Newton Village Study

Upper Falls Survey Report

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NEWTON COLLECTION

THE NEWTON VILLAGE STUDY

UPPER FALLS SURVEY REPORT

JANUARY 1986

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TABLE OF CONTENTS

2.2.0	INTRODUCTION AND SUMMARY OF FINDINGS
2.2.1	MARKET ORIENTATION
2.2.2	URBAN DESIGN AND ENVIRONMENT
2.2.3	LAND USE
2.2.4	TRAFFIC
2.2.5	PARKING
2.2.8	ZONING/THE DEVELOPMENT ENVELOPE

UPPER FALLS SURVEY REPORT

2.2.0 INTRODUCTION AND SUMMARY OF FINDINGS

INTRODUCTION

The Newton Village Study is a two year effort to examine and prepare a comprehensive plan for the future of the City's fifteen village centers. The study was begun in response to the growing community awareness and concern of the land development pressures that are being experienced throughout the City,particularly in the village commercial centers.

The study was designed to have four phases, each phase building on the next so that effective input of all citizens of Newton can be obtained.

I. A kickoff phase, in which the study was announced and its design publically presented in meetings before the Board of Aldermen, the Economic Development Commission, and a land use forum conducted by the Newton Conservators and the League of Women Voters. In cooperation with the Economic Development Commission, a full scale citizen participation process was also designed in this phase.

II. A survey phase, to examine and discuss the development issues and problems from a city-wide as well as village perspective. The problems of traffic, parking, urban design, zoning and the economy are examined and presented in survey reports for each village center.

III. An alternative plans phase, to examine and discuss a number of alternatives for the future of the village centers, and the impacts of the alternative futures on the City's quality of life.

IV. A final plan phase, to prepare consensus plans and the necessary zoning amendments and other public actions necessary to achieve it.

The Upper Falls area comprises two of the village centers: Chestnut/Elliot and Pettee Square, the study boundaries of which are shown on the accompanying maps.

SUMMARY OF FINDINGS

- The Chestnut/Elliot area is presently not a local center. Its businesses serve a wider market; Pettee Square retains a neighborhood convenience business base.

- Although the City's streetscape improvements have helped, the visual environment of Pettee Square has been marred by incongruous business development and poor signage. Chestnut/Elliot presents a more positive and historical image.

- Chestnut and Elliot Streets are adversely affected by traffic generated in Needham. Chestnut Street is narrow and cannot accommodate these volumes. Traffic backups also occur on Elliot Street from the Charles River bridge to Chestnut Street.

- There is a surplus of 96 spaces in Chestnut/Elliot; but there is a small deficit in the vicinity of the liquor store on Elliot Street. Some parking intrusion occurs here and on Summer Street.

- Parking in Chestnut/Elliot is severely restricted by the narrow streets and the dense character of the area. This limits the area's ability to function as a neighborhood convenience center.

- Pettee Square has a deficit of 24 spaces, primarily in the Mechanic/Ossipee Street area.

- There is some parking intrusion on Ossipee Street but the narrowness of the streets prevents on-street parking in most areas.

- There is substantial residential development opportunity in the large vacant and underused parcels just west of Pettee Square on Chestnut Street. A total of 226 units could be built under present zoning in Upper Falls.

- A total of 119,300 square feet of new commercial/office development could occur under present zoning within the Upper Falls study areas, an increase of 58%. Development opportunities are concentrated in the vicinity of the Chestnut/Elliot intersection, east of Linden Street and in Pettee Square.

- Development is expected to be characterized by three story office buildings with surface parking lots for the near future, similar to recent construction on Oak Street.

UPPER FALLS SURVEY REPRT

2.2.1 MARKET ORIENTATION

Most of Newton's retail business and service economy is located in the City's 15 village centers. While there are substantial activities elsewhere (e.g. Needham Street), these centers function in varying degrees as the centers of the City's economy. Newton's commercial pattern is unusual for a city of its size. Most medium size cities are characterized by a substantial "downtown" where retail and business services and governmental activities tend to be concentrated, and perhaps a number of smaller neighborhood convenience centers or strips. In Newton, there is no one center that can be called the City's "downtown", although Newton Centre comes closest.

An important aspect of the village study is to determine the present role of each village center in the City's economy and to forge a consensus on what roles each should play in the future.

Therefore, the "market orientation" of the retail businesses in each center was examined and categorized into three orientations: neighborhood, community/city-wide, and city-wide/regional. These characterizations were made on the basis of the type of business and what is considered by market researchers to be its normal market area. For example, a small variety store or delicatessen normally serves a convenience business. An automobile dealer, large plumbing supply outlet or discount store normally serves a wider community or city-wide market. Large shopping malls or office complexes and employment centers tend to attract shoppers and business from throughout the metropolitan area. Although the Chestnut Hill Mall and shopping center may contain small shops, the area as a whole is a regional attraction.

There is a mix of businesses in all village centers, but some have a much wider range of goods and services than others. Most village centers also contain businesses whose mnarket orientations vary, so that with the exception of Waban and Oak Hill, there are no centers which can be considered purely neighborhood, community-wide or regional in nature. However, it is possible and appropriate to estimate the amount of business floor area in each village center oriented in each of these ways.

FINDINGS

Chestnut/Elliot and Pettee Square are completely different in their relationship to the village of Upper Falls. Pettee Square provides neighborhood services while the businesses in the vicinity of Chestnut and Elliot are oriented to much wider market areas. While Pettee Square has attracted businesses with a "community-wide" orientation, it retains its convenience service base.

The relatively recent addition of new office space and rehabilitation of older industrial buildings for more office oriented activities suggest that Pettee Square's neighborhood orientation may change. Its proximity to Needham Street may spur further office development which in turn could also change the retail base of the area. Restaurants, clothing stores and variety gift shops are the types of businesses that thrive in office employment areas, often to the detriment of neighborhood convenience outlets.

The businesses at Chestnut/Elliot serve the antique and decorator furniture markets and thus probably attract customers from throughout the Boston area. Other businesses here, such as the restaurant, primarily serve those shoppers and the employees in the office center. The remaining businesses (liquor, real estate) are primarily neighborhood oriented.

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TABLE 1.1

MARKET ORIENTATION OF BUSINESS ACTIVITY IN UPPER FALLS-
PETTEE SQUARE BY BLOCKS AND FLOOR AREA

	Blocks	Floor Area	
1. Neighborhood Convenience Shops and Services	51040	10038	
	51045	9443	
		Sub Total	19481
2. Community-wide Business and Services	51029	40241	
	51034	1800	
	51045	15549	
	51046	43200	
	51035	172424	
		Sub Total	273214
3. City-wide/ Regional Centers and Services	51045	12572	
		Sub Total	12572
		Total	305267

MARKET ORIENTATION OF BUSINESS ACTIVITY IN UPPER FALLS -
CHESTNUT ELLIOT
BY BLOCK AND FLOOR AREA

	Block	Floor Area	
1. Neighborhood Convenience Shops	51004	1535	
	51041	8674	
		Sub Total	10209
2. Community-wide Business and Services	51006	5701	
		Sub Total	5701
3. City wide/ Regional Shopping Centers and Services	51001	110644	
	51002	15703	
	51006	3743	
		Sub Total	130090
		Total	146000

UPPER FALLS SURVEY REPORT

2.2.2 URBAN DESIGN AND ENVIRONMENT

INTRODUCTION

In the visual survey we have endeavored to discuss the general environment of the Village Center with special emphasis devoted to those areas which are "perceived" as the "central core", (usually the central commercial block.) Within this discussion, emphasis is further placed on the quality and clarity of entry (gateways), "spatial definition" (the quality and continuity of the commercial edge and the space formed by the building massing scheme) and the effect of these elements on the perception of the viewer. Other positive and negative aspects specific to the center are also discussed. Considerations such as areas of negative residential/commercial interface, the role and extent of vehicular/pedestrian participation in the space, as well as facade/signage problems, are examined to provide insight into the many seemingly unrelated elements within the center which contribute to our perceptions of it as an environmental whole.

FINDINGS

Figure 2.1 presents the findings of the visual survey.

To the north and south of Upper Falls are city-wide gateways from Wellesley and Needham respectively.

Pettee Square to the south contains specific points at Oak Street where entry is perceived while approaching the Railroad tracks and on Chestnut Street heading east. Each of these is clearly defined but only moderate in visual quality.

Within Pettee Square a number of 19/20th century brick commercial buildings (to the southwest) and the large Chestnut Street Complex attempt to define a positive environmental theme in this area. This is countered by the negative "visual impact" of the more recent incongruous commercial additions and poor signage. This negative effect has been somewhat mollified by recent sidewalk improvements.

To the north, the Chestnut/Elliot area presents a more positive and historic image. Nineteenth century residential structures define this as a typically New England "village-like" center. These structures are located close to the edge of the road (which is typical of older New England towns) so, despite their modest vertical scale, they serve to clearly define and enclose the space.

Access to the Chestnut/Elliot area is poorly defined from the north, but clearly defined with a positive visual image, from the south, on Chestnut Street.

UPPER FALLS SURVEY REPORT

2.2.3 LAND USE

INTRODUCTION

Information on existing land uses in the village centers was obtained from the Newton Assessors. The information was aggregated into the categories shown in Tables 3.1 and figure 3.1. The table shows for each the amount of land area in acres for each use, the amount of commercial, office and industrial floor area in square feet, the number of dwelling units located within the village study boundaries, and the Floor Area Ratio (FAR) of the non-residential buildings. (The concept of FAR is illustrated in Section 2.2.8.)

FINDINGS

Non-residential land uses and the amount of floor area devoted to those uses reflect the difference between Pettee Square and Chestnut/Elliot. The former center contains a large component of uses classified as industrial, with a relatively small base of convenience oriented commercial outlets. Chestnut/Elliot's base is primarily specialty goods and some offices concentrated north in one location. Commercial densities in Chestnut/Elliot are lower than the average for all village centers. Those of Pettee Square are above average, swelled by the size of the industrial/office building at Chestnut and Oak, which dominates the square.

