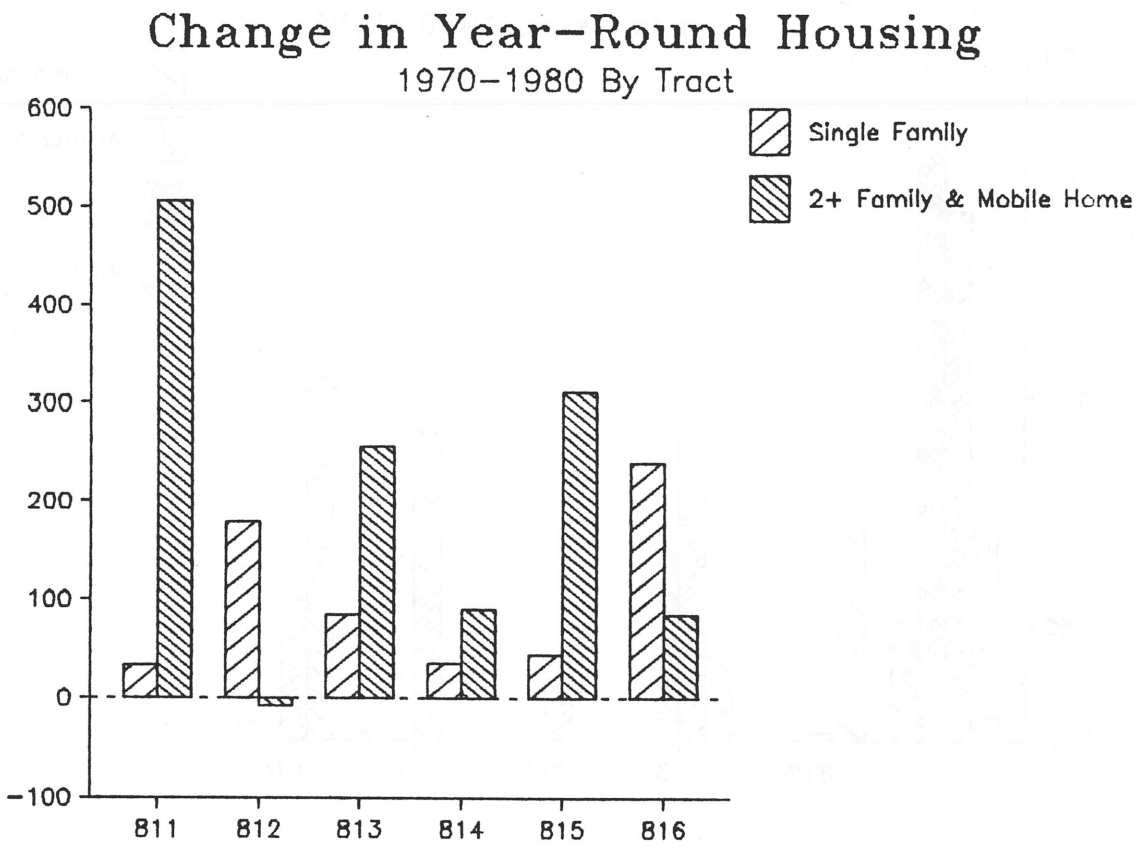

Change in Households 1970–80
1970–1980 By Tract
600
500
400
300
200
100
0
811
812
813
814
815
816

FIGURE 15.



Source: 1980 Census; conversion of 1970 Census to 1980 Tracts by AER, Inc.

FIGURE 16.


Change in Year-Round Housing
1970-1980 By Tract
Single Family
2+ Family & Mobile Home
600
500
400
300
200
100
0
-100
811
812
813
814
815
816

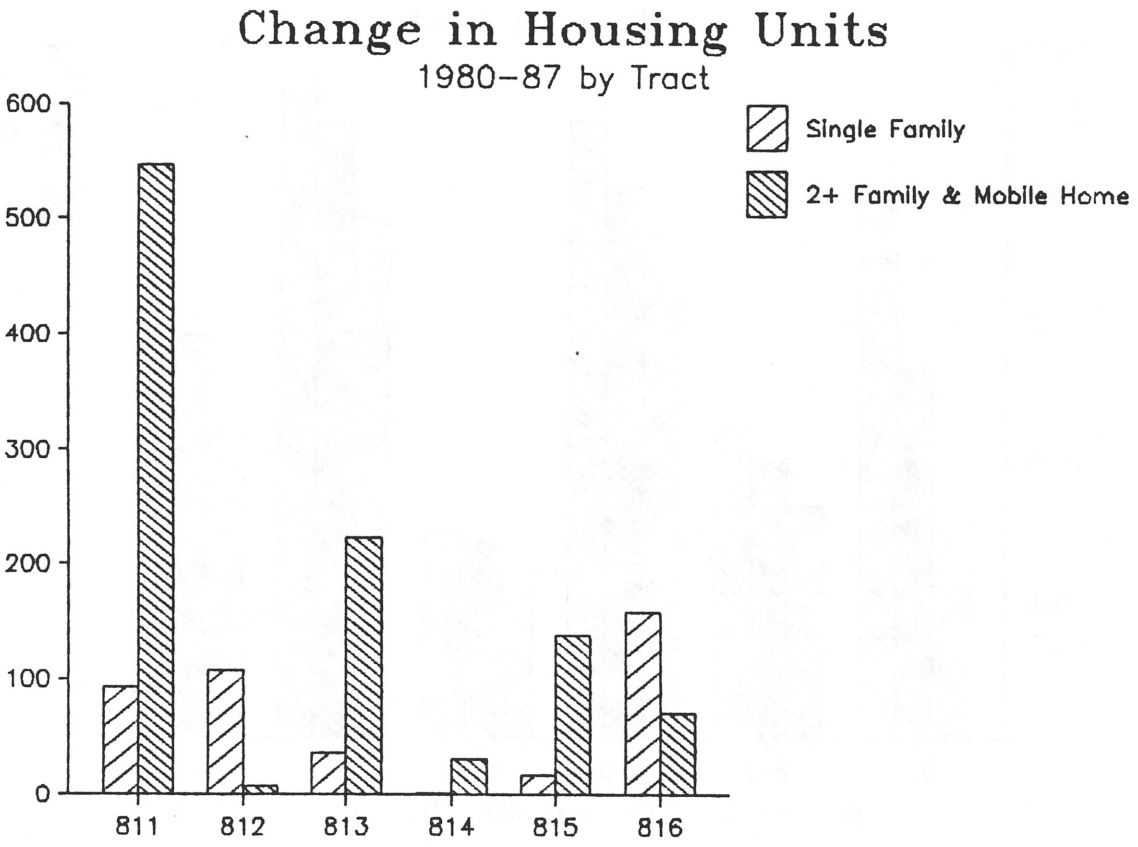
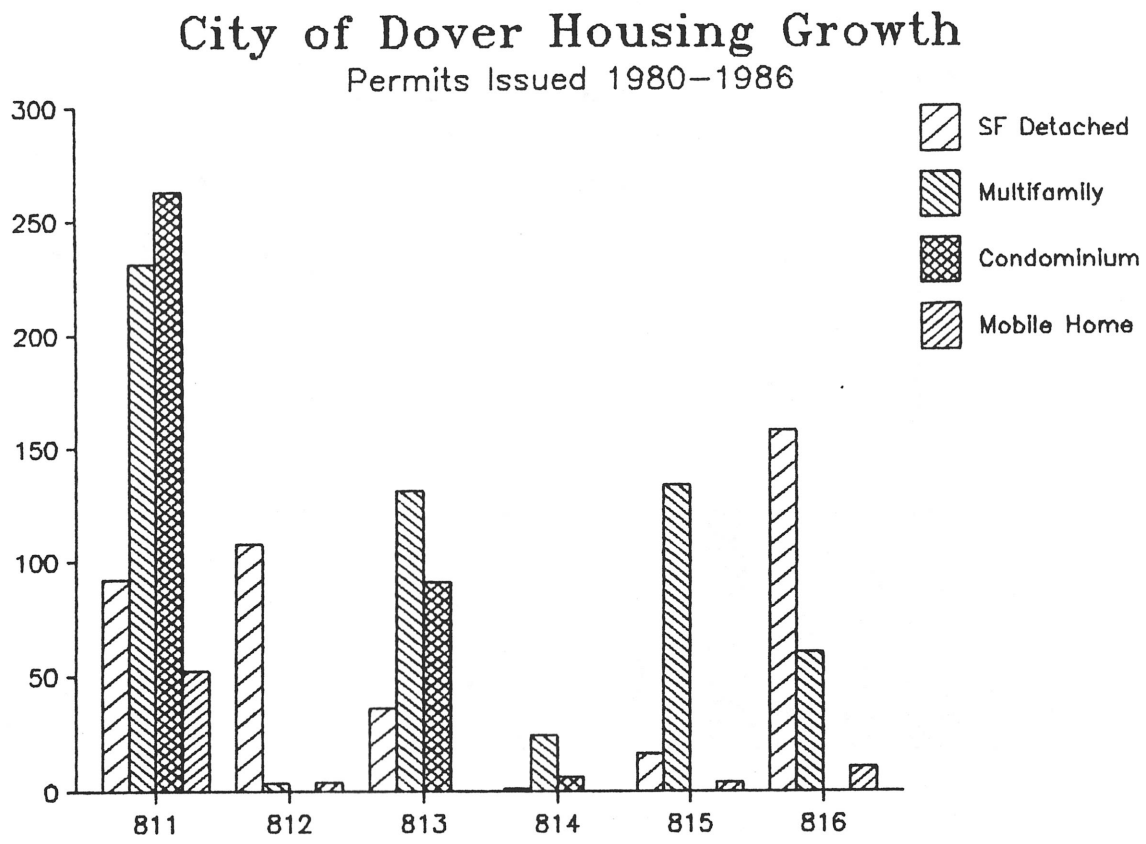
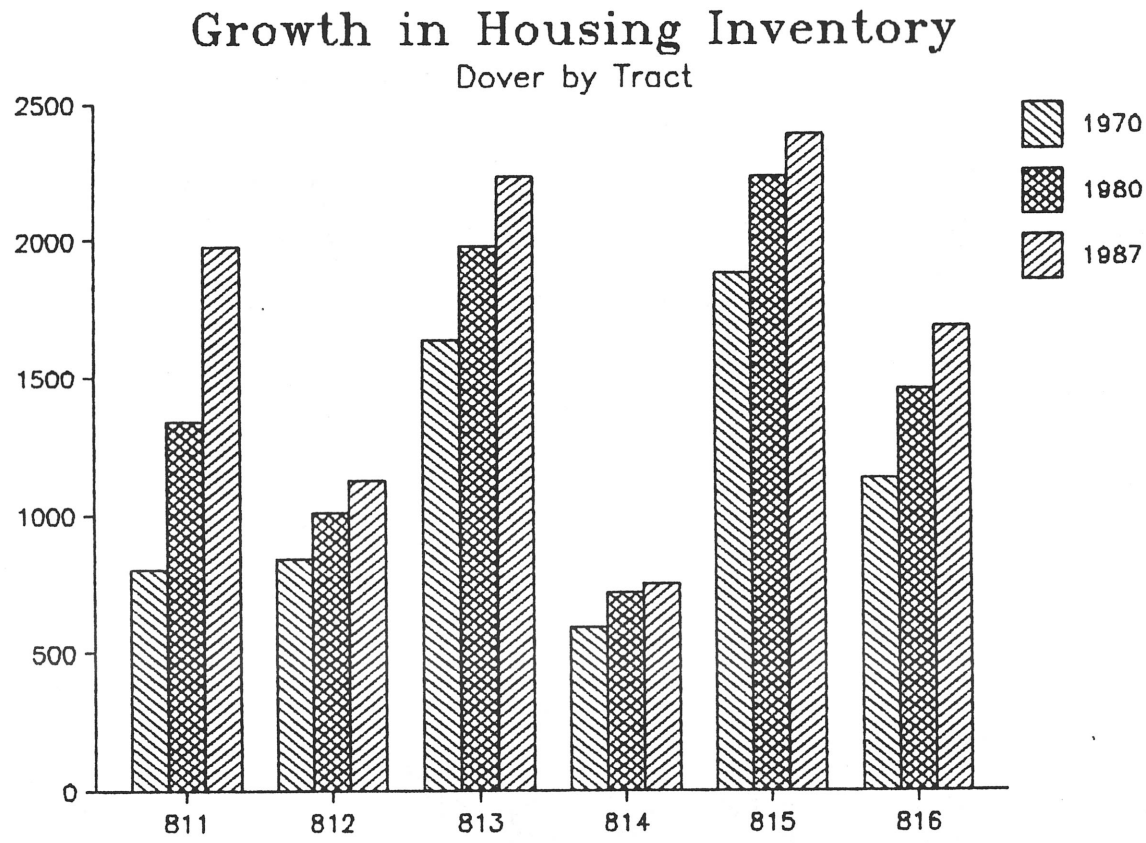

Change in Housing Units
1980-87 by Tract
Single Family
2+ Family & Mobile Home
600
500
400
300
200
100
0
811
812
813
814
815
816

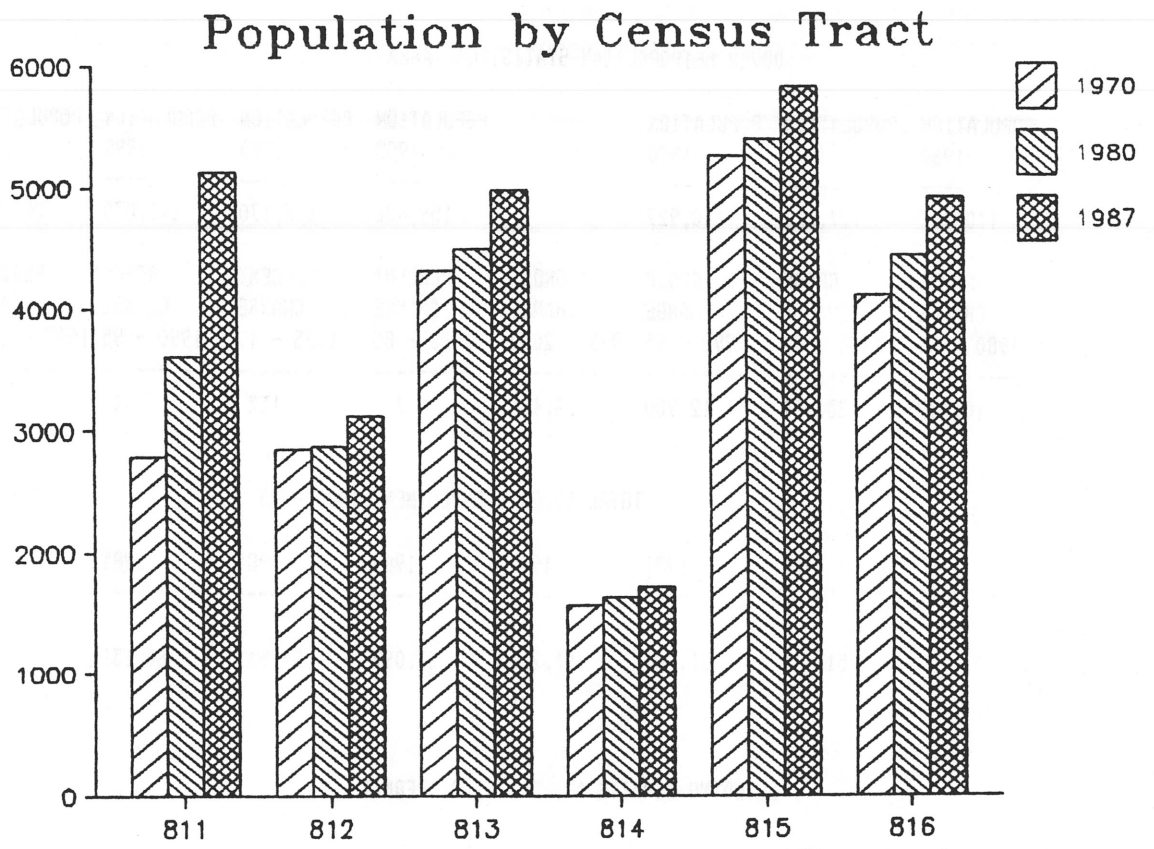
FIGURE 17.

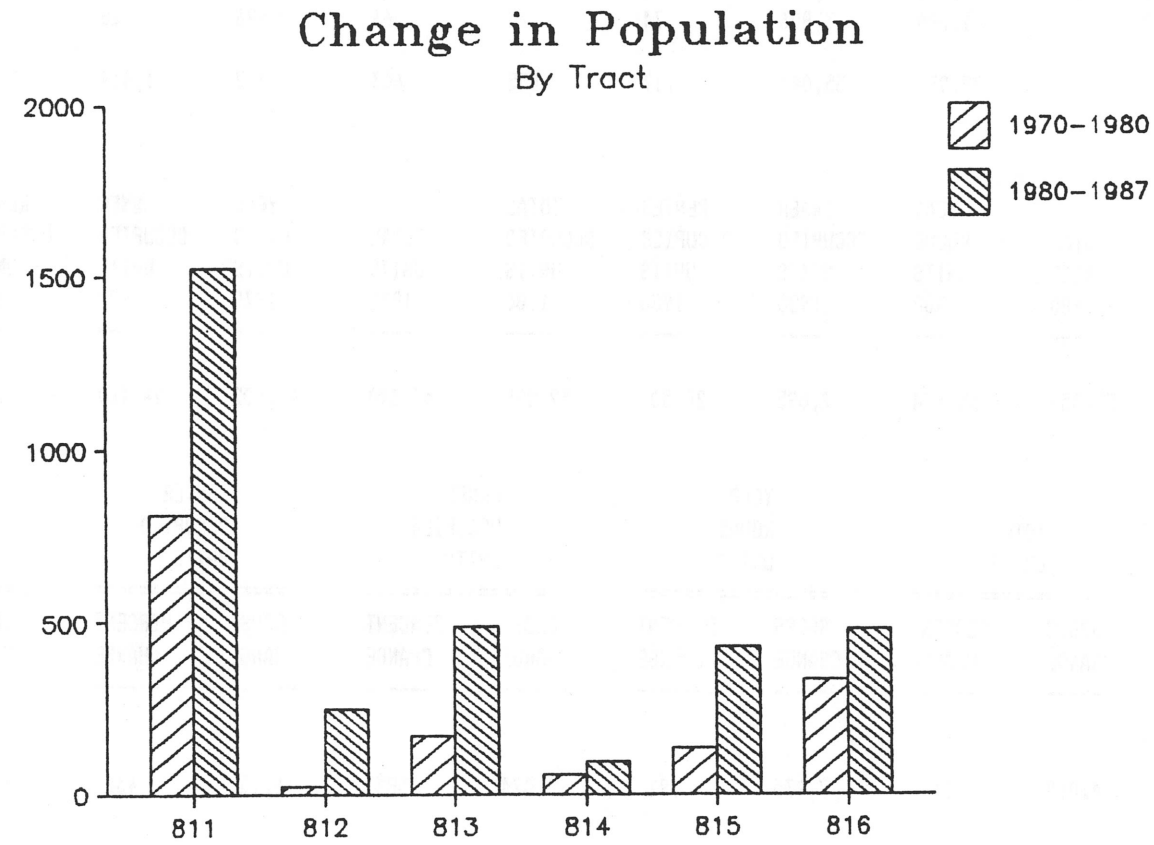




Source: U.S. Census; AER, Inc.

FIGURE 18.





Source: U.S. Census 1970, 1980 and AER, Inc. estimates

DOVER METROPOLITAN STATISTICAL AREA

POPULATION 1960	POPULATION 1970	POPULATION 1980	-	POPULATION 1985	POPULATION 1990	POPULATION 1995	POPULATION 2000
110,917	127,688	148,927		159,426	183,170	196,070	209,530

GROSS CHANGE 1980 - 85	GROSS CHANGE 1985 - 90	GROSS CHANGE 1990 - 95	GROSS CHANGE 1995 - 2000	PERCENT CHANGE 1980 - 85	PERCENT CHANGE 1985 - 90	PERCENT CHANGE 1990 - 95	PERCENT CHANGE 1995 - 2000
10,499	23,744	12,900	13,460	7%	15%	7%	7%

TOTAL COVERED EMPLOYMENT 1980 - 85

1980	1981	1982	1983	1984	1985
51,115	51,881	51,281	53,097	57,535	60,131

BUILDING PERMITS AUTHORIZED BY PERMIT

	1970 INVENTORY	1980 INVENTORY	1980	1981	1982	1983	1984	1985	1986
SINGLE FAMILY UNITS	24,578	30,831	401	272	324	700	724	1,272	1,660
MULTI-FAMILY UNITS	13,790	20,404	242	170	213	486	562	1,126	1,307
MOBILE HOMES	1,609	3,806	74	43	66	196	128	261	330
TOTAL UNITS	39,977	55,041	717	485	603	1,382	1,414	2,659	3,297

TOTAL UNITS 1980	YEAR ROUND UNITS 1980	OWNER OCCUPIED UNITS 1980	RENTER OCCUPIED UNITS 1980	TOTAL OCCUPIED UNITS 1980	TOTAL UNITS 1970	YEAR ROUND UNITS 1970	OWNER OCCUPIED UNITS 1970	RENTER OCCUPIED UNITS 1970	TOTAL OCCUPIED UNITS 1970
59,359	55,454	32,095	20,504	52,599	45,340	40,902	24,160	14,365	38,525

TOTAL UNITS		YEAR ROUND UNITS		OWNER OCCUPIED UNITS		RENTER OCCUPIED UNITS		TOTAL OCCUPIED UNITS	
GROSS CHANGE	PERCENT CHANGE	GROSS CHANGE	PERCENT CHANGE	GROSS CHANGE	PERCENT CHANGE	GROSS CHANGE	PERCENT CHANGE	GROSS CHANGE	PERCENT CHANGE
14,019	31%	7,935	19%	14,074	58%	6,139	43%	6,815	18%

ADDENDUM

SUPPLEMENTAL MATERIALS

PRINCIPAL COMMUTER ORIENTATIONS - 1980

PERSONS WORKING OR LIVING IN DOVER

1980 COMMUTER PATTERNS: CITY OF DOVER
Principal Work/Residence Destinations

	Number	Percent		Number	Percent
WORK IN DOVER	9481	100.0%	LIVE IN DOVER	9698	100.0%
Live In:			Work In:		
Dover	4245	44.8%	Dover	4245	43.8%
Commute In From:			Commute Out To:		
Rochester	1221	12.9%	Portsmouth	1488	15.3%
Somersworth	928	9.8%	Durham	680	7.0%
Rollinsford	327	3.4%	Somersworth	624	6.4%
Barrington	311	3.3%	Kittery	613	6.3%
Berwick, ME.	260	2.7%	Newington	326	3.4%
Durham	217	2.3%	Rochester	315	3.2%
S. Berwick,	207	2.2%	Seabrook	126	1.3%
Portsmouth	185	2.0%	Hampton	100	1.0%
N. Berwick,	137	1.4%	Berwick	82	.8%
Lebanon, ME.	101	1.1%	Other	1099	11.3%
Other	1342	14.2%			
Total Commute In:	5236	55.2%	Total Commute Out:	5453	56.2%

Source: New Hampshire Department of Employment Security, 1985
(Detailed Tabulations of 1980 Census Data)

EMPLOYED DOVER RESIDENTS - 1980

BY CENSUS TRACT & PLACE OF WORK

FILE: COMMTRAC

1980 CENSUS TRACT DATA FOR DOVER RESIDENTS AGE 16+ EMPLOYED

COMMUTER ORIENTATION

Total Worked In:	Tract Number 811	812	813	814	815	816	Total
DOVER	535	402	986	313	1115	894	4245
PORTSMOUTH	299	288	342	169	145	245	1488
DURHAM	187	70	141	35	156	91	680
KITTERY	122	76	119	77	120	99	613
NEWINGTON	61	102	11	14	76	62	326
ROCHESTER	36	37	33	27	79	103	315
OTHER	456	297	401	130	594	295	2173
TOTAL REPORTED	1696	1272	2033	765	2285	1789	9840

PERCENT DISTRIBUTION

Total Worked In:	Tract Number 811	812	813	814	815	816	Total
DOVER	31.5%	31.6%	48.5%	40.9%	48.8%	50.0%	43.1%
PORTSMOUTH	17.6%	22.6%	16.8%	22.1%	6.3%	13.7%	15.1%
DURHAM	11.0%	5.5%	6.9%	4.6%	6.8%	5.1%	6.9%
KITTERY	7.2%	6.0%	5.9%	10.1%	5.3%	5.5%	6.2%
NEWINGTON	3.6%	8.0%	.5%	1.8%	3.3%	3.5%	3.3%
ROCHESTER	2.1%	2.9%	1.6%	3.5%	3.5%	5.8%	3.2%
OTHER	26.9%	23.3%	19.7%	17.0%	26.0%	16.5%	22.1%
TOTAL REPORTED	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

SALES PRICES OF NEW CONDOMINIUM UNITS:

DOVER & METRO AREA

1986 AND FIRST HALF 1987

SALES OF NEW CONDOMINIUM UNITS

January 1986 Through June 1987

Price Range	CITY OF DOVER Number	CITY OF DOVER Percent	METRO AREA Number	METRO AREA Percent	Dover Share New Condominium Sales Activity
Under $75,000	72	47.1%	397	29.1%	18.1%
$ 75,000-$100,000	69	45.1%	580	42.6%	11.9%
$100,000-$125,000	4	2.6%	150	11.0%	2.7%
$125,000-$150,000	3	2.0%	72	5.3%	4.2%
$150,000-$200,000	3	2.0%	97	7.1%	3.1%
$200,000 and Over	2	1.3%	66	4.8%	3.0%
Total	153	100.0%	1362	100.0%	11.2%
Estimated Median Price	---	$80,000	---	$117,000	----

Source of Condominium Sales Data: AER, Inc. compilation of original sales from developer to buyer extracted from Real Data, Inc. listings of property transfers recorded by County

SALES PRICE DISTRIBUTION OF SINGLE FAMILY HOMES

FIRST HALF OF 1987

Compiled by Applied Economic Research, Inc.

from Multiple Listing Service Reports

SINGLE FAMILY HOME SALES REPORTED IN MULTIPLE LISTING SERVICES

First 6 Months 1987

Price Range	CITY OF DOVER Number	CITY OF DOVER Percent	METRO AREA Number	METRO AREA Percent	Dover Share Single Family Sales Activity
Under $100,000	27	27.3%	189	27.1%	14.3%
$100,000-$125,000	32	32.3%	145	20.8%	22.1%
$125,000-$150,000	16	16.2%	128	18.3%	12.5%
$150,000-$200,000	12	12.1%	139	19.9%	8.6%
$200,000 and Over	12	12.1%	97	13.9%	12.4%
Total	99	100.0%	698	100.0%	14.2%
Average Price	---	$135,024	----	$140,918	---
Median Price	---	$120,000	---	$126,200	---

Number Of Bedrooms	CITY OF DOVER No. Of Sales	CITY OF DOVER Average Price	METRO AREA No. Of Sales	METRO AREA Average Price	Dover Share Of Home Sales	Dover Price As Percent Of Metro Area Price
One	2	$83,300	12	$89,256	16.7%	93.3%
Two	12	$101,283	112	$104,693	10.7%	96.7%
Three	59	$128,531	360	$132,808	16.4%	96.8%
Four	23	$159,767	184	$173,865	12.5%	91.9%
Five +	3	$242,467	30	$192,057	10.0%	126.2%
Total/Avg.	99	$135,024	698	$140,918	14.2%	95.8%
Median Price	---	$120,000	---	$126,200	-----	95.1%

RESULTS OF AREA EMPLOYER SURVEY

MEMORANDUM

TO: Dover File #87-166

FROM: Bruce Mayberry

DATE: 11/12/87

Area Employer Survey

Applied Economic Research, Inc. conducted a survey of major employers in the Dover, New Hampshire area to poll employers on future growth prospects, current commuting and labor force patterns and wage rates. During the last week of August and during the first week of September 1987, a total of 104 surveys were sent out. Mailing lists were obtained for major employers from the Chamber of Commerce offices of Dover, Rochester, Portsmouth, and Exeter. The survey was mailed to those employers shown as having 50 or more persons. In some cases, smaller firms received a mailing if the size of the firm was not indicated on the mailing list. Some of the source lists include only manufacturing employment. Surveys were also sent to major non-manufacturing employers including Pease Air Force Base, University of New Hampshire, Kittery Naval Shipyard, and area hospitals.

Of the 104 surveys sent out, 27 were completed and returned and five were returned to AER due to incorrect address information or "no forwarding address" if the firm had moved.

Altogether, the 27 returns represent employers with a combined total employment of 24,086 persons. If the Pease Air Force Base and Kittery Naval Shipyard are excluded, returns represent 8,439

employees. The average wage of production personnel reported in the survey was $8.54 per hour; the wage range reported was from a low of $5.50 to a high of $12 per hour.

For the firms which projected future employment to 1990 and 1995, the overall projected employment increases from expansions is 5.6 percent from 1987 to 1990, and 2.9 percent from 1990 to 1995. In evaluating this data, we must consider that firms are probably better at projecting short-term employment increases than long-term increases, and will tend to be more conservative on the latter. In addition, neither of the principal government employers surveyed projected any employment increase. A change in federal funding, federal policy or specific assignments at these key installations could affect future employment levels.

Individual employers estimated that anywhere from 20 percent to 99 percent of their employees commute in to work from outside the company's city or town location; the average was 68 percent. Among Dover firms, one reported 40 percent, two reported 50 percent, one reported 80 percent and one reported 90 percent. This illustrates the fact that the labor force for Dover industries is drawn from a market area significantly larger than the city itself.

Among the firms surveyed, 15 percent were <u>currently</u> expanding their plant size in New Hampshire. Of these, 32 percent of the firms were looking for land and/or buildings for a <u>future</u> expansion or relocation. Of those, 60 percent indicated that Dover would be a suitable location for their expansion, or could be suitable under certain conditions. These conditions generally related to availability of utilities, reasonable price or rent, labor availability and incentives offered by Dover.

An open ended comment section was provided. The majority of the miscellaneous comments related to the lack of available labor and the need for most employees to commute due to high housing cost.

The relatively low response rate (26%) means that the data are probably not reliable for any broad-based employment projections. However, the employers surveyed collectively foresee approximate increases in their employment levels of 5.6 percent between now and 1990 (say, 2% per year). AER's employment projection for market area manufacturing employment showed average annual growth of 2.4 percent (1985-1995 annual average). The survey does not cover the more rapidly growing non-manufacturing segment of area employment.

Survey mailed last week of August
through first week of September

104 mailed
27 returned, completed
5 returned, bad address or not in business
26% Return

AREA EMPLOYER SURVEY - DOVER MASTER PLAN

AER, Inc., under contract to the City of Dover, New Hampshire, is assessing future regional development needs to assist the city in preparing its comprehensive Master Plan for balanced economic growth and development. Your assistance in answering the brief questions below would be appreciated and will assist us in this task. All individual responses will remain confidential. Dover (5); Exeter (5); Maine towns (4); Newington (4); Portsmouth (3); Rochester (2); Somersworth (2); Newmarket (1); Hampton (1)

Location of Plant/Co. See above (City/Town)
Type of Product/Business 21 manufacturing; 6 non-manufacturing
Number of Employees 24,086; 8439 excluding (1987) military
Projected Employment 1987-1990 - up 5.6% (1990)
1990-95 - up 2.9% (1995)

What percent of your employees do you estimate commute in to work from outside your company's city/town location? 68 % (Average) Range: 20-99%

What is the average wage rate of production personnel? $ 8.54 /hr. Avg. of average wage reported.

Are you: (a) Currently expanding plant size in NH? (15%) 4 Yes (85%) 22 No 1 answer
2 @ 50,000 s.f.
If yes, city/town Hampton, Milton, Greenland, Dover No. of Sq. Ft. 1 @ 2,000 s.f.
1 no size indicated
Projected employment increase 40 (50,000 s.f.)
51 (50,000 s.f.)
4 (2,000 s.f.

(b) Looking for land/buildings for a future expansion or relocation? 7 Yes (32%) 15 No (68%) 5 - no response
If yes, would a Dover, NH location be suitable for your expansion needs?
(60%) Yes 6 - (of these only one now in Dover--others in Kittery, Portsmouth, Newington, Newmarket)
(40%) No 4 (explain briefly below)
17 - no answer/Possibly ____ provided that 1) City sewer, natural gas, tax rate, 15,000 s.f. +/-; 2) if price acceptable; 3) if reasonable rent and available labor; 4) depending on incentives offered by Dover.

Comments: 1) Too small labor pool; 2) labor shortage; 3) most employees commute due to high housing costs; 4. lack of labor and affordable housing.

This questionnaire has been pre-addressed and pre-stamped for your convenience. Please fold at the dotted lines, staple the form, and drop it in the mail today. Thank you for your assistance.

Applied Economic Research, Inc.

Section Two

ECONOMIC AND HOUSING PROJECTIONS

INTRODUCTION

The purpose of this interim report is to provide a series of baseline projections of regional and local employment, housing and population. These projections are used to assess Dover's potential industrial, office, retail and residential development. The assumptions used in the projections are subject to modification based on new information developed during the course of the study.

This report provides a series of projections based on the following steps:

1) Project regional and market area employment growth by industry based on statewide projections and regional shares of growth which reflect the region's competitive strengths in particular industries;

2) Estimate local employment for the city of Dover based on its expected shares of market area employment growth, by industry;

3) Utilize the local employment projections to provide an estimate of land consumption in the city of Dover for industrial and office uses;

4) Project market area population based on anticipated employment growth and assuming a continuation of commuter trends;

5) Based on the area population projections and demographic trends in average household size, estimate household growth for the Seacoast market;

6) Project the proportion of household growth in home ownership versus rental tenure, based on demographic shifts in age groups;

7) Estimate total housing needs based on providing an adequate number of housing units for household growth, to an adequate reserve of vacant units to, and for the replacement of housing units lost by conversion, demolition, fire and other causes;

8) Calibrate the regional housing projection model to the actual change in housing units (1980 to 1987) for the market area;

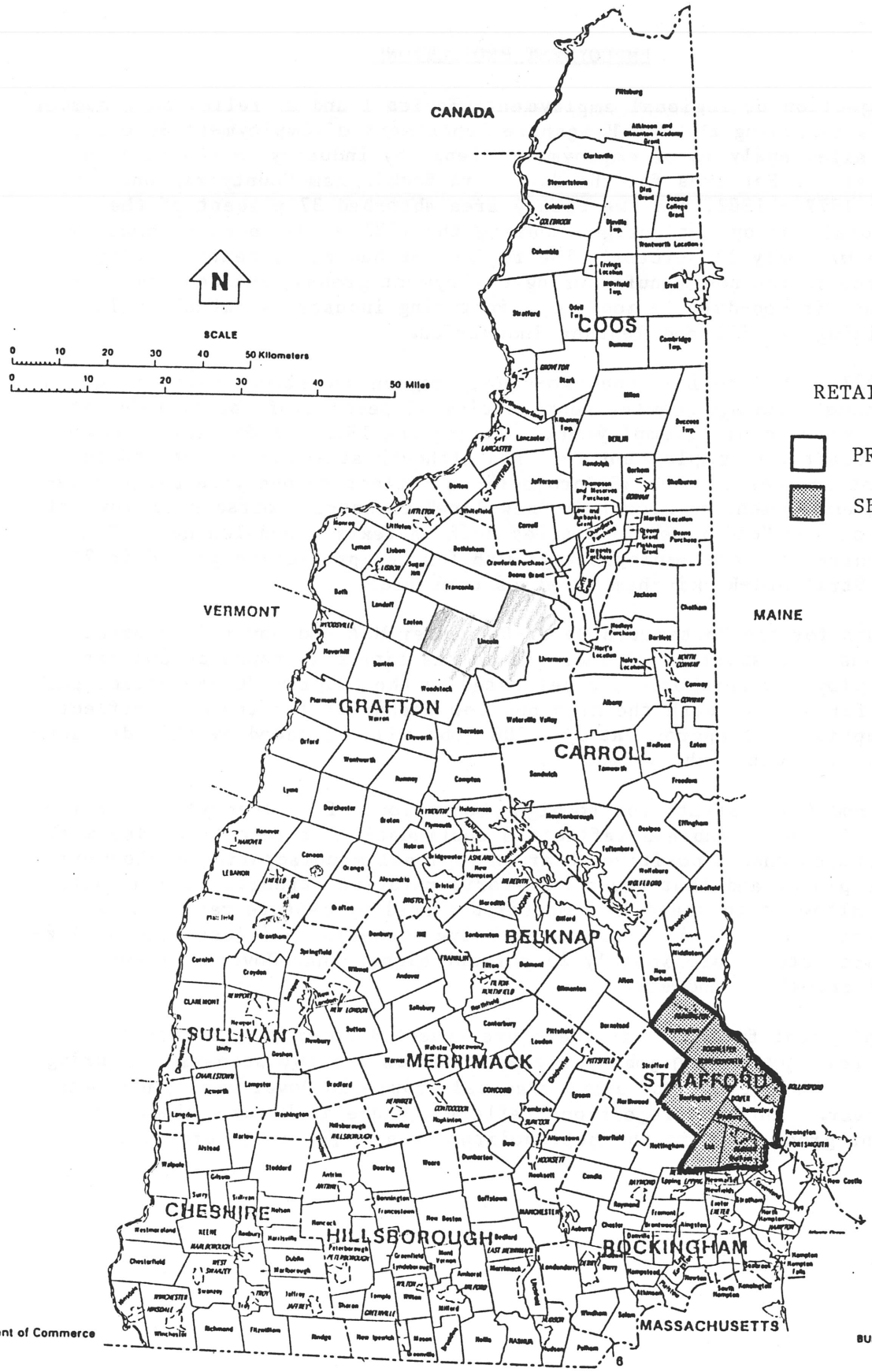
9) Estimate conservative and aggressive shares of ownership and rental growth for the city of Dover; calibrate the model to reflect the city's recent share of ownership and rental activity;

10) Project the city of Dover population based on the high and low growth scenarios in housing and based on the

expected mix of housing units; and

11) Utilize the projections of regional and local population to determine supportable local retail activity, and estimates of per capita income to determine supportable local retail activity.

These projections assume regional population and housing growth to be primarily a function of employment growth within the Seacoast area. Note that Dover's future population is projected based on its share of regional housing activity and the mix of housing types in the city.



MAP 1

DOVER
RETAIL MARKET AREA

PRIMARY (DOVER)

SECONDARY

U.S. Department of Commerce

BUREAU OF THE CENSUS

EMPLOYMENT PROJECTIONS

AER's projection of regional employment (Tables 1 and 2) relied on a number of sources including the New Hampshire Department of Employment Security and a detailed analysis of employment trends by industry as reported in County Business Patterns for the Strafford-Rockingham County region. In the years 1977 - 1982, the two-county area absorbed 37 percent of the state's total employment change. During the 1982 - 1985 period, however, its share was only 17 percent. The region has had consistently strong performance in the non-manufacturing employment groups, but has had weak performance in non-durable goods manufacturing industries, which include the declining textile and leather industries.

In the 1977 - 1982 period, the two-county region had strong performance in overall manufacturing growth, representing 40 percent of the state's net change in manufacturing employment. During the 1982 - 1985 period, however, manufacturing employment declined although statewide manufacturing employment increased. The AER projections reflect recovery in total manufacturing employment as growth in "new line" industries offsets employment losses from the "old line" industries such as textile and leather. The overall share of state employment growth for the projection period is 25 percent (Strafford-Rockingham Counties combined).

Projections for the Portsmouth-Dover-Rochester MSA and Dover incorporate assumptions of a substantial increase in the finance, insurance and real estate employment categories, accelerated by the Liberty Mutual office park proposed for Dover. Both the high and low scenarios for the city reflect the assumption that approximately 2,000 jobs will be added by this development over the next eight years.

Tables 3 and 4 illustrate low to high projections of employment growth for the city of Dover. Table 3 reflects a continuation of recent trends, with the assumption that a positive shift in regional manufacturing employment will take place, and that Dover's historic relative strength in manufacturing will allow it to share in a modest but healthy capture rate of new development. In Table 4, a more aggressive scenario is illustrated utilizing capture rates approximately 25 percent higher than Dover's historic shares of growth by industry group.

Total employment for Dover is therefore expected to grow at a rate of approximately 600 to 900 jobs per year based on the two scenarios. During the 1980 - 1985 period, the average annual growth in Dover employment was 430 per year. The two projections reflect a range in Dover's share of employment growth within the metropolitan area of 24 to 35 percent.

TABLE 1.

STATE AND REGIONAL EMPLOYMENT GROWTH

	EMPLOYMENT PROJECTION						STRAFFORD/ROCKINGHAM EMPLOYMENT		
	EMPLOYMENT STATE OF NH 1985	ANNUAL AVERAGE GROWTH(%)	EMPLOYMENT STATE OF NH 1995	CHANGE IN EMPLOYMENT 1985-1995	STRAFF/ ROCK. CTY SHARE OF GROWTH	STRAFF/ ROCKINGHAM GROWTH 1985-1995	1985	1995	% CHANGE
MANUFACTURING	120010	3.7%	164362	44352	14.3%	6341	25584	31925	24.8%
DURABLE GOODS	77165	4.6%	114015	36850	14.5%	5346	15545	20891	34.4%
Primary & Fabric. Metals	10676	3.9%	14840	4164	20.0%	833	2218	3051	37.5%
Machinery Exc. Electrical	26436	6.3%	43091	16655	14.8%	2469	4914	7383	50.2%
Electrical Products/Instruments	28224	4.8%	41772	13548	11.0%	1485	5932	7417	25.0%
Other Durables	11829	2.1%	14313	2484	22.5%	560	2481	3041	22.6%
NON-DURABLE GOODS	42845	1.8%	50347	7502	13.3%	995	10039	11034	9.9%
Textile & Apparel	6600	.7%	7062	462	-30.0%	-139	450	311	-30.8%
Paper & Allied/Publishing/Print	14705	2.0%	17646	2941	33.2%	976	2001	2977	48.8%
Leather & Leather Goods	4350	-2.4%	3306	-1044	85.0%	-887	1890	1003	-47.0%
Rubber & Plastics	9284	2.9%	11976	2692	35.0%	942	4253	5195	22.2%
Other Non-Durables	7906	3.1%	10357	2451	4.2%	102	1445	1547	7.1%
NON-MANUFACTURING	270407	3.3%	360312	89905	28.7%	25758	70712	96470	36.4%
TRANS., COMM., UTILITIES	15640	2.1%	18924	3284	65.0%	2135	5212	7347	41.0%
TRADE	110324	3.8%	152247	41923	30.7%	12877	32335	45212	39.8%
FINANCE, INS. AND REAL ESTATE	25023	4.3%	35783	10760	27.3%	2937	5649	8586	52.0%
SERVICES	89191	3.5%	120408	31217	23.2%	7246	18898	26144	38.3%
OTHER	30229	.9%	32950	2721	20.7%	563	8618	9181	6.5%
GOVERNMENT	56907	2.1%	69086	12179	38.4%	4680	24722	29402	18.9%
FEDERAL	7583	1.1%	8417	834	85.0%	709	7455	8164	9.5%
STATE/LOCAL	49324	2.3%	60669	11345	35.0%	3971	17267	21238	23.0%
TOTAL EMPLOYMENT	447324	3.3%	593760	146436	25.1%	36778	121018	157796	30.4%

Table 2. Projection of Market Area Employment (Metro Area)

file: jobproj

PORTSMOUTH-DOVER-ROCHESTER MSA (NH PORTION)

INDUSTRY CATEGORY	1980	1985	Estimated Avg. Annual Growth Rate	1995	Change in Employment 1980-85	Change in Employment 1985-95	Average Annual 1980-85	Average Annual 1985-95
MANUFACTURING	20567	17549	2.4%	21734	-3018	4185	-604	418
DURABLE GOODS	----	10155	3.4%	13608	---	3453		345
NON-DURABLE GOODS	----	7394	1.0%	8126	---	732		73
NON-MANUFACTURING	31297	43509	4.5%	63098	12212	19589	2442	1959
TRANS., COMM., UTILITIES	----	2072	4.1%	2922	----	850		85
TRADE	----	20438	4.0%	28572	----	8134		813
FINANCE, INS. AND REAL ESTATE	----	4520	9.5%	8814	----	4294		429
SERVICES & OTHER	----	16479	3.8%	22790	----	6311		631
GOVERNMENT	11500	12874	2.1%	15559	1374	2685	275	268
FEDERAL	1650	2045	1.0%	2239	----	194		19
STATE/LOCAL	9850	10829	2.3%	13320	----	2491		249
TOTAL EMPLOYMENT	63364	73932	3.6%	100391	10568	26459	2114	2646

SCENARIO 1
file: jobproj

Table 3. City Employment Projection 1 (Continuation of Recent Trends)

INDUSTRY CATEGORY	1980	1985	Share Of Metro Change 1980-85	Projected Share 1985-1995	Change in Employment 1980-85	Change in Employment 1985-95	Average Annual 1980-85	Average Annual 1985-95
MANUFACTURING	3904	3870	1.1%	18.3%	-34	764	-7	76
DURABLE GOODS	----	----	----	20.0%	----	691	----	69
NON-DURABLE GOODS	----	----	----	10.0%	----	73	----	7
NON-MANUFACTURING	4928	6925	16.4%	26.4%	1997	5164	399	516
TRANS., COMM., UTILITIES	175	522	----	35.0%	347	297	69	30
TRADE	2807	3325	----	10.0%	518	813	104	81
FINANCE, INS. AND REAL ESTATE	420	480	----	65.0%	60	2791	12	279
SERVICES & OTHER	1526	2598	----	20.0%	1072	1262	214	126
GOVERNMENT	2617	2823	15.0%	15.0%	206	403	41	40
FEDERAL	335	376	----	15.0%	41	29	8	3
STATE/LOCAL	2282	2447	----	15.0%	165	374	33	37
TOTAL EMPLOYMENT	11449	13618	20.5%	23.9%	2169	6331	434	633

Table 4. City Employment Projection 2

(Increased Share of Metro Employment Growth)

SCENARIO 2
file: jobproj

INDUSTRY CATEGORY	1980	1985	1980-85 Share Of Metro Change	1985-1995 Projected Share	Change in Employment 1980-85	Change in Employment 1985-95	Average Annual 1980-85	Average Annual 1985-95
MANUFACTURING	3904	3870	1.1%	23.3%	-34	973	-7	97
DURABLE GOODS	----	----	----	25.0%	----	863	----	86
NON-DURABLE GOODS	----	----	----	15.0%	----	110	----	11
NON-MANUFACTURING	4928	6925	16.4%	39.3%	1997	7702	399	770
TRANS., COMM., UTILITIES	175	522	----	40.0%	347	340	69	34
TRADE	2807	3325	----	25.0%	518	2034	104	203
FINANCE, INS. AND REAL ESTATE	420	480	----	80.0%	60	3435	12	344
SERVICES & OTHER	1526	2598	----	30.0%	1072	1893	214	189
GOVERNMENT	2617	2823	15.0%	20.0%	206	537	41	54
FEDERAL	335	376	----	20.0%	41	39	8	4
STATE/LOCAL	2282	2447	----	20.0%	165	498	33	50
TOTAL EMPLOYMENT	11449	13618	20.5%	34.8%	2169	9212	434	921

POPULATION AND HOUSING GROWTH

Table 5 illustrates recent and projected regional growth in employment, population, households and total housing stock. This model has been calibrated to account for the approximately 10,500 units added by permits issued in the 1980 to 1986 calendar years. By this model, we estimate that the Metro Area total housing stock will grow by nearly 16,000 units over the next eight years, or roughly 2,000 units per year.

Significant shifts occurring within the housing market indicate that:

1) The average number of persons per household is declining, but at a slower rate than it did in the 1970s.

2) Demographically, growth by age group will place more households within the age and income categories most strongly oriented toward home ownership versus rental tenure. This suggests an increasing development emphasis on ownership housing products, especially single family dwellings.

3) Due to demographics and to the Tax Reform Act of 1986, overall production of rental housing is likely to decline as a share of overall activity.