There is a total of 10.2 acres of vacant land in the Upper Falls study area, but an important fact is that this land is concentrated in two locations. In Chestnut/Elliot, the vacant land abuts the existing shopping center. In Pettee Square, the vacant land abuts several large underused parcels on Chestnut just to the west of the square. These parcels represent major development opportunities. (See Section 2.2.8)

TABLE 3.1

UPPER FALLS - PETTEE SQUARE

EXISTING LAND USE CHARACTERISTICS

CATEGORY	LAND AREA IN ACRES	FLOOR AREA IN SQ. FT.	FAR%	DWELLING UNITS
Residential:				
Single Family	9.79	--	--	70
2 and 3 Family	4.78	--	--	56
Apartments/Condos	5.75	7,758	--	28
Commercial	0.54	14,693	.629	--
Office	2.14	88,441	.896	--
Industrial/Manufacturing	4.55	209,918	1.060	--
Mixed Use - mostly Commercial	6.44	28,535	.102	--
Mixed Use - mostly Residential	0	--	--	--
Transportation/Parking	NA	--	--	--
Institutional	NA	--	--	--
Open Space/Recreation	NA	--	--	--
Vacant Land	6.16	--	--	--

CHESTNUT ELLIOT

EXISTING LAND USE CHARACTERISTICS

CATEGORY	LAND AREA IN ACRES	FLOOR AREA IN SQ. FT.	FAR%	DWELLING UNITS
Residential:				
Single Family	12.05	--	--	57
2 and 3 Family	15.52	--	--	158
Apartments/Condos	1.82	--	--	16
Commercial	3.97	120,853	.366	--
Office	0.48	7,933	.382	--
Industrial/Manufacturing	0.00	--	--	--
Mixed Use - mostly Commercial	0.30	20,083	1.538	--
Mixed Use - mostly Residential	0.95	23,267	.561	--
Transportation/Parking	NA	--	--	--
Institutional	NA	--	--	--
Open Space/Recreation	NA	--	--	--
Vacant Land	4.06	--	--	--

NEWTON UPPER FALLS SURVEY REPORT

2.2.4 TRAFFIC CONDITIONS

This report conveys the results of the manual and automatic traffic counting program initiated in October 1985, by the consultant and the City, together with pre-existing traffic count data from previous City counts and consultant studies made available to us by the Newton Planning and Public Works Departments.

The objective of assembling available information on traffic volumes, intersection geometrics, and existing traffic control was to create a "Base Case" traffic scenario against which alternative future scenarios can be compared in later phases of the study. Since the principal traffic impact of additional development in any center will be the generation of added volumes, it was important to have reasonable estimates of existing volumes on key streets.

In conducting the traffic surveys, we noted existing intersection geometry and traffic control, pointing out where these create or accommodate present-day bottlenecks. We also tried to identify parallel routes most likely to be used as bottleneck bypasses by drivers familiar with existing traffic conditions.

We used the Level of Service methodologies for analyzing signallized and unsignallized intersections to characterize existing operations, with <u>one important caveat</u> related to signallized intersections: signal phasing and timing patterns assumed at such intersections were not those in current operation. We deemed it more useful to analyze an <u>optimal</u> allocation of signal green time based on existing traffic volumes, in order to be able to compare operations given potential capacity and existing volumes, with future operations when these volumes can be assumed to increase with different development scenarios. This approach corresponds to the "planning" approach to traffic operations analysis, compared with the more fine-tuned "engineering" approach which is appropriate when one is actually involved in intersection design. Thus, the reported Levels of Service may not correspond with current daily experience at existing signallized intersections operating with less-than-ideal phasing and timing.

12/13. NEWTON UPPER FALLS

Traffic Conditions

Oak and Chestnut Streets, between Needham Street on the south and Route 9 on the north, are the principal north-south thoroughfares in this section of Newton, with Elliot Street the key internal east-west connector. The Chestnut Street corridor is an important traffic conduit as far north as West Newton, where it connects with the inbound Massachusetts Turnpike. In Newton Upper Falls, however, Needham Street, the Elliot Street route to Needham and Route 128, and local businesses and residences, appear to be more direct influences on traffic volumes than do activities located north of Route 9.

Peak period turning movement counts were undertaken during November 1985 at the two major signallized intersections in the Upper Falls area:

Chestnut/Elliot Streets
Oak/Chestnut Streets

The resulting volumes, adjusted to represent average daily 1985 peak hour volumes and balanced, are depicted in the traffic network diagrams of Figure 4.2 Peak hours observed during the counts at Chestnut/Elliot were 7:45-8:45 AM and 4:30-5:30 PM, with slightly later peak hours (8:00-9:00 AM and 4:45-5:45 PM) at Oak/Chestnut.

The most noteworthy observation during the counting periods was the moderately high volume of traffic turning left from Elliot Eastbound onto Chestnut Northbound during the morning peak hour, and the corresponding right turn from Chestnut Southbound to Elliot Westbound during the evening peak. Most of this traffic is generated within Needham, or at the Route 128 connection via Gould Street in Needham, so that Chestnut Street in this area carries volumes which would otherwise use Route 128.

The total volumes on Chestnut Street would not overtax the capacity of a 2 lane suburban arterial street with standard right-of-way width, level profile, and relatively few curb cuts and interruptions. However, Chestnut Street in this area has less-than-desirable geometry to accommodate these traffic volumes: it is a narrow street, particularly at the point where Ellis Street diverges from Chestnut, and is located on an upgrade at this location. Sight lines from several of the minor cross streets in this area are quite difficult, and hazardous at some points, because of the grade and building locations close to the corners of oblique-angled intersections. Farther north, the street is characterized by tight S-curves which can present problems to drivers unfamiliar with the area, particularly since more experienced local drivers negotiate these curves at fairly high speeds.

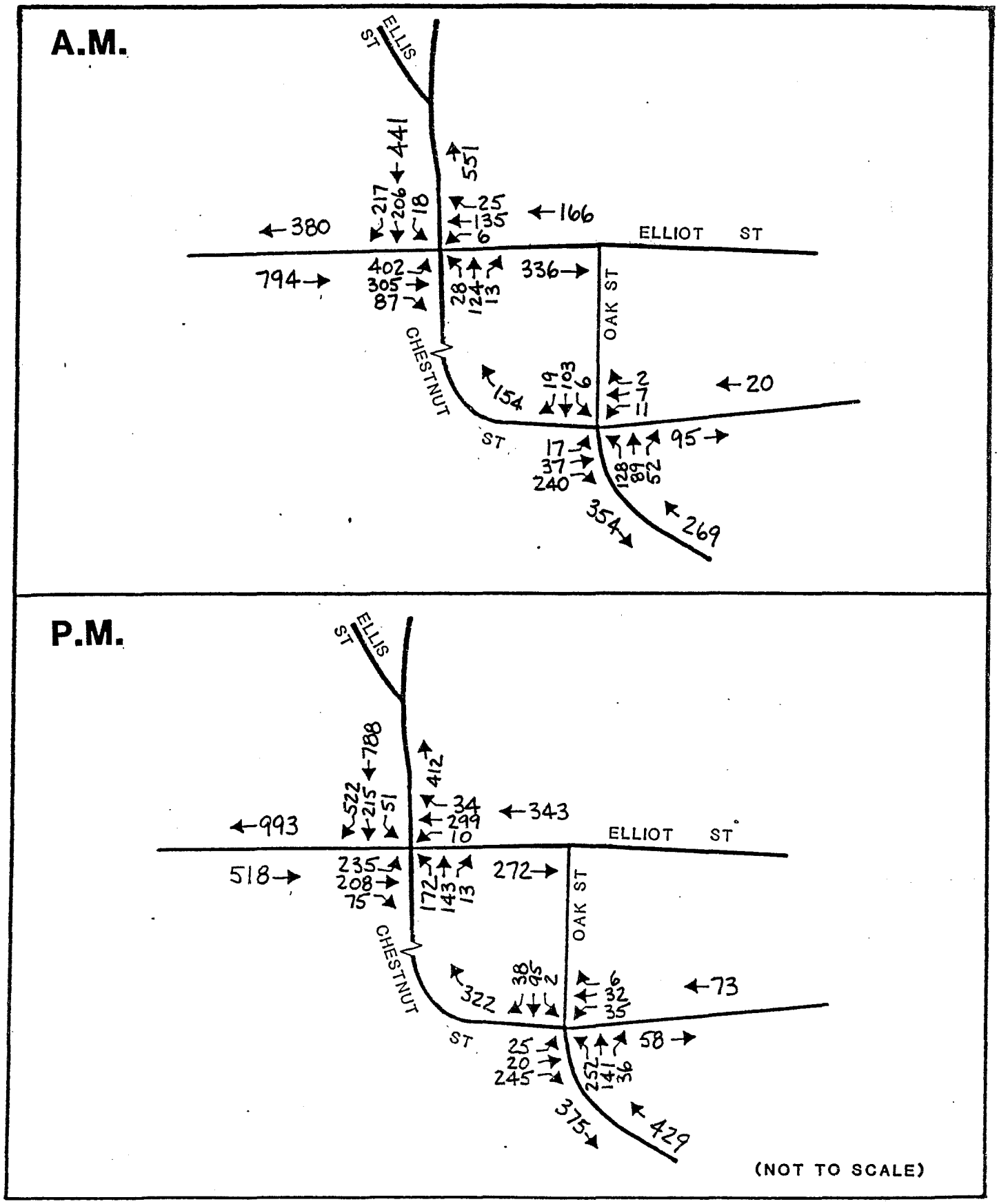
Elliot Street west of Chestnut is also somewhat narrow, and, occasionally during the evening peak hour, traffic was observed to back up from the Charles River bridge as far as Chestnut Street. Both Elliot and Chestnut

are wide enough at their intersection to permit bypassing of left turns, however.

At Oak/Chestnut Streets, the predominant moves are right turns from Chestnut Eastbound to Oak Southbound, and the corresponding left turns from Oak Northbound to Chestnut Westbound. Total traffic volumes through this intersection are quite a bit lighter than at Chestnut/Elliot, and operations were observed to be considerably easier.

Existing operations at Chestnut/Elliot Street and Oak/Chestnut Street were analyzed using Level of Service analysis procedures for signallized intersections. The purpose of the analysis was to determine how well these intersections could function, given their present geometric design and ideal or desirable signal timing, and existing traffic volumes, as a measure of how much potential capacity at each intersection is presently utilized. At a later phase of the study, projected volumes can be compared against present volumes, assuming an optimal traffic throughput at each existing intersection.

The results of this analysis are illustrated on Figure 4.3 As can be seen, each of the 2 intersections analyzed theoretically has sufficient capacity to function at a high level of service given existing traffic volumes. Even the heavy left turn moves at both intersections can be accommodated reasonably well within a 2-phase signal. The intersections themselves are not as important a constraint in this area as are the roadway configurations of Chestnut and Elliot Streets.



NEWTON VILLAGE STUDY	PEAK HOUR TRAFFIC VOLUMES - UPPER FALLS	FIGURE 4-2

Segal DiSarcina Associates
Transportation Consultants

UPPER FALLS - SURVEY REPORT CHESTNUT/ELLIOT AND PETTEE SQUARE

PARKING 2.2.5

INTRODUCTION

This report presents the results of the following parking studies and analyses performed for the Upper Falls - Chestnut Elliot and Pettee Square areas.