Table 6 illustrates our estimate of Dover's share of housing activity for the 1980 to 1987 period and for 1987 to 1995. Based on our analysis of regional growth patterns, Dover appears to have been absorbing approximately 15 percent of overall housing activity. While Dover has had a strong orientation toward rental housing, it has more recently shown a stronger market potential for home ownership and condominium units.

For the projection period of the next eight years (Table 6) assuming the recent trends in its share of regional growth, the city would need to accommodate approximately 2,400 additional housing units over the next eight years, or an average annual absorption of approximately 300 households annually. This table assumes that trends of the recent past would continue, with approximately 60 percent of ownership units in single family detached housing, and a 40 percent condominium share.

Table 7 illustrates a higher growth scenario for Dover, based on a 25 percent share of rental and ownership housing growth, accompanied by a shift toward a higher proportion of condominium ownership at 60 percent (rather than the 40 percent) within the city assumed in Table 6.

Assuming Dover captured 25 percent of the overall ownership and rental market, the city would need to accommodate nearly 4,000 housing units over the next eight years, or approximately 500 per year.

Dover currently has over 3,000 units of housing in accepted, approved or proposed developments. Approximately three-fourths of these units are in single family attached (condominium) units and 25 percent in single family

TABLE 5.

GROWTH IN MARKET AREA POPULATION,
HOUSEHOLDS AND HOUSING STOCK

file: dovfutr

	PORTSMOUTH DOVER ROCHESTER MSA (NH PORTION)				GROWTH IN HOUSING NEED	
	1980	1985	1987	1995	1980-87	1987-95
EMPLOYMENT	63364	70500	76000	95600	12636	19600
POPULATION	148927	159400	169900	200000	20973	30100
Persons/Job	2.35	2.26	2.24	2.09		
HOUSEHOLDS	52600	56929	61558	76923	8958	15365
Persons Per Household	2.83	2.80	2.76	2.60		
Homeowner %	61.0%	61.5%	62.0%	64.0%	63.7%	71.4%
Renter %	39.0%	38.5%	38.0%	36.0%	36.3%	28.6%
Homeowners	32095	35011	38166	49231	6071	11065
Vacancy Reserve	321	700	763	985		
Replacement	---	210	229	295		
Total Ownership Stock	32416	35921	39158	50511	6742	11353
Renters	20504	21918	23392	27692	2888	4300
Vacancy Reserve	410	1096	1170	1385		
Replacement	---	175	187	222		
Total Rental Stock	20914	23189	24749	29298	3835	4550
Total Housing Need	53330	59110	63907	79809	10577	15902

Table 6.

file: dovfutr

CITY OF DOVER HOUSING GROWTH: SCENARIO 1 RECENT TRENDS IN CAPTURE RATE AND HOUSING MIX

	1980	Share Of Growth 1980-87	1987	Growth 1980-87		Share Of Growth 1987-95	1995	Growth 1987-95
Homeowner Units	4470	13.0%	5346	876	53.33	13.0%	6822	1476
Single Family Detached	3505		4031	526	32.00		4916	885
Condominium & 2+ Family	965		1316	351	21.33		1906	590
Rental Units	4260	20.0%	5027	767	46.67	20.0%	5937	910
Total Year-Round Units	8730	15.5%	10373	1643	100.00	15.0%	12759	2386

CITY OF DOVER POPULATION GROWTH	1980	1987	1995	Change in Population 1980-87	1987-95
Persons Per Household					
Owner Occupied	3.00	2.90	2.82		
Renter Occupied	2.18	2.15	2.15		
Total	2.67	2.59	2.49		
Population In Occupied Units					
Owner	13286	15040	18662	1754	3622
Renter	8615	10484	12381	1869	1898
Other	476	555	675	79	120
Total Population	22377	26078	31718	3701	5640

Table 7.

file: dovfutr

CITY OF DOVER HOUSING GROWTH: SCENARIO 2 INCREASED SHARE OF REGIONAL HOUSING ACTIVITY

	1980	Share Of Growth 1980-87	1987	Growth 1980-87		Share Of Growth 1987-95	1995	Growth 1987-95
Homeowner Units	4470	13.0%	5346	876	53.32	25.0%	8184	2838
Single Family Detached	3505		4031	526	31.99		5166	1135
Condominium & 2+ Family	965		1315	350	21.33		3018	1703
Rental Units	4260	20.0%	5027	767	46.68	25.0%	6164	1137
Total Year-Round Units	8730	15.5%	10373	1643	100.00	25.0%	14349	3976

CITY OF DOVER POPULATION GROWTH	1980	1987	1995
Persons Per Household			
Owner Occupied	3.00	2.90	2.82
Renter Occupied	2.18	2.15	2.15
Total	2.67	2.59	2.51
Population In Occupied Units			
Owner	13286	15038	22387
Renter	8615	10484	12856
Other	476	555	766
Total Population	22377	26077	36009

Change in Population	1980-87	1987-95
	1752	7349
	1869	2372
	79	211
	3700	9932

detached housing and subdivision lots. The amount of multi-family approved and proposed units is negligible at the present time.

It must be recognized that housing tenure will not strictly follow inventory type in the housing market. That is, renters may occupy a significant share of single family, and condominium attached units. Garden-style condominiums, on the other hand, provide an opportunity for home ownership tenure in multi-family dwellings.

If the overall market shifts toward a demand for a single family detached product, and should an over-supply of condominium units in the Seacoast market emerge, actual absorption of households in Dover may not reflect the mix of units currently proposed to the city. If demand is high for single family detached homes on scattered sites throughout the city, single family units may be absorbed first, and in a decentralized pattern. If the market remains strong for condominium housing, a more concentrated pattern of development with somewhat lower population implications would emerge.

The population projections for Dover are based on the estimated number of persons per household in occupied units estimated separately for owner and rental tenure. In Tables 6 and 7, the range of year-round housing growth in Dover is anticipated to be in a range of 300 to 500 units per year (growth potential), while the range in population growth under the two assumptions is approximately 700 to 1,200 persons per year.

Dover's 1995 population, as projected by this model, would be in a range of 32,000 to 36,000 persons. These population assumptions have been incorporated into the retail projections which follow in the next section.

RETAIL PROJECTIONS

Our analysis of retail sales trends, set forth in our prior report, revealed that between 1972 and 1982 Dover lost a significant share of the region's total retail sales, primarily because of a declining share of shoppers' goods (items typically purchased in department stores) sales, as performance in the convenience goods categories were more consistent with its past performance and its role in the regional economy.

This report expands that prior analysis by estimating current retail sales and projecting future retail sales under two assumptions. Projections are detailed for shoppers' goods and convenience goods type merchandise and are estimated on a more general basis for "other retail" categories. It is important that two concepts be clearly understood:

> Retail Sales. This is the amount of merchandise sold in the city of Dover; and
>
> Expenditure Potential. This is the amount of merchandise purchased by residents of Dover and the secondary market area.

To the extent that sales are greater than the expenditure potential, on an overall basis sales are flowing into the city. If the expenditure potential is greater than sales, sales are flowing out of the city.

Dover's merchants compete in an extremely competitive environment. Newington's merchants offer an extensive array of merchandise in very convenient (if conventional) shopping centers. Downtown Portsmouth merchants provide a wide variety of specialized merchandise in an especially strong concentration of quality restaurants. Finally, metropolitan Boston's extensive array of retailing is within striking distance of the Dover market.

It is because of this competitive context that Dover's retailers are not garnering their full share of resident expenditure potentials. A significant, and growing outflow of retail sales (especially shoppers' goods sales) expenditure potential is occurring. Our estimates have been calibrated to coincide with the Census of Retail Trade, the most accurate indicator of retail sales in New Hampshire. Our analysis indicates that with respect to shoppers' goods type merchandise:

> Dover continues to function as a satelite shoppers' goods center. In 1982, its shoppers' goods sales of $27 million were greater than the shoppers' goods expenditures of city residents.
>
> Its role as a shoppers' goods center, however, is very weak when the market potentials offered by its surrounding communities (the secondary market area) are considered.
>
> On an overall basis, our estimates indicate that Dover's shoppers' goods merchants are capturing only 40 percent of the city's residents' shoppers' goods expenditures, and only 15 percent of the shoppers' goods expenditures of its surrounding communities.

Our analysis indicates that the city's shoppers' goods merchants market capture has declined precipitously since 1980. Our estimates indicate that in 1980 the city's shoppers' goods merchants were capturing 65 percent of the city's residents' shoppers' goods expenditures. By 1985, this capture rate declined to 40 percent, primarily in response to the opening of the Fox Run Mall in Newington.

Because convenience goods sales tend to stick closer to shoppers' residences, and because the city has experienced a significant increase of slightly over 70,000 square feet in new grocery store space since 1982, a different situation exists with respect to convenience goods. Our estimates indicate that:

The city is currently capturing about 85 percent of the resident convenience goods expenditure potential and 30 percent of the potential in its secondary market.

Its capture rate of both city and secondary market expenditure potentials has increased since 1982, primarily as a result of the substantial growth in the inventory of space.

Our analysis of future activity indicates that there is adequate growth within Dover and its surrounding communities to support a significant increase in the amount of retail space located in the city during the next 10 years. What is not so clear is whether or not that space will choose to locate in Dover or whether it will gravitate toward other communities (as has occurred for shoppers' goods space in the recent past).

We have prepared two scenarios for shoppers' goods and convenience goods projections, which are summarized in Tables 8 through 12 on the following pages. Major assumptions structuring these scenarios are:

Lower Growth Scenario. The city's 1995 population will be 32,000, its capture rates will remain at 1985 levels, and the amount of inflow sales (sales to residents of communities outside the primary and secondary market area) will remain at 1985 levels through the year 1995.

Higher Growth Scenario. The city's 1995 population will be 36,000, its capture rate of shoppers' goods sales expenditure of both primary and secondary market area residents will reverse past trends and will increase, and its attraction of inflow sales will increase.

In both scenarios, we have projected future income growth at a real (apart from inflation) rate of 1.5 percent per year.

Under the Lower Growth Scenario, Dover would add just under 330,000 square feet of new retail space during the projection period. Under the Higher Growth Scenario, the city would add 500,000 square feet of new retail space. While this range is considerable, we believe it is an appropriate

reflection of Dover's opportunities. Much of the difference in the projection lies within the shoppers' goods category. The Higher Growth Scenario effectively assumes that Dover will consciously direct its efforts to regain its former role as a strong shoppers' goods center by strengthening its downtown and actively encouraging the development of at least one major (200,000 square feet or more) shopping center during the next decade. It is our view that market conditions are right for Dover to realize such an opportunity provided an appropriate site can be identified in subsequent phases of this analysis.

Our first phase report, which analyzed retail trends, pointed out a sharp decline in Dover's regional retail role, in the face of its continuing strong performance in the region's housing and employment markets. These projections reveal that there is adequate market support for Dover to regain some of its market share during the next decade.

TABLE 8.

DOVER SHOPPERS GOODS TRENDS AND PROJECTIONS
LOWER GROWTH SCENARIO

Disk: RUSSAT
File:dovshop1

	1980	1982	1985	1995
PERSONAL INCOME				
Population				
Primary Market	22,377	22,833	23,517	32,000
Secondary Market	59,451	61,171	63,750	76,520
Total	81,828	84,004	87,267	108,520
Per Capita Income				
Primary Market	$7,445	$8,815	$11,275	$13,085
Secondary Market	$6,942	$8,074	$10,267	$11,915
Total	$7,080	$8,275	$10,539	$12,260
Total Personal Income($000)				
Primary Market	$166,597	$201,273	$265,154	$418,723
Secondary Market	$412,709	$493,895	$654,521	$911,757
Total	$579,306	$695,168	$919,675	$1,330,480
MARKET SALES POTENTIAL				
Percent of Income	10.00%	10.00%	10.00%	10.00%
Expenditures ($000)				
Primary Market	$16,660	$20,127	$26,515	$41,872
Secondary Market	$41,271	$49,389	$65,452	$91,176
Total	$57,931	$69,517	$91,968	$133,048
DOVER SALES POTENTIAL				
Capture Rates				
Primary Market	65.00%	55.00%	40.00%	40.00%
Secondary Market	28.00%	21.34%	15.00%	15.00%
Sales to Area Residents				
Primary Market($000)	$10,829	$11,070	$10,606	$16,749
Secondary Market($000)	$11,556	$10,540	$9,818	$13,676
Total ($000)	$22,385	$21,610	$20,424	$30,425
Inflow Sales				
Percent of Sales	20.00%	20.00%	15.00%	15.00%
Dollars ($000)	$5,596	$5,402	$3,604	$5,369
Total Sales	$27,981	$27,012	$24,028	$35,794
SUPPORTABLE SQUARE FEET				
Required Sales per Square Foot	$100	$110	$125	$125
Supportable Square Feet	279,808	245,565	192,226	286,356

TABLE 9.

DOVER SHOPPERS GOODS TRENDS AND PROJECTIONS
HIGHER GROWTH SCENARIO

Disk: RUSSAT
File:dovshop1

	1980	1982	1985	1995
PERSONAL INCOME				
Population				
Primary Market	22,377	22,833	23,517	36,000
Secondary Market	59,451	61,171	63,750	76,520
Total	81,828	84,004	87,267	112,520
Per Capita Income				
Primary Market	$7,445	$8,815	$11,275	$13,085
Secondary Market	$6,942	$8,074	$10,267	$11,915
Total	$7,080	$8,275	$10,539	$12,290
Total Personal Income($000)				
Primary Market	$166,597	$201,273	$265,154	$471,064
Secondary Market	$412,709	$493,895	$654,521	$911,757
Total	$579,306	$695,168	$919,675	$1,382,820
MARKET SALES POTENTIAL				
Percent of Income	10.00%	10.00%	10.00%	10.00%
Expenditures ($000)				
Primary Market	$16,660	$20,127	$26,515	$47,106
Secondary Market	$41,271	$49,389	$65,452	$91,176
Total	$57,931	$69,517	$91,968	$138,282
DOVER SALES POTENTIAL				
Capture Rates				
Primary Market	65.00%	55.00%	40.00%	45.00%
Secondary Market	28.00%	21.34%	15.00%	20.00%
Sales to Area Residents				
Primary Market($000)	$10,829	$11,070	$10,606	$21,198
Secondary Market($000)	$11,556	$10,540	$9,818	$18,235
Total ($000)	$22,385	$21,610	$20,424	$39,433
Inflow Sales				
Percent of Sales	20.00%	20.00%	15.00%	20.00%
Dollars ($000)	$5,596	$5,402	$3,604	$9,858
Total Sales	$27,981	$27,012	$24,028	$49,291
SUPPORTABLE SQUARE FEET				
Required Sales per Square Foot	$100	$110	$125	$125
Supportable Square Feet	279,808	245,565	192,226	394,330

TABLE 10.

DOVER CONVENIENCE GOODS TRENDS AND PROJECTIONS
LOWER GROWTH SCENARIO
8/19/1987

Disk: compac appr2
File:dovconv1

	1980	1982	1985	1995
PERSONAL INCOME				
Population				
Primary Market	22,377	22,833	23,517	32,000
Secondary Market	59,451	61,171	63,750	76,520
Total	81,828	84,004	87,267	108,520
Per Capita Income				
Primary Market	$7,445	$8,815	$11,275	$13,085
Secondary Market	$6,942	$8,074	$10,267	$11,915
Total	$7,080	$8,275	$10,539	$12,260
Total Personal Income($000)				
Primary Market	$166,597	$201,273	$265,154	$418,723
Secondary Market	$412,709	$493,895	$654,521	$911,757
Total	$579,306	$695,168	$919,675	$1,330,480
MARKET SALES POTENTIAL				
Percent of Income	17.00%	17.00%	17.00%	17.00%
Expenditures ($000)				
Primary Market	$28,321	$34,216	$45,076	$71,183
Secondary Market	$70,161	$83,962	$111,269	$154,999
Total	$98,482	$118,178	$156,345	$226,182
DOVER SALES POTENTIAL				
Capture Rates				
Primary Market	80.00%	80.00%	85.00%	85.00%
Secondary Market	20.00%	22.10%	30.00%	30.00%
Sales to Area Residents				
Primary Market($000)	$22,657	$27,373	$38,315	$60,505
Secondary Market($000)	$14,032	$18,556	$33,381	$46,500
Total ($000)	$36,689	$45,929	$71,695	$107,005
Inflow Sales				
Percent of Sales	10.00%	10.00%	15.00%	15.00%
Dollars ($000)	$4,077	$5,103	$12,652	$18,883
Total Sales	$40,766	$51,032	$84,347	$125,888
SUPPORTABLE SQUARE FEET				
Required Sales per Square Foot	$200	$210	$225	$225
Supportable Square Feet	203,829	243,009	374,878	559,504

TABLE 12.

SPATIAL NEEDS OF PROJECTED GROWTH TO 1995
City of Dover

Land Use	Square Feet Low	High	Land In Acres Low	High
INDUSTRIAL	440,000	560,000	50	70
Manufacturing	380,000	490,000	45	60
Other	60,000	70,000	5	10
OFFICE	1,080,000	1,170,000	200	260
Finance, Insurance and Real Estate	960,000	1,030,000	190	240
Other	120,000	140,000	10	20
RETAIL	329,000	500,000	35	60
Shoppers Goods	94,000	200,000	10	20
Convenience	185,000	225,000	20	30
Other	50,000	75,000	5	10
	(Housing Units)			
HOUSING	2,400	3,700	950	1,450
Single Family Det.	900	1,100	600	733
Condominium	600	1,700	200	567
Rental	900	900	150	150
Total Land Consumption			1,235	1,840

ADDENDUM A

SINGLE FAMILY HOME SALES REPORTED IN MULTIPLE LISTING SERVICES

First 6 Months 1987

Figure 1

Price Range	CITY OF DOVER Number	CITY OF DOVER Percent	METRO AREA Number	METRO AREA Percent	Dover Share Single Family Sales Activity
Under $100,000	27	27.3%	189	27.1%	14.3%
$100,000-$125,000	32	32.3%	145	20.8%	22.1%
$125,000-$150,000	16	16.2%	128	18.3%	12.5%
$150,000-$200,000	12	12.1%	139	19.9%	8.6%
$200,000 and Over	12	12.1%	97	13.9%	12.4%
Total	99	100.0%	698	100.0%	14.2%
Average Price	---	$135,024	---	$140,918	---
Median Price	---	$120,000	---	$126,200	---

SALES OF NEW CONDOMINIUM UNITS

January 1986 Through June 1987

Price Range	CITY OF DOVER Number	CITY OF DOVER Percent	METRO AREA Number	METRO AREA Percent	Dover Share New Condominium Sales Activity
Under $75,000	72	47.1%	397	29.1%	18.1%
$ 75,000-$100,000	69	45.1%	580	42.6%	11.9%
$100,000-$125,000	4	2.6%	150	11.0%	2.7%
$125,000-$150,000	3	2.0%	72	5.3%	4.2%
$150,000-$200,000	3	2.0%	97	7.1%	3.1%
$200,000 and Over	2	1.3%	66	4.8%	3.0%
Total	153	100.0%	1362	100.0%	11.2%
Estimated Median Price	---	$80,000	---	$117,000	---

Source of Condominium Sales Data: AER, Inc. compilation of original sales from developer to buyer extracted from Real Data, Inc. listings of property transfers recorded by County

Figure 2

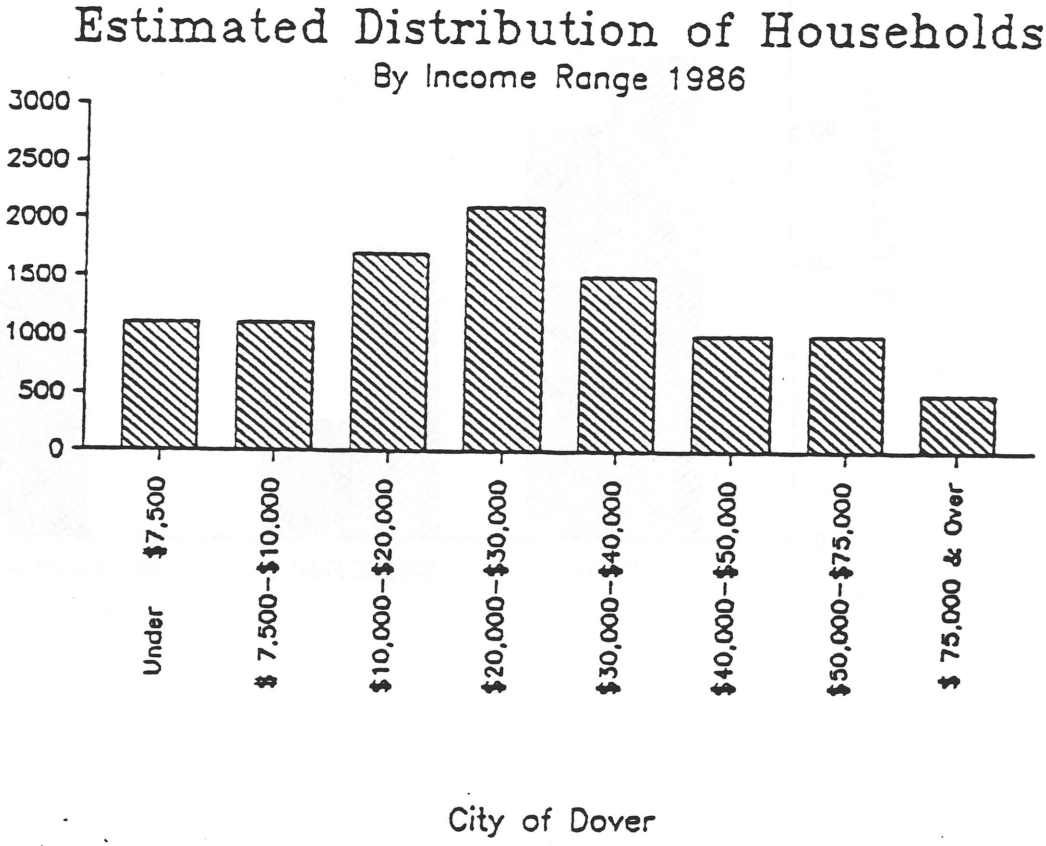
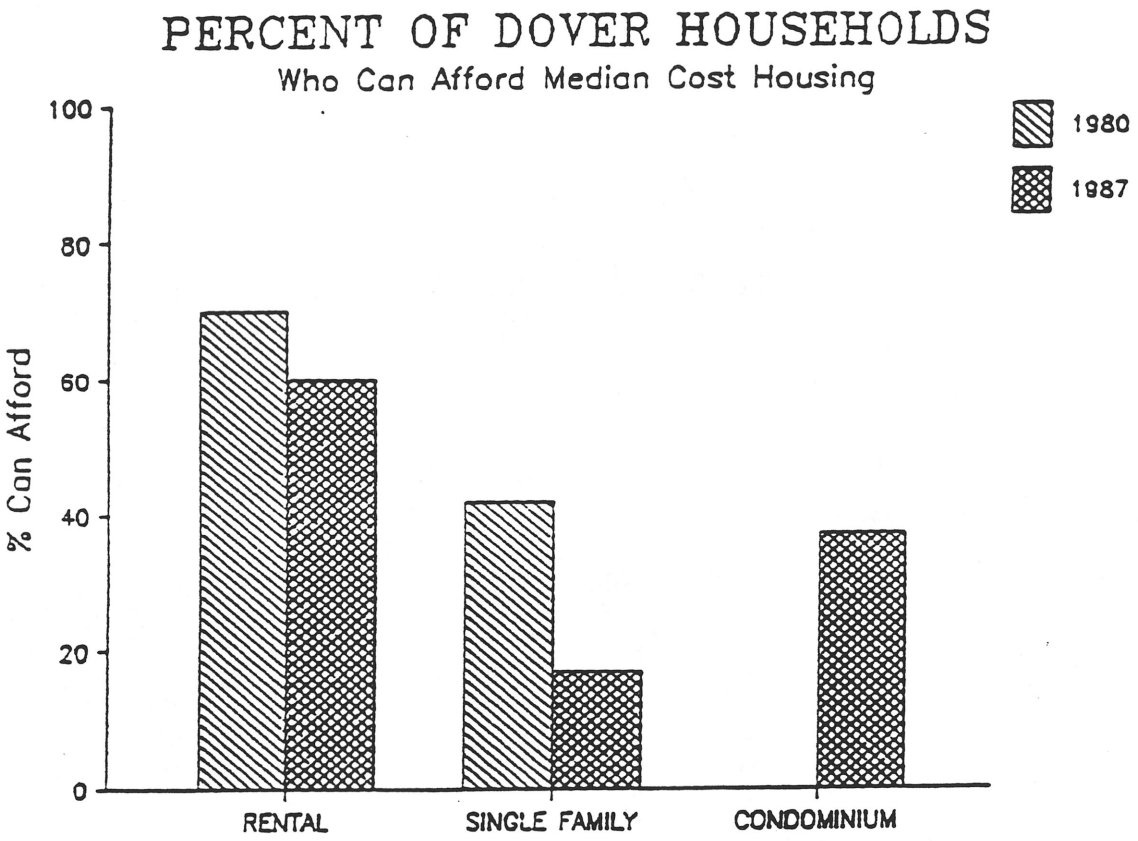

Estimated Distribution of Households
By Income Range 1986
3000
2500
2000
1500
1000
500
0
Under $7,500
$ 7,500-$10,000
$10,000-$20,000
$20,000-$30,000
$30,000-$40,000
$40,000-$50,000
$50,000-$75,000
$ 75,000 & Over
City of Dover

Figure 3


PERCENT OF DOVER HOUSEHOLDS
Who Can Afford Median Cost Housing
1980
1987
% Can Afford
100
80
60
40
20
0
RENTAL
SINGLE FAMILY
CONDOMINIUM

STRAFFORD REGIONAL PLANNING COMMISSION EMPLOYER SURVEY

FEBRUARY 1985

LOCATIONAL DECISION CRITERIA: RELATIVE IMPORTANCE	CRITICAL	SIGNIFICANT-TO-AVERAGE	MINIMAL VALUE	NO RESPONSE	TOTAL RESPONSES
MAJOR HIGHWAY LOCATION	18	12	5	0	35
AVAIL CONTRACT TRUCKING	15	13	7	0	35
SCHEDULED RAIL SERVICE	1	2	26	6	29
SCHEDULED AIR FREIGHT	8	15	10	2	33
SCHEDULED AIR PASS SERVICE	4	16	12	3	32
AVAIL OCEAN SHIPPING	4	7	21	3	32
INDUSTRIAL SEWAGE DISPOSAL	7	13	8	7	28
INDUSTRIAL WATER SUPPLY	11	14	5	5	30
SOLID WASTE DISPOSAL	7	18	7	3	32
OTHER UTILITIES	2	5	4	24	11
OTHER COMMUNITY SERVICES	2	4	4	25	10

Figure 4

FEBRUARY 1985

LOCATIONAL DECISION CRITERIA: RELATIVE IMPORTANCE	CRITICAL	SIGNIFICANT-TO-AVERAGE	MINIMAL VALUE	TOTAL
MAJOR HIGHWAY LOCATION	51.4%	34.3%	14.3%	100.0%
AVAIL CONTRACT TRUCKING	42.9%	37.1%	20.0%	100.0%
SCHEDULED RAIL SERVICE	3.4%	6.9%	89.7%	100.0%
SCHEDULED AIR FREIGHT	24.2%	45.5%	30.3%	100.0%
SCHEDULED AIR PASS SERVICE	12.5%	50.0%	37.5%	100.0%
AVAIL OCEAN SHIPPING	12.5%	21.9%	65.6%	100.0%
INDUSTRIAL SEWAGE DISPOSAL	25.0%	46.4%	28.6%	100.0%
INDUSTRIAL WATER SUPPLY	36.7%	46.7%	16.7%	100.0%
SOLID WASTE DISPOSAL	21.9%	56.3%	21.9%	100.0%
OTHER UTILITIES	18.2%	45.5%	36.4%	100.0%
OTHER COMMUNITY SERVICES	20.0%	40.0%	40.0%	100.0%

STRAFFORD REGIONAL PLANNING COMMISSION EMPLOYER SURVEY

FEBRUARY 1985

LOCATIONAL DECISION CURRENT CONDITIONS	SATISFIED	NEEDS IMPROVEMENT	NOT SATISFIED	NOT APPLICABLE	TOTAL RESPONSES
MAJOR HIGHWAY LOCATION	31	3	0	0	34
AVAIL CONTRACT TRUCKING	29	3	1	1	34
SCHEDULED RAIL SERVICE	20	2	2	10	34
SCHEDULED AIR FREIGHT	24	6	2	1	33
SCHEDULED AIR PASS SERVICE	25	3	3	2	33
AVAIL OCEAN SHIPPING	26	0	1	7	34
INDUSTRIAL SEWAGE DISPOSAL	25	2	2	2	31
INDUSTRIAL WATER SUPPLY	24	3	2	2	31
SOLID WASTE DISPOSAL	24	4	2	1	31
OTHER UTILITIES	18	0	1	7	26
OTHER COMMUNITY SERVICES	17	1	0	6	24

FEBRUARY 1985

LOCATIONAL DECISION CURRENT CONDITIONS	SATISFIED	NEEDS IMPROVEMENT	NOT SATISFIED	NOT APPLICABLE	TOTAL RESPONSES
MAJOR HIGHWAY LOCATION	91.2%	8.8%	.0%	.0%	100.0%
AVAIL CONTRACT TRUCKING	85.3%	8.8%	2.9%	2.9%	100.0%
SCHEDULED RAIL SERVICE	58.8%	5.9%	5.9%	29.4%	100.0%
SCHEDULED AIR FREIGHT	72.7%	18.2%	6.1%	3.0%	100.0%
SCHEDULED AIR PASS SERVICE	75.8%	9.1%	9.1%	6.1%	100.0%
AVAIL OCEAN SHIPPING	76.5%	.0%	2.9%	20.6%	100.0%
INDUSTRIAL SEWAGE DISPOSAL	80.6%	6.5%	6.5%	6.5%	100.0%
INDUSTRIAL WATER SUPPLY	77.4%	9.7%	6.5%	6.5%	100.0%
SOLID WASTE DISPOSAL	77.4%	12.9%	6.5%	3.2%	100.0%
OTHER UTILITIES	69.2%	.0%	3.8%	26.9%	100.0%
OTHER COMMUNITY SERVICES	70.8%	4.2%	.0%	25.0%	100.0%

TABULATION OF SURVEY RAW DATA BY APPLIED ECONOMIC RESEARCH, INC. AUGUST 1987

Figure 5

DETAILED INVENTORY OF MAJOR DEVELOPABLE LOTS
CITY OF DOVER

ZONE	FIRST QUARTILE (Most Developable)			SECOND QUARTILE			THIRD QUARTILE			FOURTH QUARTILE (Least Developable)			TOTAL SAMPLE		
	TOTAL ACRES	NUMBER OF LOTS	AVERAGE ACREAGE	TOTAL ACRES	NUMBER OF LOTS	AVERAGE ACREAGE	TOTAL ACRES	NUMBER OF LOTS	AVERAGE ACREAGE	TOTAL ACRES	NUMBER OF LOTS	AVERAGE ACREAGE			
B-3	96	2	48	20	1	20	NA	NA	NA	NA	NA	NA	116	3	39
I-1	159	3	53	28	2	14	95	2	47	156	5	31	437	12	36
I-2	43	2	21	58	1	58	37	1	37	NA	NA	NA	109	4	27
O	NA	NA	NA	12	1	12	NA	NA	NA	NA	NA	NA	12	1	12
R-12	281	10	28	150	6	25	116	3	39	NA	NA	NA	548	19	29
R-20	396	10	40	129	5	26	169	6	28	15	1	15	709	22	32
R-40	1,119	25	45	1,904	42	45	1,538	51	30	2,177	58	38	6,739	176	38
RM-10	76	3	25	NA	NA	NA	18	1	18	NA	NA	NA	94	4	23
RM-12	155	7	22	14	1	14	248	4	62	NA	NA	NA	417	12	35
RM-20	146	6	24	37	1	37	NA	NA	NA	NA	NA	NA	182	7	26
RM-8	15	1	15	18	1	18	NA	NA	NA	NA	NA	NA	33	2	17
TOTAL	2,485	69	36	2,341	61	38	2,222	68	33	2,348	64	37	9,396	262	36

* Includes Lots of 500,000 Sqft or more (+- 12 Acres and Over)

Source : Applied Economic Research analysis of City of Dover raw data from "Developable Land Rating System" Compiled in Spring,1987. A total of 900 Developable lots were rated,above table is for selected lots only of 500,000 square ft or more (262).

1980 CENSUS TRACT DATA FOR DOVER RESIDENTS AGE 16+ EMPLOYED

Figure 6

COMMUTER ORIENTATION

Total Worked In:	Tract Number 811	812	813	814	815	816	Total
DOVER	535	402	986	313	1115	894	4245
PORTSMOUTH	299	288	342	169	145	245	1488
DURHAM	187	70	141	35	156	91	680
KITTERY	122	76	119	77	120	99	613
NEWINGTON	61	102	11	14	76	62	326
ROCHESTER	36	37	33	27	79	103	315
OTHER	456	297	401	130	594	295	2173
TOTAL REPORTED	1696	1272	2033	765	2285	1789	9840

PERCENT DISTRIBUTION

Total Worked In:	Tract Number 811	812	813	814	815	816	Total
DOVER	31.5%	31.6%	48.5%	40.9%	48.8%	50.0%	43.1%
PORTSMOUTH	17.6%	22.6%	16.8%	22.1%	6.3%	13.7%	15.1%
DURHAM	11.0%	5.5%	6.9%	4.6%	6.8%	5.1%	6.9%
KITTERY	7.2%	6.0%	5.9%	10.1%	5.3%	5.5%	6.2%
NEWINGTON	3.6%	8.0%	.5%	1.8%	3.3%	3.5%	3.3%
ROCHESTER	2.1%	2.9%	1.6%	3.5%	3.5%	5.8%	3.2%
OTHER	26.9%	23.3%	19.7%	17.0%	26.0%	16.5%	22.1%
TOTAL REPORTED	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 7

1980 COMMUTER PATTERNS: CITY OF DOVER
Principal Work/Residence Destinations

	Number	Percent		Number	Percent
WORK IN DOVER	9481	100.0%	LIVE IN DOVER	9698	100.0%
Live In:			Work In:		
Dover	4245	44.8%	Dover	4245	43.8%
Commute In From:			Commute Out To:		
Rochester	1221	12.9%	Portsmouth	1488	15.3%
Somersworth	928	9.8%	Durham	680	7.0%
Rollinsford	327	3.4%	Somersworth	624	6.4%
Barrington	311	3.3%	Kittery	613	6.3%
Berwick, ME.	260	2.7%	Newington	326	3.4%
Durham	217	2.3%	Rochester	315	3.2%
S. Berwick, ME.	207	2.2%	Seabrook	126	1.3%
Portsmouth	185	2.0%	Hampton	100	1.0%
N. Berwick, ME.	137	1.4%	Berwick	82	.8%
Lebanon, ME.	101	1.1%	Other	1099	11.3%
Other	1342	14.2%			
Total Commute In:	5236	55.2%	Total Commute Out:	5453	56.2%

Source: New Hampshire Department of Employment Security, 1985
(Detailed Tabulations of 1980 Census Data)

Section Three

ECONOMIC AND HOUSING RECOMMENDATIONS

ECONOMIC AND HOUSING RECOMMENDATIONS: CITY OF DOVER MASTER PLAN ANALYSIS

This report is the third in a series of reports prepared by Applied Economic Research, Inc. under contract to the city of Dover. The overall purpose of the analysis is to analyze Dover's economic and housing performance in the regional market, to develop a series of economic and housing projections to guide subsequent Master Plan efforts (land use, transportation, capital improvements programming, etc.) and to prepare a series of recommendations that would help the city achieve its economic and housing objectives. Prior reports have analyzed trends in the city and regional economy and have presented projections of future regional and city activity under various assumptions. This report focuses on defining economic/housing objectives and recommendations.

In preparing this analysis, the consultant has been assisted by a task force of Dover residents who have met periodically during the study to review interim materials and to help guide the consultant's efforts. The consultant has also relied on Rist-Frost Associates to analyze some of the city's major physical development opportunities and constraints.

It should be noted that the objectives and recommendations which follow address only economic and housing considerations. As the Master Plan process progresses, land use, environmental, transportation and infrastructure considerations will be incorporated into the overall Master Plan process.

Objective: Balanced Growth for Dover

Dover's opportunities to balance its growth are structured by two distinct sets of considerations: (1) its regional market setting within the rapidly growing Portsmouth/Dover/Rochester metropolitan area; and (2) the city's development policies and investments relative to other communities in the metropolitan area. A brief discussion of each of these follows.

Dover's Regional Role

The Portsmouth/Dover/Rochester metropolitan area is a dynamic economic setting. Between 1980 and 1987, the regional economy added over 12,500 new jobs, just under 21,000 new residents and 10,600 new housing units.

The region's economic prospects are excellent. It has a diverse economic base with a strong governmental component (Portsmouth Naval Shipyard and Pease Air Force Base), first-rate educational facilities including the University of New Hampshire, excellent highway access afforded by the New Hampshire and Spaulding Turnpikes, a growing inventory of corporate headquarters and a wide range of communities offering lifestyles that range from relatively high amenity, urban settings to rural. The Portsmouth/Dover/Rochester metropolitan area has received prominent national attention as one of the nation's

fastest growing and most attractive regional economies.

Our projections are that the region will continue to sustain strong growth during the coming decade. This analysis anticipates that between 1987 and 1995, the region will add up to 19,600 new jobs, 30,000 new residents and 15,900 new housing units.

Most regional economies are dominated by a single, large community. The Portsmouth/Dover/Rochester economy is distinctive in that it draws its strength from a system of smaller communities with strong economic ties. Over the years, these communities have taken on specialized roles. Newington, for example, has emerged as the region's retail center during the past 20 years. Portsmouth's historic theme, its specialized retailing, its restaurants and its harbor setting have a drawing power that extends beyond the metropolitan limits.

Dover's specialized role in this regional setting has three major facets. First, measured in relationship to the city's share of the region's population (15% in 1987), the city has been attracting a large share of the region's employment growth. Between 1980 and 1985, Dover captured 30 percent of the region's employment growth. The city's role is particularly unique in manufacturing employment. While the region sustained a loss of 3,000 manufacturing jobs, Dover managed to post a modest increase in manufacturing employment between 1980 and 1985. The city also posted very healthy increases within its non-manufacturing employment categories.

A second major aspect of Dover's regional role is that it is an important source of housing for the region. Between 1980 and 1987, dwelling units authorized by building permit in Dover represented 15 percent of the region's total. On first blush, this is proportionate to the city's share of the region's 1987 population. However, as a relatively mature community, standard economic thinking would find Dover capturing a smaller share of regional housing growth as suburban communities grow more rapidly.

The city's strong residential growth is especially evident in recent months. There are currently several thousand dwelling units which have either received Planning Board approval or have been proposed for approval prior to the recently invoked moratorium. This inventory of approved and proposed units during the past year or so is well in excess of the 1,650 units authorized in Dover by building permit between 1980 and 1987.

A third aspect of Dover's performance relative to the regional economy is that it has experienced a significant erosion of its retail role between 1980 and 1987. This erosion has occurred as a result of the substantial increase in the inventory of retail space in Newington and Portsmouth. Although Dover has witnessed a substantial increase in its inventory of grocery store space, the expansion in its inventory of shoppers goods space (items typically purchased in a department store) has not kept pace with regional trends.

As Dover looks to its future, the anticipated strong regional economic performance provides Dover with an opportunity to balance its

growth. This regional economic growth could be thought of as the raw material from which Dover has the opportunity to frame a regional role that results in a balanced community with an appropriate mix of housing, industrial and commercial activity.

City Policies

Dover's past role in the regional economy can be traced to several important city attributes and policies. First, Dover is centrally located within the economic region. This has the dual benefit of making it relatively easy for Dover residents to commute to jobs throughout the metropolitan area, and making it easier for residents of other metropolitan communities to commute to jobs in Dover. This central location is further accentuated by the Spaulding Turnpike which bisects the city, affording easy access to the area's major employment centers.

A second major asset that has contributed to Dover's regional role is that it has a substantial inventory of developable land, with much of that land serviced by city sewer and water.

Thirdly, Dover has been willing to accommodate both residential and non-residential development. A major rezoning several years ago significantly increased the availability of residential sites capable of supporting higher density housing. The result has been a substantial increase in completed and approved multi-family housing. Although the capacity of some city services has been strained by the considerable volume of approved and proposed residential developments, it was not until 1987 that the city found it necessary to slow its rate of residential expansion.

Within the industrial area, the Dover Industrial Development Authority is the only actively funded authority in the region is to increase the community's employment base.

Finally, by virtue of its extensive capital improvements in downtown, the city has sought to preserve its commercial base.

In short, the city of Dover has been well aware of obligations and opportunities to shape its growth. What may have been lacking in the past--a focused effort to direct its growth into a desired pattern, will be afforded by the current Master Plan effort. Toward this end, the following objectives and recommendations are offered.

Objective 1: Assume Fair Share of Regional Housing Activity

Our projections call for the addition of almost 16,000 new housing units in the region during the next eight years. This figure represents 1.5 times the number of housing units currently in the city of Dover. Dover's recent experience indicates that it is a favored location for regional housing development. The city currently has over 2,000 acres of vacant land, close to sewer and water, zoned for residential purposes. Without some policy to guide residential development, both the Master Plan and the city will be set adrift. In several landmark decisions, the New Hampshire courts have established

that communities have a responsibility to assume a fair share of regional housing activity. Furthermore, as a diverse city, Dover needs residential development to support a growing industrial and commercial, non-residential tax base.

Dover has historically captured 15 percent of the region's new housing units. This share holds true for the 1980-1987 period. Also, Dover currently houses 15 percent of the region's population.

It is our recommendation that Dover's fair share of regional housing activity is best reflected in this 15 percent share. It is our recommendation that during the balance of the Master Plan process, including land use/zoning considerations, the planning of the city's infrastructure, and transportation planning be built around Dover capturing 15 percent of regional housing activity.

This 15 percent of regional activity would have the city of Dover experiencing an increase of 2,400 housing units over its current base of 10,400 units between 1987 and 1985. In turn, these additional units would find the city's population growing from its current 26,100 to a figure of 31,700 during the projection period.

To implement this recommendation, the city will have to monitor the permitting process within the region. If the city's development activity exceeds 15 percent of regional activity, the city should consider incorporating slow-down provisions into its development regulations that would result in an approximate 15 percent share of regional activity.

Affordable Housing

With an average single family home price in excess of $150,000 approaching $600 per month for two bedroom units, affordable housing is emerging as a major issue in Dover, in the seacoast region and in the State of New Hampshire. Some feel that unless relief is provided by either the marketplace or government action, a shortage of affordable housing will constrain future employment growth in the region and the state.

Dover has historically met its fair share of the region's low and moderate income housing needs. With 15 percent of the region's population, the city accommodates 30 percent of the region's assisted housing. Its active role in the region's rental market, the inventory of units managed by the Dover Housing Authority (currently *** units) and its inventory of older housing units have made it possible for the city to equitably address regional low and moderate income housing needs.

The appropriate objective is to recognize that it is far more difficult today to continue to meet those needs than has been the case in the past. There are virtually no federal subsidized housing programs capable of freeing up new and existing inventory for the needs of low and moderate income households. As a result of the region's strong economic performance, the region's housing inventory has faced substantial pressures which have caused home prices and

rents to rise faster than incomes. With this in mind, the following recommendations are made:

> As the Master Plan progresses, consideration should be given to establishing an affordable housing zone. The zone could be a floating zone which would be invoked by special exception, if the site meets specified criteria as to size, setbacks, utilities, etc. If authorized by special exception, a developer would be granted a 20 percent density bonus and relaxation of certain subdivision requirements, if at least 20 percent of the units were set aside for the needs of low and moderate income households. Deed restrictions should limit future price appreciation for those low/mod units.
>
> Manufactured home parks, which are currently authorized only in the R-40 zone by special exception, should be permitted by right in at least one zone, with appropriate setback and density provisions, and should be permitted by special exception in a wider range of residential zones within the city.
>
> The city, possibly acting in conjunction with the Dover Housing Authority, should encourage developers to participate more actively in the New Hampshire Housing Finance Authority's single family mortgage assistance program.
>
> The city should encourage and support regional solutions to the affordable housing issue. Although both Portsmouth and Rochester have active housing authorities, many of the region's smaller communities are not addressing low and moderate income housing needs.
>
> Dover's current inventory of assisted units is in balance with needs, as reflected in relatively short waiting lists for elderly and family units. The city should support the Dover Housing Authority's efforts to maintain this balance in the future through bonding, development incentives and other appropriate measures.

<u>High End Housing</u>

It is important that Dover continue to play a role in the region's high end housing market. The city's Dover Point area has the rural feeling, regional accessibility, and water frontage necessary to support a reasonable inventory of expensive, single family homes. In addition to preserving this area for continued single family home development, the city should give thought to instituting planned unit development provisions as it revamps its zoning ordinance. Experience

in other communities has shown that planned unit developments, which can provide for a diversity of housing types and the preservation of community open space, can efficiently provide high-end housing needed to maintain a balance in the city's social and economic structure.

Objective 2: Prominent Industrial Role

As noted in the preceding paragraphs, one of the distinguishing characteristics of Dover is that it is a regional employment center. A strong role in the regional employment markets tends to diversify the city's tax base and provide nearby employment opportunities for city residents.

It is paramount to the city's long-term economic diversity that it set aside an adequate supply of industrially zoned land. In the face of strong regional housing pressures, the city has lost some prime industrial land to small, low-density residential subdivisions. This residential development could have occurred on other parcels in the city, but the eroding supply of industrial land cannot be replaced.

Currently the city has less than 300 acres of vacant, industrially and commercially zoned land served by (or reasonably close to) sewer and water. This inventory is not adequate to accommodate anticipated demand. At our projected level of absorption, this inventory will last less than five years. Consequently, the city's future role as an employment center is jeopardized.

We recommend that the city consider a rezoning of land on either side of Columbus Avenue that is currently zoned R-20 and R-40. This land is reasonably close to the Spaulding Turnpike, can efficiently be served by sewer and water and is relatively flat. Its only drawback is that portions of the land are wet. It is recommended that as the Master Plan progresses, the land use component of the plan investigate soil conditions in this area more carefully to determine the appropriateness of a rezoning to industrial uses. This area is located adjacent to other non-residential sites and, unlike other potential industrial areas in the city, has not experienced a significant encroachment of residential activity.

Zoning more land for industrial purposes, in and of itself, will not guarantee immediate availability. In some cases, the city will have to extend utilities. In other cases, immediately placing that land on the market may not fit the owner's investment objectives. Consequently, we recommend that the Dover Industrial Development Authority (DIDA), with appropriate assistance from the city, acquire an industrial tract with some 50-100 acres, making that tract immediately available and actively promoted. For a number of years, DIDA has had an inventory of industrial sites.

Objective 3: Diversify Downtown Dover

Downtown Dover is an important source of employment and non-residential tax base to the city. Moreover, a healthy downtown is important to the city's progressive and prosperous image.

As a result of both public and private investments during the past decade, downtown Dover's investment climate is relatively healthy. Its streets and walks have been revamped to contemporary standards; most of its buildings have been tastefully rehabilitated. Although upper floor vacancy is characteristically low, first floor occupancy is healthy.

Downtown retailers nonetheless face special challenges. In the highly mobile seacoast economy, shoppers have been drawn away from downtown to the massive and convenient concentrations of retail space in Newington, Portsmouth and Kittery. Residents of Dover and surrounding communities are no longer a captive market for downtown retailers. These same forces are restructuring downtown retailing across the nation. A reversal, in which downtown can once again capture the lion's share of its resident market, is not on the practical horizon. Instead, downtown must draw its strength from new sources. If the investment climate in downtown Dover is to be made stronger, then new sources of support must be strengthened.