- A parking inventory (figure 5.1)
- A parking supply/demand analysis (figure 5.2)
- A parking use survey

The parking inventory was prepared from field survey and from information provided by the Newton Departments of Public Works and Planning and Development. The inventory identifies all available public and private, on-and off-street,posted and metered, parking spaces in the study area.

The parking supply/demand was performed using computerized land-use data provided by the Newton Assessors, and the above parking data. This analysis provides a measure of the difference between an assumed business parking demand and actual supply.

CHESTNUT/ELLIOT

The parking use survey was conducted on Thursday, November 7, and Saturday, November 15, 1985, between the hours of 12 noon and 2:30 p.m. The survey consisted primarily of observing the amount of parking occurring at the time in relation to the amount of spaces available in the streets. The streets observed were Chestnut, Elliot, Summer and Winter. The parking lot of the Elliot Street shopping/office center was also examined.

SUMMARY OF FINDINGS

a. <u>Supply vs Demand</u>

1. It is estimated that the Chestnut/Elliot area has a present surplus of 96 spaces. This surplus is the result of the type of businesses that exist in the area.

2. There is, however, an estimated deficit in the Elliot Street block, where most on-street parking was observed.

3. If business uses were to change in this area (e.g. become more convenience oriented) a serious deficit and parking problems would result.

b. Parking Use Survey

1. No significant parking problems were observed. The "spillover" parking along Elliot Street did not extend beyond Hale Street.

2. The shopping center parking lots were operating at far less than capacity.

3. Parking use was characteristic of an area specializing in high value goods (in this case, antiques and expensive home decor). These activities do not attract a significant number of customers at any one time.

4. On-street parking is severely restricted by the narrow streets.

SUPPLY VS DEMAND IN CHESTNUT/ELLIOT

Table 5.1 presents the results of the supply and demand analysis for Chestnut/Elliot. The analysis resulted in an estimated surplus of 96 spaces for the area. The reason for this surplus is that the predominant retail uses in this area - decorator furniture and antique shops - generate less customer parking that other retail uses and business services. The shopping mall/office complex in Block 51001 shows a surplus of spaces, consistent with what was observed in our survey. This mall contains considerable floor area in furniture and antiques. The surplus in this center is even higher, as the 55 car parking lot in Block 51043 is part of the parking supply for this center.

The major deficit occurs in Block 51041, where there are more typical convenience businesses.

PARKING USE CHARACTERISTICS CHESTNUT/ELLIOT

On the days surveyed, there appeared to be very little business-related parking on the streets, except for Elliott Street east of Chestnut. There were also some cars parked in the posted spaces on Summer Street, most likely a mix of residential and business (antique store) parking. The narrow streets discourage parking and there is little opportunity for off-street parking. There are, however, very few employees in the area, and antique shops do not attract large numbers of shoppers at any one time.

PARKING MANAGEMENT CHESTNUT/ELLIOT

The survey did not note enforcement patterns. Time limits on the posted spaces should be actively enforced in order to encourage continued turnover of the very few spaces available.

PETTEE SQUARE

The parking use survey of Pettee Square was conducted on Saturday, November 15, and Thursday, November 20, 1985, between the hours of 12 noon and 2 p.m. The survey consisted primarily of observing and counting the number of cars parked on streets in relation to the number of spaces available. The streets surveyed were Chestnut, Oak, Ossipee, Sweet and Lincoln Streets and Indiana Terrace in and near Pettee Square. The purpose of the survey was to observe and measure actual parking use, and to determine if business parking spills over into nearby residential areas.

SUMMARY OF FINDINGS PETTEE SQUARE

a. Supply vs Demand

1. There is an estimated deficit of 24 spaces for business parking in Pettee Square. Deficits are concentrated in the Mechanic/Ossipee Street area.

b. Parking Use Survey

1. On the days surveyed, parking use was moderate, but there appeared to be business parking in some residential areas, particularly on Ossipee Street. This parking seemed related to the large office/research and development complex on Oak and Chestnut Streets, but may also be the result of a substantial deficit of spaces resulting from business uses on Mechanic and Ossipee Streets.

SUPPLY VS DEMAND PETTEE SQUARE

Table 5.1 presents the results of the supply/demand analysis. At first glance, it would appear that the small 24 space deficit is primarily the result of lack of sufficient parking in the large research and development complex in block 51035, in the heart of Pettee Square. However, this complex is also served by parking in block 51034 across Mechanic Street, so that there results in only a slight 9 car deficit. Lack of sufficient parking for the businesses on Mechanic Street (block 51029) is the underlying cause of the parking spillover observed on Ossipee Street. The few offices in the stone building at Oak and Cliff Streets may also contribute, as these narrow streets reduce on-street parking possibilities.

PARKING USE CHARACTERISTICS PETTEE SQUARE

As stated earlier, business-related parking in residential areas seemed to be concentrated on Ossipee Street. There were some cars on Indiana Terrace, but those few may not have been business-related. In general, on-street parking was

concentrated on the business frontages of Oak and Chestnut Streets There seemed to be a typical turnover for a convenience center, although the parking on Ossipee Street seemed longer term. The narrow streets above Pettee Square discourage and/or disallow on-street parking.

PARKING MANAGEMENT PETTEE SQUARE

The pattern of enforcement was not surveyed, but there appeared to be good turnover. As there is a slight deficit of spaces, active enforcement of time limits on posted spaces will be needed in order to ensure turnover and parking availability for convenience shoppers and businesses.

TABLE 5.1 UPPER FALLS - CHESTNUT/ELLIOT

PARKING SUPPLY AND DEMAND BY BLOCK

SEC/BL	DEMAND	PRIV	OFFST	ONST	PUBL	SPPLY	SURPLUS
51001	180	253	0	0	0	253	73
51002	15	6	0	4	4	10	- 5
51003	0	0	0	16	16	16	16
51004	0	3	0	0	0	3	3
51006	24	23	0	0	0	23	-1
51038	3	0	0	0	0	0	-3
51041	76	34	0	0	0	34	-42
51043	0	55	0	0	0	55	55
TOTAL	493	374	0	20	20	394	96

UPPER FALLS - PETTEE SQUARE

SEC/BL	DEMAND	PRIV	OFFST	ONST	PUBL	SPPLY	SURPLUS
51029	78	39	0	0	0	39	-39
51034	0	105	0	5	5	110	110
51035	276	110	0	47	47	157	-119
51036	20	0	0	0	0	0	-20
51040	37	56	0	6	6	62	26
51045	50	63	0	7	7	70	20
51046	115	109	0	5	5	114	-1
TOTAL	461	482	0	70	70	552	-24

PRIV: Private off-street spaces
OFFST: Public off-street spaces
ONST: On-street metered and posted space
PUBL: Total off-and on-street metered and posted spaces
SPPLY: Total public and private spaces

UPPER FALLS SURVEY REPORT

2.2.8 ZONING/THE DEVELOPMENT ENVELOPE

INTRODUCTION

This report presents the results of the analysis of existing zoning in Upper Falls. The purpose of the analysis is to provide an understanding of the present and future development environment of the study area, or to answer several basic questions:

1) How much growth is allowed by present zoning?

2) How much of this growth could most likely occur in this village center?

3) What will this development most likely consist of and look like?

A fourth, and equally important question, (what will be the impact of this growth?) will be examined in the next phase of the study.

In order to answer these questions, the following analyses or estimations were performed:

<u>The Zoning Envelope</u>: This estimates the total amount of residential, commercial and office development that is presently allowed by the zoning ordinance on each parcel of land and for the study area as a whole. This represents the "as-of-right" capacity of zoning as if every parcel of land were developed to the fullest extent allowed by present zoning.

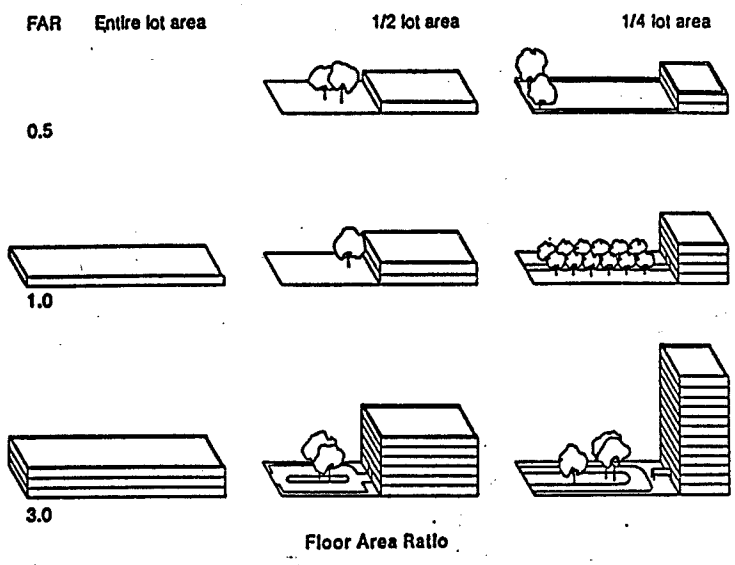
<u>The Development Envelope</u>: This is an estimate of the amount of development that could and is more likely to occur when existing and recent development is considered along with present zoning. This development envelope, or umbrella, combines the concept of zoning "right" and the realities of the marketplace to produce a more reasonable estimate of long term development that could occur "as-of-right" or without special permit.

<u>A Development Model</u>: This is a simple representation of the kind of development that exists, has been recently built, or proposed in the area, and is most likely to be built in the forseeable future.

WHAT IS FAR?

The Floor Area Ratio (FAR) is a simple measure of development intensity. It expresses the ratio of a building's total floor area to the size of its site. A one-story building covering its entire site or parcel has an FAR of 1.0. A three story building of 100% coverage has an FAR of 3.0. The same building covering 50% of a site has an FAR of 3 x .50, or 1.50.

FLOOR AREA RATIOS ILLUSTRATED



WHAT IS THE ZONING ENVELOPE?

The zoning envelope is a measure of the amount of development allowed by the provisions of the existing zoning ordinance. This allowable development is expressed as total non-residential floor area and number of dwelling units that can be developed on each parcel of land and for an area as a whole. The floor area is determined by translating the provisions of the zoning ordinance into effective maximum allowable FAR's, or number of dwelling units for typical development that might occur in each zoning district. The estimated FAR's are shown in Table 8.1.

TABLE 8.1

EFFECTIVE MAXIMUM AS-OF-RIGHT FLOOR AREA RATIOS ALLOWED BY THE EXISTING ZONING ORDINANCE

Typical Development	Zoning Districts/FARs BAA	BA	BB	LM	M
1. Retail-surface prkg					
. 1 story	0.25	0.40	0.40	0.25	0.40
. 2 stories	0.50	0.62	0.62	0.44	0.62
. 3 stories	0.62	0.70	0.70	0.60	----
. 4 stories	----	----	----	0.70	0.81
2. Office-surface prkg.					
. 1 story	0.25	0.40	0.40	0.25	0.40
. 2 stories	0.50	0.59	0.59	0.41	0.59
. 3 stories	0.58	0.69	0.69	----	----
. 4 stories	0.61	----	----	0.60	----
3. Retail Ground floor, offices above-surface prkg.					
. 2 stories	----	0.59	0.59	0.44	0.59
. 3 stories	0.58	0.69	0.69	----	----
. 4 stories	0.60	----	----	0.58	----
4. Office-Ground floor prkg. or 1 prkg. level under building					
. 2 stories	0.50	0.98	0.98	0.50	0.98
. 3 stories	0.75	0.98	0.98	0.50	0.98
5. Retail Ground Floor office above - all prkg underground					
. 3 stories	0.75	2.70	2.70	0.75	2.70
. 4 stories	1.00	----	----	1.00	----
6. Retail Ground Floor above - surface parking garage					
. 3 stories	0.75	1.41	1.41	.75	1.41
7. Retail Ground Floor, offices above - 90% prkg. underground, 10% in surface garage					
. 3 stories	0.75	2.34	2.34	.75	2.34
. 4 stories	1.00	----	----	1.00	----

8. Storage Warehouse					
. 1 story	----	----	0.42	0.25	0.89
. 2 stories	----	----	1.67	0.50	1.61
9. Wholesale, manufacture, R&D labs - surface prkg.					
. 1 story	----	----	0.80	0.25	0.76
. 2 stories	----	----	1.27	0.50	1.25
. 3 stories	----	----	2.32	0.75	2.32
. 4 stories	----	----	----	1.00	----

Based upon analysis of the existing zoning ordinance and most recent non-residential development in Newton, the following FAR's were used to determine the total floor area of commercial/office developmnent that can be built as-of-right in each zoning district. (The Zoning Envelope)

ZONING DISTRICT		FAR ALLOWED
Business	(BAA)	1.00
Limited Manu-facturing	(LM)	1.00
Business A	(BA)	2.70
Business B	(BB)	2.70
Manufacturing	(M)	2.70

Estimation of an allowable dwelling unit envelope for parcels in residential zoning districts is relatively straight-forward. The residential zoning districts control density either through lot size or lot square feet per unit controls. Maximum allowable dwelling units for each zoning district are as follows:

ZONE		DWELLING UNITS PER ACRE
Residence A	(RA)	1.74
Residence B	(RB)	2.40
Residence C	(RC)	4.36
Private Residential	(PR)	8.72
Residence D	(RD)	8.72
Residence E	(RE)	27.20

The allowable floor area ratios and unit densities are now applied to the actual zoning in the study area as shown on Figure 8.1. The results, the zoning envelope are as follows:

The Zoning Envelope in UPPER FALLS

	Chestnut Elliot	Pettee Square
. TOTAL NEW COMMERCIAL FLOOR AREA ALLOWED	95,483	146,364
. TOTAL NEW OFFICE FLOOR AREA ALLOWED	793,690	409,651
. TOTAL NEW DWELLING UNITS ALLOWED	72	154

PRESENT AND RECENT DEVELOPMENT

The above estimates assume that all properties will be redeveloped to the maximum allowable. Therefore, as estimates of actual possible development, the figures are very high and do not represent a realistic picture of the amount and type of development that could actually occur. Market forces and resulting rent levels, economic constraints, construction costs and site constraints must also be considered. These factors greatly temper the amount and density of development that does and will most likely occur in many of the village centers.

Therefore, allowable FAR's must be compared with those obtained from recent development, or development that has been proposed or is under construction.

Table 8.2 shows the FAR's of commercial projects most recently proposed or under construction that have been or may be permitted as-of-right under present zoning. Many of these projects include surfce parking structures so that the resulting FAR's, or actual office building floor areas, are less than allowable. That is, despite the intensity of the 5 story office development under construction at 29 Crafts Street, Newtonville, (FAR 2.23) it would have been built to an even greater intensity had all parking been planned to be underground. Based on Newton's strong office and retail market and the resulting high land values, it is expected that development of underground parking will become the rule rather than the exception in areas such as Newton Corner, Chestnut Hill and Newton Centre.

In other village centers, recent development has occurred at considerably less density. Surface parking lots are more the rule that the exception in these centers. Land values and marketable rents result in an economic environment in which the "suburban style" development is feasible and economically desirable.

It should also be noted that a number of these developments have had the benefit of the parking credit, so that the actual floor area ratio obtained was higher for the particular type of development that actually took place than

would have been possible if the full parking requirements had been met. On the other hand, the popularity of areas such as Newton Centre and Newton Corner for office development may have justified the provision of the additional parking underground.

TABLE 8.2

FLOOR AREA RATIOS (FAR) FOR DEVELOPMENT PROPOSED OR UNDER CONSTRUCTION

DEVELOPMENT	ADDRESS	FAR	ZONE
AUBURNDALE			
1. 3 story offices, surface parking	11 Bennett St.	0.56	BB
2. 2 story offices, surface parking	73 Lexington St.	0.48	BB
CHESTNUT HILL			
1. 3 story offices, parking garage	300 Boylston St.	2.38	BA
NEWTON CENTRE			
1. 4 story offices, parking garage	1320 Centre St.	2.59	BB
NEWTON CORNER			
1. 4 story offices, parking garage	1 Newton Pl.	2.12	BA
2. 3 story offices, parking garage	2 Newton Pl.	2.45	BA
3. 4 story offices, parking garage	31 Washington	2.67	BA
NONANTUM			
1. 5 story offices, surface parking	459 Watertown	0.55	MFG
NEWTONVILLE			
1. 5 story offices, parking garage	29 Crafts St.	2.23	MFG

UPPER FALLS

1. 3 story offices, surface parking	75 Oak St.	0.34	BA
2. 4 story offices, surface parking	138 Needham	0.77	MFG
3. 4 story offices, surface parking	118 Needham	0.57	MFG

NEWTON HIGHLANDS

1. Offices	0.53	BA

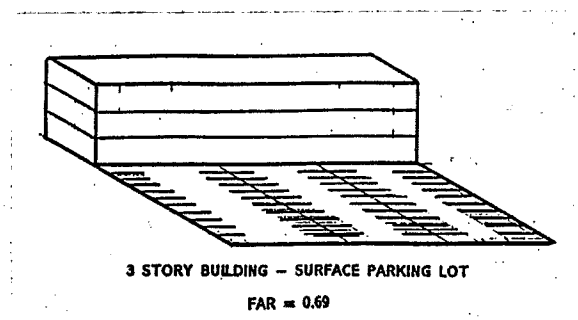
****

Average FAR for Office Development with parking in surface lots	0.54
Average FAR for Office Development with parking in a mix of underground and surface garages	2.41

A MODEL OF RECENT DEVELOPMENT

The possibilities allowed by the zoning ordinance and a view of actual development resulting from market forces leads to an estimate of a type or model of development that may occur in a particular center. For Upper Falls, the following non-residential development type is expected to continue to be built for the forseeable future:

Figure 8.2 A MODEL OF RECENT OR EXPECTED DEVELOPMENT



This type of development is now matched with the requirement of the present zoning ordinance to obtain its allowable floor area ratio:

DEVELOPMENT TYPE	ZONES/ALLOWABLE FLOOR AREA RATIO				
Surface Parking Lot	BA	BB	M	BAA	LM
3 story Office/Retail	.69	.69	.69	----	----
4 story Office/Retail	----	----	----	.60	.58

THE DEVELOPMENT ENVELOPE

The estimate of total development allowable under present zoning (the Zoning Envelope) is now tempered with a more realistic view of the economic environment of the study area, and results in an estimated development envelope shown in Table 8.3 and Figure 8.3.

The estimated residential development envelope is the same as the residential zoning envelope. The demand for new housing units is high, and there is no reason to assume that housing will not be built to the maximum allowed by zoning.

An estimated 179,300 square feet of non-residential development could occur in the foreseeable future, an increase of 58%. Almost all of this growth would come in the form of office development, together with specialty and service retail.

There could also be a 59% increase in the number of dwelling units from the present total of 385 to 611.

THE PATTERN OF POSSIBLE NEW DEVELOPMENT/REDEVELOPMENT

Figures 8.2 and 8.3 show the amount and probable pattern of possible new development or redevelopment.

Figure 8.2 indicates the present intensity of use in the study areas, those parcels that are presently vacant, and those that are presently underused. The underused parcels are those whose present density is less than that allowed by existing zoning. While this map does not and cannot show which parcels will be developed to greater density, it provides a good indication of where new development activity might occur.

The figures show that development opportunities are scattered throughout the Upper Falls study areas. The large vacant and underused parcels just west of Pettee Square are presently zoned residential, and represent a major portion of the 154 new units that could be built in the Pettee Square area. Vacant and underused parcels at Chestnut and Elliot Streets

and at Linden and Ossipee Streets represent the most significant non-residential development opportunities.

TABLE 8.3

THE PRESENT DEVELOPMENT ENVELOPE:

GROWTH THAT COULD OCCUR IN UPPER FALLS

PETTEE SQUARE

• New Commercial/Retail Floor Area that could be added	5074 s.f.
• Existing Commercial/Retail Floor Area	43228 s.f.
• Percent Added	12%
• New Office Floor Area that could be added	83318 s.f.
• Existing Office Floor Area	83441 s.f.
• Percent Added	94%
• New Dwelling Units that could be added	154
• Existing Dwelling Units	154
• Percent Added	100