In a market sense, Dover must take steps to diversify the base of support for downtown merchants and building owners. This means that downtown Dover must be thought of as a diverse residential, employment, and retail center. New office industrial workers and residents in downtown will serve two purposes: (1) filling upper floor space that is underutilized; (2) providing a reasonable, captive market for downtown retailers. In short, the city should not shy away from, but rather encourage, investments that increase the number of residential units and the amount of space devoted to office and industrial uses in downtown.

Achieving this will, in turn, require a solution to the much discussed parking issues in downtown. The Wilbur Smith study, underway, will help to insure that the city's current parking inventory is managed to its maximum potential. Although there seems to be debate as to whether the current supply of parking is adequate on an overall sense, it is likely that more intense use of downtown's building inventory, including the Pacific Mills and the upper floors of many downtown buildings, will require more parking, conveniently located.

It is recommended that the city consider establishing a special taxing district in downtown for purposes of acquiring sites and developing additional parking. A special district would enable the city to surcharge tax rates to offset the capital cost of new parking. It is recommended that parking fees be adequate to offset operating expenses. The experience in other New Hampshire communities has been that parking fees cannot, in and of themselves, amortize capital costs and operating costs.

Traffic is also frequently cited as a problem in downtown. A traffic analysis is anticipated as a subsequent step in the Master Plan process. That traffic analysis will necessarily deal with downtown's traffic issues.

The management and promotion of downtown is currently directed by a subcommittee of the Chamber of Commerce. There is no full time

staff available and, as is characteristic of such efforts, the effectiveness of the organization tends to rise and fall on the commitment of volunteer efforts. If downtown Dover is to stage effective promotions and is to recruit new occupants, a stronger organization with full time staff will be needed.

It is recommended that a downtown strategy be established and a strong, well-funded management and promotional organization be instituted. The organization should be funded by contributions from property owners, merchants and downtown organizations. Ideally, the organization could be funded in conjunction with the downtown special district via an add-on to the property tax rate within the district. It is not clear whether funding for this purpose is enabled by existing state legislation.

Objective 4: Restore Cocheco Waterfront

This objective is closely related to strengthening downtown Dover's investment climate.

An important and attractive facet of Dover's history has been lost. That is, like Portsmouth and Newburyport, Dover was once a seaport city, with the Cocheco River providing access to Great Bay and the Atlantic Ocean. Today, only one small marina on the edge of downtown serves to continue Dover's ties to the sea.

Along the entire seaboard, communities have capitalized on a potent combination of water, boats, retailing, residential units and office space. Newburyport, Kennebunkport, Ogunquit and Portsmouth provide close-at-hand examples of successful adaptive reuse and new investment drawn by waterfront locations.

Dover has a strong opportunity to attract an appealing mix of shops, offices and residential units along its downtown Cocheco waterfront. The land currently occupied by its public works garage and by the soon to be abandoned sewerage treatment plant, affords a unique opportunity to craft an inviting mix of marina, retail, office and residential space. In doing so, it would draw an important entertainment component to the downtown scene, place excess public lands on the local tax roll and recapture the flavor of the city's historic past. In the process, the city would gain a new public works facility, most probably at the expense of the site's private developer.

It is recommended that the city immediately begin drafting a development strategy for the public lands adjacent to the Cocheco River in downtown. That strategy should:

> Inventory the land the city can make available to a private developer.
>
> Develop a conceptual Master Plan for the development of the site to incorporate marina, retail, office and residential uses, along with the necessary supporting parking, etc.

Indicate a rezoning, most probably to the Cocheco Waterfront District (CWD) zone, that would enable a multi-use development on the site.

Identify an alternative location for the public works garage.

Resolve potentially significant access problems.

Address sewer, water, and other utility issues (including the power lines which cross the Cocheco River downstream from downtown).

Appraise the market value of the land to be offered.

Prepare a developer's kit outlining the specifics of the proposal and the city's expectations of developers.

Solicit developer responses to this kit via regional and national media exposure.

Review developer responses and make a recommendation as to an appropriate developer, after consideration of the viability of the plan, innovative design considerations and the financial strengths/experience of the firm.

It is recommended that a Cocheco Waterfront Task Force be formed by the Dover City Council to oversee this strategy with representation drawn from:

The City Council;

City staff, including the city manager, planning director, director of DIDA, public works director;

Representatives from the Planning Board;

Citizen representatives.

It is recommended further that the City Council fund the Task Force adequately to accomplish its objective of drafting an appropriate development plan and selecting a development entity. The Task Force may need outside consulting and certainly would experience costs in preparing and distributing the developer's kit. Costs could be recovered through the sale of the land.

Objective 5: Strengthen Retail Performance

With the exception of the grocery store component, which has seen a significant increase in the city's inventory of space since 1980, Dover's retail performance has not kept pace with market area growth. We estimate that currently Dover residents spend 60 percent of their

shoppers goods (apparel, gifts, furniture, etc.) dollars outside Dover. This represents a significant increase since 1980, when residents spent only 35 percent of their shoppers goods dollars outside the city. These dollars flowing out of the city decrease the profitability of existing merchants, reduce Dover's non-residential tax base and cause Dover residents to drive further to meet their shoppers goods needs.

The dynamic growth expected both regionally and in the city, will support a significant increase in the region's inventory of retail space during the coming years. It is certain that new shoppers goods space will be added to the region's inventory on a continuing basis over the next eight years. It is not at all clear, however, that Dover will be able to secure a balanced, fair share of that activity.

Our analysis shows that capturing a modestly higher proportion of the shoppers goods spending of residents of Dover and its surrounding communities can support a significant increase in retail space. If the capture rate of Dover's primary and secondary market areas were increased to a figure that is 5 percent higher than the current capture rate (an increase from a 40% to 45% capture of Dover resident expenditures, for example), Dover would be able to support an additional 200,000 square feet of shoppers goods space between 1985 and 1995. It is our view that there is a large community shopping center of some 250,000-350,000 square feet that will locate in Dover, Rochester or Somersworth sometime during the next several years.

It is not unusual for communities to discourage the development of new shopping centers, particularly if it is felt the shopping center will pull support from downtown merchants. We see a different environment in the Dover/seacoast area. As noted above, downtown merchants already must compete with a strong concentration of retail space in shopping centers outside the city. The relatively high occupancy rate on first floor retail space in downtown Dover indicates that the city's merchants have adapted well to an extremely competitive market environment. Those merchants are drawing a growing proportion of their support from market segments that are relatively isolated from new shopping centers. Furthermore, if the city were to discourage the location of a shopping center within its boundaries, market demand would support that center in an adjacent community. The highly fluid movement of shoppers dollars already in-place and the location of the center would have similar effects on downtown merchants. In fact, Dover's role as a retail community would be further eroded, possibly to the greater detriment of downtown merchants.

It is our recommendation that the city take steps to frame an environment in which a large community center can locate with the city's boundaries, rather than in the boundaries of an adjacent community. Toward this end we would recommend that the city seek additional land to be zoned "B-3," the city's principal zone that is conducive to the development of a large shopping center. In the course of this analysis, the most promising site for an expansion of the B-3 inventory is extending the existing B-3 zone west of Exit 9 along the Sixth Street Extension, westerly along Sixth street. This would result in minimal disruptions to the city's traffic patterns and

appears to be a viable site for additional commercial space.

Secondly, we recommend that the range of permitted uses within the B-3 zone be amended to eliminate multi-family dwellings, which can now be authorized by special exception. Multiple family dwellings can locate in a number of city zones and there is a possibility that if this provision remains in the ordinance, the city's small inventory of B-3 sites could be lost to multi-family residential development.

Analysis of Study Areas

In framing the above recommendations, six study areas were investigated from the perspective of establishing their ability to meet the above cited economic/housing development objectives. Applied Economic Research viewed these six study areas from the perspective of their economic and market potentials. Rist-Frost Associates studied three of these study areas more intensively, examining their physical characteristics, the availability of utilities and transportation issues. Their report is included as Addendum A to this analysis. The findings of this analysis with respect to these six study areas are discussed in the following paragraphs. There is some overlap between these observations and the recommendations set forth in the preceding paragraphs.

Study Area 1: Exit 9 at Sixth Street

Exit 9 is emerging as an important development node for the city. The anticipated development of the Liberty Mutual site, which would be served by this interchange, will significantly increase its significance to the city during the coming years. Virtually all of the city's vacant land zoned B-3 is located at this interchange.

Rist-Frost Associates has analyzed soils within the interchange. The soil data indicate that some of the land in the westerly quadrant of this interchange, north of the Sixth Street Extension falls into the wet soils categories. In general, however, the land can be adapted to a wide range of uses.

Sewer and water services will be extended into the general neighborhood as a result of the Liberty Mutual development program. This will significantly increase the development opportunities within this study area.

The Sixth Street Extension B-3 zoned land represents the city's major opportunity to accommodate a large shopping center. It is conceivable that this interchange could also support the development of a hotel and office space. It is important that the city not allow subdivision of the prime Sixth Street frontage into smaller lots. The state's granting of only one access from the northerly side of West Street should help to preclude the development of fast foods restaurants which would erode the significance of this important site as the city seeks to accommodate a large shopping center, but the city should consider imposing a minimum lot size of three acres in the zone.

It is recommended that the B-3 zone be extended along the easter-

ly side of Sixth Street to the terminus of the existing I-1 zone. This land is currently zoned R-40 and has the ability to support more intense usage to the benefit of the city's tax base.

Study Area 2: Intersection of Columbus Avenue, Upper Factory Road and Tolend Road

Study Area 2 centers on the intersection of Columbus Avenue, upper Factory Road, and Tolend Road. The westerly side of this study area is currently zoned R-40 and the easterly side is currently zoned R-20.

It is recommended that as the Master Plan process progresses, this area be carefully investigated for rezoning to industrial uses. The area is effectively sandwiched between the city's ETP zone and its I-1 zones. Access is reasonably good, although a roadway connecting Sixth Street Extension and Upper Factory Road would improve access to the Spaulding Turnpike. Utilities can be extended to the site. Rist Frost Associates' analysis indicates that there are some wet soils scattered in this area. The topography is favorable to the requirements of industrial users.

Study Area 3: Dover Point

This study area consists of Dover Point. Currently this study area is accommodating the city's most expensive new housing. It is recommended that this role be preserved in the future. The study area is expected to accommodate the expanded sewerage treatment plant programmed to be developed during the next five years. This will increase the pressure for this area to accommodate higher density residential development. To some degree, the market may well dictate continued use of this study area as a place for high-end housing. In any event, the current large lot size has worked effectively in combination with Dover Point's amenities to carve this favorable niche in the regional housing market. We believe that niche should be continued.

Sub-Area 4: Bellamy River

A significant portion of this sub-area has been acquired by an active developer in the seacoast market. This sub-area, with frontage along the Bellamy River, represents one of Dover's prime residential development parcels. The area includes attractive natural habitat areas along the Bellamy River. The development of this parcel could significantly alter Dover's residential patterns during the coming years.

As noted in Rist-Frost Associates' analysis of county soil data, there is a substantial amount of wetland associated with this parcel. Another complicating development factor is that an intense development of this sub-area could carry with it substantial traffic impacts.

This parcel appears to be particularly well-suited to a planned unit development concept with a diversity of housing types clustered on its sub-areas with better soils. Currently the city does not have

a planned-unit development provision in the ordinance. It is recommended that such a provision be framed as a revision to the city's zoning ordinance and that the planned unit development provisions be drafted in such a way that they are appropriate to the Bellamy River sub-area.

It would be advantageous to the city to encourage the acquisition of some of the wetlands adjacent to the river. This represents the last significant natural habitat of its type in the city.

Sub-Area 5: Downtown Dover

AER's observations on downtown Dover and its investment climate have been discussed above. In addition to the traditional downtown center, this sub-area includes peripheral areas that have some of the city's older housing stock. These peripheral areas have been the focus of the city's Community Development Block Grant funding and it is recommended that the city continue to focus its Community Development Block Grant funds on these peripheral residential neighborhoods.

Dover's Community Development Block Grant program has successfully rehabilitated what was formerly the most deteriorated housing in the sub-area. Today, there is still physical deterioration on scattered sites on the fringe of downtown. It is recommended that the Community Development Block Grant program focus on those scattered units with an ongoing rehabilitation loan and grant effort. In doing so, it is recommended that the city's Community Development Block Grant program be encouraged to pursue rehabilitation activities aggressively.

Sub Area 6: Cocheco Waterfront

This sub-area embraces the existing sewerage treatment plant and public works sites along with adjacent lands overlooking the Cocheco River. This sub-area's development opportunities are substantial and very important to the future economic development of the city. Our recommendations with respect to this sub-area have been discussed in the previous section of this analysis.

ADDENDUM A

RIST-FROST PHYSICAL ANALYSIS

City of Dover
Site Investigations
Study Areas 1, 2 and 3

I. Introduction

This analysis investigates three specific sites to determine suitability for future development using four separate criteria; 1. Soils; 2. Topography; 3. Water and Sewer; and 4. Transportation. The proposed type of developments are depicted on each site plan along with soils ranked in a three-tier preference. In addition, contours from USGS mapping are shown as well as existing water and sewer infrastructure and primary roads serving each site in question.

Soils 1.1

Table 1 presents the types of soils, along with associated slopes, found at each site under review. Table 2, in alphabetical order, ranks the various soils in a three-tier system. It must be stressed that Group 3 or the least acceptable does not preclude development. Based on the two criteria used to indicate ranking, the least acceptable soils were given this designation primarily due to either the potential for bedrock close to or at the surface, or the potential for a high water table. From an engineering standpoint neither of these factors present unsurmountable obstacles to development.

Table 1

City of Dover Site Investigations

Soil Types and Slopes

Soil Type	A(0-3%)	B(0-8%)	C(8-15%)	D(15-25%)	E(25-60%)
SITE 1					
Bz	*	*			
Cf		*			
Ea		*			
Gs			*		
Hc		*			
Sc		*			
Sf			*		
SITE 2					
Ad			*		
Be		*			
Cf		*			
Ea	*	*			
Hc		*	*		
Lc		*			
Sb					
Sc	*				
Sn		*			
SITE 3					
Bz	*	*			
Be					
Ea	*				
Ha			*		
Hc		*			
Hg		*		*	
Sc	*	*			
Sf			*		
Sw		*			
Ta			*		
Wd					*

Table 2

City of Dover Site Investigating

Soil Suitability Ranking

Soil Type	Homesite Foundation (3 stories or less)	Streets and Parking Lots (Paved)	Development Ranking
Biddeford (Be)	Severe	Severe	3
Buxton (Bz)	Moderate	Severe	2
Charlton (Cf)	Slight	Moderate	1
Elmwood (Ea)	Moderate	Severe	2
Glouchester (Gs)	Moderate	Moderate	1
Hinckley (Ha)	Moderate	Severe	2
Hollis (HC Hg)	Severe	Severe	2
Leicester (Lc)	Severe	Severe	3
Saugutuck (Sb)	Severe	Severe	3
Scantic (Sc)	Severe	Severe	3
Tidal Marsh (Ta)	Severe	Severe	3
Windsor (WdE)	Severe	Severe	3

1 = most acceptable

2 = acceptable

3 = least acceptable

Topography 1.2

Generally all three sites under review provide adequate topographic features. In general, slopes on Site 1 are relatively mild with elevations ranging from a high of 200' to a low approximately 150'. Slopes are generally mild with a slight slope to Indian Brook which runs north-northeasterly from Sixth Street towards the middle of the site.

Generally slopes across a majority of the site are in the range of 3% to 8% or less based in the USSCS soil survey.

Overall, a little limitation is presented by topography, however, the existing stream must be considered when planning future development.

Site 2 is slightly more sloped than Site 1. However, slopes are generally in a range of 3% to 8% or less, and elevations range from a high of approximately 190' in the northern portion to a low of approximately 120' in the area of Littleworth Road at Kelly Brook.

Kelly Brook and Knox Marsh Brook both flow southerly through the site in the southern portion of the site presenting potential access and drainage considerations.

The general slope of the land is to the east, except in the areas immediately adjacent to the two brooks.

Relatively little limitation to development is presented by the topography in this area.

Site 3 being at the eastern most portion of the City has the lowest elevations of the three sites under review ranging from Bellamy River elevation to a high approximately 100' along Piscataqua Road. Generally terrain rises up and away from the Bellamy River in a west-southwesterly direction. It is worth noting that small pockets of Hollis and Windsor soils are present at this site with slopes ranging from 15% to 60%.

From the demand identified above, the following represents the pipe size that would be needed to service each site under review for the type of uses contemplated.

Site 1

Total GPD	Peaking Factor	Peak GPM		
294,400	6	1,226	=	10" water 10"-12" sewer

Site 2

Total GPD	Peaking Factor	Peak GPM		
412,000	6	1,716	=	12" water 14"-16" sewer

Site 3

Total GPD	Peaking Factor	Peak GPM		
45,000	6	188	=	6" water 8" sewer

1.4 Transportation

Of the three sites under investigation, Site 1 would appear to have the best highway access. It is bounded to the north by the Spaulding Turnpike and to the east by the Sixth Street connector which would provide direct access to the Spaulding Turnpike. In conversations with New Hampshire highway personnel, one point of access is allowed from Site 1 to the connector, otherwise points-of-access would come from Sixth Street.

Site 2 does not have the same direct connection with the Spaulding Turnpike, nonetheless, it is bissected by Columbus Avenue which connects with Littleworth Road to the south and Tolend Road to the north.

Unquestionably, traffic concerns would be of utmost importance to residential development at Site 3. Piscataqua Road would likely be the main thoroughfare to this site but other roads abutting this site including Bay View, Rabbit and Tuttle would have to be upgraded along with hre internal circulation roads within the site.

Of primary importance to any future development proposals is the status of an East-West connector which will likely terminate at some point on the Spaulding Turnpike north of exit 9. As part of the State's 10-year plan, a $1-million study will be undertaken to determine the perferred corridor. Until that study is complete and a firm course of action is in place, other major highway projects including elimination of the Week's traffic circle have been placed on hold. The following represents the current highway improvement projects anticipated on Dover over the next ten years.

City of Dover
State Highway Ten-Year Plan

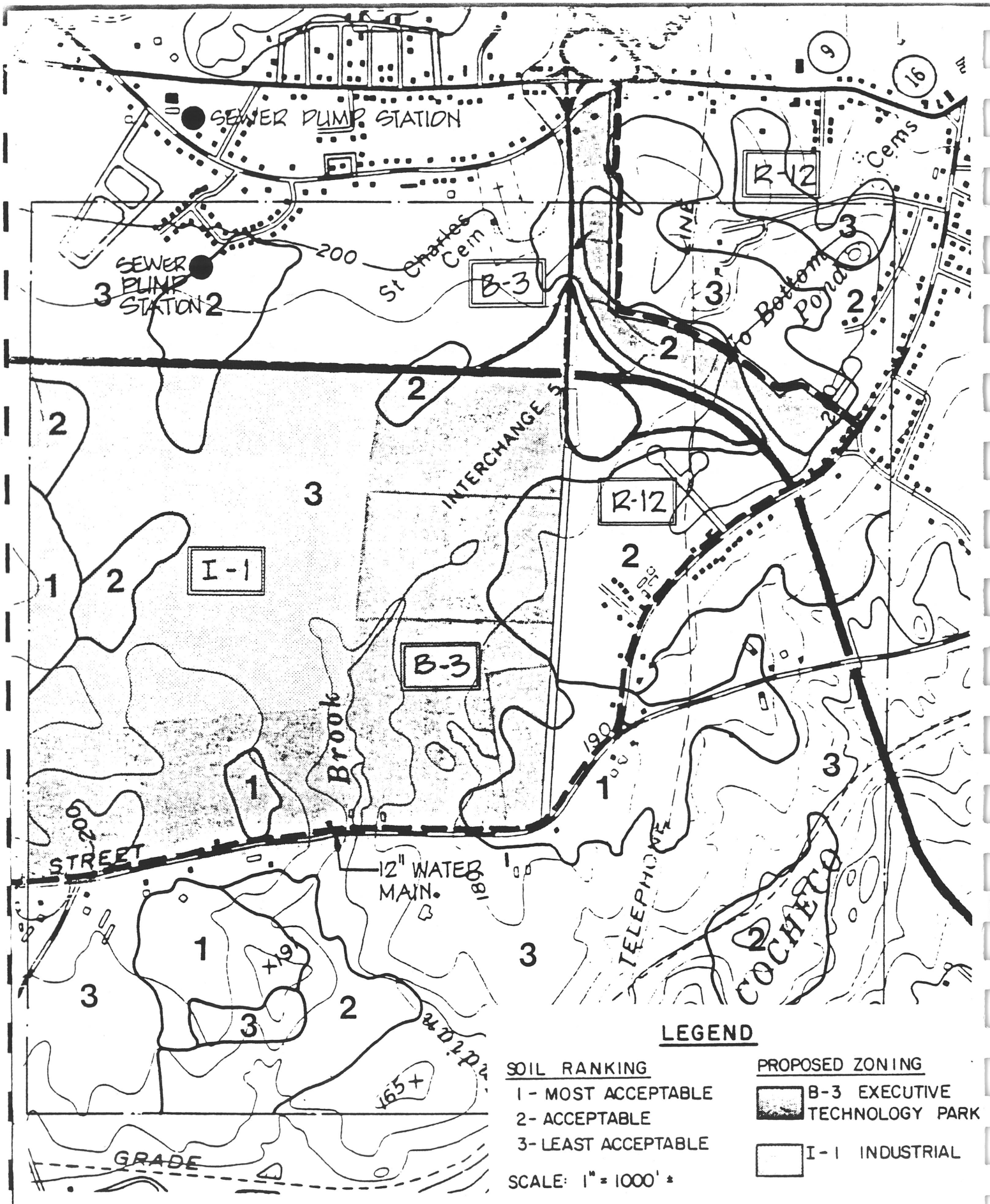
1. 1995 Reconstruct crossing and modernize signals and roadway approach. B&M Railroad crossing on _____ Road.