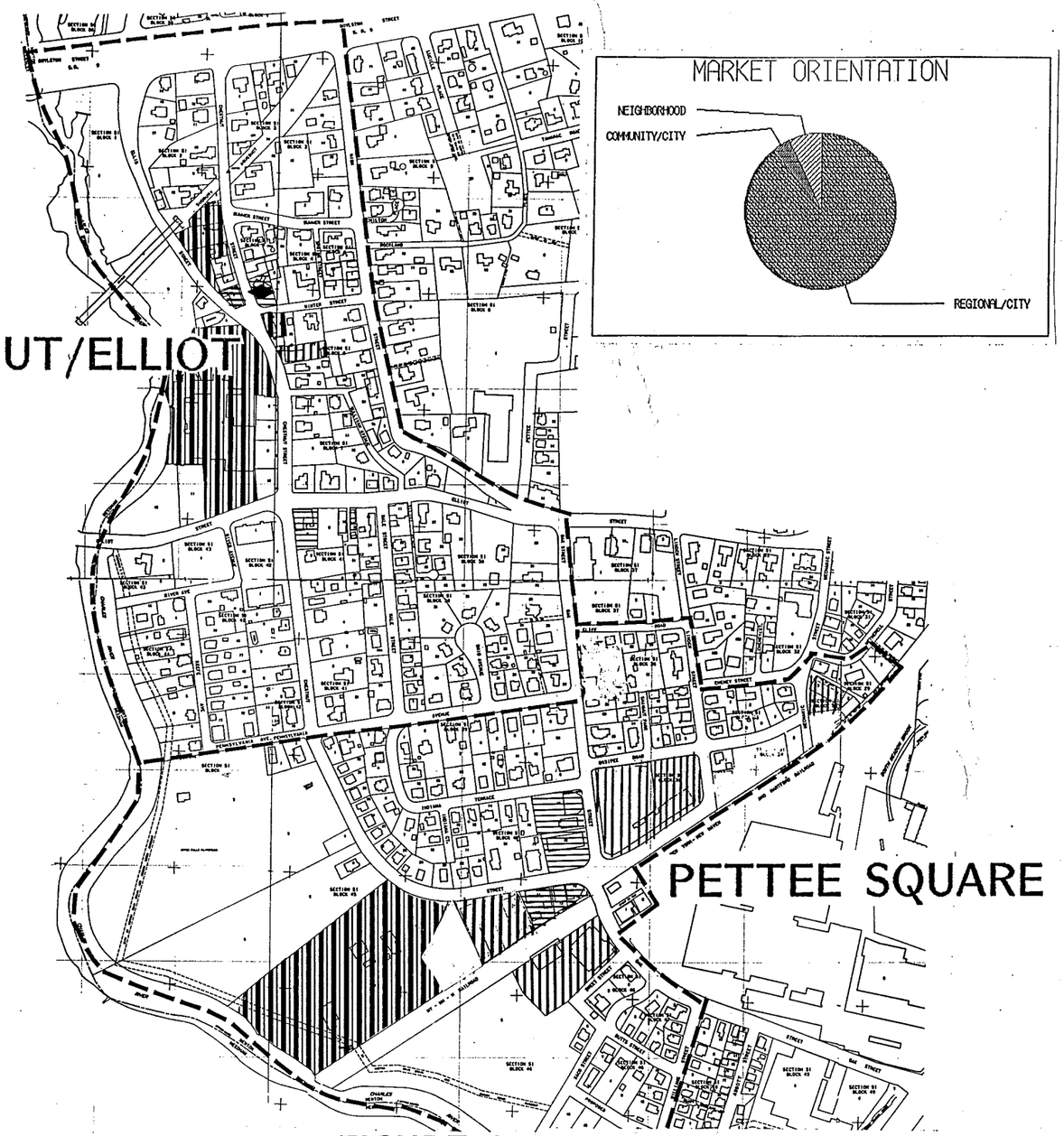
CHESTNUT/ELLIOT

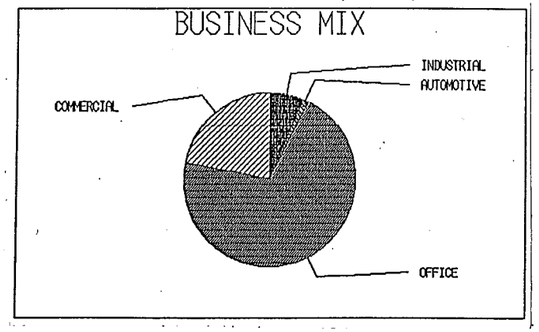
• New Commercial/Retail Floor Area that could be added	13982 s.f.
• Existing Commercial/Retail Floor Area	83729 s.f.
• Percent Added	17%
• New Office Floor Area that could be added	76940
• Existing Office Floor Area	7933
• Percent Added	969%
• New Dwelling Units that could be added	72
• Existing Dwelling Units	231
• Percent Added	31.2

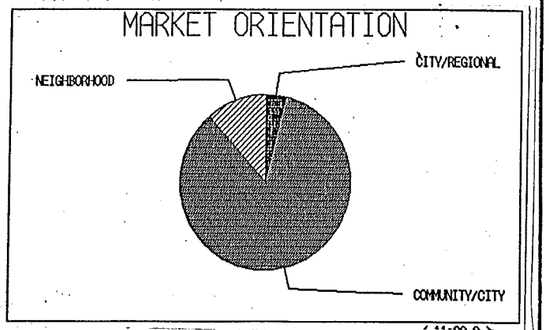
TOTAL UPPER FALLS

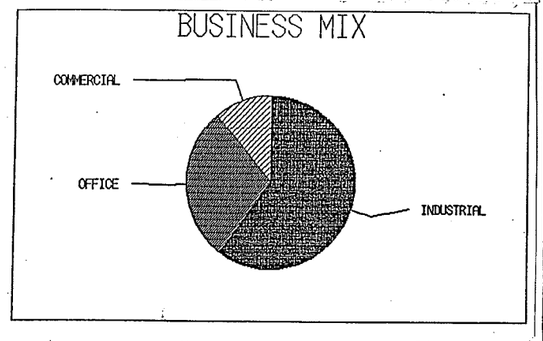
• New Non-Residential Floor Area That could be Added	179,314
• Percent Added	82.1%
• New Housing Units that could be Added	226
• Percent Added	58.7%

UPPER FALLS









- NEIGHBORHOOD CONVENIENCE BUSINESS AND SERVICES
- COMMUNITY/CITY–WIDE BUSINESS AND OFFICES
- REGIONAL/CITY–WIDE BUSINESS CENTERS AND OFFICES
- AUTOMOTIVE SERVICES

FIGURE 1.1 MARKET ORIENTATION OF BUSINESS USES

NEWTON VILLAGE STUDY

DATE_____

PREPARED FOR THE CITY OF NEWTON, MASSACHUSETTS
THEODORE D. MANN, MAYOR
BARRY C. CANNER, DIRECTOR OF PLANNING AND DEVELOPMENT

Connery Associates

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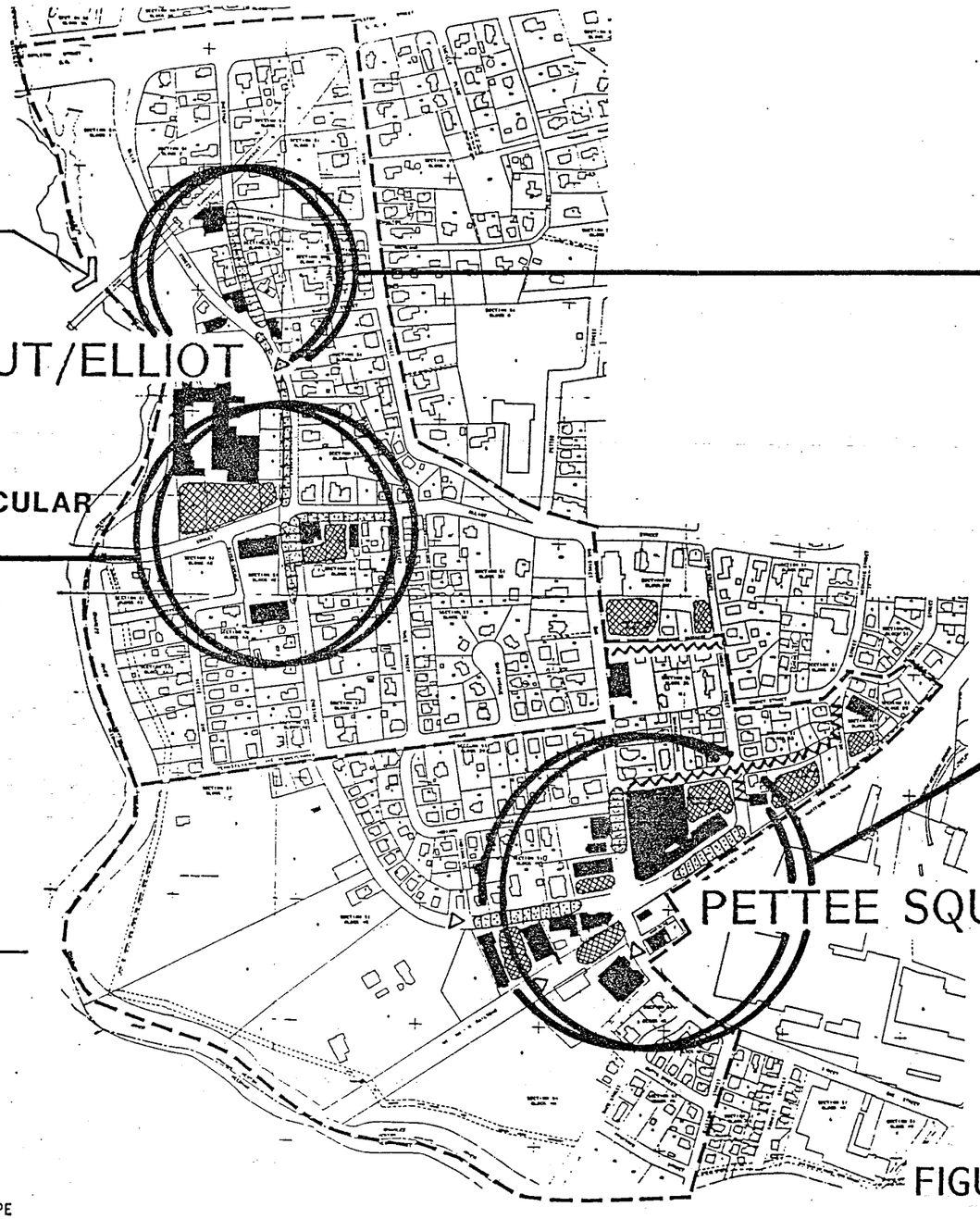
UPPER FALLS

☆ NEWTON UPPER FALLS LOCAL HISTORIC DISTRICT



POSITIVE VISUAL IDENTITY

- POSITIVE HISTORIC THEME
- INTIMATE STREETSCAPE
- PEDESTRIAN ORIENTED
- POINT OF CITY-WIDE ACCESS/ EGRESS

THRU TRAFFIC/VEHICULAR DOMINANCE

- AUTOMOBILE DOMINATED
- NEGATIVE STREETSCAPE IDENTITY
- LACK OF SPATIAL DEFINATION

VISUAL CORE

- NEGATIVE COMMERCIAL/RESIDENTIAL INTERFACE
- LACK OF ARCHITECTURAL CONTINUITY
- THRU TRAFFIC
- VISUALLY DISCORDANT
- POINT OF CITY-WIDE ACCESS/EGRESS

LEGEND

- NON-COMMERCIAL STRUCTURE
- BUILDING AT COMMERCIAL CENTER OR COMMERCIAL BUILDING
- PERCEIVED POINT OF ENTRY (VISUALLY POSITIVE)
- PERCEIVED POINT OF ENTRY
- PARKING LOT REQUIRING IMPROVEMENTS
- AREA REQUIRING STREETSCAPE IMPROVEMENTS
- AREA UNDER CONSTRUCTION
- NOISE
- ☆ AREA OR STRUCTURE OF HISTORIC VALUE
- NEGATIVE AREA AT RESIDENTIAL/ COMMERCIAL INTERFACE

FIGURE 2.1 URBAN DESIGN SURVEY

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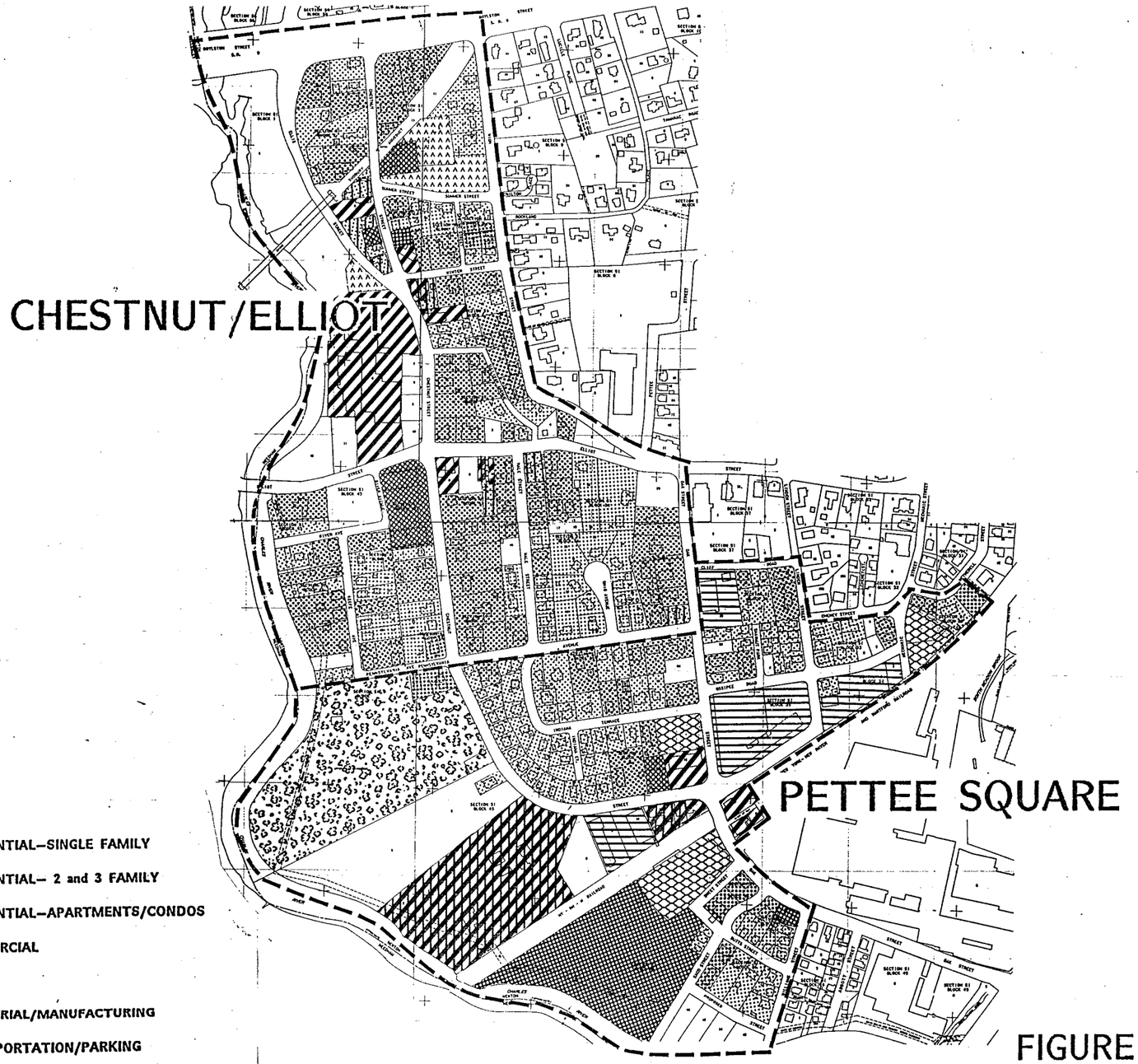
UPPER FALLS



- RESIDENTIAL–SINGLE FAMILY
- RESIDENTIAL– 2 and 3 FAMILY
- RESIDENTIAL–APARTMENTS/CONDOS
- COMMERCIAL
- OFFICE
- INDUSTRIAL/MANUFACTURING
- TRANSPORTATION/PARKING
- MIXED USE–MOSTLY RESIDENTIAL
- MIXED USE–MOSTLY COMMERCIAL
- INSTITUTIONAL
- OPEN SPACE/RECREATION
- ★ PROPOSED OR UNDER CONSTRUCTION

FIGURE 3.1 EXISTING LAND USES

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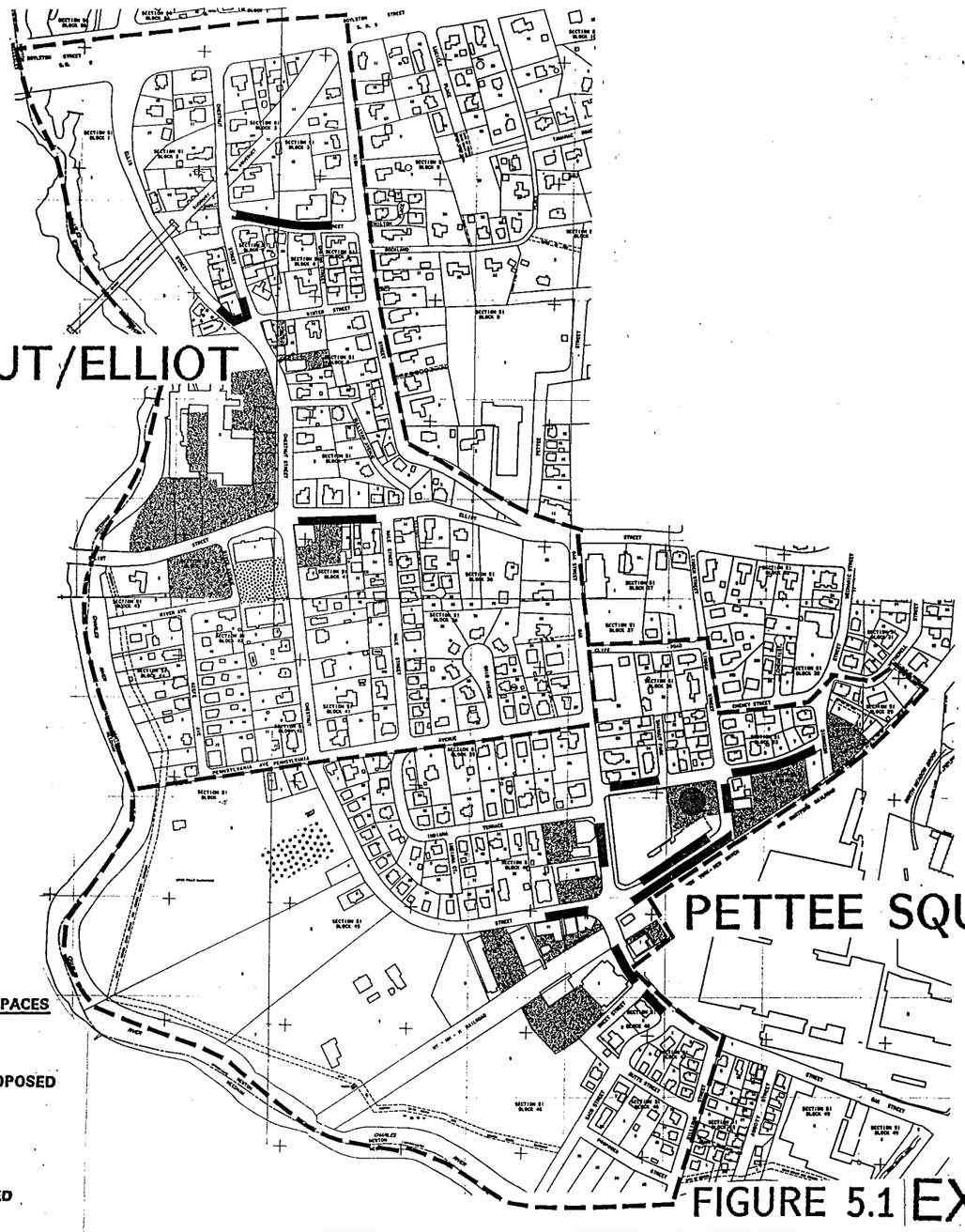

PRIVATE BUSINESS PARKING SPACES

- IN SURFACE LOTS
- IN PARKING GARAGES/PROPOSED

PUBLIC PARKING SPACES

- OFF-STREET METERED
- OFF-STREET NON-METERED
- ON-STREET METERED
- ON-STREET POSTED

SPACES IN RESIDENTIAL LOTS

SPACES IN INSTITUTIONAL LOTS

FIGURE 5.1 EXISTING PARKING INVENTORY

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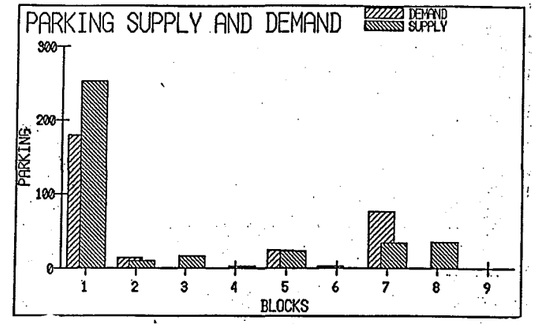