2. 1990 Spaulding Turnpike: Improve and expand toll plaza to 8 lanes

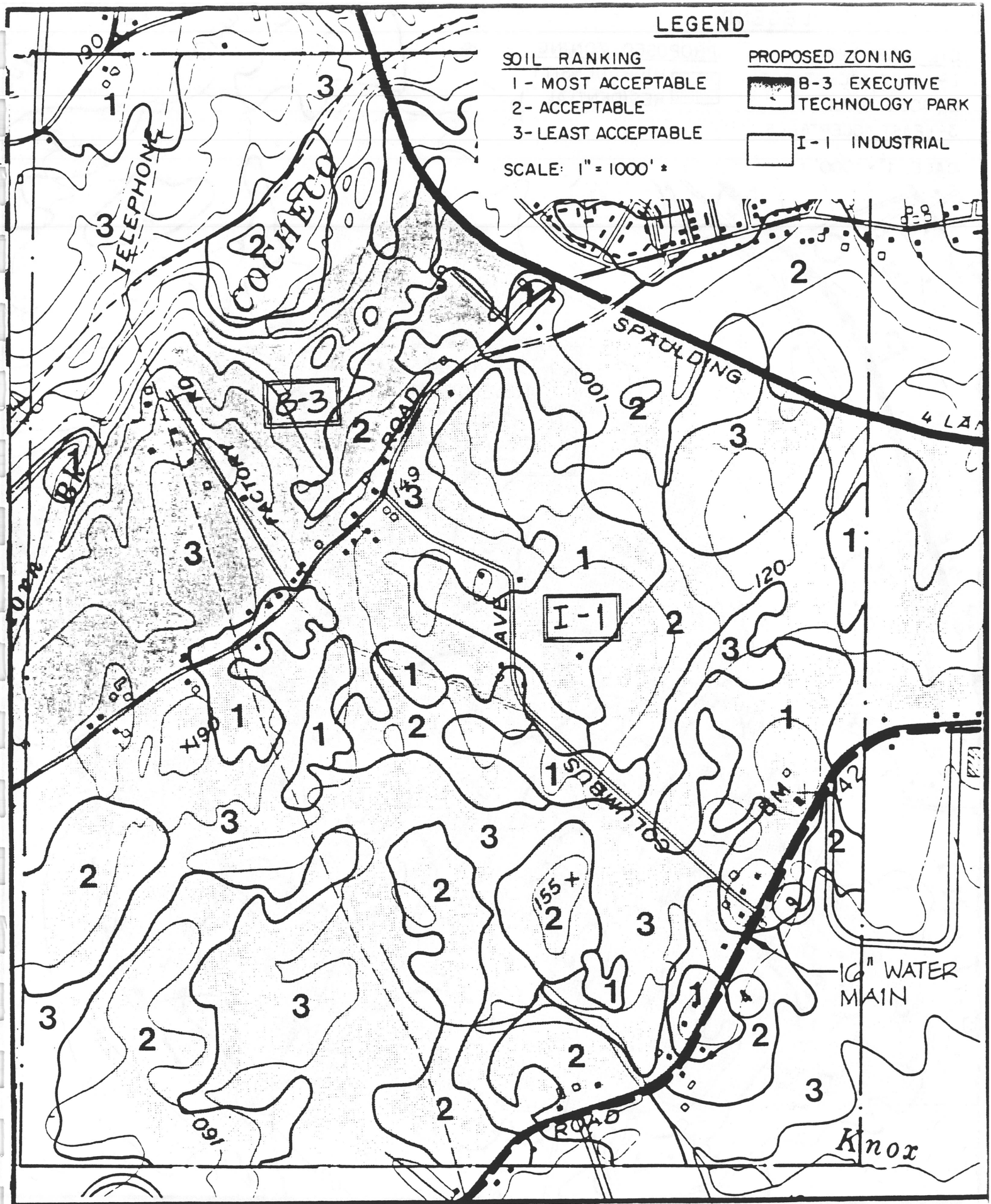
3. 1993 Spaulding Turnpike: Safety improvements - 16.4 miles

4. 1987 Spaulding Turnpike: Environmental landscaping

5. 1973 Concord to Spaulding Turnpike: Long-range study

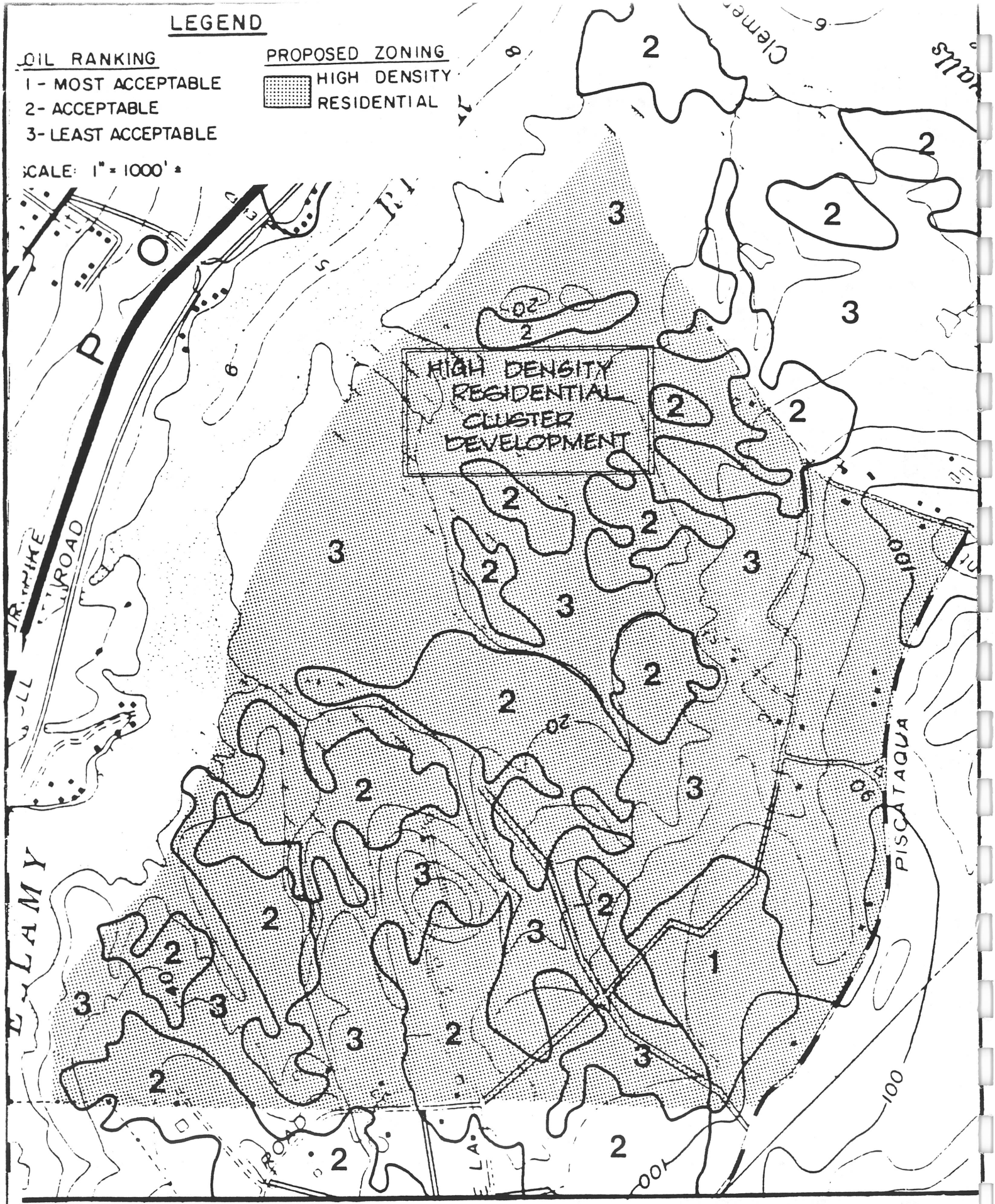


CITY OF DOVER
LAND USE PLAN
SITE 1



CITY OF DOVER
LAND USE PLAN

SITE 2



CITY OF DOVER
LAND USE PLAN
SITE 3

Section Four

LAND USE

THE CITY

Dover is approximately 28.36 square miles in size and is located at the confluence of three rivers (Salmon Falls, Bellamy, and Cochecho). The City was founded in the Spring of 1623 by Edward Hilton and flourished for many years as a fishing village. Lumber soon became the major industry and with the availability of ship timber, boat building took place along the Cochecho and Dover Neck.

The early 1800's brought the advent of the cotton and woolen industry to Dover and huge mills were constructed to house the manufacturing of cloth. The mills allowed Dover to prosper and grow at a rapid pace. In 1820 the population was 2870, and by 1860 census data showed that 8502 people resided in the City.

By the mid-to late-1800's, Dover had a flourishing brick industry with millions of tons of "Dover brick" being carried to Portsmouth on gundalows. These gundalows were flat bottom boats used on Great Bay and the Piscataqua and were a major form of transportation for the distribution of manufactured goods.

Tanning and shoe manufacturing became Dover's major industry in the early twentieth century. This industry flourished until competition from foreign manufacturers flooded the domestic markets.

Today the mill complexes located throughout the City serve as a constant reminder of Dover's heritage as a mill town. All but one mill site (that occupied by Clarostat) are no longer in manufacturing, and have been converted to residential and office use.

Dover's population has been steadily increasing and indications are that it will continue growing. Census data from 1970 show Dover's population at 21,002, a 9.8 percent increase over 1960 census figures; in 1980, the population had increased 6.5 percent to 22,377. Between 1980 and 1987, the City grew 15.4 percent to a total of to 26,100 residents (Housing and Economic Development components of the Master Plan).

Historically, Dover has absorbed 15 percent of the region's population growth. Projections in the Housing Section of the Master Plan estimate that the City will

increase to 31,700 residents by 1995. This represents 16% of the expected regional growth. Should Dover increase at a slightly higher rate of growth (28% of the region), the population in 1995 will be 36,000.

While Dover is not central to New Hampshire's major highways, the City serves as a hub for several secondary roads. The Spaulding Turnpike is the major highway in the area; State routes 4, 9, 16, 108 and 155 intersect near the center of Dover and provide intra-city circulation. These five highways, however, are two-lane, open-access roads with limited capacities.

Dover is part of an intricate regional economy which includes the Portsmouth, Rochester, Somersworth metropolitan area. The region also includes many smaller communities such as Barrington, Kittery, Rollinsford, the Berwicks, Newington, Durham, and Madbury. There is no single community which dominates the regional economy. Generally, Portsmouth provides dining, shopping, entertainment, and a growing number of corporate headquarter activities. Newington provides major shopping centers. Durham houses the University of New Hampshire which provides excellent educational opportunities. Dover is providing a growing share of the region's employment and housing.

EXISTING LAND USE

The City of Dover consists of approximately 15,300 acres exclusive of street rights-of-way. Of this total, 7,190 acres have been developed for residential use as shown in Table 1, constituting 46.8% of the city. One-quarter (25.4 percent) of the land is vacant. The remaining 27.8 percent of the land in use is divided among public use (11.0 percent); farmland (8.2 percent); business/commercial (3.7 percent); industrial (2.3 percent); professional/office (1.5 percent); and other miscellaneous uses (2.2 percent).

Urban Core

The downtown area includes the B-2 zone, the Urban Multiple Use District (UMUD), and the Cochecho Waterfront District (CWD) and is diverse and densely developed. Much of the development took place prior to zoning. Other mixed uses are the result of variances awarded by the Zoning Board of Adjustment.

Downtown revitalization has taken place during the last twenty years resulting in the rehabilitation of a number of buildings. The upgrading of the downtown infrastructure has resulted in the creation of new multi-use development.

TABLE 1
ACRES OF EXISTING DEVELOPMENT BY LAND USE
CITY OF DOVER
MARCH 31, 1987

Single-family	6,143	acres
Multi-family	964	acres
Mobile Homes	83	acres
	7,190	Total Residential
Business/Commercial	576	acres
Professional/Office	74	acres
Industrial	351	acres
Public	1,684	acres
Other (hospital, railroad, churches, American Legion, etc.)	336	acres
Farm	1,255	acres
Vacant	3,902	acres

Acres by percentage of Total

Residential	46.8%
Business/Commercial	3.7%
Professional/Office	1.5%
Industrial	2.3%
Public	11.0%
Other	2.2%
Farm	8.2%
Vacant	25.4%

Source: Dover Planning Department, March 1987

Pacific Mills, once a large cotton manufacturing mill and vacant for many years, is being converted into mixed uses. The mill will consist of office and commercial/retail space, as well as 190 residential units. The potential exists for a similar conversion in an immediately adjacent mill currently being used by Clarostat for manufacturing purposes. Such a mixture of development makes rezoning in the downtown area difficult as many properties and their uses would become non-conforming.

The area immediately surrounding the downtown consists primarily of residential structures as depicted on the Urban Core Land Use Map that is on file in the Planning Department. Multi-family housing has increased significantly in the urban core, and the RM-10 districts have experienced most of the conversions of single-family homes to three or four dwelling units.

Between 1980 and 1987, permits were issued for the creation of 196 dwelling units by converting existing structures into multiple dwellings. Almost one-half of these were built within a two-year span as 98 were constructed in 1984 and 1985. Conversions tapered off after this as 22 were permitted in 1986 and 19 in 1987. This slowing of conversion activity was likely due to a regulatory change enacted in mid 1986. The City's Zoning Ordinance was made more restrictive toward conversion in the RM-10 Zoning Districts. Because 43% of the conversions occurred in the RM-10 zones, this ordinance amendment affected the City-wide totals.

The other RM (Residential Multi-family) districts received 21% of the conversions; 13% were spread across the downtown B2/B3/CWD zones and 11% were in the R-12 zone. The remaining 11% were scattered among the other districts.

These conversions are cause for concern since the urban core is densely settled and the additional units in many areas compound existing parking and traffic problems. Many of the conversions disrupt the character of neighborhoods that have been long-standing single-family areas. Some of the conversions resulted in substantial increases in the number of units in individual structures as 45 of the new dwelling units were created by only 9 conversions. While the high cost of housing and the shrinking household size generate incentives to convert the huge old homes to multiple dwelling units, a performance-oriented approach is needed to regulate residential conversions in all of the City's zoning districts. Such rules should address minimum living space per dwelling unit, useable open space on the site, off-street parking capability, number of units in abutting structures and landscaping. These performance rules would establish

criteria for determining where conversions would be allowed.

Commercial development in the urban core takes on a radial patern with three main corridors extending from the downtown: Central Avenue north of the downtown area, including "Miracle Mile"; Central Avenue south of downtown; Portland Avenue and Broadway east of downtown (see Urban Core Land Use Map). Dover's role in the commercial/retail market was weakened when the shopping malls were built in Newington, and much of the retail activity moved there. However, while Dover's share of "shoppers goods" such as furniture and apparel has declined, the City's regional share of "convenience goods" sales has expanded.

The Central Avenue corridor has seen conversions of residential structures to office and some retail, especially around the Wentworth-Douglass Hospital. Because of the existing land use and volume of traffic, Central Avenue is no longer residential in character, but is more commercial and office oriented. Between Merry Street and Chestnut Street, 104 parcels border Central Avenue: 53% of these parcels are occupied by office or commercial ventures; 25% are in multifamily residential use and the remaining 22% are maintained as single-family or duplex homes. Fifty-seven percent (57%) of the street frontage along this portion of Central Avenue is in office or commercial use, while 24% is devoted to multifamily use and 18.5% to single-family or duplex use. Most of the single-family lots are between Abbott Street and the upper end of the Avenue, as commercial conversions progress along Central Avenue from the downtown toward the "Miracle Mile".

Wentworth-Douglass Hospital continues to expand as a regional facility creating a greater need for medical office space near the hospital. Consideration should be given for the creation of a zone immediately adjacent to Wentworth-Douglass that would allow the types of uses commonly located near a hospital. In addition to office, congregate care and other types of elderly care facilities should be allowed to locate near the hospital. Such a zone, however, must be keyed to roadway improvements behind the hospital in order that traffic from the area can access Central Avenue via Old Rollinsford Road, an intersection will soon be signalized.

There are two I-2 zones (Third & Chestnut Streets, and the City-owned land on River Street) near the downtown area (see Urban Core Use map). Such locations are not conducive to industrial development because of incompatibility with existing abutting uses and the downtown traffic patterns. In the case of the City's River Street property, industrial development would preclude a great opportunity to use the

land for innovative and public uses to aid the downtown. Changing this area to CWD zoning and developing a site plan for the property will facilitate its development as a multi-use area, returning the prominence of the Cochecho River in the downtown.

A third I-2 zone located along Broadway Avenue is presently occupied by the Boston and Maine Railroad and Harris Graphics. Much of the Boston and Maine parcel is located in an adjacent RM-10 zone which is not conducive to multi-family development, and should be absorbed into the non-residential zone.

City Remainder

The remainder of the City, as displayed on the Existing Land Use Map in the Planning Department, is comprised of mulit-family and high density single family residential units near the urban core; with low density residential and agricultural uses occurring in the rural areas of town.

Areas undergoing rapid change include Mast Road, Knox Marsh Road, and Garrison Road. The changes occurring are primarily the development of multi-family dwelling units. Approximately 725 multi-family units are approved for the Mast Road area; another 600 units are being constructed on Knox Marsh Road; and 200 units have been approved off of Garrison Road. Most of the RM-12 and RM-20 zones are developed or have projects approved for development. There are only a few parcels left for future development in these zones.

Along the B & M Railroad, west of the urban core, is industrial and agricultural land. There are two active industrial parks along Knox Marsh and Littleworth Roads. Despite the poor soils, a high groundwater table and the proximity to City wells, the parks continue to be developed.

While these parks are in poor locations for industrial development due to the land constraints, they are at advanced stages of development and must be allowed to fully develop. However, future industrial sites should better address the land constraints.

The area to undergo the most radical change during the next decade is west of the turnpike near Exit 9, as a result of the proposed Liberty Mutual Development. This large scale development will attract additional projects to the area. development standards should be established to insure a high quality of development in the surrounding area.

New subdivisions have recently occurred in outlying areas where city water and sewer lines have not been extended. This "premature development" strains the existing road network that was not designed to handle a high volume of traffic. These outlying subdivisions also put additional strain on the Public Works, Police and Fire Departments by stretching their coverage area. Additionally, soils in these areas are often not appropriate for wells and septic systems. Heavy use of on-site wells and waste disposal in areas of poor soils creates the likelihood of failures of these systems in the future. Due to the lack of confidence in the staffing levels of state agencies to properly regulate installation of on-site septic systems and wells, the City must adopt local legislation and bolster its inspection of these activities to insure proper development.

The City owns approximately 110 parcels of land. Many of the parcels are used for municipal buildings or parking lots in or near the downtown area. Eight City-owned lots are located near the hazardous waste dumpsite on Tolend Road, and other parcels contain municipal wells. However, many lots remain unused. The City-owned parcels vary generally in size, value and potential for use. If inventoried and studied, much of the City land can be used to accomplish the goals established in the Master Plan.

EXISTING ZONING

The last comprehensive set of zoning changes in Dover occurred in 1979, a time when residential development was perceived as the most desired type of growth. These changes resulted in allowing a greater diversity of housing types and paved the way for the surge of condominium development of the past several years. The changes of 1979 were a logical step because they moved the community beyond zoning that blanketed the City with small lot single-family districts to a variety of residential districts allowing housing types at different densities. Presently, another zoning change is needed in which the City should strike a better balance between the amounts of land reserved for residential and non-residential uses.

Eighty-five percent (85%) of the City is zoned exclusively for residential uses and many non-residential zones (i.e. Office, B-3, B-2) allow residential development as well as commercial. There are 397 vacant or developable acres zoned for Office, Executive, and Technology use (200 of which are being developed by Liberty Mutual); 46 acres for Business; and 522 vacant or developable acres of land zoned

for industrial use. However, almost all of the vacant industrial land lacks access or utilities or is not for sale to developers. Furthermore, over 227 acres of the industrial zones consist of poorly drained or very poorly drained soils.

DEVELOPMENT/BUILDING ACTIVITY

Residential development accounts for over 63% of the City's existing development, as over 6000 acres contain single-family homes and almost 1000 acres contain multi-family housing. This reflects the 1979 zoning changes which emphasized residential growth. By way of contrast, as shown in Table 1, commercial, office and industrial development total approximately 1000 acres.

The trend of residential dominance, is certainly continuing in the new projects (Tables 2 and 3). Table 2 indicates the number of residential development projects approved by the Planning Board but no yet constructed as of May 26, 1987. Nearly 1000 residential units had been approved while more than 1500 units had been proposed to the Planning Board and were under consideration (Table 3).

Conversely approximately 936,000 square feet of non-residential development was approved by the Planning Board between 1980 and 1987. The Planning Board was considering projects totaling 329,000 additional square feet of non-residential development on May 26, 1987. While non-residential development appears to be significant it actually represents a small percentage of the City's overall development when compared to residential increases.

Table 4 indicates the yearly amount of development in the city between 1980 and August, 1987. Extrapolating the figure for the first eight months of 1987 estimates 162 acres of development during that year. 1987 was the third consecutive year that the amount of development increased over the prior year. The number of projects that have been approved or proposed, as shown in Tables 2 and 3, and the upcoming Liberty Mutual development indicate that Dover will continue developing at an increasing rate.

TABLE 2
AMOUNT AND TYPE OF DEVELOPMENTS
APPROVED BY PLANNING BOARD
AS OF MAY 26, 1987

RESIDENTIAL

Single Family Detached	Single Family Attached	Multi-Family	Mobile Home	Total
Lots	Units		Lots	
92	812		85	989

NON-RESIDENTIAL

1980-4/87	Industrial	Restaurant	Retail Food	Retail Comm.	Offices	Services Banks,Hosp	Total
Projects	19	4	2	16	11	5	57
Sq.Ft.	485,000	25,000	70,000	165,000	111,000	80,000	936,000

TABLE 3
PROPOSED PROJECTS
As of May 26, 1987

Single Family Detached	Single Family Attached	Multi-Family	Mobile Homes	Total
Lots	Units	Units	Lots	
537	935	15	38	1525

NON-RESIDENTIAL

	Industrial	Retail/Commer	Services Banks,Hosp	Total
Projects	4	1	4	9
Sq.Ft.	225,240	16,000	87,960	329,200

Sources of data: Planning Department Files; Building Permit Logs, and Dover Building Inspector's Office.

TABLE 4
AMOUNT OF DEVELOPED LAND BY YEAR
1980 to August, 1987

1980	31.25 acres
1981	22.00 acres
1982	68.25 acres
1983	45.00 acres
1984	56.25 acres
1985	104.25 acres
1986	143.00 acres
1987	108.00 acres
	(as of Aug. 31, 1987)

Source: Building Permits Issued by the City of Dover

POLICY QUESTIONS AND DISCUSSION

1. Should the City attempt to strike a better balance among the types of land uses being developed? Should the City increase the amount of land zoned for non-residential uses?

The City should increase the amount of land zoned for non-residential uses in order to develop a more balanced community, work toward a more productive tax base, and curb the growing demand for elementary school space. Residential development is precluded in only 10 percent of the City under current zoning. The zoning imbalance is reflected in the fact that 63 percent of the City's existing development is residential (March 1987). Recently proposed and approved developments indicate that the trend toward residential growth is continuing.

Most vacant industrial land is not suitable for development either because of poor soils, lack of street access and utilities, or it is not for sale. Therefore, Dover cannot compete with other communities in the region for industrial and commercial development. Rezoning to increase the areas of non-residential zoning will enable Dover to compete more effectively for industry, thereby providing a stronger tax base while not increasing the demand for City services.

2. What land use changes should be made within the urban core?

Dover's urban core is predominantly residential. To relieve the strain on city services, residential units should be excluded from some of the B-3 and office zones. Urban infill, additions and conversions should be developed under stricter regulations to protect neighborhood character. The City should also develop guidelines to protect open space and must develop regulations to better address traffic and parking concerns.

RECOMMENDED CHANGES TO EXISTING URBAN CORE ZONING

a. Change the R-12 zone at Pinecrest St. and the Weeks Traffic Circle to B-1 zoning.

This R-12 zone is wedged between commercial zoning on either side and development in the area is predominantly commercial in nature.

b. Change the I-2 and RM-6 zones which are bounded by Third, Chestnut and Washington Streets to B-2 zoning.

This would achieve several things:

a. Eliminate the potential for heavy industry to locate in the downtown;

b. Simplify the zoning rules by removing the only Rm-6 zone from the ordinance; and,
c. Provide additional land area for expansion of the downtown business district.

c. Change the I-2 zone on River Street to CWD zoning.

This is the City-owned parcel on which the sewerage treatment plant and public works facilitates are located. The treatment plant will be relocated by 1992 at which time this parcel should be redeveloped as a multi-use area to include recreation, open space, river access, commercial and residential uses.

d. The R-12 zone on Central Avenue bounded by Old Rollinsford Road and Varney Street.

This area historically has been single family in nature. However, through the issuance of variances, the area now contains a number of medical office buildings. Due to its proximity to the hospital and the medical office development on the opposite side of Central Avenue, this R-12 zone may be better utilized as part of a medical-related zoning district. This zone could allow offices and congregate care housing among other medical uses.

e. Redefine the I-1 zones on Maple Street and Locust Street.

These zoning districts should be reduced in size to include only the areas where the existing industrial uses are located. This would allow those uses to continue as conforming uses but would not encourage new industrial development in the urban core.

f. Change the I-2 zone along Broadway to an I-1 zone and relocate the line at the back of the zone to the common boundary between B & M land and the City parcel.

This would allow the present uses to continue unhampered but would no longer allow heavy industry in the urban core. Revising the rear district boundary rezones the railroad yard from Rm-10 to I-1. The rezoning of the I-2 districts will simplify the zoning ordinance by removing

a seldom used zone.

g. The RM-8 zone on Whittier Street.

This parcel is difficult to develop because traffic concerns along Whittier Street limit the amount of density that should be allowed on the site. Yet, the tract's location between the turnpike and Mineral Park housing development discourages single-family or other low density development. Nevertheless, the density on this parcel should be significantly lowered to avoid further increasing an already concentrated population, and compounding existing traffic problems at nearby intersections.

h. Comments about the residential multi-family (RM) zones.

These zones provide an important opportunity for the creation of additional rental units in the urban core through the conversion of existing residential units. However, it is difficult to maintain an appropriate density of units for all neighborhoods based solely on a minimum lot size for each unit. It is recommended, therefore that a performance oriented approach be taken to regulate residential conversions. Such performance standards would address:

a. Minimum living space requirements per dwelling unit;
b. Usable open space areas on the parcel of land;
c. Off-street parking requirements and parking lot design;
d. Number of dwelling units in abutting residential structures, and;
e. Landscaping to screen parking areas from abutting residences.

i. Comments about the McIntosh College site zoned R-12 single-family.

The present site of McIntosh College has excellent turnpike visibility and would be a perfect commercial or hotel site, except for indirect street access. Although the existing street network presents an immediate limitation to rezoning this site to a different use, it should not be assumed that R-12 is the best zoning for this site, and study should be given to finding alternative development schemes.

3. Should developments be allowed in the outer perimeter of the City? (Sixth, Tolend, County Farm, and County Farm Cross Road).

Since no sewer or water lines extend to these distant streets, developments are proposed with private water and sewer despite soils that are not conducive to these uses. A solution for this is to establish minimum lot sizes based on soil types or to prohibit septic systems in poorly and very poorly drained soils. Increasing the lot sizes allowed by Zoning is not recommended at this time.

4. What should be done with City-owned land?

The City-owned parcels should be used to implement the City's goals. Specifically, they should be applied to the needs for open space and parks, and to providing affordable housing. Of particular interest may be the large parcels of City-owned land along the Cochecho River, an ideal location to optimize open space, recreation and water access, with a private development scheme.

In some circumstances, City land may be sold for revenue to finance capital improvements. A progressive and proactive approach to managing the City-owned parcels will enable the City to participate in the responsible development of available land.

5. What should be the City's policy toward downtown?

The City must do everything possible to encourage revitalizing efforts in the downtown area. There is considerable investment by the City in the downtown infrastructure and the area's vitality is necessary to continue utilizing this investment. Furthermore, the most concentrated assessed valuation is located in the downtown. Support of revitalization will help maintain this part of the City's tax base.

While not wanting to lose retail in the downtown area, there is a continuing trend of these uses moving elsewhere, especially to the malls. The City's position is one of encouraging a variety of land uses in the downtown. The downtown remains vital, and the tax base is maintained regardless of the type of uses located there. Changes in downtown land uses furthermore, indicate that the downtown is changing to reflect new market forces.

Parking in the downtown area must also be given considerable attention. Off-street parking should be required of residential conversions. Required parking

standards will have to be flexible, such as allowing shared parking spaces, the use of an impact fee in lieu of providing parking, or other alternatives. A downtown parking authority to closely manage the availability of downtown parking spaces would be useful.

The importance of addressing downtown development cannot be understated. The City must actively support revitalization efforts and the upgrading of structures. The City must also promote innovative and flexible parking alternatives.

LAND CONSTRAINTS

Future development in Dover must be completed in conjunction with the natural constraints of the land. Such constraints include wetland areas, poor soils, floodplains, waterways, and steep slopes. Active protection of the City's groundwater supply also must be considered a constraint on development.

GROUND WATER SUPPLY

The consulting firm of BCI Geonetics has conducted an investigation of Dover's water supply and delineated three zones for groundwater protection. The primary protection zone (Zone 1) represents very high and immediate risk to existing municipal wells if a contamination spill occurred within its boundaries. This zone consists of areas that directly overlay an aquifer within a 400 foot radius of existing wells. The secondary zone (Zone 2) encompasses areas where the threat is also great, but may be more delayed. Zone 2 extends to the point at which drawdown of the acquifer is considered negligible after pumping for 180 days without precipitation to recharge the aquifer. This area also is referred to as the 180-day effective radius. Secondary protection zones have been also assigned to areas identified as having potential for future high yield bedrock wells or sand and gravel aquifers. The tertiary zone (Zone 3) covers low threat areas by including the drainage basins that drain toward an existing well. The primary and secondary protection zones are depicted on the Map of Ground Water Protection Zones in the Appendix.

Zone 1 depicts the radii around the seven existing wells serving the city. There are two wells near the western boundary of the City: the Calderwood well and the "8-inch" well. The Calderwood well is located approximately 500 feet west of Glen Hill Road and 1,000 feet south of County Farm Road. The "eight-inch" well lies on the border separating Dover and the Town of Barrington, approximately 750 feet south of County Farm Road.

There are two wells that lie on the border between Dover and Madbury. The Hughes well is located off of Old Stage Road and the Griffin Well is near Mast Road. About 1,800 feet north of the Griffin well is the Ireland well which is close to the Bellamy River and is about 1,500 feet southeast of Knox Marsh Road. Lastly, the Smith and Cummings wells are located together within the triangular area made up of Central Avenue, Plaza Drive, and Glenwood Avenue.

The standards used to delineate the primary protection zones are employed by the New Hampshire Water Supply and Pollution Control Commission to determine the minimum area required to protect municipal wells. The 400 foot radius is based on the distances necessary to protect a water supply from various bacteriological contamination.

The secondary protection zones were determined by studying the geology of the area and by conducting long-term, continuous pump tests. During these tests, a network of observation wells was monitored to obtain an understanding of the hydrologic and geologic conditions at the well sites. These results were then extrapolated to produce the 180 day effective radius, or the secondary zone.

Few land uses can be allowed in the primary protection zones due to the close proximity to an existing well. The risk associated with a contaminant spill is very great since there is little chance for dilution or dispersion of a pollutant before it reaches the well and enters a public water supply. The City should own the land in the primary protection zones.

Activities involving hazardous materials must be prohibited from the primary and secondary zones. The land uses that create the greatest potential for contamination should be strictly limited within the ground water protection zones. Additionally, in areas known to recharge the ground water supply, limitations should be placed on the amount of land covered by surfaces impermeable to water. While contamination of the water supply is of paramount concern, attention also should be given to allowing the ground water supply to be recharged from the percolation of rainwater.

WETLANDS

There are several areas of wetlands within the City, consisting of poorly drained, very poorly drained soils or wetland vegetation. The very poorly drained soils consist of muck and peat, alluvial land, Biddeford silty clay loam, and

Whitman very stony fine sandy loam. The poorly drained soils consist of several soil categories from the Leicester Ridgebury, Scantic and Swanton classes, plus Rumney fine sandy loam and Saugatuck loamy sand.

Much of Dover's vacant land consists of poorly drained soils. Perhaps as much as forty percent of the land in Dover's northern half (excluding the urban core) is made up of poorly or very poorly drained soils. The Wetland Map contained in the Appendix depicts the areas of poorly and very poorly drained soils as mapped by the Soil Conservation Service.

Wetlands present many limitations to developments. A high water table is typical of areas containing wetland soils, thereby limiting the ability of a septic system leach field to properly treat the wastewater effluent. Wetland soils also present limitations on building foundations due to a high water table, drainage problems and the hazards of flooding. Heavy industrial or multi-family buildings may require driven pilings as a foundation in poor soils.

Development should be steered away from wetland areas because these areas also are an important part of a larger ecological system. Freshwater wetlands provide flood protection by storing excess runoff from storms and then slowly releasing the excess downstream. Tidal wetlands provide valuable protection in both storing excess floodwater and by serving as natural buffers that protect upland areas from storm tides. Freshwater wetlands also augment stream flow by discharging water during low flow periods.

Both tidal and freshwater wetlands serve as essential habitats and nurseries for certain species of wildlife and serve as traps for silt and organic matter. In particular, tidal wetlands store and supply basic nutrients and food for the marsh-estuarine ecosystem. By trapping organic runoff and pollution wetlands also maintain water quality in downstream rivers and estuarine areas. Finally, wetlands provide open space and aesthetic qualities that make our community a pleasant place to live. The effects of eliminating small areas of wetlands may be imperceptible. If care is not taken however, to protect these areas, the cumulative effect of losing them may result in degradation of water quality and a decline of the quality of our environment.

Steps should be taken to protect wetland areas aside from and in addition to State regulations. A wetland protection ordinance that will protect areas of poorly drained and very poorly drained soils delineated on the

City's wetland soils map should be adopted. The City should consider for protection wetland areas of 1/4 acre in size or larger, and should designate a setback from wetlands for septic tanks and leach fields. Buildings should be prohibited in areas of very poorly drained soils and limitations should be established for development in poorly drained areas.

FLOODPLAINS

Floodplains are low land areas subject to flooding and are typically adjacent to rivers, streams or other water bodies. The significance of a flood is described in terms of its statistical frequency of occurrence. For example, a "100-year flood" is equalled or exceeded on the average of only once every 100 years or, which has a one percent chance of occuring in any given year. Federal programs, such as the National Flood Insurance Program administered by the Federal Emergency Management Agency (FEMA), use the boundary of the 100-year flood to identify areas where the risk of flooding is significant.

Dover's 100-year flood plain areas, as depicted on the Water Resources Map in the Appendix, are located along the banks of the Bellamy and Cochecho Rivers for their entire length through the City. Other 100-year flood plain areas are located along the banks of the several brooks and streams throughout the City.

Development in 100-year flood plain areas is regulated in order to protect the City and its residents from the risk of flooding. In addition, such areas should be protected in order to preserve natural wildlife habitats, decrease water pollution that may result from development near rivers, and protect against excessive runoff and erosion.

The National Flood Insurance Program provides an opportunity for owners of flood-prone properties to insure against some flood losses. The City should maintain a floodplain management program that allows only development complying with FEMA guidelines. Prohibited activities should include landfills, septic tanks, dumping and storing of hazardous or toxic materials, dredging, and clear cutting of trees. The program should be designed to identify, evaluate and select other flood protection measures. The program should also include flood warning systems, community emergency plans, and relief and recovery plans. Another component may include a restoration program designed to return floodplain land to its natural contours through the re-establishment of vegetation.

STEEP SLOPES

Slope referes to the gradient or steepness of the land. The slope of land is defined as the change in elevation (vertical distance) over horizontal distance; the more abrupt the change in elevation, the steeper the slope. Slope is measured and expressed as a percentage that represents the relationship between elevation and horizontal distance. The slope of land is an important development constraint, for it influences the economic and physical feasibility of various land uses. The Slope Map in the Appendix, depicts three slope catagories and identifies their location. Slopes of up to 8% have minimal development constraints. Areas with slopes between 8% and 15% present moderate development restrictions; and, slopes of greater than 15% create severe development limitations. Development of the steepest slopes may cause severe erosion and prohibit the efficient use of on-site septic disposal systems.

The vast majority of Dover is made up of relatively flat land ranging in slope from 0-15% . However, severe slopes of over 15% do exist along the banks of Bellamy, Cochecho and Piscataqua Rivers. There are also severe slopes along the banks of the many brooks throughout the City. Other areas of steep slopes include Long Hill, Garrison Hill (the City's highest point), the Hoppers, the County Farm Road area, Sunken Island, Mount Pleasant and the City gravel pits on Spruce Lane.

It would be advisable for the City to direct commercial and industrial development to a gently rolling terrain, preferably having 0-8% slopes. Residential development should be directed to areas of moderate slopes (8 to 15%) as such developments are easier to design around land contours than are commercial and industrial developments. Development on slopes of 15% or steeper should be discouraged and development should be prohibited on slopes steeper than 20%.

POLICY QUESTIONS AND DISCUSSION

1. How should the land development of the groundwater protection zones (including future potential sites) be managed?

The City should move to protect groundwater supply through zoning and land acquisition, and to coordinate a groundwater protection program with neighboring communities. The "180-day protection zone" has been identified for existing City wells and future groundwater supplies. An immediate program is needed to study the future water

supplies to determine the amount of water available at each location. While further exploration is being undertaken, a groundwater protection program, designed as an overlay zone in the City's zoning ordinance, must be developed and enacted to restrict land uses and lot coverage in the primary and secondary protection zones. The new overlay zone should be applied to the areas of future water supplies as well as the locations serving existing wells. As further exploration of future well sites identifies certain locations as being unsuitable as a municipal water supply, then the overlay zone should be lifted from these areas. Where exploration shows a desirable water supply the City should make efforts to purchase such land for a future well site.

Discussions on a regional approach to groundwater protection should begin immediately with Madbury, Barrington, Rochester, Rollinsford, and Somersworth, because the City's groundwater supplies extend into these neighboring communities. Ground water supplies cross municipal boundaries on every side of Dover and should be regarded as a regional issue.

The Sanitary Map, prepared by BCI Geonetics identifies possible ground water pollution sources. Efforts to remove or relocate as many sources as possible should be undertaken. Toward that end, the City should reactivate a plan with New Hampshire Department of Transportation to relocate out of a secondary ground water protection zone, the State's salt shed that is presently located on the Sixth Street Connector.

2. What should be the City's policy toward development of wetland soils?

The City should adopt a wetlands protection ordinance that designates an overlay zone consisting of poorly drained and very poorly drained soils and wetland vegetation. Development in areas of poorly drained soils should be discouraged and limited, while development in areas of very poorly drained soils should be prohibited.

As a general rule, The City should move to protect wetland areas of more than a 1/4 acre in size, and all wetlands areas of any size that are contiguous to water bodies. The wetlands protection zones should include buffer zones from any coastal or freshwater wetland, stream, brook, or river and a setback from all wetlands for septic tanks and leach fields.

A very comprehensive wetlands definition coupled with the most strict regulations would categorize much of the remaining vacant land as unbuildable. A moderate approach is

needed to protecting wetlands that balances the objective of preserving wetlands with the desire to avoid classifying vast amounts of land as unbuildable. A rating system designed to determine the significance of certain wetlands should be used as a basis for restricting development in poor soils. Efforts should be made to establish a dialogue with neighboring communities on the subject of wetland protection for better regional coordination.

3. What should be the City's policy on floodplain protection?

The City has restricted development in the 100 year floodplain, as identified on the Water Resource Map, in a way that reflects standards specified by FEMA. The City should use zoning to direct multi-family, commercial, and industrial development away from floodplain areas, and should prohibit sewerage disposal and septic systems within the flood areas.

4. What should be the City's policy on the development of steep slopes?

The City should continue prohibiting development on steep slopes of more than 20% grade. However, small and scattered areas of steep slopes do not create the concerns that are associated with larger and more sensitive areas along the rivers. While these small areas of steep slopes are within the Conservation District, special exceptions to allow development on them should be granted if a site-specific review verifies that little basis exists for environmental concern. An effort should be made, nonetheless to direct commercial and industrial development to areas of moderate terrain (slopes of 0 to 8 %). Residential development should be directed to areas having slopes of less than 15%.

LAND USE PROJECTIONS

The assessment of Dover's potential industrial, office, retail, and residential development and the determination of the amount of land needed to support such type of development, begin with projections of regional and local employment, housing and population. The Housing and Economic Development components of the Master Plan provided a number of projections based on historical trends and regional and local market analysis.

Housing Projections supplied by Applied Economic Research (see table 5), show a projection based on Dover continuing to capture 15% of the region's housing growth. A

TABLE 5
DOVER HOUSING PROJECTIONS, 1987-1995, CURRENT TREND SCENARIO AND INCREASED SHARE SCENARIO

				AVERAGE ANNUAL CHANGE	
	1980	1987	1995	1980-87	1987-95
Owner Occupied Units:					
Single Family					
Dover: Current Trends	3,500	4,050	4,900	79	106
Dover: Increased Trends	3,500	4,050	5,150	79	138
Condominiums:					
Dover Current Trends	950	1,300	1,900	50	75
Dover Increased Share	950	1,300	3,000	50	213
Total Owner Occupied Units					
Dover Current Trends	4,450	5,350	6,800	129	181
Dover Increased Share	4,450	5,350	8,150	129	350
Seacoast Region	32,400	39,150	50,500	964	1,419
Dover Share: Current Trends	13.7%	13.7%	13.5%	13.3%	12.8%
Dover Share: Increased Share	13.7%	13.7%	16.1%	13.3%	24.7%
Rental Units					
Dover Current Trends	4,250	5,050	5,950	114	113
Dover Increased Share	4,250	5,050	6,150	114	138
Seacoast Region	20,900	24,750	29,300	550	569
Dover Share: Current Trends	20.3%	20.4%	20.3%	20.8%	19.8%
Dover Share: Increased Share	20.3%	20.4%	21.0%	20.8%	24.2%
Total Housing Units					
Dover Current Trends	8,700	10,400	12,750	243	294
Dover Increased Share	8,700	10,400	14,300	243	488
Seacoast Region	53,300	63,900	79,800	1,514	1,988
Dover Share: Current Trends	16.3%	16.3%	16.0%	16.0%	14.8%
Dover Share: Increased Share	16.3%	16.3%	17.9%	16.0%	24.5%

Source: Housing and Economic Development Component of Dover Master Plan
Applied Economic Research, 1988

second projection assumes Dover will capture an increased share of the region's growth, approximately 25%. If Dover continues to receive its 15% share of the region's housing growth, approximately 294 new housing units will be constructed per year through 1995. This total represents annually 106 single family detached units, 75 single family attached (condominiums) units and 113 rental units.

Population projections (Table 6) were based on the number of projected housing units multiplied by the average number of people per unit. The total projected population for 1995 of 31,700 represents a current trend growth scenario that is proportional to the housing projections. Based on the population and per capita income projections, and market sales potential (Tables 7 and 8), it is estimated that Dover could support an additional 329,000 square feet of retail floor space by 1995. This figure represents a 94,000 square foot increase in space for shoppers' goods (apparel, gifts, furniture, etc.), a 185,000 square foot increase in retail space for convenience goods (groceries, personal goods), and a 50,000 square foot increase in the floor space of miscellaneous goods such as building and automotive supplies. These housing, population, and retail projections are based on a current trend scenario; in other words, a scenario consistent with growth which has historically occurred during the past 7 years.

Employment projections, also from the Housing and Economic Development Components of the Master Plan, were based on a number of sources such as New Hampshire Department of Employment Security statistics and detailed analysis of employment trends by industry as reported in County Business Patterns for the Rockingham-Strafford Region. The projections made assumptions based on the anticipation of a substantial increase in the finance, insurance and real estate employment categories due mainly to the development plans of Liberty Mutual Insurance Company. In Table 9, employment projections are made for both a current trend scenario whereby Dover captures 25% of the region's job growth, and an increased share scenario in which Dover receives 38% of the new jobs in the region. As indicated in Table 9, under the current trend scenario an average increase of 675 jobs is projected per year. The increased share scenario shows an average annual increase of 1,031 jobs.

LAND ABSORPTION MATRIX

Tables A-D in the Appendix summarize the projected acres of land needed for specific types of development. The tables also show the current number of buildable acres that are partially or wholly vacant in the various zoning districts.

TABLE 6

DOVER POPULATION PROJECTIONS, 1987-1995
CURRENT TREND SCENARIO AND INCREASED SHARE SCENARIO

				AVERAGE ANNUAL CHANGE	
	1980	1987	1995	1980-87	1987-95
Dover: Current Trends	22,400	26,100	31,700	529	700
Dover: Increased Share	22,400	26,100	36,000	529	1,238
Seacoast Region	148,950	169,900	200,000	2,993	3,763
Dover Share: Current Trends	15.0%	15.4%	15.9%	17.7%	18.6%
	15.0%	15.4%	18.0%	17.7%	32.9%

Source: Housing and Economic Development Component of Dover Master Plan
Applied Economic Research, 1988

The amount of land needed was established by using the projections described above. The current trend scenario was used for the residential and commercial/retail sections. This is based on the policy of continuing to capture 15% of the region's residential growth, which has been Dover's role between 1980 and 1987. Because retail projections are based on per capita expenditures, the land projections for commercial/retail needs also are based on the current trends scenario.

The number of acres needed in the office and industrial land use categories was determined by using the increased share scenario. This is based on the policy of increasing Dover's share of the region's industrial and office development from its current share of 25% to approximately 38%.

Research of all projects constructed in Dover since 1980 established the average amount of land needed for the various land uses. Additionally, the amount of each type of development in a given zoning district was converted into a percentage of the total development in the district. The percentages of development by zoning district were adjusted so that residential development occurred primarily in residential areas. Industrial, commercial/retail, and office development occurred in nonresidential zones.

An example of how the land absorption matrix works is as follows:

> It is projected that an additional 848 single family detached housing units will be built between 1987 and 1995. Historically, 44% of single family detached housing units are constructed in the R-40 zone. Given that fact we can project that 373 units or 44% of 848 will be built in the R-40 zone between 1987 and 1995. Since we know that lots for single family detached units in the R-40 zone occupy 1.85 acres on average, we can divide .54 into 373 to derive the total number of acres needed in the R-40 zone to sustain the projected development between 1987 and 1995. The total number of acres needed in the R-40 zone to continue development at its current level through 1995 is 691.

The projections cover four time intervals to the year 2020. Residential and commercial/retail projections through the year 1995 are based on current trends. Projections beyond 1995 to the years 2000, 2010, and 2020 are based on a constant annual increase of 106 units of single-family detached, 75 units per year of condominium development, and 113 units of multifamily or rental development.

In terms of single family residential development tables A-D in the Appendix indicate that there is enough land currently zoned to sustain the projected need through the year 2020. This is particularly the case in the R-40 zone where the projected need is 2850 acres and current zoning consists of 7435 acres of vacant land. The acres currently zoned for multi-family are adequate through the year 2000, but start falling short in the RM20 and RM12 zones prior to the year 2010 when 475 acres will be needed in the two zones and only 434 exists.

Similar shortages arise in the business and industrial zones. Shortages in the business zones will occur as early as 1995. Projections show a need of 83 acres of commercial land to meet the demand in 1995. Only 46 acres are currently available. Industrial land is already at a premium. While the tables in the Appendix show a total of 522 acres of land currently zoned industrial, only 295 acres are suitable to build on after subtracting areas with poor soils and only approximately 125 acres have city water and sewer nearby. Projections indicate the need for 902 acres of industrial land to support projected development through the year 2020.

It should be noted that the land listed as existing in the tables includes vacant land and land which may have some development but can be developed further. Some owners, however, may not wish to sell their land while physical restraints such as poor soils, wetlands or steep slopes restrict other parcels. Additionally, certain types of developments in order to preserve land for future expansion or to present a certain image, may obtain more land than is physically needed to support the immediate development. All factors considered, the City should zone more land than the projected need in order to account for land constraints and the certain unavailability of some land for development.

FUTURE LAND USE PATTERNS

Several rural areas as depicted on the Future Land Use Map, are being identified for zoning changes to meet the projected land use needs. Area I includes land in the extreme northern section of the City immediately adjacent to the Spaulding Turnpike and the Cities of Somersworth and Rochester. This area consists of 150 to 200 acres of developable land and is being proposed as a manufacturing/commercial zone for a number of reasons. It is adjacent to the highway and although it has no immediate access, plans for an Exit 10 are being discussed by the State. The nearby property in Somersworth is already zoned industrial and

limited residential development in the area makes the location attractive for the zoning change. Additionally, it is hoped that an eastern terminus of a new East-West highway to Concord will be located in the area.

This location currently lacks City water and sewer. Coupled with access problems development may be precluded in the area for the immediate future. Nonetheless, the area is slated for a zoning change if the East-West highway is located there. Such a change should be coordinated with similar rezonings in Somersworth and Rochester.

Area II consists of the expansion of the existing I-1 and B-3 zones near Sixth Street and the Spaulding Turnpike, adjacent to the Sixth Street connector road. The expansion of the zones will create an additional 132 acres of develop-able industrial land, and 108 acres of commercial area. Combined with the existing zones, there will be a total of 254 acres of industrial land and 179 acres of commerciallly zoned land. It should be noted, however, that much of the existing indus-trial and commercial area consists of a major wetland that should be preserved. On the other hand the area has excellent accessibility to the turnpike and will be compa-tible with the Executive and Technology Zone (ETP) located across Sixth Street.

This area is slated for large lot up-scale development that will be consistant with the high quality development expected in the ETP zone. Two relatively large commercial sites will be created, one along the connector road and another, on the opposite side of the existing wetland, next to the turnpike. These sites should be promoted as locations for a retail area and a hotel.

The industrial development should be characterized by deep setbacks from Sixth Street, moving the development closer to the turnpike. Land uses that have minimal impact on surrounding properties and generate very little truck traffic will be encouraged. Access to these two zones should be provided by a street that enters from the connector road, crosses the wetland at its most narrow point and intersects with Sixth Street near the County Farm Road.