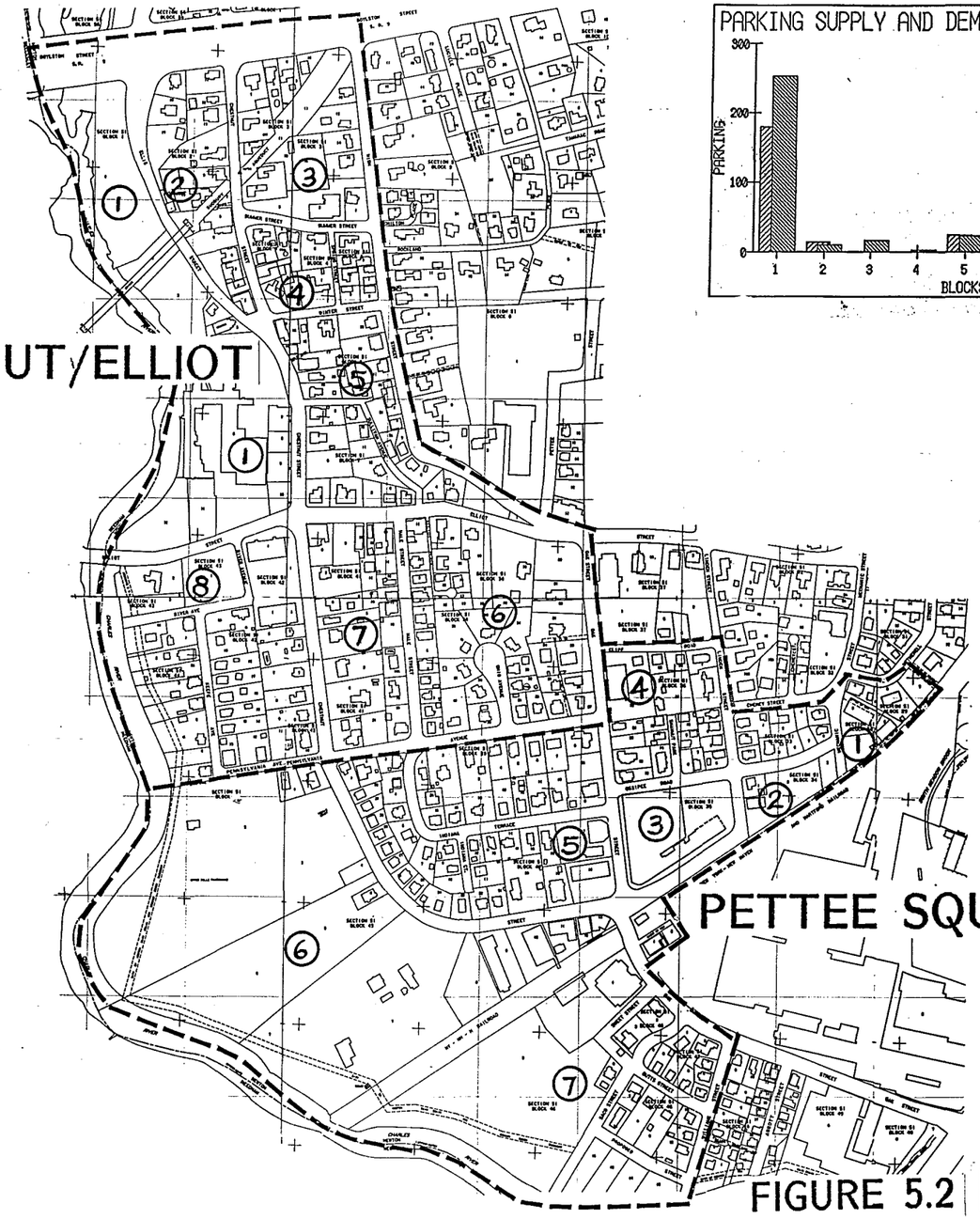

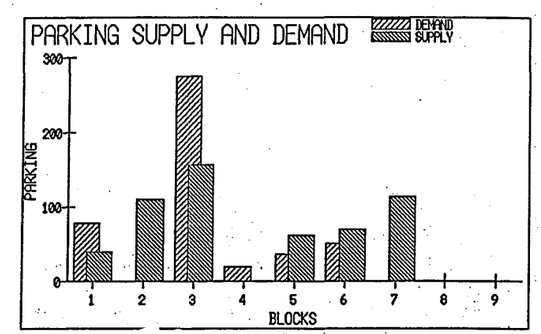

FIGURE 5.2 PARKING CHARACTERISTICS

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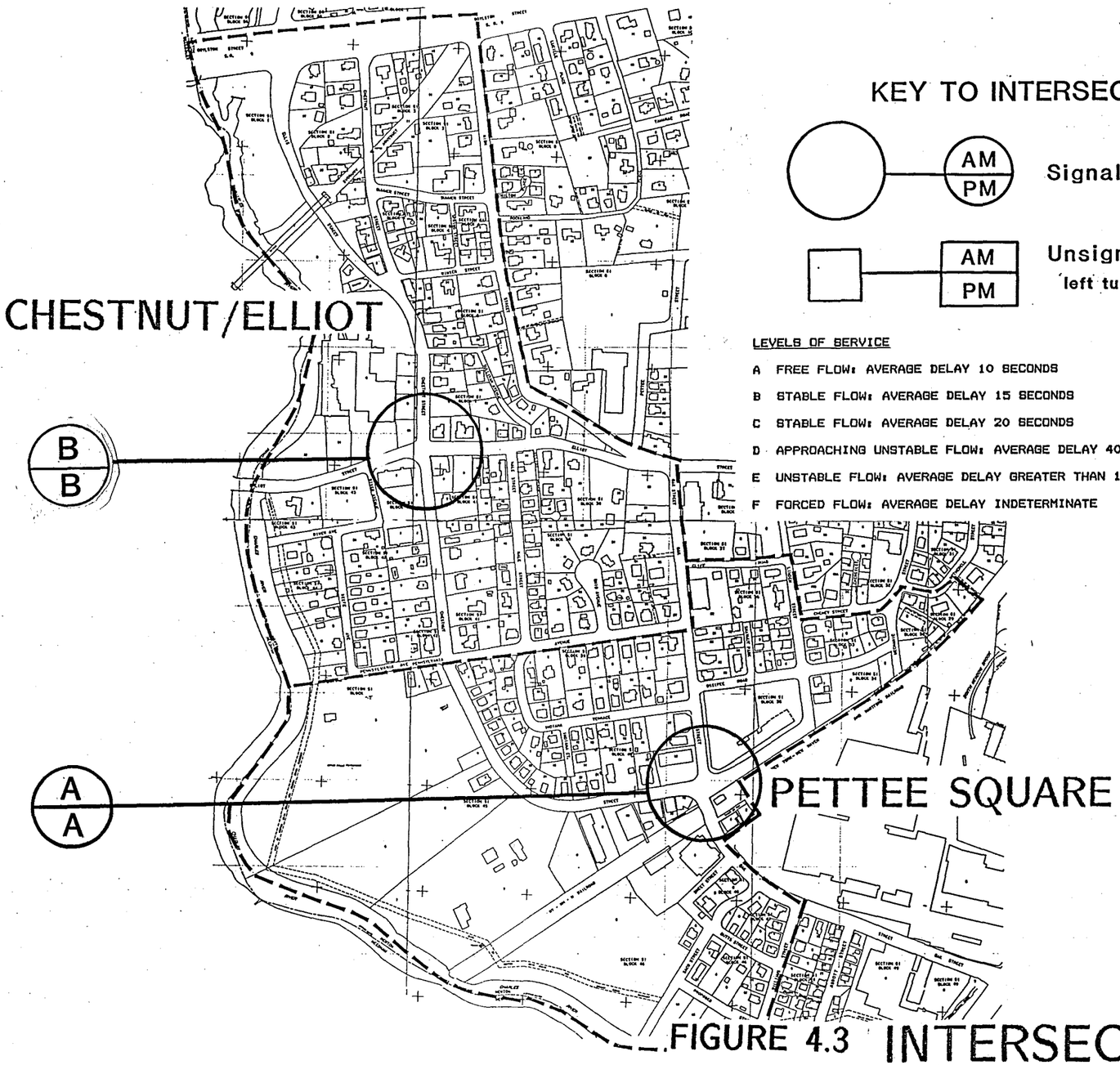

KEY TO INTERSECTIONS

AM / PM — Signallized

AM / PM — Unsignallized: left turns in/left turns out

LEVELS OF SERVICE

A FREE FLOW: AVERAGE DELAY 10 SECONDS

B STABLE FLOW: AVERAGE DELAY 15 SECONDS

C STABLE FLOW: AVERAGE DELAY 20 SECONDS

D APPROACHING UNSTABLE FLOW: AVERAGE DELAY 40-45 SECONDS

E UNSTABLE FLOW: AVERAGE DELAY GREATER THAN 1-2 MINUTES

F FORCED FLOW: AVERAGE DELAY INDETERMINATE

FIGURE 4.3 INTERSECTION LEVEL OF SERVICE

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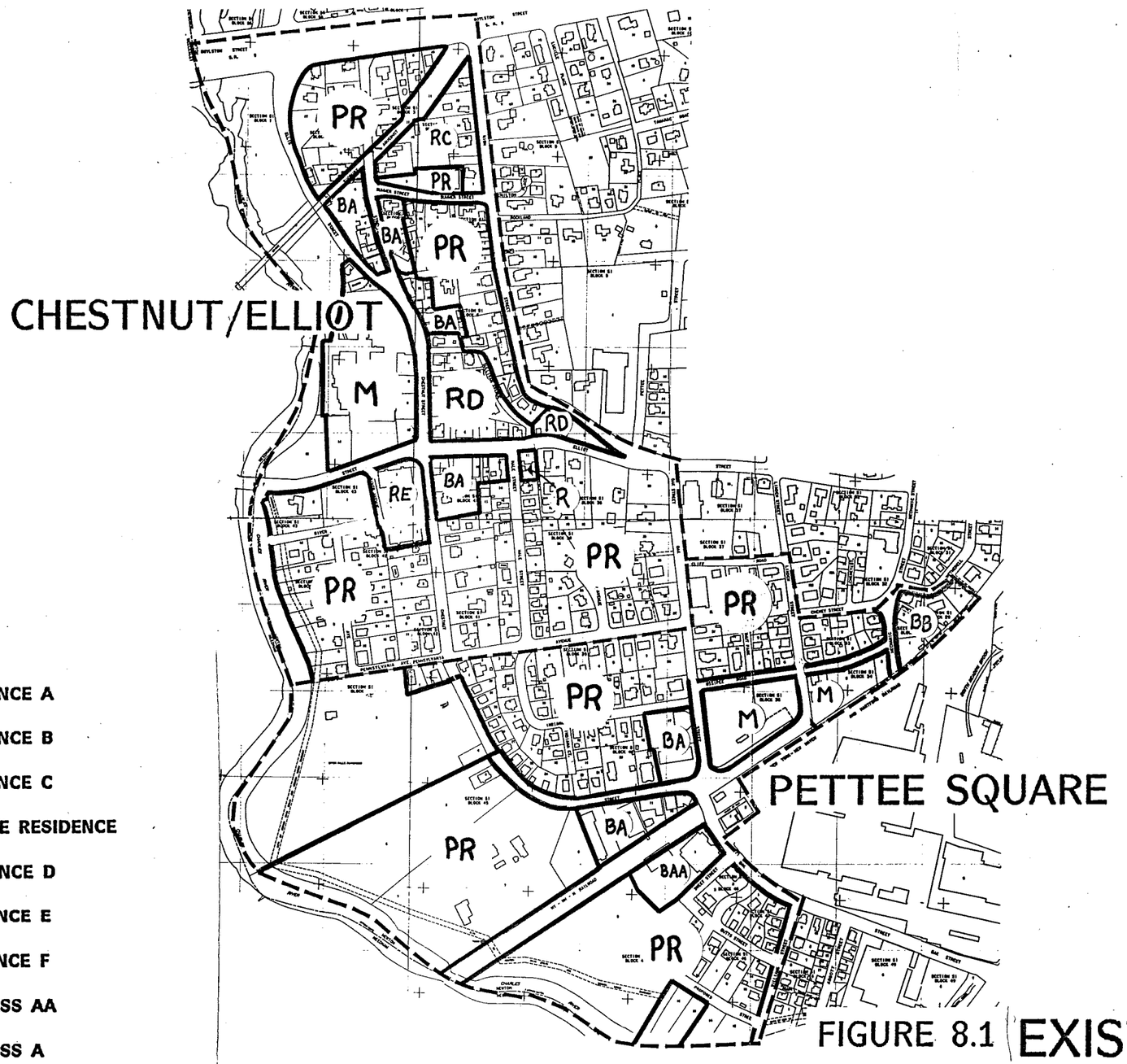

RA RESIDENCE A

RB RESIDENCE B

RC RESIDENCE C

PR PRIVATE RESIDENCE

RD RESIDENCE D

RE RESIDENCE E

RF RESIDENCE F

BAA BUSINESS AA

BA BUSINESS A

BB BUSINESS B

LM LIMITED MANUFACTURING

M MANUFACTURING

FIGURE 8.1 EXISTING ZONING DISTRICTS

NEWTON VILLAGE STUDY

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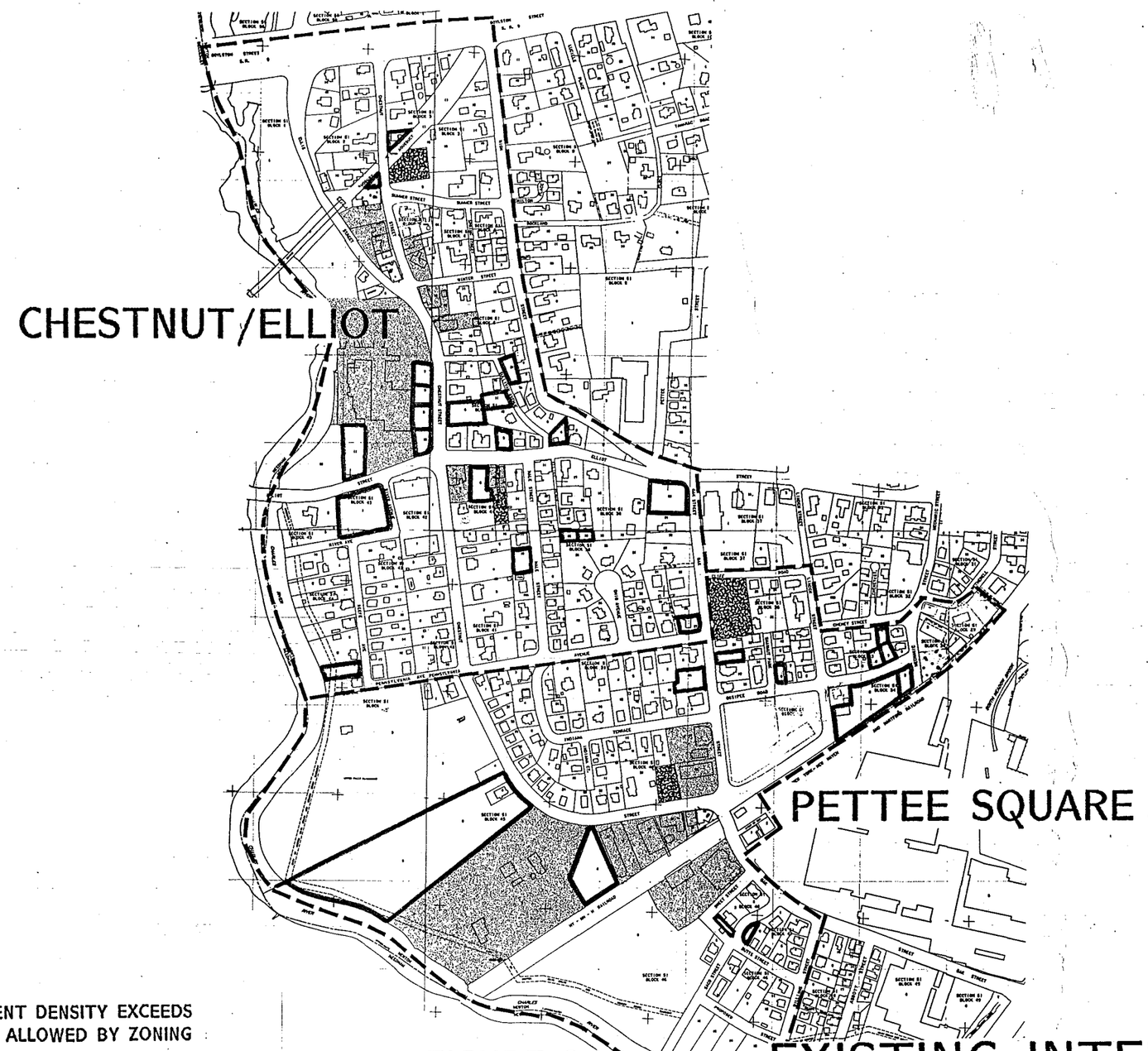

PRESENT DENSITY EXCEEDS THAT ALLOWED BY ZONING

PRESENT DENSITY IS 50% TO 90% OF THAT ALLOWED BY ZONING

PRESENT DENSITY IS LESS THAN 50% THAT ALLOWED BY ZONING

VACANT LAND

FIGURE 8.2 ------ EXISTING INTENSITY OF DEVELOPMENT

NEWTON VILLAGE STUDY

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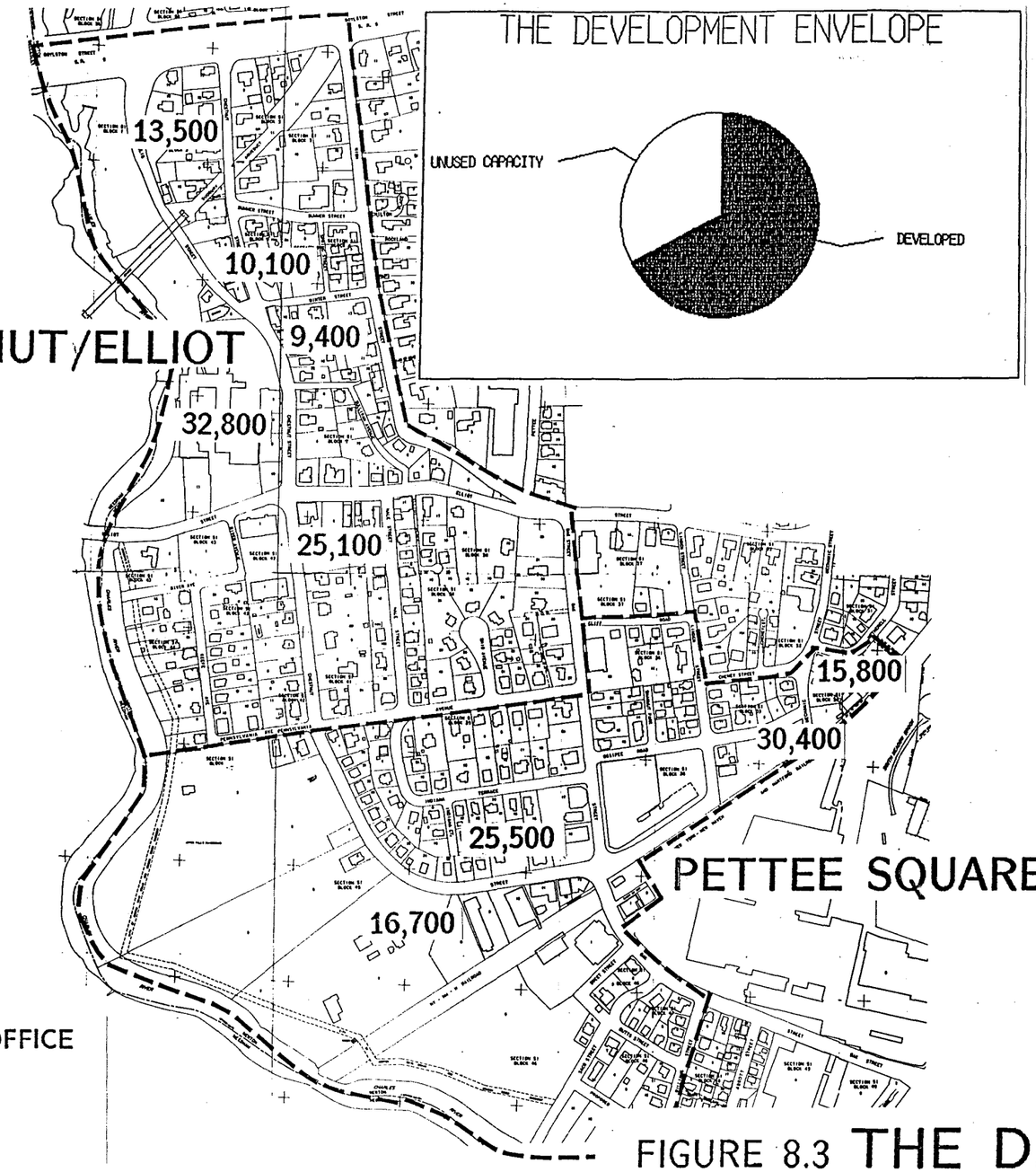

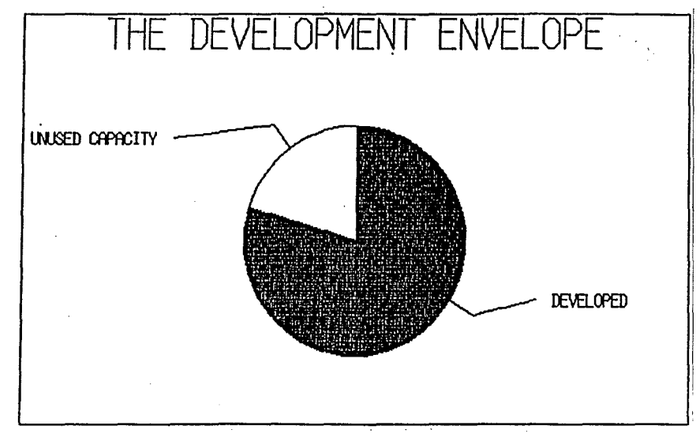

NEW COMMERCIAL/OFFICE FLOOR AREA THAT COULD BE BUILT (IN SQUARE FEET)

FIGURE 8.3 THE DEVELOPMENT ENVELOPE

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