Area III consists of the expansion of the existing industrial zone in the Littleworth Road area. The area would allow manufacturing and office development in 235 acres west of Columbus Avenue and industrial development in the 180 acres between Columbus Avenue and the Spaulding Turnpike.

A new zone should be created for the area along Littleworth Road that allows offices and light manufacturing

uses similar to the present ETP zone. This new zone should require minimum lot sizes in the two to five acre range, provide for deep buffers from existing residential structures and allow land uses that create minimum impacts on surrounding residential structures. Street and driveway accesses should be strictly limited, especially along Littleworth Road. The principle access should be from a road that connects Littleworth Road and Columbus Avenue, as shown on the future land use map.

This area contains wetland soils and care should be taken to minimize the detrimental impact on the significant wetlands. Development in this zone should be clustered close together on the soils most conducive to development, leaving undisturbed the significant wetland areas. Development standards should be established that will produce more attractive development than exists in the present industrial parks.

Finally, Area IV consists of the southwestern corner of the intersection of Routes 155 and 9 and the land bordered by Route 9, the turnpike and Old Littleworth Road. Commercial zoning is proposed for this 90 acre area to allow for a shopping center and a hotel site.

Development standards should require large lot sizes and long frontage requirements, steering the driveway accesses away from the point of intersection of Routes 155 and 9. Improvement to the intersection is the key to development of this area. Zoning and development proposed should anticipate the eventual reconstruction of the intersection into a four-way intersection.

During the planning process it was decided to locate new non-residential areas adjacent to existing industrial zones where possible. The reasoning behind this decision centered around several factors. Expansion of existing zones will be less disruptive to the community than the creation of totally new zones in new areas of the City. Secondly, all of the new areas have access, or the opportunity for access to the Spaulding Turnpike.

One other large area of rezoning consists of 37 acres of City owned land along the Cochecho River. This area, currently zoned Industrial, is being proposed as a waterfront multiple use district. The area would provide for possible public and private boat access, residential and retail space.

While the above areas have been identified as first priorities for rezoning, additional areas should be proposed as commercial or industrial sites if the first priority

rezonings are not adopted. For instance, if some of the proposed industrial zoning does not pass, other parcels of land along Littleworth Road, between the Crosby Road Park and Old Stage Road, should be proposed. A secondary commercial location, to replace any first priority commercial sites, is the southwestern corner of Route 108 and Mast Road. If this location is eventually proposed for commercial zoning, the location would be slated for a community shopping center.

FUTURE LAND USE IMPACT

Tables E and F in the Appendix indicate specific impacts to the City which result from the various types of development. This information was derived through the use of surveys of existing developments in Dover and can be used to assess the impacts of the projected development. More specifically, existing subdivisions in each of the zoning districts were reviewed to learn the average number of single-family homes per acre. Existing house lots in the R-40 Zone, for example average slightly less than two-acres in size; in other words, R-40 subdivisions average .54 houses per acre.

The zones that allow multi-family housing were reviewed to determine the average percentage of the parcel of land covered by surfaces that are impervious to water. Multi-family housing in the downtown zones of UMUD and B-2 covers over 80 percent of the land. Single-family developments in the RM-20 and RM-12 Zones cover 27 and 21 percent of the lot respectively.

Also found in Table E is the average amount of floor space per acre of non-residential development, office developments and the most intense is the B-3 zone, averaging slightly over 20,000 feet of floor space per acre. The most intense commercial/retail development is in the B-2 zone where 20,436 square feet is the average amount of floor space per acre of land.

Table F depicts the results of a survey of existing properties and conveys the average number of residents and school-age children per housing unit. The data in Table F was derived of a survey of 500 housing units, built in Dover between January 1980 and December, 1986. This table also presents the average water and sewer demand, assessed valuations and solid waste generated for various land use types.

Given a certain parcel of land, one can predict the total number of units which will most likely be constructed there, the population increase, number of school children,

TABLE 7
DOVER SHOPPERS GOODS TRENDS AND PROJECTIONS
CURRENT TRENDS SCENARIO

PERSONAL INCOME	1980	1982	1985	1995
Population				
Primary Market	22,377	22,833	23,517	32,000
Secondary Market	59,451	61,171	63,750	76,520
Total	81,828	84,004	87,267	108,520
Per Capita Income				
Primary Market	$7,445	$8,815	$11,275	$13,085
Secondary Market	$6,942	$8,074	$10,267	$11,915
Total	$7,080	$8,275	$10,530	$12,260
Total Personal Income ($000)				
Primary Market	$166,597	$201,273	$265,154	$418,723
Secondary Market	$412,709	$493,895	$654,521	911,757
Total	$579,306	$695,168	$919,675	$1,330,180
MARKET SALES POTENTIAL				
Percent of Income	10.00%	10.00%	10.00%	10.00%
Expenditures ($000)				
Primary Market	$16,660	$20,127	$26,515	$41,872
Secondary Market	$41,271	$49,389	$65,452	$91,176
Total	$57,931	$ 69,517	$ 91,968	$133,048
DOVER SALES POTENTIAL				
Capture Rates				
Primary Market	65.00%	55.00%	40.00%	40.00%
Secondary Market	28.00%	21.34%	15.00%	15.00%
Sales to Area Residents				
Primary Market ($000)	$10,829	$11,070	$10,606	$16,749
Secondary Market ($000)	$11,556	$10,540	$ 9,818	$13,676
Total ($000)	$22,385	$21,610	$20,424	$30,425
Inflow Sales				
Percent of Sales	20.00%	20.00%	15.00%	15.00%
Dollar ($000)	$5,596	$5,402	$ 3,604	$5,363
Total Sales	$27,981	$27,012	$24,028	$ 35,794
SUPPORTABLE SQUARE FEET				
Required Sales per Square Feet	$100	$110	$125	$125
Supportable Square Feet	279,803	245,565	192,225	286,356

SOURCE: Housing and Economic Development Component of Dover Master Plan, Applied Economic Research, 1988

TABLE 8
DOVER CONVENIENCE GOODS TRENDS AND PROJECTIONS
CURRENT TRENDS

	1980	1982	1985	1995
PERSONAL INCOME				
Population				
Primary Market	22,377	22,833	23,517	32,000
Secondary Market	59,451	61,171	63,750	76,520
Total	81,828	84,004	87,267	108,520
Per Capita Income				
Primary Market	$7,445	$8,315	$11,275	$13,085
Secondary Market	$6,942	$8,074	$10,267	$11,315
Total	$14,387	$16,389	$21,542	$24,990
Total Personal Income ($000)				
Primary Market	$166,597	$201,273	$265,154	$418,723
Secondary Market	$412,709	$493,895	$654,521	$911,757
Total	$573,306	$695,168	$919,675	$1,330,480
MARKET SALES POTENTIAL				
Percent of Income	17.00%	17.00%	17.00%	17.00%
Expenditures ($000)				
Primary Market	$28,321	$34,216	$45,076	$71,183
Secondary Market	$70,161	$83,962	$111,269	$154,999
Total	$98,482	$118,178	$156,345	$226,182
DOVER SALES POTENTIAL				
Capture Rates				
Primary Market	80.00%	80.00%	85.00%	85.00%
Secondary Market	20.00%	22.10%	30.00%	30.00%
Sales to Area Residents				
Primary Market ($000)	$22,557	$27,373	$38,315	$60,505
Secondary Market ($000)	$14,032	$18,556	$33,381	$46,500
Total ($000)	$36,689	$45,929	$71,695	$107,005
Inflow Sales				
Percent of Sales	10.00%	10.00%	15.00%	15.00%
Dollars ($000)	$4,077	$51,03	$12,652	$18,383
Total Sales	$40,766	$51,032	$84,347	$125,888
SUPPORTABLE SQUARE FEET				
Required Sales per Square Foot	$200	$210	$225	$225
Supportable Square Feet	203,329	213,009	374,878	559,504

Source: Housing and Economic Development component of Dover Master Plan, Applied Economic Research, 1988

TABLE 9
EMPLOYMENT PROJECTIONS, SEACOAST REGION AND DOVER, 1987-1995

EMPLOYMENT

	1980	1987	1995	Average Annual Change 1980-1987	Average Annual Change 1987-1995
MANUFACTURING					
Dover: Current Trends	3,900	3,900	4,650		94
Dover: Increased Share	3,900	3,900	4,850		119
Seacoast Region	20,550	17,550	21,750	(429)	525
Dover Share: Current Trends	19.0%	22.2%	21.4%		17.9%
Dover Share: Increased Share	19.0%	22.2%	22.3%		22.6%
NONMANUFACTURING					
Dover: Current Trends	4,950	7,750	12,100	400	544
Dover: Increased Share	4,950	7,750	14,600	400	856
Seacoast Region	31,300	43,500	63,100	1,743	2,450
Dover Share: Current Trends	15.8%	17.8%	19.2%	23.0%	22.2%
Dover Share: Increased Share	15.8%	17.8%	23.1%	23.0%	34.9%
GOVERNMENT					
Dover: Current Trends	2,600	2,900	3,200	43	38
Dover: Increased Share	2,600	2,900	3,350	43	56
Seacoast Region	11,500	12,850	15,550	193	338
Dover Share: Current Trends	22.6%	22.6%	20.6%	22.2%	11.1%
Dover Share: Increased Share	22.6%	22.6%	21.5%	22.2%	16.7%
TOTAL					
Dover: Current Trends	11,450	14,550	19,950	443	675
Dover: Increased Share	11,450	14,550	22,800	443	1,031
Seacoast Region	63,350	78,800	100,400	2,207	2,700
Dover Share: Current Trends	18.1%	18.5%	19.9%	20.1%	25.0%
Dover Share: Increased Share	18.1%	18.5%	22.7%	20.1%	38.2%

Source: Housing and Economic Component of Dover Master Plan, Applied Economic Research, 1988

amount of assessed valuation, the average daily use of water and sewer, and the pounds of solid waste produced per day. In terms of non-residential development, Tables E - F may be used to determine the average number of square feet of development which will take place on a given lot, the number of employees likely to work there, and the amount of water and sewer use expected.

TABLE A
PROJECTED ACRES OF LAND NEEDED FOR 1995 BY LAND USE
AND ACRES OF VACANT LAND CURRENTLY EXISTING
SOURCE: Dover Planning Department, 1988

1995		R-40	R-20	R-12	RM20	RM12	RM10	RM8	O	B-1	B-2	B-3	I-1	I-2	UMUD	TOTAL
SINGLE FAMILY DETACHED	NEED	691	171	120		51	6	3								1042
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING	7435	870	985		278	88	75								9731
SINGLE FAMILY ATTACHED	NEED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING				156	278										434
MULTI-FAMILY	NEED	-	-	-	49	40	-	12	-	-	-	-	-	-	2	101
					-	-		-							-	-
	EXISTING				156	278		75							5	509
OFFICE	NEED	-	-	-	-	-	-	-	49	6	24	6	10	49	-	144
									-	-	-	-	-	-		-
	EXISTING								192	3	9	34	522	0		760
COMMER/ RETAIL	NEED	-	-	-	-	-	-	-	-	4	3	33	7			47
										-	-	-	-	-	-	-
	EXISTING									3	9	34	522			568
INDUSTRY	NEED	-	-	-	-	-	-	-	-	-	-	7	109	46		162
												-	-	-	-	-
	EXISTING											34	522	0		556
TOTAL	NEED	691	171	120	49	91	6	15	49	10	27	47	126	95	2	1498
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING	7435	870	985	156	278	88	75	192	3	9	34	522	0	5	

TABLE B
PROJECTED ACRES OF LAND NEEDED FOR 2000 BY LAND USE
AND ACRES OF VACANT LAND CURRENTLY EXISTING
SOURCE: Dover Planning Department, 1988

2000		R-40	R-20	R-12	RM20	RM12	RM10	RM8	0	B-1	B-2	B-3	I-1	I-2	UMUD	TOTAL
SINGLE FAMILY DETACHED	NEED	1130	271	194		83	10	4								1691
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING	7435	870	985		278	88	75								9731
SINGLE FAMILY ATTACHED	NEED				0	0										0
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING				156	278										434
MULTI-FAMILY	NEED				79	65		19							2	165
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING				156	278		75							5	509
OFFICE	NEED								79	10	39	9	17	80		234
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING								192	3	9	34	522	0		760
COMMER/ RETAIL	NEED									7	4	53	10			74
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING									3	9	34	522			568
INDUSTRY	NEED											12	179	75		266
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING											34	522	0		556
TOTAL	NEED	1123	277	194	79	148	10	23	79	17	43	74	206	155	2	2430
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
+-	EXISTING	7435	870	985	156	278	88	75	192	3	9	34	522	0		

TABLE C
PROJECTED ACRES OF LAND NEEDED FOR 2010 BY LAND USE
AND ACRES OF VACANT LAND CURRENTLY EXISTING
SOURCE: Dover Planning Department, 1988

2010		R-40	R-20	R-12	RM20	RM12	RM10	RM8	0	B-1	B-2	B-3	I-1	I-2	UMUD	TOTAL
SINGLE FAMILY DETACHED	NEED	1988	489	343		147	17	7								2991
		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	EXISTING	7435	870	985		278	88	75								9731
SINGLE FAMILY ATTACHED	NEED				34	39										75
		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	EXISTING				156	278										434
MULTI-FAMILY	NEED				140	115		33							4	292
		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	EXISTING				156	278		75							5	509
OFFICE	NEED								139	17	68	16	29	140		409
		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	EXISTING								192	3	9	34	522	0		760
COMMER/ RETAIL	NEED									11	7	94	18			130
		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	EXISTING									3	9	34	522			568
INDUSTRY	NEED											21	317	133		471
		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	EXISTING											34	522	0		556
TOTAL	NEED	1988	489	343	174	301	17	40	139	28	75	131	364	273	4	4366
		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	EXISTING	7435	870	985	156	278	88	75	192	3	9	34	522	0		

TABLE D
PROJECTED ACRES OF LAND NEEDED FOR 2020 BY LAND USE
AND ACRES OF VACANT LAND CURRENTLY EXISTING
SOURCE: Dover Planning Department, 1988

2020		R-40	R-20	R-12	RM20	RM12	RM10	RM8	0	B-1	B-2	B-3	I-1	I-2	UMUD	TOTAL
SINGLE FAMILY DETACHED	NEED	2850	702	492		210	23	10								4287
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING	7435	870	985		278	88	75								9731
SINGLE FAMILY ATTACHED	NEED				105	120										225
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING				156	278										434
MULTI-FAMILY	NEED				200	165		47							5	417
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING				156	278		75							5	509
OFFICE	NEED								199	24	97	23	41	201		585
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING								192	3	9	34	522	0		760
COMMER/ RETAIL	NEED									16	9	135	26			186
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING									3	9	34	522			568
INDUSTRY	NEED											29	447	187		663
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING											34	522	0		556
TOTAL	NEED	2850	702	492	305	495	23	57	199	40	106	187	514	388	5	6363
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EXISTING	7435	870	985	156	278	88	75	192	3	9	34	522	0		

TABLE E

SINGLE FAMILY DETACHED
(UNITS PER ACRE)

R-40	R-20	R-12	RM-12	RM-10	RM-8
.54	.998	1.78	1.17	3.06	3.52

SINGLE FAMILY ATTACHED
(UNITS PER ACRE)

RM-20	RM-12
6.34	3.41

MULTI-FAMILY
(UNITS PER ACRE)

RM-20	RM-12	RM-8	O	B-2	B-3	UMUD
8.41	5.21	21	18.15	11.11	14.9	51.72

MOBILE HOME
(LIMITS PER ACRE)

R-40
1.95

PERCENTAGE OF PARCEL COVERED BY IMPERVIOUS SURFACE %

SINGLE FAMILY

RM-20	RM-12
27	21

MULTI-FAMILY

RM-20	RM-12	RM-8	O	UMUD	B-2
31.25	23.5	55	67	88	82

OFFICE
(SQUARE FEET OF FLOOR SPACE PER ACRE)

R-40	R-12	RM-10	O	B-1	B-2	B-3	I-1	I-2
1,953	2,894	16,198	14,278	9,454	10,353	20,127	8,163	3,604

COMMERCIAL/RETAIL
(SQUARE FEET OF FLOOR SPACE PER ACRE)

R-40	R-20	RM-8	B-1	B-2	B-3	I-1
1,567	3,114	10,022	6,956	20,436	7,082	4,831

Table E con't.

INDUSTRIAL
(SQUARE FEET OF FLOOR SPACE PER ACRE)

B-3	I-1	I-2
4,442	7,772	3,403

MEDICAL
(SQUARE FEET OF FLOOR SPACE PER ACRE)

O	R-12
3,927	9,701

NON-RESIDENTIAL SUBDIVISION
(LOTS PER ACRE)

B-3	I-1
1.24	.41

PERCENTAGE OF PARCEL COVERED BY IMPERVIOUS SURFACE %
OFFICE

O	R-12	B-3	B-2	I-1
56	36	76	70	56

COMMERCIAL / RETAIL

B-1	B-3	B-2
73	63	80

INDUSTRIAL

I-1
61

MEDICAL

O	R-12
52	74

TABLE F
IMPACT MATRIX

	AVERAGE POPULATION PER UNIT	AVERAGE # OF SCHOOL AGED CHILDREN PER UNIT	AVERAGE ASSESSED VALUE PER UNIT	AVERAGE DAILY USE OF WATER & SEWER PER UNIT	SOLID WASTE AVERAGE LBS. PER HOUSEHOLD PER DAY
SINGLE FAMILY DETACHED	3.28	.81	L: 12,344 B: 40,861 T: 53,205	159.6 GALS.	11.48
SINGLE FAMILY ATTACHED	1.98	.13	L: 2,805 B: 48,238 T: 51,043	104.62 GALS.	6.93
MULTI-FAMILY	2.14	.24 .2	L: 2,211 B: 69,034 T: 71,245	112.72 GALS.	7.49
MOBILE HOMES	1.70	.00	L: 219 B: 18,167 T: 18,386	127.05 GALS.	5.95
ADDITIONS & CONVERSIONS	2.27	.13			7.94

	ASSESSED VALUE PER SQ. FT. (Building Only)	AVERAGE DAILY USE WATER & SEWER, GALS. PER SQ. FT.	SOLID WASTE GENERATED PER EMPLOYEE PER DAY	AVERAGE NUMBER OF SQUARE FEET PER EMPLOYEE
OFFICE	$44.08	.078	4 LBS.	337
COMMERCIAL/RETAIL	$34.61	.0946	4 LBS.	222
INDUSTRIAL	$14.48	.052	6 LBS.	891

Source: Dover Planning Department, 1988

GOALS, OBJECTIVES
AND
IMPLEMENTATION ACTIVITIES

ACTIVITIES 1. Map Dover's ground water protection zones, showing the relationship of the zone boundaries to the City's corporate limits.

2. Schedule and conduct meetings with officials of communities on issues of ground water supply, East-West Highway, traffic, wetland protection and land use.

3. Pursue a shared effort with the Cities of Somersworth, and Rochester in locating the eastern terminus of the East-West highway.

4. Continue participating in the Strafford Regional Planning Commission.

5. Pursue a regional open space plan.

GOAL V. Improve the quality of developments being approved by the City.

OBJECTIVES A. Establish site development rules that more closely govern the timing and phasing of developments.

B. Develop clear regulations that set out the role of the private sector in off-setting the impacts of new developments.

C. Develop and adopt regulations designed to protect the environment and the City's natural resources.

ACTIVITIES 1. Require site review of proposals to change the use of existing buildings.

2. Revise the rules to govern residential cluster developments.

3. Establish development standards for manufacturing, commercial and office areas.

4. Develop an ordinance that establishes and charges development impact fees.

5. Develop a Capital Improvement Program that is consistent with the infrastructure needs of the projected development and proposed rezoning.

6. Modify the site review process to better coordinate the Technical Review Committee, Planning Board and Conservation Commission.

GOAL VI. Preserve and restore Dover's community character and heritage.

OBJECTIVES A. Identify the historic and cultural resources from Dover's three and one-half century history.

B. Establish the necessary tools to protect and restore the community character and heritage.

ACTIVITES 1. Develop an inventory of Dover's historic structures and sites.

2. Establish an Historic District Commission and the necessary ordinances and regulations to enact the Commission's authority.

3. Rezone the City-owned property on River Street to allow water-related activities.

4. Establish a multi-use waterfront zone that allows and encourages river-related activities.

5. Review scenic road standards for needed clarifications.

GOAL VII. Increase regulatory flexibility for addressing the City's housing needs.

OBJECTIVES A. Continue allowing for a variety of housing types through the City's zoning ordinance.

B. Revise zoning and subdivision rules to encourage greater flexibility in housing developments.

C. Promote the construction of affordable housing.

ACTIVITIES 1. Project the land area needed for the various housing types.

2. Review the Mobile Home Park regulations for needed changes to maintain consistency with RSA provisions.

3. Revise the rules that allow alternative design subdivision, encouraging more creative land use.

4. Develop a Planned Unit Development Ordinance to allow more diverse residential developments.

5. Consider an ordinance that allows affordable housing developments as a special exception.

6. Develop a Housing Foundation to continually explore and implement affordable housing strategies.

7. Provide City owned land for the construction of affordable housing.

GOAL VIII. Develop a program for managing the remaining in-fill parcels in the urban core.

OBJECTIVES A. Promote compatibility among neighboring land uses.

B. Prohibit the overly intense development of urban core parcels.

C. Identify open space and affordable housing needs in the urban core.

ACTIVITIES 1. Project the land area needed for the various land use types.

2. Require site review for proposals to change the use of existing buildings.

3. Amend the existing zoning ordinance to disallow residential development in some commercial and office zones.

4. Review the dimensional requirements of the urban core zones for needed changes to building heights, setbacks and parking.

5. Revise the site review regulations to add provisions relevant to change of uses of existing buildings.

GOAL IX. Use City owned parcels to implement the City goals.

OBJECTIVE A. Development a management plan for City owned parcels to identify the most appropriate uses for the parcels.

ACTIVITY 1. Inventory all City owned parcels, collecting relevant information and data.

2. Identify parcels that are well suited for established City goals.

GOALS X. Improve the development review process.

OBJECTIVES A. Clarify and debug ordinances and regulations.

B. Improved administration of development related ordinances.

ACTIVITIES 1. Develop amendments to ordinances and regulations designed to correct, clarify and debug the rules.

2. Establish more specific development standards for manufacturing, office and commercial zones.

3. Identify inconsistencies and problems with the existing zoning map.

4. Develop written descriptions of the various zoning districts.

5. Identify inconsistencies between the zoning map and the City's assessors cards.

6. Modify the site review process to better coordinate the Technical Review Committee, Planning Board and Conservation Commission.

7. Review office procedures for needed changes to the filing and record systems, library and inventory of laws and regulations.

8. Modify application format to obtain more information from applicants before the Planning Board and Zoning Board of Adjustments.

9. Develop and conduct workshops with the Zoning Board of Adjustments on procedures and criteria for variance decisions.

IMPLEMENTATION ACTIVITIES

A. Review of Existing Zoning
1. ID land area needed in each zone district.
2. ID changes to rules
   - exclusive
   - house cleaning
   - mobile home treatment
   - ADS revising
   - additional units in existing structure
   - change of use to site review
   - downtown parking
   - building heights

B. Future Land Use Map
1. ID areas for rezoning to lot line accuracy.
2. Land demand by land use based on AER projections and availability of existing zoning.
3. Overlays
   - soils
   - aquifer
   - slope

C. New Zoning Changes
1. New Zoning Districts
   - permitted uses
   - development
2. Wetland Ordinances
3. Aquifer Protection
4. Lot Size by soil type
5. PUD
6. Affordable housing special exception
7. Multi-use water front district

D. Existing Map Changes
1. Existing zoning map problems and inconsistancies
2. Verbal description of existing zoning districts for purpose of clarity
3. Describe inconsistancies for tax assessor's cards and existing zoning

E. Procedural Changes
1. - site plan review process
   coordination for TRC/PB/Con. Comm.
   enforcement
2. - Zoning Board of Adjustment
   education
   fees

3. - Office Efficiency
   filing
   library
   maps
   records of meetings
   records of ord/regs. changes
   local/state/federal requirements

4. Applications
   - ZBA
   - Planning Board

5. Building Permit/CO sign-offs